Non-Technical Popular Categories

RRB NTPC

Graduate and Under-Graduate Level

(Computer Based Test)

Solved Papers

(VOLUME-2)

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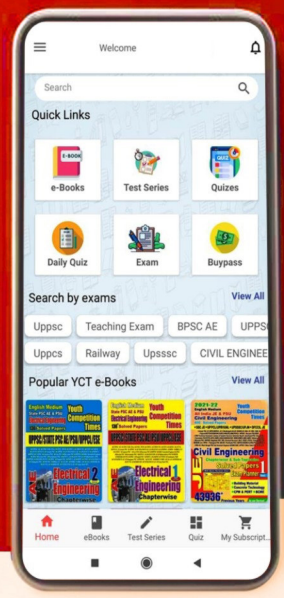

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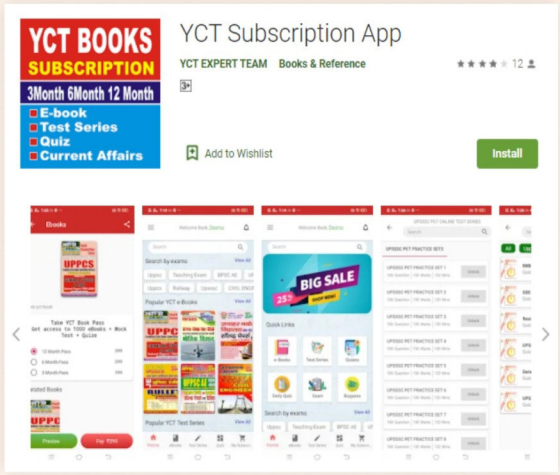

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Exam Date : 29.12.2020] **[Time : 03:00 pm-04:30 pm**

1. What is the pH value of lemon Juice approximately?
(a) 9 (b) 2
(c) 12 (d) 7

Ans. (b) : Lemon Juice in its natural state is acidic with a pH of about 2, but once metabolized it actually becomes alkaline with a pH well above 7. pH is a measure of hydrogen ion concentration, a measure of the acidity or alkalinity of a solution.

2. The value of $\sqrt{72\times18}+\sqrt{0.04}+\sqrt{0.64}$ is :
(a) 24 (b) 12
(c) 36 (d) 37

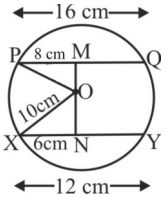
Ans. (d) : $\sqrt{72\times18}+\sqrt{0.04}+\sqrt{0.64}$
$= \sqrt{9\times8\times2\times9}+0.2+0.8$
$= 9\times4+1 = 36+1 = 37$

3. Which among the following is Not a UNESCO World Heritage Site ?
(a) Ajanta Caves, Aurangabad
(b) Rani ki vav, Patan
(c) Jantar Mantar, New Delhi
(d) Sun Temple, Konark

Ans. (c) : There are 40 UNESCO World Heritage Sites in India → 32 cultural, 7 natural and 1 mixed property. The Oldest World Heritage Site in India is Ajanta Caves (2nd century BC to the 6th Century AD).

4. A circle of radius 10 cm has XY and PQ parallel chords of 12 cm and 16 cm each. Both the chords are at opposite from centre. Find the distance between chords ?
(a) 18 cm (b) 12.8 cm
(c) 12 cm (d) 14 cm

Ans. (d) : Let the distance between chords be MN.



From Pythagoras theorem –
$ON^2 = 10^2 - 6^2$
$ON = 8$ cm
$OM^2 = 10^2 - 8^2$
$OM = 6$ cm
$MN = ON + OM = 8 + 6 = 14$ cm

5. A liquid mixture contains $\frac{1}{5}$ part acid, $\frac{3}{5}$ part alcohol and rest is water. If the total mixture is 20 ltr, find the amount of water (in ltr).
(a) 12 (b) 8
(c) 4 (d) 15

Ans. (c) : Let, the total amount of the mixture = x
The amount of acid in the mixture= $\frac{x}{5}$ part
The amount of alcohol in the mixture = $\frac{3x}{5}$ part
Amount of water in the mixture
$= x - \left(\frac{x}{5}+\frac{3x}{5}\right) = \frac{x}{5}$ part
According to question –
$\frac{x}{5}+\frac{3x}{5}+\frac{x}{5} = 20$
$\frac{5x}{5} = 20$
x = 20 litres
Hence, the amount of water in the mixture= $\frac{x}{5} = \frac{20}{5} = 4$ litres.

6. Who won the title of Indian Premier League (IPL), 2020 ?
(a) Royal Challengers Bangalore
(b) Kolkata Knight Riders
(c) Chennai Super Kings
(d) Mumbai Indians

Ans. (d) : Mumbai Indians was the winner of IPL 2020 and Delhi Capitals emerged as the runners up. The inaugural of IPL took place in 2008 when the Rajasthan Royals lifted the IPL Trophy for the first time. And since then there have been 13 editions of IPL. Chennai Super Kings won the IPL 2021 by defeating Kolkata Knight Riders in finals.

7. What is the smallest number given as remainder 3 every time when divided by 144, 108, 72 respectively ?
(a) 435 (b) 72
(c) 432 (d) 429

Ans. (a) :
Required number = (LCM of the given numbers) k + remainder
Number = (LCM of 144, 108, 72) k + 3 = 432k + 3
Let k = 1
then
Required number = 432 × 1 + 3
Required number = 435

8. Bryophyte is related with which kind of Vegetation.
(a) Cladophora
(b) Devdar
(c) Marchantia
(d) Water clover

Ans. (c) : Bryophytes exist in a wide variety of habitats. They can be found growing in a range of temperatures, elevations and moisture. Marchantia is a Bryophyta. These are simple plants without roots or vascular systems.

9. If Meaning of '+' is '–', '–' is '÷' , × is +, ÷ is × then find the value of 13+6÷2×32–2.

(a) 15 (b) 17
(c) 23 (d) 20

Ans. (b) : Given –
$+ = –, – = ÷, × = +, ÷ = ×$
According to question –
$13 + 6 \div 2 \times 32 – 2$
On changing the signs of the given equation –
$= 13 – 6 \times 2 + 32 \div 2$
$= 13 – 12 + 16$
$= 17$

10. If $3\cos\theta = \sqrt{3}$ then find the value of $\text{cosec}\theta . \tan\theta$.

(a) $\sqrt{2}$ (b) $\frac{1}{\sqrt{3}}$
(c) $\frac{2\sqrt{2}}{3}$ (d) $\sqrt{3}$

Ans. (d) : Given that–
$3\cos\theta = \sqrt{3}$
$\cos\theta = \frac{\sqrt{3}}{3}$
$\cos\theta = \frac{\sqrt{3}}{3} \times \frac{\sqrt{3}}{\sqrt{3}}$
$\cos\theta = \frac{1}{\sqrt{3}}$
$\text{cosec}\theta . \tan\theta = \frac{1}{\sin\theta} \times \frac{\sin\theta}{\cos\theta} = \frac{1}{\cos\theta}$
$= \frac{1}{\frac{1}{\sqrt{3}}}$
$\boxed{\text{cosec}\theta . \tan\theta = \sqrt{3}}$

11. Who was the chief guest at India's Republic Day celebration in 2020?

(a) President of USA
(b) President of Brazil
(c) Sultan of Saudi Arab
(d) Sultan of Brunei

Ans. (b) : Foreign leaders have graced the Republic Day parades every year barring 1952, 1953 and 1966. The then Indonesian President Sukarno was the first chief guest to grace Republic Day in 1950. In 2020, Brazil President Jair Bolsonaro was the chief guest.

12. The area of a rectangle is 300 cm^2 and its diagonal have a length of 5cm. Find the perimeter of rectangle (in cm).

(a) 50 (b) 176
(c) 25 (d) 121

Ans. (a) : Area of rectangle $(\ell \times b) = 300\ cm^2$
length of diagonal (x) = 5cm
$\because \boxed{\text{Diagonal} = \sqrt{\ell^2 + b^2}}$
Squaring on both side
$5 = \sqrt{\ell^2 + b^2}$
$25 = (\ell + b)^2 – 2\ell b$
$25 = (\ell + b)^2 – 2 \times 300$
$625 = (\ell + b)^2$
$\boxed{\ell + b = 25\ cm}$
Hence, perimeter of rectangle $= 2(\ell + b)$
$= 2 \times 25$
$= 50\ cm$

13. Three pipes A, B, & C may fill a tank in 15 hrs, 12 hrs and 18 hrs respectively. If both pipes A and C are opened at same time, then how much time they will take to fill the tank.

(a) $6\frac{5}{9}$ (b) $9\frac{3}{5}$
(c) $7\frac{2}{3}$ (d) $8\frac{2}{11}$

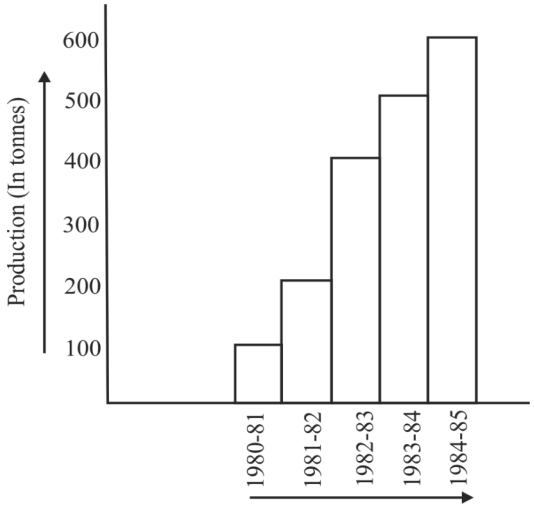
Ans. (d) :
A - 15 — 12
B - 12 — 15 — 180 unit
C - 18 — 10
On opening pipe A and pipe C together –
Time taken to fill the tank $= \frac{180}{12+10}$
$= \frac{180}{22} = \frac{90}{11} = 8\frac{2}{11}$ hours

14. A group of 463 persons were asked to vote for their favourite season out of four seasons (rain, summer, spring and winter). The rainy season got 130 votes, while the summer season got 100 votes. Winter season got 53 more votes than the summer season. Spring season got 80 votes. Which of the following seasons was liked by most people?

(a) Spring season
(b) Summer season
(c) Winter season
(d) Rainy season

Ans. (c) : Total number of votes = 463
Rainy season got votes = 130
Summer season got votes = 100
winter season got votes = summer season got votes+53
$= 100 + 53 = 153$
Spring season got votes = 463 – (130+100+153) = 80
Hence, it is clear that, 'winter season' was liked by most of the people.

15. The following graph shows the production (in tonnes) of a product during the year 1980-1985. Answer the given questions on the basis of the graph.



During which year was the maximum net increase in production tonnage as compared to the previous year.

(a) 1981-82 (b) 1983-84
(c) 1980-81 (d) 1982-83

Ans. (d) : During the year 1982–83 there has been maximum increase (increase of 200 tonnes) as compared to the previous year while there has been an increase of (100–100) tonnes in the rest of the years.

16. Which of the following was not conferred with Bharat Ratna in 2019 ?

(a) Pranab Mukherjee
(b) Atal Bihari Vajpayi
(c) Nanaji Deshmukh
(d) Dr. Bhoopen Hazarika

Ans. (b) : The latest recipients of the Bharat Ratna in 2019 are social activist Nanaji Deshmukh (Posthumously) singer - music director Bhupen Hazarika (Posthumously) and former President of India, Pranab Mukherjee. On 24 December 2014, Atal Bihari Bajpayee was honored with Bharat Ratna, along with Madan Mohan Malaviya (Posthumously), India's highest civilian honour.

17. If $\frac{x}{y}=\frac{4}{5}$, then find the value of $\frac{5x+7y}{5x-7y}+\frac{6x+4y}{7x-8y}$.

(a) $-\frac{4}{5}$ (b) $\frac{11}{3}$
(c) $\frac{3}{2}$ (d) $-\frac{22}{3}$

Ans. (d) :

$$\frac{x}{y}=\frac{4}{5}$$

Let $x = 4, y = 5$

$$\frac{5x+7y}{5x-7y}+\frac{6x+4y}{7x-8y}=\frac{20+35}{20-35}+\frac{24+20}{28-40}$$

$$=\frac{55}{-15}+\frac{44}{-12} \quad =-\frac{11}{3}-\frac{11}{3}$$

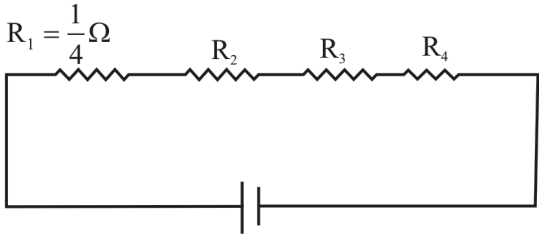
$$=-\frac{22}{3}$$

18. If 4 resistances of $\frac{1}{4}\Omega$ are connected in series order then how much the maximum resistance may be obtained?

(a) 4Ω (b) $\frac{1}{8}\Omega$
(c) 1Ω (d) $\frac{1}{4}\Omega$

Ans. (c) : According to question –

$$R_1 = R_2 = R_3 = R_4 = \frac{1}{4}\Omega$$



Max. resistance $= R_1 + R_2 + R_3 + R_4$

$$= \frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$$

$$= 1\Omega$$

19. If $x+\left(\frac{1}{x}\right)=12$ and $x^2-\frac{1}{x^2}=50$, then find the value of $x^4-\frac{1}{x^4}$.

(a) 1800 (b) 600
(c) 7200 (d) 7100

Ans. (d) : Given –

$$x+\frac{1}{x}=12 \text{ ————(i)}$$

$$x^2-\frac{1}{x^2}=50 \text{ ———— (ii)}$$

From equation (i)

$$\left(x+\frac{1}{x}\right)^2=(12)^2$$

$$x^2+\frac{1}{x^2}+2=144$$

$$x^2+\frac{1}{x^2}=142 \text{ ————(iii)}$$

$$x^4-\frac{1}{x^4}=\left(x^2-\frac{1}{x^2}\right)\left(x^2+\frac{1}{x^2}\right)$$

$$\left\{\because a^4-b^4=\left(a^2-b^2\right)\left(a^2+b^2\right)\right\}$$

$= 50 \times 142$ [From equation (ii) and (iii)]

$= 7100$

20. Find the value of $\frac{\sin 27^\circ.\cos 63^\circ}{\cos^2 27^\circ}-\frac{\sec 27^\circ.\operatorname{cosec} 63^\circ}{\tan^2 45^\circ}$.

(a) -1 (b) 0
(c) 1 (d) 2

Ans. (a) : $\frac{\sin 27^\circ.\cos 63^\circ}{\cos^2 27^\circ} - \frac{\sec 27^\circ.\text{cosec}\,63^\circ}{\tan^2 45^\circ}$

$= \frac{\sin 27^\circ.\cos(90^\circ - 27^\circ)}{\cos^2 27^\circ} - \frac{\sec 27^\circ.\text{cosec}(90^\circ - 27^\circ)}{\tan^2 45^\circ}$

$\left\{\begin{array}{l}\because \tan 45^\circ = 1 \\ \cos(90-\theta) = \sin\theta \\ \text{cosec}(90-\theta) = \sec\theta\end{array}\right\}$

$= \frac{\text{Sin}^2 27^\circ}{\cos^2 27^\circ} - \frac{\sec^2 27^\circ}{1}$

$= \tan^2 27^\circ - \sec^2 27^\circ$

$= (-\sec^2 27^\circ + \tan^2 27^\circ)$

$= -(\sec^2 27^\circ - \tan^2 27^\circ) \quad \{\because \sec^2\theta - \tan^2\theta = 1\}$

$= -1$

21. A train having a speed of 60 km/h crosses a pole in 1.5 min. Find the length of the train (in m).

(a) 1500 (b) 600
(c) 1200 (d) 800

Ans. (a) : Let the length of the train be ℓ m.

According to question –

$\frac{\ell}{60} = \frac{1.5}{60}$

$\ell = 1.5$ km

$\ell = 1500$ meter

22. What will be the value of $\frac{1}{0.24}$ part of 1.44?

(a) 140 (b) 12
(c) 166 (d) 6

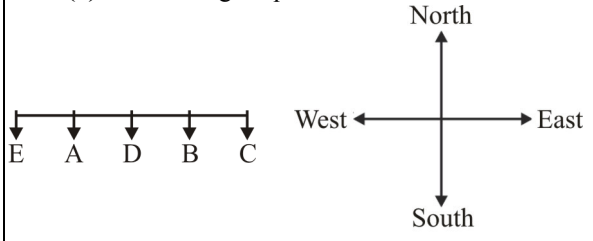
Ans. (d) : $1.44 \times \frac{1}{0.24}$

$= \frac{144}{24} = 6$

23. Five children A, B, C, D and E are standing in a row facing south. B is to the left of D. B and C are together from all sides (next to each other) and C is at one end of the line. D cannot be in fourth or fifth place. E is to the right of A. Who is standing in the middle of the row ?

(a) D (b) B
(c) A (d) E

Ans. (a) : According to question –



Hence, it is clear that D is standing in the middle of the row.

24. Python is a ————

(a) Programming language
(b) Operating system
(c) Malware
(d) Web Browsers

Ans. (a) : Python is an interpreted, interactive, object-oriented programming language. It incorporates modules, exceptions, dynamic typing, very high level dynamic data types and classes. Python is a free, open source programming language that is available for everyone to use.

25. Which type of lens is required for correcting the vision of a person with myopia?

(a) Diverging lens
(b) Bifocal lens
(c) Cylindrical lens
(d) Converging lens

Ans. (a) : Nearsightedness, also known as myopia, can be temporarily corrected by using a concave (diverging) corrective lens. The corrective lens creates a virtual image of the object and places the virtual image at the for point of the eye.

26. In Feb 2017, ISRO created history by launching ——— satellites.

(a) 101 Satellites in one flight
(b) 104 Satellites in one flight
(c) 103 Satellites in one flight
(d) 100 Satellites in one flight

Ans. (b) : PSLV-C37 was the 39th mission of the Indian Polar Satellite Launch Vehicle program. PSLV-C37 successfully carried and deployed a record 104 satellites in sun-synchronous orbits. Launched on 15 February 2017 by ISRO from Satish Dhawan Space Centre. at Sriharikota, Andhra Pradesh.

27. A number when reduced by $22\frac{1}{2}\%$ then becomes 217, find the number.

(a) 315 (b) 212
(c) 280 (d) 420

Ans. (c) : Let the number be x.

According to question –

$x\left(100\% - 22\frac{1}{2}\%\right) = 217$

$x \times 77\frac{1}{2}\% = 217$

$x = \frac{217 \times 100 \times 2}{155}$

$x = 280$

28. Intel Core i9 is a kind of ————.

(a) Anti-Virus (b) Processor
(c) Mother Board (d) Hard- disk

Ans. (b) : Intel Core i9 brand microprocessors, were introduced in May 2017 for LGA 2066 chips, also known as Intel Core X-series processors. With their high number of cores, high power draw, high thermal output and high performance.

29. What will be the value of the median of the following unclassified data ?
26, 12, 15, 42, 36, 16

(a) 21 (b) 42
(c) 30 (d) 26

Ans. (a) : On writing the given data in ascending order–
12, 15, 16, 26, 36, 42
n = 6 even number then

$$\text{Median} = \frac{\left(\frac{n}{2}\right)^{th}\text{ term} + \left(\frac{n+2}{2}\right)^{th}\text{ term}}{2}$$

$$= \frac{\left(\frac{6}{2}\right)^{th}\text{ term} + \left(\frac{6+2}{2}\right)^{th}\text{ term}}{2}$$

$$= \frac{3^{th}\text{ term} + 4^{th}\text{ term}}{2}$$

$$= \frac{16+26}{2}$$

$$= \frac{42}{2}$$

$$= 21$$

30. Humayunama has been written by.
(a) Gulbadan Begum (b) Babur
(c) Akbar (d) Noorjahan

Ans. (a) : Gulbadan Begum (1523–7 Feb. 1603) was a Mughal princess and the daughter of Emperor Babur who was the founder of the Mughal Empire. She is best known as the author of Humayunama.

31. The value of $\frac{11}{5} - \left(\frac{2}{3}\text{ of }\frac{3}{5} - \frac{1}{5}\right) + \left(\frac{6}{5} \div \frac{4}{5}\right)$ is -
(a) $\frac{7}{2}$ (b) $\frac{2}{3}$
(c) $\frac{3}{5}$ (d) $\frac{1}{5}$

Ans. (a) :

$$\frac{11}{5} - \left(\frac{2}{3}\text{ of }\frac{3}{5} - \frac{1}{5}\right) + \left(\frac{6}{5} \div \frac{4}{5}\right)$$

$$= \frac{11}{5} - \left(\frac{2}{5} - \frac{1}{5}\right) + \frac{3}{2}$$

$$= \frac{11}{5} - \frac{1}{5} + \frac{3}{2}$$

$$= 2 + \frac{3}{2} = \frac{7}{2}$$

32. Which of the following is a supersonic cruise missile.
(a) Trishool (b) Brahmos
(c) Akash (d) Prithvi

Ans. (b) : The Brahmos is a medium - range ramjet supersonic cruise missile that can be launched from submarine, ships, aircraft or land. It is the fastest supersonic cruise missile in the world.

33. Jim Corbett National Park is situated in ?
(a) Gujarat (b) Uttarakhand
(c) Karnataka (d) Rajasthan

Ans. (b) : Jim Corbett National Park is in the Ramnagar district of Uttarakhand state. The first national park in India, it was established in 1936. The park was the first to come under the Project Tiger initiative.

34. GST is an Indirect Tax imposed in India. What is its full form.
(a) Goods and Surcharge Tax
(b) Goods and Services Tax
(c) General Service Tax
(d) General Structure of Tax

Ans. (b) : The Goods and Service Tax Act was passed in the Parliament on 29th March 2017 and came into effect on 1st July 2017. Goods and Service Tax is levied on the supply of goods and services.

35. Which is the largest country in South America.
(a) Brazil (b) Argentina
(c) Bolivia (d) Columbia

Ans. (a) : The largest country in South America is Brazil, which spans over 8,515,767 km^2. Brazil has a population of over 211 million people. Brazil is also the fifth largest country in the world, right behind the United States.

36. If the interest is compounded annually, an amount of ₹25,000 becomes ₹36,000 after 2 years.Then find the rate of interest.
(a) 22% (b) 20%
(c) 15% (d) 5%

Ans. (b) :

$$\text{From } A = P\left(1 + \frac{r}{100}\right)^n$$

$$36000 = 25000\left(1 + \frac{r}{100}\right)^2$$

$$\left(1 + \frac{r}{100}\right)^2 = \left(\frac{6}{5}\right)^2$$

$$\frac{100+r}{100} = \frac{6}{5}$$

$$(100 + r)5 = 600$$

$$500 + 5r = 600$$

$$5r = 100$$

$$\boxed{r = 20\%}$$

37. The capacity of a cylindrical tank is 6160 m^3. If the diameter of base of the tank is 28m, then find the depth (in m) of the tank.
(a) 12 (b) 10
(c) 14 (d) 8

Ans. (b) : ∵ Volume of cylinder = $\pi r^2 h$

$$\text{Radius (r)} = \frac{\text{Diameter}}{2}$$

$$= \frac{28}{2}$$

$$\boxed{r = 14\text{ m}}$$

According to question –

$$\pi r^2 h = 6160\,m^3$$

$$\frac{22}{7} \times 14 \times 14 \times h = 6160$$

$$h = \frac{6160 \times 7}{14 \times 14 \times 22}$$

$$\boxed{h = 10\text{ m}}$$

38. Read the given statements and conclusions carefully. Consider the given information in the statements to be true even if it appears to be at variance from commonly known facts and state which of the given conclusions logically follows from the given statements.

Statements :

1. All Plumbers are men.

2. Some men are electricians.

3. No electrician is a cook.

Conclusions :

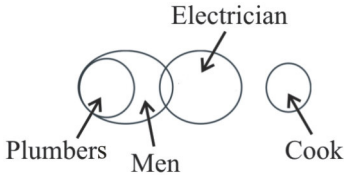
1. Some Plumbers are cooks.

2. Some Plumbers are not cooks.

3. Some men are not cooks.

(a) Only conclusion 2 and 3 follows.
(b) Only conclusion 3 follows.
(c) Only conclusion 1 and 2 follows.
(d) None of the conclusion follows.

Ans. (b) : On making Venn diagram, According to question –



Hence, it is clear from the given diagram that only conclusion 3 follows.

39. Amount of ₹5,000 has been invested via simple interest at the rate of 10%. Then in how many years interest would be ₹1,500.

(a) 6 (b) 3
(c) 5 (d) 8

Ans. (b) : From $SI = \frac{P \times R \times T}{100}$

$1500 = \frac{5000 \times 10 \times T}{100}$

T = 3 Years

40. The Central Drug Research Institute is situated in ?

(a) Delhi (b) Hyderabad
(c) Mumbai (d) Lucknow

Ans. (d) : The Central Drug Research Institute is a multidisciplinary research laboratory in Lucknow employing scientific personnel from various areas of biomedical sciences. The research institute was formally inaugurated on 17 Feb, 1951 by PM, Jawaharlal Nehru.

41. "Antrix Corporation Limited" Bangalore is a

(a) Film producing company
(b) ISRO's Marketing branch
(c) Mobile Handset manufactures
(d) Electricity distribution company

Ans. (b) : Antrix Corporation Limited was incorporated as a private limited company owned by Government of India in September 1992 as a Marketing branch of ISRO for promotion and commercial exploitation of space products, technical consultancy services and transfer of technologies developed by ISRO.

42. Which among the following places is famous for Uranium Mines ?

(a) Raniganj (b) Korba
(c) Jaduguda (d) Panna

Ans. (c) : The Jaduguda Mine is a uranium mine in Jaduguda village in the Purbi Singhbhum district of the Indian state of Jharkhand. It commenced operation in 1967 and was the first Uranium mine in India. The deposits at this mine were discovered in 1951.

43. Find the value of $4\sin^2 30^\circ + 3\cot^2 60^\circ - 2\tan^2 45^\circ$.

(a) 1 (b) 0
(c) 5 (d) 9

Ans. (b) : $4\sin^2 30^\circ + 3\cot^2 60^\circ - 2\tan^2 45^\circ$

$4 \times \left(\frac{1}{2}\right)^2 + 3 \times \left(\frac{1}{\sqrt{3}}\right)^2 - 2 \times (1)^2$

$= 4 \times \frac{1}{4} + 3 \times \frac{1}{3} - 2$

$= 1 + 1 - 2$

$= 0$

44. The 2020 World Environment day programme by UNDP was organized by which country.

(a) Columbia (b) India
(c) France (d) Japan

Ans. (a) : Every World Environment Day is hosted by a different country, in which official celebrations take place. In 2020, the host was Columbia in partnership with Germany, its theme was "Reimagine. Recreate. Restore".

45. The product of three numbers is 10290 and the numbers are in ratio 3 : 5 : 2. Find the largest number among the three numbers.

(a) 60 (b) 35
(c) 75 (d) 21

Ans. (b) : Let the three numbers be 3x, 5x and 2x respectively.

According to question –

$3x \times 5x \times 2x = 10290$

$30x^3 = 10290$

$x^3 = \frac{10290}{30}$

$x^3 = 343 \Rightarrow x = 7$

Hence, the largest number = $5x = 5 \times 7 = 35$

46. Which is the longest highway tunnel in India ?

(a) Aat Tunnel (b) Rohtang Tunnel
(c) Atal Tunnel (d) Jawahar Tunnel

Ans. (c) : Atal Tunnel, is the longest highway tunnel at a length of 9.02 km above 10,000 feet in the world and is named after former Prime Minister of India, Atal Bihari Vajpayee.

47. On selling a product at ₹360, shopkeeper makes a loss of 10%. Find the selling price at which he makes a profit of 30%.

(a) ₹600 (b) ₹480
(c) ₹520 (d) ₹740

Ans. (c) :

Cost price of the article

$= \text{Selling price} \times \frac{100}{(100 - \text{Loss \%})}$

Cost price = $360 \times \frac{100}{90}$

$= 4 \times 100$

Cost Price = ₹400

$\because$ To get 30% of profit

Selling price of the article = $400 \times \frac{130}{100}$

= ₹520

48. Which of the following river falls in Arabian Sea ?

(a) Tapi (b) Godavari

(c) Mahanadi (d) Krishna

Ans. (a) : The Indus, Tapi, and Narmada river together with their key tributaries flow into the Arabian sea. The Tapi River is also known as the Tapti River. Tapti is the prehistoric sanskrit name of the River. Tapi is a major river in Central India.

49. If mixture contains acid and alcohol in the ratio 3 : 2. On adding 10 ltr of alcohol to this mixture, the ratio of acid to alcohol becomes 3 : 5. What was the amount of acid (in ltr) in original mixture.

(a) 10 (b) 5.5

(c) 5 (d) 4.5

Ans. (a) : Let the quantity of acid in the original mixture = 3x litre

Quantity of Alcohol in the original mixture = 2x litre

According to question –

On adding 10 litres of alcohol to the mixture

$$\frac{3x}{2x+10} = \frac{3}{5}$$

$15x = 6x+30$

$9x = 30$

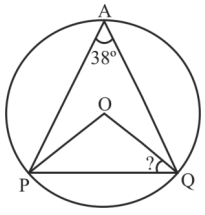
$$\boxed{x = \frac{10}{3}}$$

Hence the quantity of acid in the original mixture=3x

$$= 3 \times \frac{10}{3}$$

= 10 litres

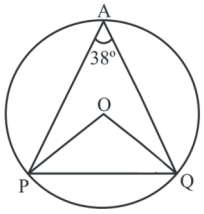
50. In the given figure, PO and OQ are the radius of the circumcircle of the triangle APQ. If $\angle PAQ = 38^\circ$, then what will be the $\angle PQO$?



(a) 52° (b) 76°

(c) 112° (d) 104°

Ans. (a) :



Given,

$\angle PAQ = 38^\circ$

Radius = OP = OQ, $\angle PQO = \angle QPO$

$\because$ $\angle POQ = 2 \times \angle PAQ$ {When two angles are subtended by the same Arc, the angle at the centre of a circle is twice the angle at the circumference}

$\angle POQ = 2 \times 38^\circ$

$\angle POQ = 76^\circ$

$\therefore$ In ΔPOQ ,

$\angle PQO + \angle QPO + \angle POQ = 180^\circ$

$2\angle PQO + 76^\circ = 180^\circ$

$\boxed{\angle PQO = 52^\circ}$

51. The Headquarter of UNESCO is in:

(a) Washington D.C.

(b) New York

(c) London

(d) Paris

Ans. (d) : The United Nations Educational, Scientific and Cultural Organization (UNESCO) is a specialized agency of UN aimed at promoting world peace and security through international cooperation in education, the arts, the sciences and culture. It has 193 member states and 11 associate members. Its headquarter is in Paris, France.

52. 'Samagra Shiksha' is a scheme for schooling programme at the level of ——— ?

(a) Pre-Nursery to Class XII

(b) Only Class I to XII

(c) Only Class I to VIII

(d) Only Class I to X

Ans. (a) : Samagra Shiksha is an overarching programme for the school education sector extending from pre-school to class 12. The scheme has been prepared with the broader goal of improving school effectiveness measured in terms of equal opportunities for schooling and equitable learning outcomes.

53. Beri-Beri is a disease which occurs due to deficiency of vitamin.

(a) Vitamin A (b) Vitamin B1

(c) Vitamin D (d) Vitamin C

Ans. (b) : Beri-Beri is a disease caused by a lack of Vitamin B1 (thiamine) in the body. The symptoms of the disease include diffuse polyneuropathy, high-output heart failure and Wernicke - Korsak off syndrome.

54. Select the number from among the given options that can replace the question mark (?) in the following series.

1, 27, 125, 343, ?

(a) 999 (b) 625

(c) 216 (d) 729

Ans. (d) : The sequence of the given number series is as follows –

1	27	125	343	729
↓	↓	↓	↓	↓
$(1)^3$	$(3)^3$	$(5)^3$	$(7)^3$	$(9)^3$

Hence, ? = 729

55. Who acts as the chairman of joint sitting of Lok Sabha and Rajya Sabha.
(a) Senior most member of Rajya Sabha
(b) Loksabha speaker
(c) A nominated member by the President of India
(d) President of India

Ans. (b) : The joint sitting of the Parliament is called by the President of India (Article 108) and is presided over by the Speaker of the Lok Sabha or in their absence, by the Deputy Speaker of the Lok Sabha, or in their absence, the Deputy Chairman of the Rajya Sabha.

56. 'Hinhinana' (neigh) is related to 'Horse' in the same way as 'Mimiana' (bleat) is related to.
(a) Dog (b) Bear
(c) Ass (d) Goat

Ans. (d) : Just as the sound of the horse is neigh in the same way the sound of the goat is bleat.

57. A Famous traveler, Ibn Batuta, was inhabitant of ——
(a) Morocco (b) Greece
(c) China (d) Italy

Ans. (a) : Ibn Batuta was basically from Morocco. He came to India in the year 1334, all the way through the mountains of Afghanistan during the time of the Tughlaq dynasty. He was known for his travelling and Undertaking excursions called the Rihla.

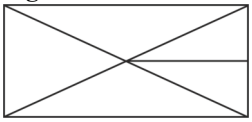
58. Which of the following human diseases is caused by bacteria?
(a) Typhoid (b) Hepatitis A
(c) Polio (d) Measles

Ans. (a) : Typhoid fever is a life-threatening illness caused by Salmonella Typhi bacteria. While Hepatitis A, Pollio and Measles are caused by Viruses. Measles is characterised by fever and upper respiratory tract symptoms like cough and cold (Coryza).

59. As per November 2020, What is the total number of High Courts in India are.
(a) 15 (b) 21
(c) 25 (d) 29

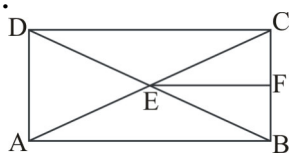
Ans. (c) : As per November 2020, there are 25 High Courts in India. Article 214 lays down the authority of High Courts. High Courts exercise civil or criminal jurisdiction only if the subordinate courts in the State are not competent to try the matters.

60. The given figure contains how many triangles.



(a) 12 (b) 9
(c) 6 (d) 10

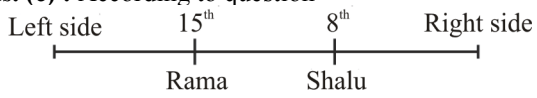
Ans. (d) :



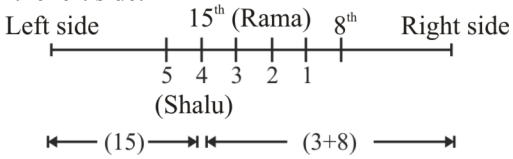
{ΔABC, ΔABD, ΔAED, ΔAEB, ΔBEC, ΔCED, ΔADC, ΔDBC, ΔBEF, ΔCEF}
The number of triangles in the given figure is 10.

61. A row of girls is standing facing north. Rama is 15^{th} from the left and Shalu is 8^{th} from the right. If Shalu is shifted to the 5^{th} position from the left, then she will be immediate to the left of Rama. How many total girls are standing in the row ?
(a) 28 (b) 27
(c) 26 (d) 25

Ans. (c) : According to question –



After changing the position of Shalu to the 5th position from the left side.



Hence, the total number of girls in the row
= 15+3 + 8 = 26

62. As per the information till Nov 2020, who is the Education Minister of India.
(a) Smriti Jubin Irani
(b) Prakash Javadekar
(c) Dr. Ramesh Pokhariyal Nishank
(d) Mahendra Nath Pandey

Ans. (c) : The Minister of Education, formerly the Minister of Human Resources Development (1985–2020), is the head of the Ministry of Education and one of the cabinet ministers of Government of India. The recent one was Ramesh Pokhriyal who resigned on 7 July 2021 citing health issues. The current Education Minister is Dharmendra Pradhan.

63. Which of the following country is a member of SAARC ?
(a) China (b) Myanmar
(c) Mauritius (d) Afghanistan

Ans. (d) : The member of SAARC (South Asian Association for Regional Cooperation) are Afghanistan Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka. The SAARC was founded by seven states in 1985. Its headquarter is in Kathmandu, Nepal.

64. Consider the following statement and find which of the following assumption is implicit in statement.
Statement:
P advised Q, "Go to Mumbai via Jaipur this is the shortest route".
Assumption :
I. P advises to all
II. Q wants to go to Mumbai

(a) assumption I is implicit.
(b) Neither assumption I nor II is implicit.
(c) Either assumption I or II is implicit.
(d) Only assumption II is implicit.

Ans. (d) : It is clear from the above statement that only assumption II is implicit.

65. In between 250–1000, how many numbers are completely divisible by 5, 6 & 7.
(a) 5 (b) 7
(c) 6 (d) 3

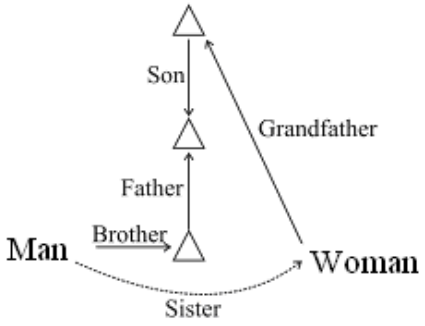
Ans. (d) : LCM of 5, 6, 7 –

2	5, 6, 7
3	5, 3, 7
5	5, 1, 7
7	1, 1, 7
	1, 1, 1

$2 \times 3 \times 5 \times 7 = 210$
∵ Numbers from 250 to 1000 which are divisible by 5, 6, 7 will be divisible by 210 or in multiples of 210.
210×2, 210×3, 210×4, ...
420, 630, 840, ...
Hence there will be 3 numbers.

66. While Introducing a man to her husband, a woman said. "His brother's father is the only son of my grandfather". What is the relationship of the woman to man ?
(a) Sister (b) Daughter
(c) Mother (d) Aunt

Ans. (a) : On drawing the relation diagram as per the question –



Hence, it is clear from the diagram that the woman is the sister of that man.

67. On 8th Nov 2016, during the declaration of Demonetization, who was the Governor of RBI?
(a) Shaktikant Das (b) Raghuram Rajan
(c) Urjit Patel (d) D. Subbarao

Ans. (c) : Urjit Patel who took over as the 24th governor of the Reserve Bank of India on September 4, 2016, succeeding Raghuram Rajan. Demonetisation took place on 8 Nov, 2016, Urjit Patel was RBI Governor at that time.

68. Who has been known as the 'Father of Indian Constitution' ?
(a) Dr. BR Ambedkar
(b) Dr. Rajendra Prasad
(c) Dr. K.M. Munshi
(d) Shri Sacchidanand Sinha

Ans. (a) : Dr. B.R. Ambedkar was known as father of Indian Constitution because he played the most effective role in presenting the constitution as a guiding document for Indian Society. He was the chairman of Drafting Committee. He is known as "Modern Manu of India".

69. A person has four silver articles - P, Q, R and S, each of different weight. The weight of P is three times that of Q. The Weight of Q is two and a half times the weight of S. The weight of R is equal to half of the weight of S. Which of the following silver articles weight the least ?
(a) Q (b) P
(c) S (d) R

Ans. (d) : Let the weight of R = x kg
According to question –
Weight of S = 2x kg.
Weight of $Q = 2x \times \frac{5}{2} = 5x$ kg.
Weight of P = $5x \times 3 = 15x$ kg.
It is clear that R has the lightest in weight.

70. Jataka tales are related with-
(a) Sikh Religion
(b) Buddha Religion
(c) Jain Religion
(d) Hindu Religion

Ans. (b) : Jataka (Pali and Sanskrit : "Birth") any of the extremely popular stories of former lives of the Buddha. Some Jataka tales are scattered in various sections of the Pali canon of Buddhist writings.

71. Kaveri water dispute is in between ———.
(a) Karnataka & Telangana
(b) Karnataka & Goa
(c) Karnataka & Andhra Pradesh
(d) Karnataka & Tamil Nadu

Ans. (d) : The sharing of waters of the Kaveri River has been the source of a serious conflict between the two Indian states of Tamil Nadu and Karnataka. The genesis of this conflict rests in two agreement in 1892 and 1924 between the Madras Presidency and Kingdom of Mysore.

72. Mahatma Gandhi chaired the session of Indian National Congress in———
(a) Belgaum (b) Kanpur
(c) Madras (d) Karachi

Ans. (a) : Mahatma Gandhi was the president in 1924 for only once at the Belgaum conference of Indian National Congress. He was succeeded by Sarojini Naidu as the next congress president.

73. A tennis player won 5 matches, lost 12 matches and drew 3 matches in his career. The fraction of matches which lost in his career is.
(a) $\frac{12}{5}$ (b) $\frac{2}{5}$
(c) $\frac{1}{5}$ (d) $\frac{3}{5}$

Ans. (d) : Number of matches won by the player = 5
Number of matches lost by the player = 12
Match draw = 3
Number of total matches = 5 + 12 + 3 = 20
Hence, Fraction of the Lost matches = $\frac{12}{20} = \frac{3}{5}$

74. The LCM of two number is 156 and their HCF is 26. If difference between two number is also 26, then find the sum of numbers.
(a) 104 (b) 52
(c) 78 (d) 130

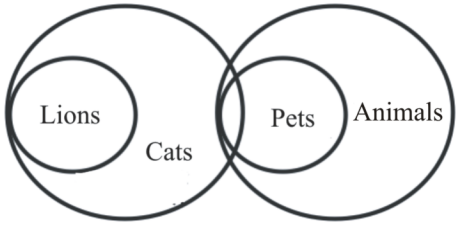
Ans. (d) : Let the numbers be 26x and 26y respectively.
Formula – Product of numbers = L.C.M × H.C.F
$26x \times 26y = 156 \times 26$
$xy = 6$
According to question –
$26x - 26y = 26$
$x - y = 1$
On squaring both sides,
$(x-y)^2 = 1^2$
$x^2 + y^2 - 2xy = 1$
$x^2 + y^2 = 1+2xy$
$(x + y)^2 - 2xy = 1+2xy$
$(x + y)^2 = 1+4xy$
$(x + y)^2 = 1+4\times6$
$(x+y)^2 = 25$
$\boxed{x+y = 5}$
Hence the sum of the number = 26x + 26y
$26(x+y) = 26\times5 = 130$

75. Who wrote Geet Govinda?
(a) Jayadeva
(b) Meerabai
(c) Raskhan
(d) Surdas

Ans. (a) : The Gita Govinda was written by the Indian poet Jayadeva in the 12th century. It describes the touching love story of Krishna and the Shepherd girl Radha. The sanskrit devotional poem Gita Govinda is a cycle of 24 songs.

76. Read the given statements and conclusions carefully. Assuming that the information given in the statements in true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow (s) from the statement.
Statements:
1. All lions are cats
2. Some cats are Pets
3. All pets are animal
Conclusions :
1. Some cats are animal
2. All the lions are animal
(a) Only conclusion I follows.
(b) Both conclusion I and II follow.
(c) Niether conclusion I nor II Follows.
(d) Only conclusion II follows.

Ans. (a) : According to the question –



It is clear from the Venn diagram that only conclusion I follows.

77. ASCII is a code to denote the English alphabets in numeric's. Its full form is _____.
(a) Australian Secure Code for Information Interchange
(b) American Standard Code for Information Interchange
(c) American Secure Code for Information Interchange
(d) Australian Standard Code for Information Interchange

Ans. (b) : ASCII, abbreviation of American Standard Code for Information Interchange, a standard data-transmission code that is used by smaller and less-powerful computers to represent both textual data and non-input device commands.

78. In India, the Communal Electorate system was firstly started through.
(a) Cripps Mission, 1942
(b) Wavel Plan 1945
(c) Rowlet Act, 1919
(d) Morley Minto Reform, 1909

Ans. (d) : Communal Electorate system was introduced by Morley - Minto Reforms (Indian Councils Act 1909). This act effectively 'legalised communalism' as it introduced electorates based on religion. Lord Minto is known as the father of the Communal Electorate.

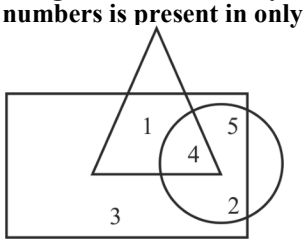
79. If $a + b = 8$ and $a^2 + b^2 = 12$, then find the value of $a^3 + b^3$.
(a) –112 (b) 716
(c) 1136 (d) –211

Ans. (a) : $a + b = 8$
$a^2 + b^2 = 12$
$(a+b)^2 - 2ab = 12$
$8^2 - 2ab = 12$
$2ab = 64 - 12$
$2ab = 52$
$ab = 26$
$\because a^3 + b^3 = (a+b)(a^2+b^2 - ab)$
$= 8(12-26)$
$= 8 \times -14$
$= -112$

80. Cabinet Mission came to India in the Year _____?
(a) 1946 (b) 1941
(c) 1940 (d) 1943

Ans. (a) : Cabinet Mission was a high-powered mission sent to India in February 1946 by the Atlee Government (British Prime Minister). The Mission had three British Cabinet Members – Pethick Lawrence, Stafford Cripps, and A.V. Alexander.

81. The given figure contains many shape. Which of these numbers is present in only one shape?



(a) 4 (b) 3
(c) 2 (d) 1

Ans. (b) : It is clear from the given diagram that the number 3 is present only in one shape.

82. The value of 200 ÷ (5.23 + 4.77) × $\left(\frac{3}{5}-\frac{2}{10}\right)+(5-2)$ will be ?

(a) 8 (b) 11
(c) 19 (d) 18

Ans. (b) :

$$200 \div (5.23 + 4.77) \times \left(\frac{3}{5}-\frac{2}{10}\right)+(5-2)$$

According to BODMAS rule.

$$= 200 \div (10.00) \times \frac{4}{10}+(5-2)$$

$$= 20 \times \frac{4}{10}+3 = 8 + 3 = 11$$

83. Out of 10 liters of solution, 2 liters of water is evaporated. The remaining solution contains 6% salt. What is the amount of salt Percentage in the original solution ?

(a) 4.8% (b) 5.6%
(c) 5% (d) 5.4%

Ans. (a) : Amount of solution = 10 litres
According to question, amount of salt in solution = $(10-2)\times\frac{6}{100}$

$= \frac{48}{100} = 0.48$ litres

Amount of salt in the original solution (in %)

$= \frac{0.48}{10}\times 100 = 4.8\%$

84. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow (s) from the statements.

Statements:

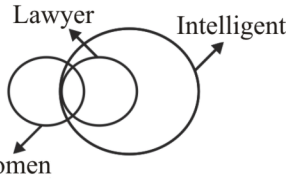
1. All lawyers are intelligent.
2. Some women are lawyers.

Conclusions :

I. Some women are intelligent.
II. All those who are intelligent are women.

(a) Either conclusion I or II follows
(b) Only conclusion I follows
(c) Neither conclusion I nor II follows
(d) Only conclusion II follows

Ans. (b) : On making Venn diagram, according to question.



Hence, it is clear from the diagram that only conclusion I follows.

85. 30 labour can build a bridge in 40 days. If 75 workers are assigned to complete the same work, how many days will it take in total ?

(a) 10 (b) 56
(c) 16 (d) 12

Ans. (c) : $M_1 \times D_1 = M_2 \times D_2$

$30 \times 40 = 75 \times D_2$

$D_2 = \frac{30\times 40}{75}$

$D_2 = 16$ Days

86. In a certain code language LEADER is written as ELDARE, then how will FOUNTAIN be written in that code language?

(a) FONUATIN (b) FOUNTANI
(c) OFNUATNI (d) OFUNATIN

Ans. (c) :

Just as,

L E A D E R ⟶ E L D A R E
1 2 3 4 5 6 2 1 4 3 6 5

Similarly,

F O U N T A I N ⟶ O F N U A T N I
1 2 3 4 5 6 7 8 2 1 4 3 6 5 8 7

87. Four letter-cluster have been given, out of which three are alike in some manner and one is different. Select the odd one.

(a) BAYZ (b) DCWV
(c) FEUV (d) HGST

Ans. (b) : From the given options –

(a) Opposite letter — B A Y Z — Opposite letter

(b) Opposite letter — D C W V = X — Opposite letter

(c) Opposite letter — F E U V — Opposite letter

(d) Opposite letter — H G S T — Opposite letter

Hence, It is clear from the given options, option (b) is odd.

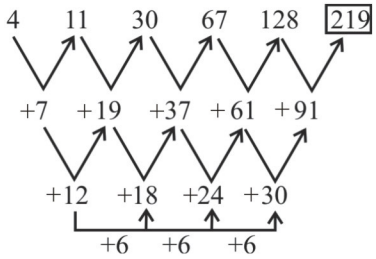
88. Select the number from among the given options that can replace the question mark (?) in the following series.

4, 11, 30, 67, 128, ?

(a) 219 (b) 182

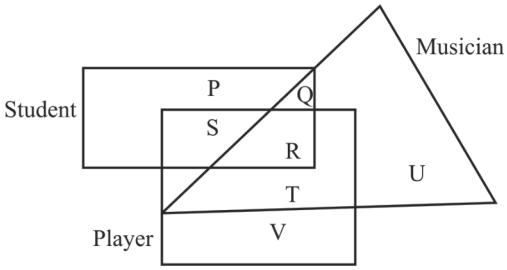
(c) 195 (d) 346

Ans. (a) : The sequence of the given number series is as follows –



Hence, ? = 219

89. Study the given figure and answer the given question.



Which area represents the students who are musicians but not Players ?

(a) R (b) S

(c) U (d) Q

Ans. (d) : 'Q' represents those students who are Musicians but not players.

90. If 8 + 5 = 1340 is true, then find the value of 4+6.

(a) 1024 (b) 1304

(c) 1414 (d) 1012

Ans. (a) : Just as,

8+5 = 13

8×5 = 40

Similarly,

4+6 = 10

4×6 = 24

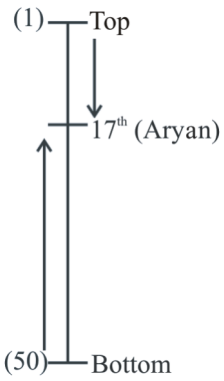
Hence, 4+6 = 1024

91. In the class of 50 students, Aryan is 17th from top and its position from bottom will be.

(a) 32^{th} (b) 18^{th}

(c) 34^{th} (d) 33^{th}

Ans. (c) : According to the question –



Aryan's rank from the bottom = 50 –17 +1

= 34^{th}

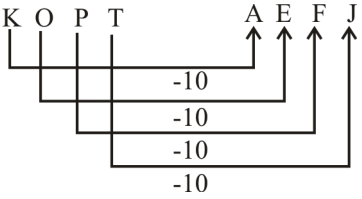
92. Select the option that is related to the third letter cluster in the same way as the second letter cluster is related to the first term.

KOPT : AEFJ :: QUVZ : ?

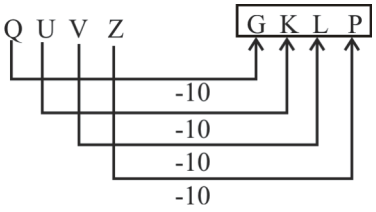
(a) NRSW (b) PTUY

(c) GKLP (d) OSTX

Ans. (c) : Just as,



Similarly,



Hence ? = GKLP

93. Six girls P, Q, R, U, V and W are sitting in the school ground. P and Q are from Maitri house, while other are from Gargi House. U and W are short, while the other girls are tall. P, R and U are wearing caps while others are not. Which tall girl from Gargi House is not wearing a cap ?

(a) W (b) Q

(c) V (d) P

Ans. (c) : Girls of the Maitri House = P and Q

Girls of the Gargi House = R, U, V and W

Short girls = U and W

Tall girls = P, Q, R and V

Number of girls who are wearing cap = P, R and U

Number of girls who is not wearing cap = Q, V and W

Hence it is clear that 'V' of the Gargi House is tall girl who is not wearing cap.

94. In a certain code language FIVE is written as '5137 and RAT is written as 924, then how will FEAR be written as in that code language ?

(a) 5192 (b) 5972

(c) 5729 (d) 5392

Ans. (c) : Given,

F → 5 and R →9

I → 1 A→2

V→ 3 T→4

E→ 7

From the above codes

F ⟶ 5

E ⟶ 7

A ⟶ 2

R ⟶ 9

95. As India is related to 'New Delhi', China is related to ————.

(a) Pyongpyang

(b) Seoul

(c) Beijing

(d) Tokyo

Ans. (c) : Just as the capital of India is 'New Delhi', in the same way the capital of China is 'Beijing'.

96. P is taller than T, Q is taller than S, U is taller than R, S is taller than P and T is taller than U. Who is shortest among all ?

(a) R (b) P

(c) S (d) U

Ans. (a) : According to the question, Arranging order of length –

Q > S > P > T > U > R

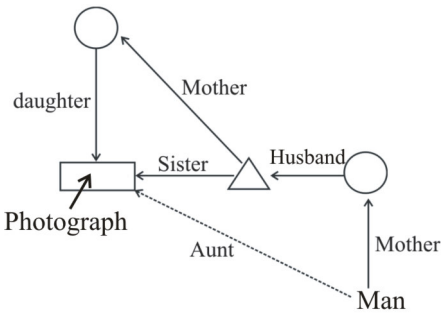
Hence it is clear that R is the shortest.

97. Pointing to a photograph a man said, "She is the daughter of the woman who is the mother of my mother's husband". How is the woman in the photograph related to that person ?

(a) Daughter (b) Aunt

(c) Sister (d) Sister-in-law

Ans. (b) : On making relation diagram according to question–



The woman in the picture will be related to that person as aunt.

98. Read the statements and their conclusions carefully and state which conclusion logically follows the statement.

Statements:

Chanchal is prettier than Leela, but not as beautiful as Bhumi

Conclusion :

I. Leela is not as beautiful as Chanchal.

II. Leela is more beautiful than Bhumi.

III. Bhumi is not as beautiful as Chanchal.

IV. Chanchal is more beautiful than Bhoomi.

(a) Only conclusion II follows

(b) Only conclusion IV follows

(c) Only conclusion III follows

(d) Only conclusion I follows

Ans. (d) : According to question –

Bhoomi > Chanchal > Leela

It is clear from the above sequence that Leela is not as beautiful as Chanchal.

Hence, only conclusion (I) follows.

99. Four numbers have been given, out of which three are alike in some manner and one is different. Select the odd one number.

(a) 39 (b) 35

(c) 37 (d) 41

Ans. (d) : From the given options –

(a) 39 = 3+9 = 12

(b) 35 = 3+5 = 8

(c) 37 = 3+7 = 10

(d) 41 = 4+1 = 5

It is clear from the above that option (d) is different.

Note:– For this question, discrepancy is found in question/answer. So, this question is ignored for all candidates.

100. Four words have been given, out of which three are alike in some manner and one is different. Select the odd one word.

(a) Leopard

(b) Tiger

(c) Wildcat

(d) Fox

Ans. (d) : Tiger, Wildcat and Leopard are species of Cat while fox is species of wild dog. Hence, option (d) is different from all the options.

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 30.12.2020] **[Time : 10:30 pm-12:00 pm**

1. One kilobyte is equal to _____ bytes.
(a) 256 (b) 512
(c) 2048 (d) 1024

Ans. (d) :
1024 Byte = 1 Kilobyte (KB)
1024 Kilobyte = 1 Megabyte (MB)
1024 Megabyte = 1 Gigabyte (GB)
1024 Gigabyte = 1 Terabyte (TB)
1024 Terabyte = 1 Petabyte (PB)
1024 Petabyte = 1 Exabyte (EB)
1024 Exabyte = 1 Zettabyte (ZB)

2. Find the length of the longest pole that can be placed in a room of dimensions 30m × 15m × 10m.
(a) 31 m (b) 35 m
(c) 33 m (d) 18 m

Ans. (b) : Given–
Length of the room (l) = 30 m
Breadth (b) = 15 m
Height (h) = 10 m
Diagonal of room is the length of longest pole
$\Rightarrow$ Diagonal $= \sqrt{l^2 + b^2 + h^2}$
$= \sqrt{30^2 + 15^2 + 10^2}$
$= \sqrt{900 + 225 + 100}$
$= \sqrt{1225}$
= 35 m

3. Which of the following is a metalloid?
(a) Lead (b) Bromine
(c) Gold (d) Silicon

Ans. (d) : Those elements which have both the properties of metals and non-metals are called metalloids. For example – Boron, Silicon, Germanium, Arsenic, Antimony and Tellurium. Carbon, Aluminum, Selenium, Polonium and Astatine are also called metalloids to some extent.

4. 'Garden' is related to 'Gardener' in the same way as 'Museum' is related to '_____'.
(a) Museology (b) Curator
(c) Artist (d) Guide

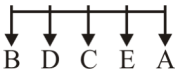
Ans. (b) : As like Garden is related to Gardener in same way Museum is related to Curator.

5. Who was the founder of the Vishishtadvaita philosophy ?
(a) Vishnu Swami (b) Madhvacharya
(c) Nimbarka (d) Ramanujacharya

Ans. (d) : Ramanujacharya was the founder of the Vishishtadvaita philosophy. According to this ideology, Brahma is the embodiment of all virtues. This is not Nirguna Sachidanand but it is the embodiment of Satyam, Gyanam and Anandam. 'Ramanuj' wrote a commentary on the sutra which is called from Shri Bhasya.

6. Five boys A, B, C, D and E and five girls P, Q, R, S and T are sitting in two rows opposite to each other such that the boys are in one row and the girls are in one row. C is sitting in the center and A is sitting on his left. D is sitting between B and C. T who is to the left of S is sitting opposite B who is two seats away from E. P is sitting between Q and R. Who is sitting opposite of E.
(a) R (b) P
(c) Q (d) S

Ans. (b) : According to question, the sitting arrangement is as follows –
Row of Boys –



Row of Girls –

Hence, it is clear that P is in front sitting opposite to E.

7. Number 0.232323 can be written in rational form as :
(a) $\frac{23}{999}$ (b) $\frac{23}{99}$
(c) $\frac{23}{9}$ (d) $\frac{23}{990}$

Ans. (b) : 0.232323....
$= 0.\overline{23}$
$= \frac{23}{99}$

8. Parshotam and Anjilka started moving in the opposite directions from the same place at a speed of 30 km/h and 3.5 km/h respectively. How far will they be from each other after 2.5h?
(a) 83.75 km (b) 75 km
(c) 66.25 km (d) 8.75 km

Ans. (a) : From, Speed $= \frac{\text{Distance}}{\text{Time}}$

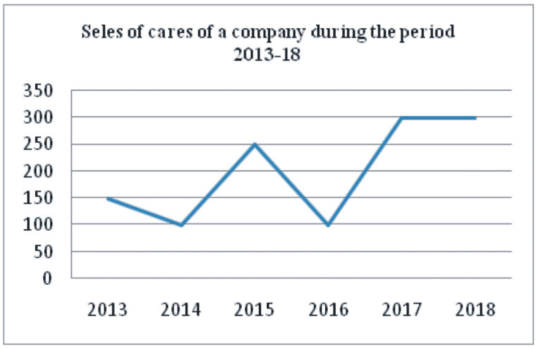
Distance covered by Parashotam = $30 \times 2.5 = 75$ km

Distance covered by Anjilka = $3.5 \times 2.5 = 8.75$

Total Distance = $75 + 8.75$

$= 83.75$ km

9. From the given diagram, determine the difference between the total number of cars sold in the first three years and in the last three years.



(a) 700 (b) 150

(c) 1200 (d) 200

Ans. (d) : Total number of cars sold in first three years.

$= 150 + 100 + 250$

$= 500$

Cars sold in last three years

$= 100 + 300 + 300$

$= 700$

Required difference $= 700 - 500$

$= 200$

10. Which of the following is classified under Kingdom Animalia ?

(a) Protozoa (b) Metazoa

(c) Choanozoa (d) Pipiens

Ans. (b) : All animals are member of the Kingdom Animalia also called Metazoa. Amongst the five kingdoms, the largest kingdom is the animal kingdom. This kingdom does not contains prokaryotes or protists.

11. What is the smallest number which when increased by 3 is divisible by 27, 35, 25 and 21?

(a) 4725 (b) 317

(c) 4728 (d) 4722

Ans. (d) :

Required number = (LCM of 27,35,25and 21) –3

$= 4725 - 3$

$= 4722$

12. If mean is 40 and standard deviation is 5 then C.V. (Coefficient of variation) is

(a) 20% (b) 12.5%

(c) 5% (d) 100%

Ans. (b) : Given,

Mean = 40, Standard deviation = 5

Coefficient of Variation $= \frac{\text{Standard deviation}}{\text{Mean}} \times 100$

$= \frac{5}{40} \times 100 = 12.5\%$

13. Which of the following is NOT an abiotic component?

(a) Water (b) Sun light

(c) Soil (d) Green Plant

Ans. (d) : An abiotic factor (component) is a non-living part of an ecosystem that shapes its environment. For example :- water, sunlight, soil, minerals, gases, humidity etc.

Green plants are biotic factors (components).

14. India's scientific mission to observe and study the solar corona is called:

(a) Aditya-L1 (b) Satnav

(c) Astrostat (d) Chandrayaan

Ans. (a) : Aditya-L1 is the India's first scientific expendition to study the Sun. It will be ISRO's (Indian Space Research Organisation) second space - based astronomy mission after Astrosat, which was launched in 2015.

15. Which of the following is the assumption for the claim that 'Pleasure is desirable'?

(a) Pleasure is essential

(b) Everyone desires pleasure

(c) Everyone desires something

(d) Some persons desire pleasure

Ans. (b) : Assumption for the claim that 'Pleasure is desirable' is Everyone desires pleasure.

16. Select the option that is related to the third letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster.

ABCD : ZYXW :: GHIJ : ?

(a) TSRQ (b) PQRS

(c) MLKJ (d) LMNO

Ans. (a) : As like,

A $\xrightarrow{\text{Opposite Letter}}$ Z

B $\xrightarrow{\text{Opposite Letter}}$ Y

C $\xrightarrow{\text{Opposite Letter}}$ X

D $\xrightarrow{\text{Opposite Letter}}$ W

Similarly,

G $\xrightarrow{\text{Opposite Letter}}$ T

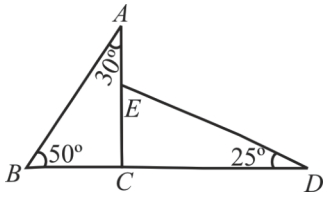
H $\xrightarrow{\text{Opposite Letter}}$ S

I $\xrightarrow{\text{Opposite Letter}}$ R

J $\xrightarrow{\text{Opposite Letter}}$ Q

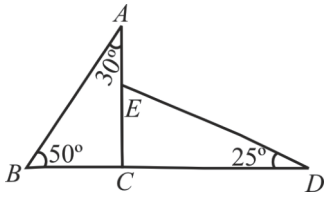
Hence, ? = TSRQ

17. In the given diagram, if $\angle BAC = 30^o$, $\angle ABC = 50^o$ and $\angle CDE = 25^o$, then $\angle AED$ is equal to:



(a) 75º (b) 95º
(c) 105º (d) 115º

Ans. (c) : In ΔABC



$\because \angle BCA = 180° - \angle BAC - \angle ABC$

$= 180° - 30° - 50°$

$= 100°$

$\therefore \angle ACD = 180° - 100°$

$\angle ACD = 80°$ [From linear pair property]

$\because$ Exterior angle is the sum of two interior angle of a triangle.

$\Rightarrow \angle AED = \angle ACD + \angle CDE$

$= 80^0 + 25^0$

$= 105°$

18. The down fold in a rock is known as a/an:

(a) Syncline (b) Backline
(c) Anticline (d) Crestline

Ans. (a) : An upward fold is called an anticline while a downward fold is called a syncline. Synclines are formed when tectonic plates move toward each other, compressing the crust and forcing it upward.

19. If '+' is replaced by '–', '×' is replaced by '+' and '–' by '×', then $28+(5\times7)-\frac{9}{6}$, will be equal to :

(a) 8 (b) 15
(c) 10 (d) 20

Ans. (c) : Given,

$+ = –, \times = +, – = \times$

according to the question,

On changing sign

$= 28-(5+7)\times\frac{9}{6}$

$= 28-12\times\frac{9}{6}$

$= 28 - 18$

$= 10$

20. Which of the following is situated in Jammu and Kashmir ?

(a) Pakhal Wildlife Sanctuary
(b) Jaldapara National Park
(c) Dachigam National Park
(d) Balpakram National Park

Ans. (c) :
Pakhal Wildlife Sanctuary – Telangana
Jaldapara National Park – West Bengal
Dachigam National Park – Jammu & Kashmir
Balpakram National Park – Meghalaya

21. Lord Mahavira's original name is:

(a) Ananda (b) Siddhartha
(c) Sariputta (d) Vardhamana

Ans. (d) : Lord Mahavira, also known as Vardhamana, was the 24th Tirthankara of Jainism. Mahavira was born in the early part of the 6th century (599 BCE) into a royal Jain family in (Vaishali) Bihar, India. His parents were Siddhartha and Trishla and his wife was Yashoda.

→ Mahavira taught the idea of supremacy of human life and stressed the importance of the positive attitude of life.

→ Mahavira's message of non-violence (Ahimsa), truth (Satya), non-stealing asetya and non-possession Aparigraha is full of universal compassion.

22. Which of the following is a satellite based augmentation system of India?

(a) JATAN (b) GAGAN
(c) NAG (d) GAGAN SHAKTI

Ans. (b) : The Indian Space Research Organization (ISRO) and Airports Authority of India (AAI) have implemented the GPS Aided Geo Augmented Navigation - GAGAN Project as a Satellite Based Augmentation System (SBAS) for the Indian Airspace.
The GAGAN is an augmentation system which augments the GPS constellation by improving Accuracy, Availability, Continuity, and Integrity.

23. The 2022 Commonwealth Games are scheduled to be held in :

(a) Birmingham (b) Delhi
(c) Perth (d) Edinburg

Ans. (a) : The 2022 Commonwealth Games will be held in Birmingham, England. It is officially known as the XXII Commonwealth Games. The first Commonwealth Game was hosted in Hamilton, Canada in 1930. In India, Delhi hosted the country's first Commonwealth Games in 2010.

24. The given table shows the number of formal learners, informal learners and illiterates, on the basis of gender, in the age group of 18–30 years in village X near Delhi. Determine the ratio among the formal learners, informal learners and illiterates.

FORMAL LEARNERS	BOYS	39
	GIRLS	52
INFORMAL LEARNERS	BOYS	65
	GIRLS	78
ILLITERATES	BOYS	143
	GIRLS	169

(a) 11 : 24 : 7 (b) 7 : 24 : 11
(c) 11 : 7 : 24 (d) 7 : 11 : 24

Ans. (d) : Number of formal learners = 39 + 52 = 91
Number of informal learners = 65 + 78 = 143
Number of illiterates = 143 + 169 = 312
Hence, Required ratio = 91 : 143 : 312
= 7 : 11 : 24

25. Value of the square root of $\frac{36.1}{102.4}$ is:

(a) $\frac{61}{340}$ (b) $\frac{19}{32}$
(c) $\frac{19}{34}$ (d) $\frac{19}{31}$

Ans. (b) : $\sqrt{\frac{36.1}{102.4}} = \sqrt{\frac{361}{1024}}$

$\sqrt{\frac{(19)^2}{(32)^2}} = \frac{19}{32}$

26. Two dice are thrown simultaneously and the sum of the numbers appearing on them is noted. What is the probability that the sum is 12?

(a) 36 (b) $\frac{12}{36}$
(c) $\frac{1}{36}$ (d) 3

Ans. (c) :
Total events when two dice are thrown simultaneously = 6 × 6
= 36
Total events when the sum is 12 = 1{ ∵ 6, 6}

$$\text{Probability} = \frac{1}{36}$$

27. By selling an article for ₹138, a shopkeeper losses 8%. At what price should the article be sold to get a gain of 4%?

(a) ₹156 (b) ₹144
(c) ₹90 (d) ₹210

Ans. (a) : Selling Price of article. = ₹ 138

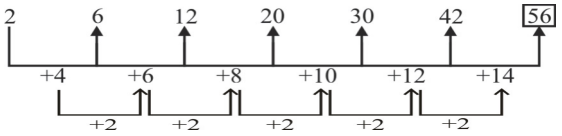
Cost price = $138 \times \frac{100}{92} = ₹\ 150$

Selling Price to get a gain of 4% = $150 \times \frac{104}{100} = ₹156$

28. Select the number from among the given options that can replace the question mark (?) in the following series.
2, 6, 12, 20, 30, 42, ?

(a) 60 (b) 50
(c) 52 (d) 56

Ans. (d) : The sequence of given series are as follows–



Hence ? = 56

29. Solve the following -

$$\left[\frac{\left(1+4-\frac{42}{14}+65\right)+\left\{\frac{(2+7\times9)}{13}\right\}\times\left[(65+7-19)\right]+(19-39\times5)}{369}\right]=?$$

(a) 224 (b) 234
(c) –24 (d) –25

Ans. (*) :

$$\left[\frac{\left(1+4-\frac{42}{14}+65\right)+\left\{\frac{(2+7\times9)}{13}\right\}\times\left[(65+7-19)\right]+(19-39\times5)}{369}\right]=?$$

$$=\left[\frac{67+5\times53+(-176)}{369}\right]$$

$$=\frac{67+265-176}{369}=\frac{156}{369}$$

Note - Commission has considered option (c) as correct for this question.

30. Which of the following is used in plastics?

(a) Butane (b) Ethylene
(c) Krypton (d) Ammonia

Ans. (b) : Ethylene gas is used to form plastic, rubber, and fiber. Ethylene is a simple molecule composed of two double bonded carbon atoms and four hydrogen atoms. At room temperature it is a gas.

31. The Nipah virus outbreak in 2018 took place in:

(a) Tamil Nadu (b) Kerala
(c) Karnataka (d) Uttar Pradesh

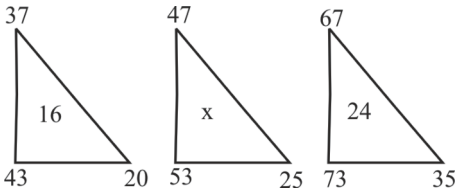
Ans. (b) : On 19 May 2018, a Nipah virus disease (NIV) outbreak was reported from Kozhikode district of Kerala, India. This was the first NIV outbreak in South India. There have been 17 deaths and 18 confirmed cases as of 1 June 2018. The affected districts are Kozhikode and Mallapuram. Nipah virus is a zoonotic virus, meaning that it can spread between animals and people. Nipah Virus was first recognized in 1999 during an outbreak among pig farmers in Malaysia.

32. Which of the following is the administrative capital of South Africa ?

(a) Durban (b) Cape Town
(c) Pretoria (d) Bloemfontein

Ans. (c) : Pretoria is the administrative capital of South Africa. Cape Town is the legislative and Bloemfontein is the Judicial capital of South Africa.

33. Study the given pattern carefully and select the number from among the given options that can replace x.



(a) 18 (b) 20
(c) 14 (d) 12

Ans. (b) :

As like, in figure (i) $\left(\frac{37+43}{20}\right)\times 4 = 16$

$= \frac{80}{20}\times 4 = 16$

$16 = 16$

As like, in figure (iii) $\left(\frac{67+73}{35}\right)\times 6 = 24$

$= \frac{140}{35}\times 6 = 24$

$24 = 24$

Similarly, In figure (ii) $\left(\frac{47+53}{25}\right)\times 5 = x$

$\frac{100}{25}\times 5 = x$

$x = 20$

34. The 'SATH-E' project is associated with which of the following fields?

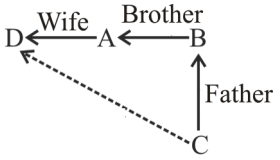
(a) Transportation (b) Communication
(c) Education (d) Agriculture

Ans. (c) : Project SATH-E, 'Sustainable Action for Transforming Human Capital - Education'. was launched in 2017 to identify and build three 'role model' states for the school education sector. Its objective is to transform primary and secondary school education through driven practice.

35. If A is the brother of B, B is the father of C and D is the wife of A, then how is D related to C ?

(a) Aunt (b) Niece
(c) Uncle (d) Nephew

Ans. (a) : According to question, on drawing blood relation diagram.



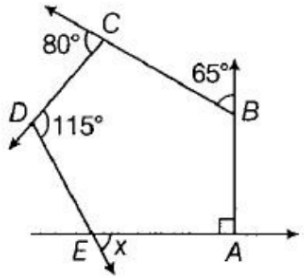
Hence, it is clear from diagram that D is Aunt of C.

36. Invertebrates do NOT include:

(a) Arachnids (b) Insects
(c) Molluscs (d) Reptiles

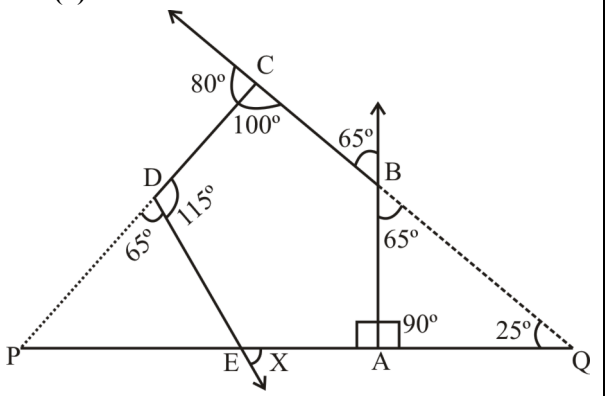
Ans. (d) : An invertebrate is an animal that does not have a backbone.
Example – spiders, insects, mollusks, crabs lobsters etc.
Approximate 97% of all animal species are invertebrate.

37. In the given figure, value of x is:



(a) 65° (b) 70°
(c) 55° (d) 60°

Ans. (d) :



In the given figure, on extending CD and AE to P and CB and EA to Q.

In ΔPCQ

$\angle P + \angle C + \angle Q = 180°$

$\angle P + 100 + 25 = 180°$

$\angle P + 125 = 180°$

$\angle P = 55°$

In ΔPDE

$\angle E = 180° - 55° - 65°$

$\angle E = 60°$

$\angle x = \angle E$ (∵ Vertically opposite angle)

$\boxed{\angle x = 60°}$

38. Where is the 'Zojila Tunnel Project' located?

(a) Jammu & Kashmir (b) Sikkim

(c) Odisha (d) Uttar Pradesh

Ans. (a) : Zojila Tunnel is one of the longest tunnels in Asia. Zojila Tunnel Project located in Jammu & Kashmir. It is a 14.2 km long road tunnel under Zoji la Pass in the Himalayas. Zojila Pass is situated at an altitude of 11, 578 feet on the Srinagar - Kargil - Leh National Highway. The tunnel will provide all weather connectivity between Srinagar valley and Leh on NH-1.

39. 'Operation Greens' is a government scheme for:

(a) General Price Levels of Crops

(b) Research and Investment in Crop Education

(c) Development of Bamboo Crops

(d) Supply Stablization of TOP Crops (Tomato Onion Potato)

Ans. (d) : Ministry of Food Processing Industries launched "Operation Greens" scheme in November, 2016 for integrated development of Tomato, Onion and Potato crops (TOP crops) value chain with the objectives to enhance value realization of top farmers, reduction in post-harvest losses, price stabilization for producer and consumers and increase in food processing capacities and value addition etc.

40. India's longest road-cum-rail bridge, connecting Assam and Arunachal Pradesh, is called the :

(a) Godavari Bridge (b) Bogibeel Bridge

(c) Howrah Bridge (d) Pamban Bridge

Ans. (b) : The Bogibeel Bridge is a combined road and rail bridge over the Brahmaputra River in the north-eastern Indian state of Assam between Dhemaji district (Arunachal Pradesh) and Dibrugarh district (Assam) and started in 2002. It is the longest rail - cum-road bridge in India, measuring 4.94 km.

41. On the first day 84500 people visited a trade fair. On the 4th day number reduced to 16900. By what percentage people reduced on the 4th day?

(a) 80% (b) 0%

(c) 75% (d) 20%

Ans. (a) : Number of people on the 4th Day = 84500 – 16900

= 67600

Reduced precentage $= \frac{67600}{84500} \times 100 = 80\%$

42. Which of the following is an ancient Buddhist text?

(a) Vishnu Purana (b) Raghuvansham

(c) Ritusamhara (d) Abhidharma Kosha

Ans. (d) : Abhidharma Kosha is an ancient Buddhist texts which contains detailed scholastic presentations of doctrinal material appearing in the Buddhist Sutras.

43. What is the full form of DHCP in networking system?

(a) Display House Control Protocol

(b) Dynamic Host control Point

(c) Dynamic Host Configuration Protocol

(d) Data Host Control Panel

Ans. (c) : The full form of DHCP is Dynamic Host Configuration Protocol. A dynamic host configuration protocol is a network protocol that serves to assign Internet Protocol (IP) address and other relation configuration information such as default gateways and summit marks to network devices. DHCP majorly used to dynamically configure network devices that are connected to the network.

44. The Bering Strait connects the:

(a) Indian Ocean and Java Sea

(b) Arctic Ocean and Pacific Ocean

(c) Mediterranean Sea and Atlantic Ocean

(d) Atlantic Ocean and Gulf of Hudson

Ans. (b) :

Straits/Canals	Separates	Connects
Bering Strait	Alaska & Siberia	Arctic Ocean & Pacific Ocean
Suez Canal	Passes through Egypt	Mediterr anean Sea & Red Sea
Panama Canal	Passes through Republic of Panama	Pacific Ocean & Atlantic

		Ocean
English Channel	England & France	North Sea & Atlantic Ocean
Ten Degree Channel	Andaman and Nicobar Islands	—

45. A metallic part of a machine is made from a mixture of copper, zinc and lead mixed in the ratio of 13 : 6 : 1. If the weight of zinc in this part is 90 kg, then the total weight of the part will be:

(a) 285 kg (b) 195 kg
(c) 210 kg (d) 300 kg

Ans. (d) : Let weight of copper in metallic part = 13x

Weight of zinc in metallic part = 6x

Weight of Lead in metallic part = x

According to question

$6x = 90$ kg

$x = 15$ kg

Hence, Total weight = $13x + 6x + x$

$= 20x$

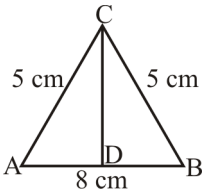
$= 20 \times 15$

$= 300$ kg

46. The base of an isosceles triangle is 8 cm and one of its equal sides is 5 cm. The height of the vertex opposite to the base from the base is:

(a) 4 cm (b) 2 cm
(c) 3 cm (d) 5 cm

Ans. (c) :



$AD = \frac{1}{2} \times 8$

$AD = 4$ cm

In ΔADC

$DC = \sqrt{AC^2 - AD^2}$

$DC = \sqrt{5^2 - 4^2}$

$DC = \sqrt{25 - 16}$

$DC = \sqrt{9}$

$DC = 3$ cm

47. Four natural resources are listed, out of which three are alike in some manner and one is different. Select the odd one.

(a) Solar (b) Coal
(c) Wind (d) Water

Ans. (b) : Water, Solar and Wind are renewable resources whereas Coal is non-renewable resource.
Hence, option (b) is odd one.

48. Who wrote the great literary work ' Mrichchhakatika '?

(a) Shudraka (b) Kalidasa
(c) Bhaasa (d) Harsha

Ans. (a) : A social drama 'Mrichchhakatika depicting bitter truth was written in Sanskrit language by Maharaja Shudrak in the 2nd Century BC.

49. Which of the following is NOT related to Centre- State relations in India?

(a) Rajamannar Committee
(b) Sarkaria Commission
(c) Punchhi Commission
(d) Kothari Commission

Ans. (d) : Kothari Commission was constituted on 14 July, 1964 under the chairmanship of Dr. D.S. Kothari with 17 members, which is known as National Education Commission 1964.

50. Who is the author of the book 'Republic'?

(a) Plato (b) John Ruskin
(c) TS Eliot (d) Leo Tolstoy

Ans. (a) : 'The Republic' was authored by the great thinker Plato in 375 B.C. Plato is considered as the founder of Western Political Philosophy. Plato was the founder of the platonist school of thought and the Academy. It was the first school of higher learning in the Western World.

51. Value of $\cos1^\circ \cos2^\circ \cos3^\circ$ .....$\cos179^\circ$ is :

(a) 0 (b) –1
(c) 1 (d) $\frac{1}{2}$

Ans. (a) : $\cos1° \cos2° \cos3°$ ..... $\cos179°$
$= 0$ { $\because \cos90° = 0$ }

52. The sum of two numbers is 20 and their difference is 2.5. Ratio of these numbers will be

(a) 9 : 7 (b) 2 : 7
(c) 3 : 5 (d) 7 : 9

Ans. (a) : Suppose the numbers are x and y respectively.
According to the question,

$x + y = 20$ _____(i)

$x - y = 2.5$ _____(ii)

On solving the equation (i) and (ii),

$2x = 22.5$

$x = \frac{22.5}{2}$

$y = 20 - \frac{22.5}{2}$ [From equation (i)]

$y = \frac{17.5}{2}$

Hence, the ratio of numbers $(x : y) = \frac{22.5}{2} : \frac{17.5}{2} = 9 : 7$

53. A cuboid having the surface area of 3 adjacent faces as a, b, c has the volume:

(a) $(abc)^{\frac{1}{2}}$ (b) $a^3b^3c^3$

(c) abc (d) $(abc)^{\frac{1}{3}}$

Ans. (a) : Given,

Length × Breadth = a _____(i)

Breadth × Height = b _____ (ii)

Height × Length = c _____ (iii)

On multiplying equation (i), (ii) and (iii),

$(L \times B \times H)^2 = a \times b \times c$

Hence, Volume = Length × Breadth × Height= $(abc)^{\frac{1}{2}}$

54. Which is the 29th State of India created in 2014?

(a) Telangana (b) Sikkim

(c) Jharkhand (d) Uttarakhand

Ans. (a) : Telangana was created on 2 June 2014 from the former districts of north-western Andhra Pradesh. Its capital is Hyderabad.

Note : - Now there are only 28 states in India as Jammu & Kashmir has been removed from the state list due to abrogation of Article (370) and it has become two India Union territories. There are only 28 states and 8 Union territories in India.

55. Solve the following ?

$(x-y)^3+(y-z)^3+(z-x)^3 = ?$

(a) 3xyz

(b) (x – y) (y – z) (z – x)

(c) 3(x – y) (y – z) (z – x)

(d) (x + y + z) ($x^2 + y^2 + z^2$)

Ans. (c) : $(x-y)^3 + (y-z)^3 + (z-x)^3$

$A^3 + B^3 + C^3 = (A + B + C)(A^2 + B^2 + C^2 - AB - BC - CA) + 3ABC$

$= \{(x-y) + (y-z) + (z-x)\}\ \{(x-y)^2 + (y-z)^2 + (z-x)^2 - (x-y)(y-z) - (y-z)(z-x) - (z-x)(x-y)\} + 3(x-y)(y-z)(z-x)$

$= 0 \times \{(x-y)^2 + (y-z)^2 + (z-x)^2 - (x-y)(y-z) - (y-z)(z-x) - (z-x)(x-y)\} + 3(x-y)(y-z)(z-x)$

$= 3(x-y)(y-z)(z-x)$

56. The Big Bang theory was propounded by:

(a) Thomas Gold (b) Al- Biruni

(c) George Lamaitre (d) Dr. Allen Sundes

Ans. (c) : According to the Big Bang Theory the expansion of the observable universe began with the explosion of a single particle at a definite point in time. Georges Lemaitre was Belgian Cosmologist, Catholic Priest and propounder of Big-Bang theory.

57. Where are the headquarters of the OECD is located?

(a) Rome (b) Geneva

(c) New York (d) Paris

Ans. (d) : Organisation for Economic Co-operation and Development (OECD) is headquartered in Paris, France. The OECD was officially founded on 30 September 1961, Mathias Cormann is the current Secretary General of OECD and the first Secretary General was Robert Maryolin (1948–1955). It is an intergovernmental economic organization whose purpose is to promote economic progress and world trade. It has 38 member countries.

58. A shopkeeper sold two toys for ₹990 each. On first toy he gained 10% and on the second he lost 10%. Find the total percentage gain or loss.

(a) 10% Loss (b) 10% Gain

(c) 1% Loss (d) 1% Gain

Ans. (c) : Selling Price of the toy = 990 + 990

= ₹ 1980

According to question,

$$\text{Cost Price} = 990 \times \frac{100}{110} + 990 \times \frac{100}{90}$$

$$= 900 + 1100$$

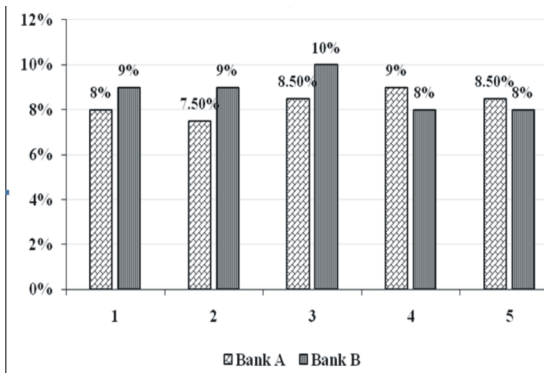
$$= ₹\ 2000$$

$$\text{Loss \%} = \frac{2000 - 1980}{2000} \times 100$$

$$= \frac{20}{2000} \times 100$$

$$= 1\%$$

59. The given chart gives interest rates offered on deposits by two banks A and B for a period of 5 years (1–5). What would be the difference in interest amount earned in year 3, if a person had deposited ₹23 lakhs at the beginning of the year in bank B instead of in bank A?



(a) ₹41,200 (b) ₹28,800
(c) ₹37,600 (d) ₹34,500

Ans. (d) :
The difference in the amount of interest received in the 3 year $= 2300000 \times \frac{(10-8.5)}{100}$
$= 23000 \times 1.5$
$= ₹\ 34500$

60. Which eminent person is associated with Bardoli?
(a) Guru Nanak
(b) Mahavir
(c) Aurobindo Ghosh
(d) Sardar Vallabhbhai Patel

Ans. (d) : In February 1928, Sardar Vallabh Bhai Patel led the Bardoli Satyagraha where Vallabh Bhai Patel got the title of 'Sardar" by women. Bardoli Satyagraha has started after the increasing of unfair taxes which the farmers of Bardoli had to pay to the British government.

61. Which state is the largest producer of gold in India?
(a) Karnataka (b) Telangana
(c) Jharkhand (d) Chhattisgarh

Ans. (a) : Karnataka is the largest producer of gold in India. The state has reserves of 17 million tonnes of gold ore containing 42- 023 kg of metal, mainly in Kolar, Dharwad, Hassan and Raichur districts.

62. Find the number of all prime numbers less than 55.
(a) 18 (b) 17
(c) 16 (d) 15

Ans. (c) : There are 16 prime numbers less than 55 which are –
(2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53)

63. A sum of money amounts to ₹1600 in two years and ₹1700 in three years, at compound interest, compounded annually. What is the rate of interest.
(a) 6.5% (b) 6.25%
(c) 6% (d) 7%

Ans. (b) : $A = P \times \left(1+\frac{r}{100}\right)^t$
According to question,
$$1600 = P\left(1+\frac{r}{100}\right)^2 \quad \text{_____(i)}$$
and $$1700 = P\left(1+\frac{r}{100}\right)^3 \quad \text{_____(ii)}$$
on dividing equation (i) by eq^n (ii)–
$$\frac{1600}{1700} = \frac{P\left(1+\frac{r}{100}\right)^2}{P\left(1+\frac{r}{100}\right)^3}$$
$$\frac{16}{17} = \frac{1}{\left(1+\frac{r}{100}\right)}$$
$$\frac{16}{17} = \frac{100}{100+r}$$
$1600 + 16r = 1700$
$16r = 100$
$r = 6.25\%$

64. In the context of computers, tracker balls is a/an _____ device.
(a) Output (b) Storage
(c) Input (d) Processing

Ans. (c) : A trackball is an input device used to enter motion data into computers or other electronic devices. Instead of moving the whole device, you simply roll the moveable ball on top of the trackball unit with your hand to generate motion input.

65. As of October 2020, who is the Chairman of the Fifteenth Finance Commission of India?
(a) AM Khusro (b) Shaktikanta Das
(c) NK Singh (d) Vijay L kelkar

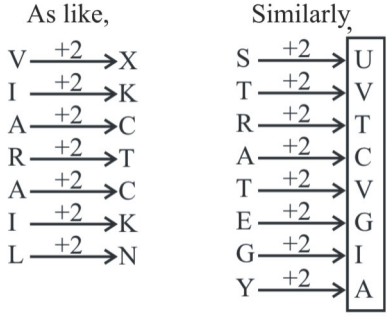
Ans. (c) : As of October 2020, NK Singh is the chairman of the 15th Finance Commission of India. The Finance Commission is periodically constituted by the President of India under Article 280 of the Indian Constitution to define the financial relations between the central government and the state governments.

66. Who founded the 'Slave Dynasty'?
(a) Qutb-ud-din Aibak
(b) Razia Sultan
(c) Ghiyas-ud-din Balban
(d) Nasir-ud-din Mahmud

Ans. (a) : The Slave dynasty lasted from 1206 to 1290. It was the first Muslim dynasty to rule in India and was founded by sultan Qutb-ud-din-Aibak.

67. In a certain code language, VIARAIL is written as XKCTCKN. How will STRATEGY be written as in that language?
(a) UVTCVFIA (b) UVTCVGIA
(c) UVTCVGIZ (d) UWTCVGIA

Ans. (b) :



Hence, STRATEGY = UVTCVGIA

68. Solve the following

$(4+2-16\div4+3)+\{(1+8\times7)\div19\}\times$
$[(3+5-4)+(17-9\times4)]=?$

(a) –40 (b) 40
(c) –225 (d) 335

Ans. (a) : $(4 + 2 – 16 \div 4 + 3) + \{(1 + 8 \times 7) \div 19\} \times [(3 + 5 – 4) + (17 – 9 \times 4)]$
$= (6 – 4 + 3) + \{57 \div 19\} \times [4 + (–19)]$
$= 5 + 3 \times (–15)$
$= 5 – 45$
$= – 40$

69. Which is the first nuclear reactor made in India?

(a) CIRUS (b) Dhruva
(c) KAMINI (d) Apsara

Ans. (d) : India's and Asia's first nuclear reactor, Apsara became operational from 4 August 1956. The reactor was designed by the Bhabha Atomic Research Centre (BARC) and built with assistance from the UK. CIRUS (Canada India Reactor Utility Services) was the second nuclear reactor to be built in India.

70. Which is India's first ever Innovative advanced Earth Observation Satellite launched in 2018?

(a) APPLE (b) GSAT-2
(c) GSAT-7 (d) HySIS

Ans. (d) : HySIS satellite was launched on 29 November 2018. HySIS is an earth observation satellite that provides hyper spectral imaging services to India for a range of applications in agro-forestry and geographical assessment such as coastal areas and in land water ways.

71. Which of the following welfare schemes' achievements have been recognized by the Guiness World Records ?

(a) Pradhan Mantri Krishi Sinchai Yojana
(b) Pradhan Mantri Jan Dhan Yojana
(c) Pradhan Mantri Suraksha Bima Yojana
(d) Pradhan Mantri kaushal Vikash Yojana

Ans. (b) : The world's largest financial inclusion scheme Pradhan Mantri Jan-Dhan Yojana was announced by Prime Minister Narendra Modi on 15 August 2014 from the historic Red Fort, which was launched on 28 August 2014 across the country. The Guinness Book of World Records has appreciated the achievements of Pradhan Mantri Jan-Dhan Yojana. The highest number of bank accounts opened in 1 week as a part of financial inclusion campaign is 18, 096, 130. The Department of Financial Services, Government of India achieve this feat between 23 to 29 August 2014.

72. If 3 men or 6 boys can complete a task in 20 days, how many days will 6 men and 8 boys take to do the same task?

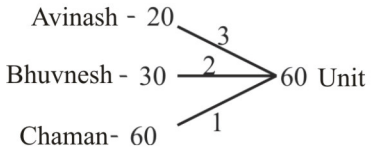
(a) 16 (b) 10
(c) 6 (d) 15

Ans. (c) : 3M = 6B [M - Man, B - Boy]
M = 2B
Let the time taken by the men and the boys together to complete the work = x
According to the question,
$3M \times 20 = (6M + 8B)x$
$6B \times 20 = (12B + 8B)x$
$\frac{120B}{20B} = x$
x = 6 days

73. Avinash, Bhuvnesh and Chaman can complete a piece of work in 20, 30 and 60 days respectively. In how many days can Avinash complete the work if he is assisted by Bhuvnesh and Chaman on every third day?

(a) 12 (b) 16
(c) 18 (d) 15

Ans. (d) :



According to question,
Time taken by Avinash to complete the work

$$= \frac{60\times3}{3\times3+2+1}$$

$$= \frac{60\times3}{12} = 15 \text{ days}$$

74. If the difference between a number and its 25% is 24, then the number is?

(a) 28 (b) 32
(c) 40 (d) 34

Ans. (b) : Suppose number is x.
According to question,

$$x - x \times \frac{25}{100} = 24$$

$$\frac{75x}{100} = 24$$

$$x = \frac{24\times100}{75}$$

x = 32

75. 'Obey' is related to 'Disobey' in the same way as 'Appoint' is related to '_____'.

(a) Dismiss (b) Dissent
(c) Disappear (d) Eliminate

Ans. (a) : As like opposite of Obey is Disobey similarly opposite of Appoint is Dismiss.

76. Who was the Viceroy when the Royal Commission on Civil Services was formed in 1912 ?

(a) Lord Curzon (b) Lord Dufferin
(c) Lord Hardinge (d) Lord Irwin

Ans. (c) : Lord Hardinge was the Viceroy when the Royal Commission on Civil Services was formed in 1912. During Hardinge's administration, King George-V and the queen Mary visited India in 1911 and their coronation ceremony was gorgeously proclaimed at the Delhi Durbar.

77. Solve the following

6202.5 + 620.25 + 62.025 + 6.2025 + 0.62025 = ?

(a) 6891.59675 (b) 5892.59775
(c) 6791.59775 (d) 6891.59775

Ans. (d) :
6202.5 + 620.25 + 62.025 + 6.2025 + 0.62025
= 6891.59775

78. In the following expression which number should be added so that it becomes a complete square?

1 + 3 + 7 + 9 + 11 + 13

(a) 1 (b) 3
(c) 7 (d) 5

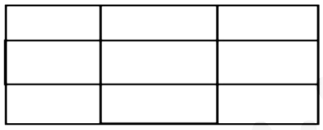
Ans. (d) : 1 + 3 + 7 + 9 + 11 + 13
= 44
Number = 44 + 5 = 49 = $(7)^2$
Hence, 5 should be added in 44 so that it becomes a complete square.

79. The value of $\cos12^\circ+\cos84^\circ+\cos168^\circ+\cos96^\circ$ is:

(a) –1 (b) 0
(c) 1 (d) 0.5

Ans. (b) : cos 12° + cos84° + cos168° + cos96°
= cos12° + cos84° + cos(180° – 12°) + cos(180°–84°)
= cos12° + cos84° – cos12° – cos84°
= 0

80. How many rectangles are there in the given figure?



(a) 32 (b) 42
(c) 28 (d) 36

Ans. (d) : In the given figure the number of rectangle are 36 which are as follows :

1	2	3
2		
3		

Total numbers rectangles = (row × column)
Total number of rows = 1 + 2 + 3 = 6
Total number of columns = 1 + 2 + 3 = 6
Total rectangles = 6 × 6 = 36

81. Sunila had $9\frac{1}{4}$kg of flour to make bread with. If the recipe says that she needs $1\frac{1}{8}$kg to make one loaf of bread, how many loaf can she make? Estimate to the nearest whole number.

(a) 8 (b) 7
(c) 9 (d) 10

Ans. (a) :

$$\text{Number of loaves} = \frac{9\frac{1}{4}}{1\frac{1}{8}} = \frac{\frac{37}{4}}{\frac{9}{8}}$$

$$\frac{37\times8}{4\times9} = \frac{74}{9} = 8.22$$

Hence, number of loaves = 8

82. In which year did the disinvestment process in Public Sector Enterprises in India Start?

(a) 1991 (b) 2018
(c) 2000 (d) 1990

Ans. (a) : When the government sells a part of its equity of a public enterprise less than 50% of its total stock, it is called disinvestment and in this case control and management of the business enterprise remains in the hands of Government. In 1991, the process of disinvestment was started in India in Public Sector Enterprises.

83. In a game Rajesh lost 1/3 of his money in the first round of the game, in the second round he losses 3/5 of his remaining money and in the third round he lost 4/7 of the rest. He is left with what part of the original sum of money.

(a) $\frac{4}{15}$ (b) $\frac{4}{45}$
(c) $\frac{2}{5}$ (d) $\frac{4}{35}$

Ans. (d) : L.C.M. of 3, 5, 7 = 105 (which is original part)

According to question–

Amount lost in the first round $= \frac{1}{3}$ part of the total amount

$$= 105 \times \frac{1}{3} = 35$$

Remaining amount after the first round = 105 – 35 = 70

Amount lost in the second round $= \frac{3}{5}$ part of the remaining amount $= 70 \times \frac{3}{5} = 42$

Remaining amount after the second round = 70–42 = 28

Amount lost in the third round $= \frac{4}{7}$ part of the remaining amount $= 28 \times \frac{4}{7} = 16$

Remaining amount ofter the third round =28 – 16 = 12

Hence remaining share of original amount $= \frac{12}{105} = \frac{4}{35}$

84. Which state does NOT have a Vidhan Parishad (Legislative Council)?

(a) Karnataka (b) Telangana

(c) Maharashtra (d) Kerala

Ans. (d) : As of January 2020, 6 out of 28 states have a State Legislative Council (Vidhan Parishad). These are Andhra Pradesh, Karnataka, Telangana, Maharashtra, Bihar and Uttar Pradesh. The latest state to have a council is the Telangana.

85. Which of the following is composed of nerve fibres that mediate reflex actions and that transmit impulses to and from the brain?

(a) Muscles (b) Rib cage

(c) Heart (d) Spinal Cord

Ans. (d) : Spinal cord, major nerve tract of vertebrates, extending from the base of the brain through the canal of nerve fibres that mediate reflex actions and that transmit impulses to and from the brain.

86. The conclusion that follows from the premises 'All voters are citizens' and 'All citizens are loyalists' is:

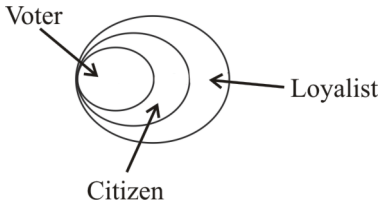
(a) All loyalists are citizens

(b) All voters are loyalists

(c) All citizens are voters

(d) All loyalists are voters

Ans. (b) : On making the diagram as per question –



Hence, it is clear from diagram that. All voters are loy alists.

87. 'Little knowledge is a dangerous thing' is a decision based on:

(a) Incomplete information may cause harm

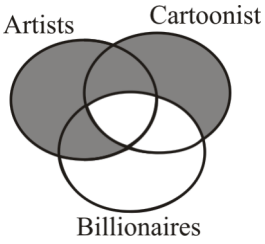
(b) Informal learning is not satisfactory

(c) Little things are dangerous

(d) Ignorance is bliss

Ans. (a) : "Little knowledge is a dangerous things" is a decision based on "Incomplete information may cause harm".

88. In the given Venn diagram, assuming that the shaded areas do not exist, determine which conclusion can be validly drawn ?



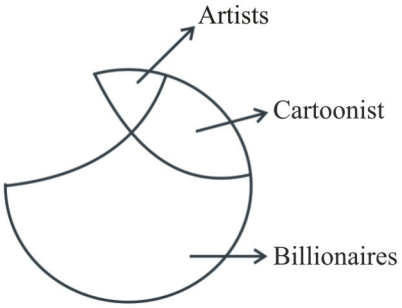
(a) All billionaires are artists

(b) All cartoonists are artists

(c) No artists are billionaires

(d) All artists are cartoonists

Ans. (d) : In given venn diagram assuming that shaded areas do not exist.



It is clear from the above diagram that the conclusion of option (d) "All artists are cartoonists" can be drawn.

89. Which of the following is a mirror image of the word ENCOURAGEMENT?

(a) TNEMEGAROUCNE

(b) TNEMEGAUROCNE

(c) TNEMGEAROUCNE

(d) TNEMEAGROUCNE

Ans. (a) : TNEMEGAROUCNE is the mirror image of the word 'ENCOURAGEMENT'.

90. Select the number from among the given options that can replace the question mark (?) in the following matrix.

14	12	10	8
10	8	2	4
8	14	6	16
12	18	14	?

(a) 18 (b) 16

(c) 10 (d) 20

Ans. (d) : As like, in coloumn (i), (ii) and (iii) respectively–

$14 - (10 - 8) = 12$

$12 - (8 - 14) = 18$

and $10 - (2 - 6) = 14$

Similarly, in column (iv)

$8 - (4 - 16)$

$= 8 + 12$

$= 20$

91. Select the option that is related to the third letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster.

AEJ : ZVQ :: BFK : ?

(a) LPT (b) YUP

(c) CGP (d) TPL

Ans. (b) : As like,

A $\xrightarrow{\text{Opposite}}$ Z

E $\xrightarrow{\text{Opposite}}$ V

J $\xrightarrow{\text{Opposite}}$ Q

Similarly,

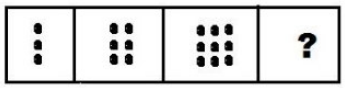
B $\xrightarrow{\text{Opposite}}$ Y

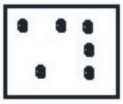
F $\xrightarrow{\text{Opposite}}$ U

K $\xrightarrow{\text{Opposite}}$ P

Hence, ? = YUP

92. Study the given pattern carefully and select the image from among the given option that can replace the question mark (?).



(a)  (b) 

(c)  (d) 

Ans. (c) : In the given pattern Roman numerals are presented by points. The next pattern figure is contained in option (c)

(Hence, Roman Numerals - I, II, III, IV,.....)

93. Select the number from among the given options that can replace the question mark (?) in the following series.

1, 9, 25, 49, 81, ?

(a) 91 (b) 121

(c) 94 (d) 111

Ans. (b) : The sequence of the given number series is as follows –

1	9	25	49	81	121
↓	↓	↓	↓	↓	↓
1^2	3^2	5^2	7^2	9^2	11^2

Hence, ? = 121

94. Four equipment are listed, out of which three are alike in some manner and one is different. Select the odd one.

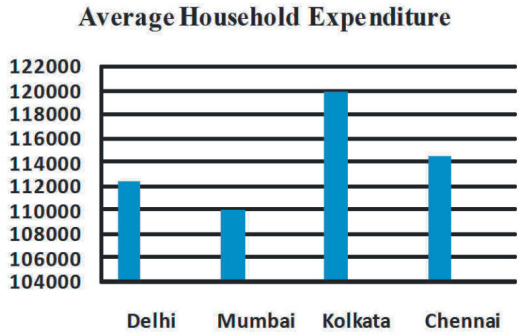
(a) Dropper (b) Beaker

(c) Test tube (d) Compass

Ans. (d) : The relation of Dropper, Beaker and Test tube is the lab equipment used for handling liquids whereas Compass is a direction indicator tool.

Hence option (d) is odd one.

95. The average household expenditure in four metros Delhi, Mumbai, Kolkata and Chennai is given in the graph. What is the ratio of the highest average household expenditure to the lowest average household expenditure.



(a) 11 : 23 (b) 12 : 11
(c) 11 : 12 (d) 23 : 11

Ans. (b) : Highest average household expenditure is of Kolkata = 120000
Lowest average household expenditure is of Mumbai = 110000
Required ratio = 120000 : 110000
= 12 : 11

96. Select the Venn diagram that best represents the relationship between the following classes.
Crockery, Plate, Bowl

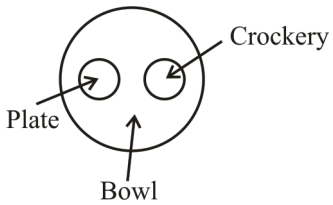
(a) 

(b) 

(c) 

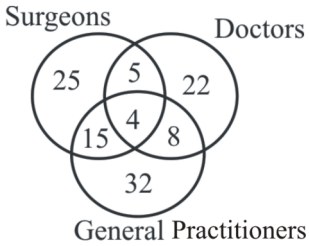
(d) 

Ans. (d) : Crockery means porcelain and the Plate and Bowl come under the utensils.



Therefore, the Venn diagram of option (d) best represents the relationship between the given classes.

97. From the given Venn diagram, find the number of doctors who are surgeons but not general practitioners.



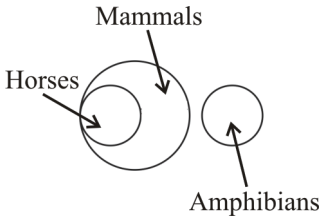
(a) 5 (b) 8
(c) 9 (d) 4

Ans. (a) : It is clear from Venn diagram that the number of doctors who are surgeons but not general practitioners are 5.

98. The conclusion that follows from the premises 'All horses are mammals' and 'No mammals are amphibians' is:

(a) Some horses are amphibians
(b) No amphibians are horses
(c) Every amphibian is a horse
(d) All horses are amphibians

Ans. (b) : According to question,
On drawing a Venn diagram,



It is clear from the Venn diagram that the conclusion "No amphibians are horses", follows the above statements. Hence option (b) is correct.

99. In a certain code language, PENINSULA is written as 111. How will DICHOTOMY be written as in that language?

(a) 222 (b) 121
(c) 212 (d) 112

Ans. (d) : As like,

P	E	N	I	N	S	U	L	A	
16	+ 5	+ 14	+ 9	+ 14	+ 19	+ 21	+ 12	+ 1	= 111

Similarly,

D	I	C	H	O	T	O	M	Y	
4	+ 9	+ 3	+ 8	+ 15	+ 20	+ 15	+ 13	+ 25	= 112

100. Select the number from among the given options that can replace that question mark (?) in the following series.
3, 13, 23, 43, 53, 73, 83, 103, 113, ?

(a) 173 (b) 183
(c) 163 (d) 153

Ans. (c) : The sequence of the given number series is as follows –
3, 13, 23, 43, 53, 73, 83, 103, 113, ?
The given numbers in the series are prime numbers. According to the alternatives, option (c) 163, which is the nearest prime number that comes after the prime number 113. Hence option (c) will complete the number series.

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 04.01.2021] **[Time : 03:00 pm-04:30 pm**

1. As of November 2020, how many nuclear power reactors are operating in India?

(a) 20 (b) 23
(c) 22 (d) 21

Ans. (c) : As of November 2020, India has total 8 nuclear houses in which 22 nuclear reactors are operational. National Power Corporation of India is operating these nuclear reactors. In the given, 18 reactors are of PHWR type and remaining 4 are of simple hydro reactors. India's first nuclear reactor is 'Apsara'.

2. 20 men and 15 boys can do a piece of work in 10 days. 25 men and 10 boys can do it in 9 days. Find the ratio of the daily work done by a man to that of a boys.

(a) 14:15 (b) 5:14
(c) 12:5 (d) 5:12

Ans. (c) :

$10(20M + 15b) = 9(25M + 10b)$

(Where M–Man, b–Boy)

$200M + 150b = 225M + 90b$

$25M = 60b$

$\boxed{M : b = 12 : 5}$

3. Who founded the Muhammad Anglo- Oriental college in 1875 which later became Aligarh Muslim University?

(a) Zakir Hussain
(b) Mohammad Ali Jinna
(c) Maulana Abul Kalam Azad
(d) Syed Ahmed Khan

Ans. (d) : In 1875, Muhammad Anglo Oriental College was established by Sir Syed Ahmed Khan, which later on developed as Aligarh Muslim University. Ahmed Khan was social servant, journalist, social reformer etc and wrote a book known as "Asbab – e - Bagawate Hind" on the Great Indian revolt of 1857.

4. What is the other name of Newton's first law of motion?

(a) Law of momentum
(b) Law of movement
(c) Law of inertia
(d) Law of displacement

Ans. (c) : The first law of Newton is also termed as law of Inertia. It states that a body in rest or moving position continues to be in such state, untill and unless an external force is applied.

The second law of Newton says that force applied on a body is equal to product of its mass and acceleration.

$\boxed{f = m \times a}$

The third law of Newton mentions about action-reaction process.

5. When was the first Passenger train run in India?

(a) 1856 (b) 1853
(c) 1854 (d) 1857

Ans. (b) : The first train in India ran from Mumbai to Thane covering a distance of 34 km. In 1853 under tenure of Lord Dalhousie. Indian railway is the fourth largest railway network in world.

6. The Southern most tip of Indian territory is_____

(a) Cape Comorin (b) Kanyakumari
(c) Karondi (d) Indira Point

Ans. (d) : Northernmost Point → Indira Col (Ladakh)

Southernmost Point → Indira Point formally known as Pygmalion Point. (Great Nicobar)

Southern most point of India's mainland – Cape Comorin (Kanya Kumari, Tamil Nadu)

Easternmost Point → Kibuthu (Arunchal Pradesh)

Westernmost Point → GuharMoti or Ghuar mota or Sir Creek (Gujarat)

7. Study the given pattern carefully and select the number from among the given options that can replace the question mark(?)

(a) 8 (b) 5
(c) 9 (d) 7

Ans. (a) : Just as,

$10 \times 8 = 80$ and $9 \times 7 = 63$

$80 = 80$ $63 = 63$

Same as,

$8 \times 6 = 4\ ?$

$48 = 4\ ?$

$\boxed{? = 8}$

8. In which year was the construction of Jama Masjid of Delhi completed?

(a) 1653 (b) 1655
(c) 1652 (d) 1656

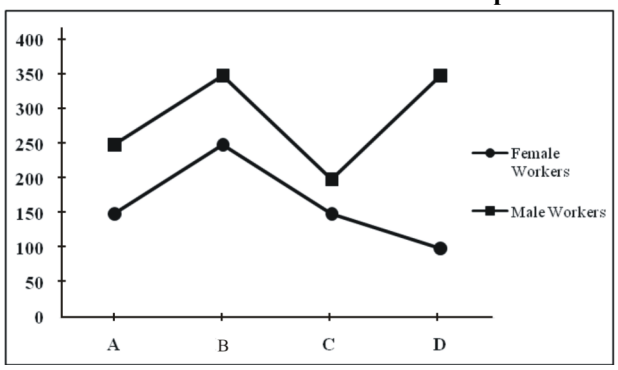
Ans. (d) : The Jama Mosque (Masjid) of Delhi was constructed in between 1650 – 1656 during tenure of Shahjahan. It is also known as Masjid - e - Jahanuma, which denotes notion of conquering the whole world. It consists of 4 gates, 4 pillars and 2 towers. It is made up of Red Sandstone and marbles.

9. 24 mango trees, 56 apple trees and 72 orange trees have to be planted in rows such that each row contains the same number of trees of one variety only. Find the minimum number of rows in which the above mentioned trees may be planted.

(a) 15 (b) 18
(c) 17 (d) 19

Ans. (d) :
(Number of total columns × Number of total rows)
8×3
8×7
8×9
$8 (3 + 7 + 9)$ = Total number of trees
Total number of trees = 19

10. Observe the graph and answer the question below.
The graph represents the number of male and female workers in four different companies.



Which company has the maximum difference in the number of male and female employees ?

(a) A (b) C
(c) D (d) B

Ans. (c) : From the given graph –
In company A
Number of males = 250
Number of females = 150
Required difference =250–150=100
In company B
Number of males = 350
Number of females = 250
Required difference = 350 – 250 =100
In company C
Number of males = 200
Number of females = 150
Required differences = 200 –150 = 50
In company D
Number of males = 350
Number of females = 100
Required difference = 350 – 100 = 250
It is clear that the difference between the number of male and female employees is maximum in company D.

11. GSAT-31is an/a ___

(a) Navigational Satellite
(b) Telecommunication Satellite
(c) Polar Satellite
(d) Experimental Satellite

Ans. (b) : GSAT-31 is a telecommunication satellite which was launched with the help of European Launch service provider Ariane space's rocket from spaceport of French Guiana. GSAT-31 will dedicate its services to mainland and islands of India. Its the nation's 4G telecommunication satellite which will provide the Digital Satellite News Integration and DTH services for next 15 years.
* GSAT-31 is India's 40th Communication Satellite.
* The GSAT-31 will replace the Satellites 'INSAT-4CR' and 'INSAT-4A'.

12. When was Gandhi Smriti and Darshan Samiti (GSDS) formed?

(a) September 1984 (b) September 1986
(c) September 1985 (d) September 1987

Ans. (a) : GSDS → Gandhi Smriti and Darshan Samiti is an organisation established in Sept, 1984. The main objective of the Samiti is to foster the proliferation of Gandhian philosophy and policies.

13. The Buland Darwaza at Fatehpur Sikri was erected by Akbar to celebrate his conquest of ____.

(a) Kashmir (b) Gujarat
(c) Bengal (d) Mewar

Ans. (b) : The Buland Darwaza of Fatehpur was constructed in 1601 by Akbar as a memoir of his Gujarat Campaign Victory. It is also known as Victory Gate. It is also considered as the highest entry gate of the world. In 1571 Akbar shifted his capital to Fatehpur Sikri but after lack of water there, he returned it back to Agra.

14. Which acid is present in the ant sting?

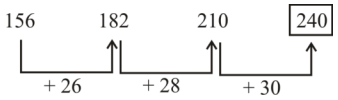
(a) lactic Acid (b) Methanoic acid
(c) Acetic Acid (d) Tartaric acid

Ans. (b) : Resources	**Acids**
Ant bites	Methanoic acid/formic Acid
Curd	Lactic acid
Vinegar	Acetic acid
Tamarind	Tartaric acid

15. Select the number from among the given options that can replace the question mark (?) in the following series.
156, 182, 210?

(a) 240 (b) 236
(c) 210 (d) 202

Ans. (a) : The Given series is as follows –



Hence, there will be 240 at blank place.

16. The law that permitted widows to remarry (Hindu Widow' remarriage Act) was passed in the year

(a) 1856 (b) 1854
(c) 1855 (d) 1858

Ans. (a) : The Hindu Widow Remarriage act was passed in 1856. It was drafted by Lord Dalhousie and passed by Lord Canning. Ishwarchandra of Bengal played a significant role in passing of this act later due to his teaching qualities, he got the tittle of "Vidyasagar" from Fort William College.

17. If x and y are two positive numbers such that $\sqrt{x} = 8$ and $x^2 + y = 4112$, then find the value of $\sqrt{y}$:

(a) 6 (b) 16
(c) 4 (d) 2

Ans. (c) : On squaring both sides

$\sqrt{x} = 8$

$\Rightarrow x = 64$

$x^2 + y - 4112 = 0$

$\Rightarrow 64 \times 64 + y - 4112 = 0$ (On Putting the value of x)

$\Rightarrow y = 4112 - 4096$

$\Rightarrow y = 16$

$\therefore \boxed{\sqrt{y} = 4}$

18. The ratio of the incomes of Amar and Komal is 5 : 4 and the ratio of their expenditure is 2 : 1. If each of them saves ₹6,000 per month, find Amar's income.

(a) ₹ 6,000 (b) ₹ 12,000
(c) ₹ 10,000 (d) ₹ 8,000

Ans. (c) : Let income of Amar and Komal is 5x and 4x respectively.
and their expenditure is 2y and y respectively.
According to question

$5x + 2y = 6000$ ...(i)

$4x + y = 6000$ ...(ii) .....$\times 2$

$5x + 2y = 6000$

$\underline{-8x \pm 2y = -12000}$ On subtracting

$-3x = -6000$

$\Rightarrow x = 2000$

Income of Amar $= 5x = 5 \times 2000 =$ ₹ 10,000

19. Anil lent ₹ 7200 to Dubey for 3 years and ₹8400 to Raghav for 4 years on simple interest at the same rate of interest and received ₹ 4968 in total from them as interest. Find the rate of interest per year.

(a) 8% (b) 10%
(c) 12% (d) 9%

Ans. (d) : Let the rate of interest be R% per annum.
According to the question –

$$\frac{7200 \times 3 \times R}{100} + \frac{8400 \times 4 \times R}{100} = 4968$$

$\Rightarrow 216R + 336R = 4968$

$\Rightarrow 552R = 4968$

$\Rightarrow R = 9\%$

20. Taxol is extracted from which plant?

(a) Yew (b) Chir
(c) Chir (d) Neem

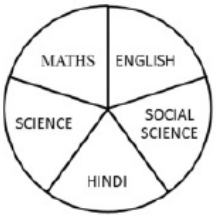
Ans. (a) : Taxol is mainly extracted from Yew tree. It is mainly found in mountaneous regions of northern hemisphere. In India it is mainly found in Himalayan Regions. Taxol is an Anticancer drug.

21. Sushil Kumar won the Olympic medal for:

(a) Shooting (b) Weightlifting
(c) Wrestling (d) Boxing

Ans. (c) : Sushil Kumar is related with Wrestling. He was born on 20th May 1983 in Delhi. He has won two olympic medals and also gold medals in Common Wealth games. He usually participates in 66kg free style wrestling.

22. Observe the figure carefully and answer the question given below



If the total number of students is 120, and the number of students is distributed equally across all the subjects, how many students study languages
ENGLISH
SOCIAL SCIENCE :
HINDI :
SCIENCE :
MATHS :

(a) 36 (b) 24
(c) 48 (d) 12

Ans. (c) : Let the total number of students in each subject = x
Total number of students = 5x
$\Rightarrow 5x = 120$
$\Rightarrow x = 24$
Number of students studying languages(Hindi + English) = 24 + 24 = 48

23. If 'A' represents 'subtraction', 'B' represents 'Multiplication', 'C' represents 'division' and 'D' represents 'addition', then what is the value of (3 B 4 D 5 A 6) C 1?

(a) 1 (b) 11
(c) 0 (d) 10

Ans. (b) : (3 B 4 D 5 A 6) C1
On changing the sign –
(3 × 4 + 5 – 6) ÷ 1= ?
= (12 + 5 – 6) ÷ 1
= (17 – 6) ÷ 1
= 11 ÷ 1
=11

24. The sum of two numbers is 288 and their HCF is 16. How many pairs of such numbers can be formed?

(a) 2 (b) 5
(c) 4 (d) 3

Ans. (d) : Let number is 16x and 16 y
By question –
16(x + y) = 288
x + y = 18
1 + 17 = 18
5 + 13 = 18
7 + 11 = 18
Hence 3 pairs can be formed.

25. Where is the headquarters of UNICEF situated?

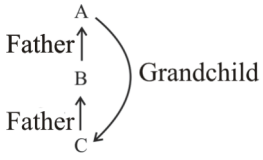
(a) Washington (b) Paris
(c) Zurich (d) New York

Ans. (d) : UNICEF → United Nations International Children's Emergency Fund was formed by UN General Assembly on 11th Dec 1946. It was formulised for fulfilling the necessities of female and children population of devleloping nation. In 1965 the organisation got Nobel Peace Prize and in 1989 got the Indira Gandhi Peace Prize.

26. If A is the father of B and B is the father of C, then how is C related to A?

(a) Grandson (b) Granddaughter
(c) Grandchild (d) Grandfather

Ans. (c) : According to the question



Hence it is clear that C is grand child of A.

27. If $x + x^{-1} = 7$, then find the value of $x^3 + x^{-3}$.

(a) 322 (b) 332
(c) 312 (d) 342

Ans. (a) : Given –

$$x + x^{-1} = 7$$

$$x + \frac{1}{x} = 7$$

Cube the both sides

$$\left(x + \frac{1}{x}\right)^3 = (7)^3$$

$$x^3 + \frac{1}{x^3} + 3 \times x \times \frac{1}{x} \times \left(x + \frac{1}{x}\right) = 343$$

$$x^3 + \frac{1}{x^3} + 3 \times 7 = 343$$

$$x^3 + \frac{1}{x^3} = 343 - 21$$

So, $x^3 + \frac{1}{x^3} = 322$

28. In Telecom field, ISP stands for:

(a) Internet Speed Protocol
(b) Internet Service Protocol
(c) Internet Speed Provider
(d) Internet Service Provider

Ans. (d) : In the telecom sector, ISP stands for Internet Service Provider. It is a company that provides internet connection to people. In 1984 the first ISP was established in USA. In India the first Public Internet Service was launched on 15th Aug 1994 by Videsh Sanchar Nigam Ltd, (VSNL)

29. Second Vande Bharat Express is running between _____.

(a) New Delhi to Lucknow
(b) New Delhi to Mumbai
(c) New Delhi to Kanpur
(d) New Delhi to Katra

Ans. (d) : The original name of Vande Bharat Express is Train 18 (T 18). It is India's first engineless train.
First Vande Bharat Exp- Delhi to Varanasi
Second Vande Bharat Exp- New Delhi to Katra.
Recently on 15th Aug 2021, PM announced for 75 more Vande Bharat Trains on "Azadi Ka Amrit Mahotsav Initiative".

30. A number is first decreased by 20% and then increased by 15%. The number so obtained is 64 less than the original. Find the original number.

(a) 600 (b) 850
(c) 800 (d) 700

Ans. (c) : Let the original = x
According to the question –

$$x - x\frac{80}{100} \times \frac{115}{100} = 64$$

$$x - \frac{92x}{100} = 64$$

$$\frac{100x-92x}{100}=64$$

$$8x=6400$$

$$\boxed{x=800}$$

31. Simplify

15 –6.3 ÷ 7 + 3 × 1.3 –2

(a) 16 (b) 19

(c) 18 (d) 17

Ans. (a) : On solving the equation –

$15 - 6.3 \div 7 + 3 \times 1.3 - 2$

$=15 - .9 + 3 \times 1.3 - 2$

$=15 - .9 + 3.9 - 2$

$=18.9 - 2.9$

$= 16$

32. Select the concept that is implicit in the given statement.

Doctors who charge high consultation fee are good.

(a) A doctor's proficiency is directly related to consultation fees

(b) The doctor is a good practitioner.

(c) A doctor who charges less consultation fee is unpopular

(d) The doctor has many patients

Ans. (a) : Doctors who charge high consultation fee are good. Here a doctor's proficiency is directly related to consulation fees. Hence option (a) is implicit.

33. Observe the table and answer the question below.

The table gives the pass percentage of class X students of five government school in Delhi on the basis of gender.

School	Passed Percentage	Ratio of Boys and Girls
A	35	5 : 6
B	32	3 : 5
C	24	1 : 2
D	10	3 : 2
E	15	5 : 3

What is the ratio of the pass percentage of boys of school B to the pass percentage of boys of school C?

(a) 5:3 (b) 2:3

(c) 3:2 (d) 3:5

Ans. (c) : Number of pass students of school $= 32 \times \frac{3}{8} = 12$

Number of pass students of school C $= 24 \times \frac{1}{3} = 8$

Required ratio = 12 : 8

$= \boxed{3:2}$

34. Simplify

$$25 \div 10 - \left\{\frac{7}{4} \times \frac{1}{3}\right\} \times \frac{6}{5} + \frac{14}{3} \times \frac{9}{10} - \left\{\frac{1}{5} \div \frac{1}{25}\right\}$$

(a) 1 (b) 11

(c) 5 (d) 10

Ans. (a) :

$$25 \div 10 - \left\{\frac{7}{4} \times \frac{1}{3}\right\} \times \frac{6}{5} + \frac{14}{3} \times \frac{9}{10} - \left\{\frac{1}{5} \div \frac{1}{25}\right\}$$

$$= 25 \div 10 - \left\{\frac{7}{12}\right\} \times \frac{6}{5} + \frac{21}{5} - \left[\frac{1}{5} \times 25\right]$$

$$= 25 \div 10 - \left\{\frac{7}{12}\right\} \times \frac{6}{5} + \frac{21}{5} - 5$$

$$= 25 \div 10 - \left\{\frac{7}{12}\right\} \times \frac{6}{5} + \left(-\frac{4}{5}\right)$$

$$= 25 \div 10 - \frac{7}{10} - \frac{4}{5}$$

$$= \frac{25}{10} - \frac{7}{10} - \frac{4}{5}$$

$$= \frac{25}{10} - \frac{7}{10} - \frac{8}{10}$$

$$= \frac{25}{10} - \frac{15}{10} = \frac{10}{10} = 1$$

35. Who is considered the father of white revolution in India?

(a) MS Swaminathan (b) Verghese Kurien

(c) Indira Gandhi (d) Arun Krishnan

Ans. (b) : Verghese Kuriene is known as the "Father of White revolution in India". The White revolution was started in India by 1970. In present, India is the leading milk producing country of the world. On every 1st June, World Milk Day is celebrated. World Milk Day was established by the Food and Agriculture Organization (FAO) of UN in 2001.

36. Who has written the narrative history 'India after Gandhi'?

(a) Malathi Rao (b) Arundhati Roy

(c) Ramachandra Guha (d) Rupa Bajwa

Ans. (c) : Ramachandra Guha was born on 29 April1958. He is a historian and a huge fan of Gandhian Philosophy. He wrote two book with most relevance to Gandhiji.

1. India after Gandhi.

2. Gandhi : The Years That changed the World, 1914–1948.

37. In a certain code language, DESTINY is written as YNITSED. How will DIGNITY be written as in that language?

(a) YIGTIND (b) YGITNID

(c) YTINGID (d) YINGTID

Ans. (c) : Just as,

1	2	3	4	5	6	7		7	6	5	4	3	2	1
D	E	S	T	I	N	Y	→	Y	N	I	T	S	E	D

Same as,

1	2	3	4	5	6	7		7	6	5	4	3	2	1
D	I	G	N	I	T	Y	→	Y	T	I	N	G	I	D

38. Find the sum of the numbers between 400 and 500 such that when 8, 12, and 16 divide them, it leaves 5 as remainder in each case.

(a) 932 (b) 912
(c) 942 (d) 922

Ans. (d) : LCM of 8, 12 and 16 = 48

Number between 400 and 500 which are divisible by 48 = 432 + 480

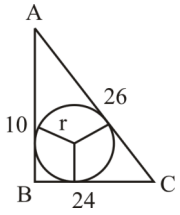
Required number = (432 + 5), (480 + 5) = 437, 485

Sum of Number = 437 + 485 = 922

39. ABC is a right-angled triangle. A circle is inscribed in it. The length of the two sides containing the right angle are 10 cm and 24 cm. Find the radius of the circle.

(a) 5 cm (b) 2 cm
(c) 3 cm (d) 4 cm

Ans. (d) :



By Pythagoras theorem,

$AC^2 = AB^2 + BC^2$

Inradius for right - angled triangle

$$= \frac{\text{Perpendicular} + \text{Base} - \text{Hypotenuse}}{2}$$

$$\text{Inradius} = \frac{10 + 24 - 26}{2}$$

$$\text{Inradius} = \frac{34 - 26}{2} = \frac{8}{2}$$

Inradius = 4 cm.

40. If a + b + c = 14, ab + bc + ca = 47 and abc = 15 then find the value of $a^3 + b^3 + c^3$.

(a) 815 (b) 835
(c) 825 (d) 845

Ans. (a) : Given –

a + b + c = 14, ab + bc + ca = 47

abc = 15

$a^3 + b^3 + c^3 - 3abc = (a+b+c)[(a+b+c)^2 - 3(ab+bc+ca)]$

$a^3 + b^3 + c^3 - 3\times15 = 14\,[196 - 3(47)]$

$a^3 + b^3 + c^3 - 45 = 14\,[196 - 141]$

$a^3 + b^3 + c^3 = 14 \times 55 + 45$

$a^3 + b^3 + c^3 = 815$

41. Which is the fat-accumulating tissue in our body?

(a) Epithelial tissue (b) Vascular tissue
(c) Areolar tissue (d) Adipose tissue

Ans. (d) : Adipose tissues are the fat accumulating tissues in human body. Tissues are formed from cells. Fat tissues are of two types.

1. Adipose
2. Aveolar

42. When was Project Tiger launched in India?

(a) 1970 (b) 1973
(c) 1980 (d) 1975

Ans. (b) : On 1st April 1973, the Project Tiger was started from the Jim-Corbet National Park. In the current scenario, the significant increament in no. of tigers may be seen in India. There are total 52 Tiger Reserves in India. recently, Guru. Ghasidas National Park of Chhattisgarh got status of 53rd Tiger Reserve of India.Madhya Pradesh holds most number of tigers on its lands followed by Karnataka.

Note–

* 52nd – Ramgarh Vishdhari (Rajasthan)
* 51th – Megamalai (Tamil Nadu)

43. Select the option that is related to the third term in the same way as the second term is related to the first term.

Hospital : Health :: School : ?

(a) Education (b) Economy
(c) Books (d) Society

Ans. (a) : Just as, Hospital is necessary for health, same as-school is necessary for education.

44. Driving his car at the speed of 30 km/h Vinod reaches his office 5 min late. If his speed is 40 km/h, he reaches the office 3 min early. Find the distance he travels between his residence and his office.

(a) 20 km (b) 15 km
(c) 18 km (d) 16 km

Ans. (d) : When distance is constant

Distance = Speed × Time

$$30\left(t + \frac{5}{60}\right) = 40\left(t - \frac{3}{60}\right)$$

$$3t + \frac{15}{60} = 4t - \frac{12}{60}$$

$$\frac{15}{60} + \frac{12}{60} = 4t - 3t$$

$$t = \frac{27}{60} = 30\left(t + \frac{5}{60}\right)$$ (Putting the value of t)

$$= 30\left(\frac{27}{60} + \frac{5}{60}\right) = 30 \times \frac{32}{60} = 16\,\text{km}$$

45. How many members are nominated by the President of India in the Lok Sabha from the Anglo-Indian community?

(a) 2 (b) 6
(c) 4 (d) 3

Ans. (a) : According to constitution, the maximum seats in Loksabha is 552. In which

530 → From states

20 → from UT's

2 → Anglo Indian's nominated by President of India.

But in the contemporary times the provision of nomination of two Anglo Indians has been abolished by 104th constitutional amendment act.

46. Ram Kumar bought two LED TV sets for ₹41000. By selling one at a profit of 20% and the other at a loss of 15%, he found that the selling prices of both the TV sets are the same. Find his overall gain or loss.

(a) ₹ 400 Profit (b) ₹ 200 Loss
(c) ₹ 200 Profit (d) ₹ 400 Loss

Ans. (b) : Let cost price of LED is x.

$\therefore$ Cost price of the other LED TV = ₹ $(41000 - x)$

According to question

$$x \times \frac{120}{100} = (41000 - x) \times \frac{85}{100}$$

$$\frac{6x}{5} = (41000 - x) \times \frac{17}{20}$$

$$24x = 41000 \times 17 - 17x$$

$$41x = 41000 \times 17$$

$$x = ₹17000$$

$$\text{Total selling price} = 17000 \times \frac{120}{100} + 24000 \times \frac{85}{100}$$

$$= 20400 + 20400$$

$$= ₹40800$$

$$\text{Loss} = 41000 - 40800$$

$$= ₹200$$

47. Eminent social reformer and women's education activist Pandita Ramabai Sarasvati was a great scholar of _____.

(a) English (b) Hindi
(c) Marathi (d) Sanskrit

Ans. (d) : Pandita Ramabai was feminist social reformer, a knowledgeable fellow and an erudite of Sanskrit . She was born in 1958. She also got the title of "Saraswati". She made hard critics over the system of Patriarchy.

48. The Right to Free and Compulsory Education Act was passed by Parliament in the Year _____

(a) 2011 (b) 2006
(c) 2009 (d) 2010

Ans. (c) : The Right to free and compulsory Education Act was passed by Parliament in year 2009. In India the Right to Education is mention in article 21(A) of Indian constitution.

By the 86th constitutional amendment 2002, Education was made a fundamental right. Under it provision of compulsory education for children between age of 6-14 years was enacted in India.

49. As on Nov, 2020 where is India's newest high court built?

(a) Vishakhapatnam (b) Amravati
(c) Warangal (d) Nellore

Ans. (b) : India's newest High court is Amravati High court. It was build after Telangana was separated from Andhra Pradesh. Now the nation has total 25 High courts.

50. The English Language continued to be used for official purposes of the Union via section 3 of the Official Language Act which came into force in the year.

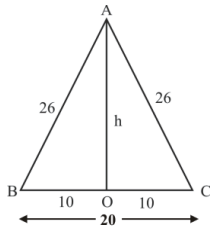
(a) 1960 (b) 1970
(c) 1963 (d) 1965

Ans. (c) : The provision of "using English for the official works of Union government, under the section 3 of official languages Act" was enacted in 1963. The 8th schedule of constitution of India mention 22 languages and also the part XVII (Seventeenth) of Indian constitution from Article 343–351 are related to official languages.

51. In an isosceles triangle ABC, if AB = AC = 26 cm and BC = 20 cm, find the area of triangle ABC.

(a) 180 cm^2 (b) 220 cm^2
(c) 260 cm^2 (d) 240 cm^2

Ans. (d) :



In ΔABO

$h^2 = AB^2 - BO^2$

$h^2 = (26)^2 - (10)^2$

$h^2 = 676 - 100$

$h^2 = 576$

$h = 24$ cm

$$\text{Area of triangle ABC} = \frac{1}{2} \times \text{Base} \times \text{Height}$$

$$= \frac{1}{2} \times 20 \times 24$$

$$= 240\,cm^2$$

52. Who has won the Nine Dots Prize Award 2019?

(a) James Williams (b) Chetan Bhagat
(c) Sandeep Maheswari (d) Annie Zaidi

Ans. (d) : Nine dots prize 2019 was given to Annie Zaidi for the literary work Bread, cement, cactus.
The award is given for an Initiative and special writing style over a contemporary issue. In year 2021&22 the same award has been held by Trish Lorenz.

53. Which of the following gases is a noble gas?

(a) Argon (b) Nitrogen
(c) Oxygen (d) Fluorine

Ans. (a) : Argon (Ar), Neon (Ne), Helium (He), Krypton (Kr), Xenon (Xe), Radon (Rn) are the Six naturally occuring noble gases. They have been categorised in group 18 of periodic table. They have 8 electrons in their Outermost shells. They are colourless, odorless, tasteless.

54. By selling a car for ₹ 120000, David makes a profit of 20%. What will be the selling price of the car if he sells it at 30% profits.

(a) ₹ 1,30,000 (b) ₹ 1,40,000
(c) ₹ 1,25,000 (d) ₹ 1,35,000

Ans. (a) : According to question

$$\text{Cosr price} = \frac{120000 \times 100}{120} = ₹100000$$

At 30% profit

$$\text{Selling price} = 100000 \times \frac{130}{100} = ₹1,30,000$$

55. Find the greatest number of five digits, which is exactly divisible by 468.

(a) 99684 (b) 99486
(c) 99864 (d) 99468

Ans. (a) : The greatest number of 5 digits = 99999

$$468\overline{)99999}(213$$

$$\begin{array}{r} 936 \\ \hline 639 \\ 468 \\ \hline 1719 \\ 1404 \\ \hline 315 \end{array}$$

Required number = 99999 – 315 = 99684

56. Currently, how many languages are listed in the eighth schedule of the Constitution?

(a) 20 (b) 21
(c) 24 (d) 22

Ans. (d) : The 8th schedule of Indian constitution deals with 22 languages. These are : Assamese, Bengali, Bodo, Dogri, Gujarati, Hindi, Kannada, Kashmiri, Konkani, Maithili, Malayalam, Manipuri, Nepali, Marathi, Odiya, Punjabi, Sanskrit, Sindhi, Tamil, Telugu, Urdu. Part XVII of the Indian Constitution deals with the official languages in Articles 343 to 351.

57. Where is the Sambhar Lake Situated ?

(a) Madhya Pradesh (b) Uttar Pradesh
(c) Gujarat (d) Rajasthan

Ans. (d) : Sambhar Lake is situated in Rajasthan. It was declared as a Ramsar site in 1990. It is a significant resource of salt in the country and it is also known as the largest salt water lake in the nation.
Rajasthan government recently started Sambhar Project which covers waters of Mendha, Samavd, Mantha, Rupangarh, Kharian, and Khandela rivers.

58. When was the Atomic Energy amendment bill passed by parliament to allow joint ventures between public sector.

(a) 2012 (b) 2014
(c) 2015 (d) 2010

Ans. (c) : The Atomic Energy Amendment bill was passed by Parliament in 2015. It was passed by Parliament to allow joint ventures between public sector.
* The Bill was introduced by the Minister of state in the department of Atomic Energy, MR. Jitendra Singh.
* The Bill proposes to amend the Atomic Energy Act, 1962.

59. Find the Smallest number by which 35280 must be divided so that the quotient is a perfect square.

(a) 7 (b) 5
(c) 4 (d) 3

Ans. (b) : By option (b)

$$\frac{35280}{5} = 7056$$

$$\sqrt{7056} = 84$$

So required number = 5

60. As per Inland Waterways Authority of India, what is the approximate total length of navigable and waterways of India?

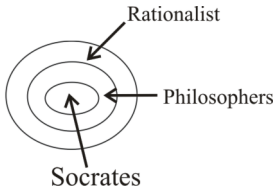
(a) 15600 km (b) 14500 km
(c) 13600 km (d) 12400 km

Ans. (b) : In India, the total length of inland waterways is 14500 km. As per National Waterway Act 2016, 111 waterways have been declared as 'National Waterways". India's longest waterway is National Waterway – 1, (Ganga Bhagirathi - Hooghly river system) between Prayagraj and Haldia. These all fall under the Ministry of Ports, Shipping and Waterways.

61. If all philosophers are rationalists and Socrates is a philosopher, then which of the given conclusions follows?

(a) Socrates is not a rationalist
(b) No philosophers are rationalists.
(c) Socrates is a rationalist
(d) All rationalists are philosophers.

Ans. (c) :



It is clear that Socrates is a rationalist.

62. A rhombus has one of its diagonal 65% of the other. A square is drawn using the longer diagonal as side. What will be the ratio of the area of the rhombus and the area of the square?

(a) 15:18 (b) 18:15
(c) 13:40 (d) 40:13

Ans. (c) : By question

$$65\% = \frac{65}{100} = \frac{13}{20}$$

$\text{Diagonal}_1\,(d_1) = 13$

$\text{Diagonal}_2\,(d_2) = 20$

Area of square $= (\text{side})^2 = (20)^2$

Area of square $= 400$

$$\text{Area of right angle} = \frac{1}{2} d_1 \times d_2$$

$$= \frac{1}{2} \times 20 \times 13 = 130$$

Required ratio $= 130 : 400 = \boxed{13 : 40}$

63. for every 18 eggs that Noori buys, three eggs turn out to be rotten. At the same rate, how many good eggs will Noori have if she buys 690 eggs?

(a) 475 (b) 575
(c) 565 (d) 585

Ans. (b) : Rate of Rotten eggs $= \frac{3}{18} = \frac{1}{6}$

According to question–

No. of rotten eggs in total eggs $= 690 \times \frac{1}{6} = 115$

No. of good eggs. $= 690 - 115 = 575$

64. The captain of a cricket team of 11 members is 35 years old and the wicket keeper is 5 years older than the captain. If the ages of these two are excluded, the average of the remaining players is three years less than the average of the whole team. What is the average age of the whole team.

(a) 26 years (b) 24 years
(c) 28 years (d) 25 years

Ans. (b) : Let average age of whote team is x year –
According to question

$$\frac{11x - 35 - 40}{9} = x - 3$$

$$11x - 75 = 9x - 27$$

$$2x = 75 - 27$$

$$2x = 48$$

$$\boxed{x = 24 \text{ year}}$$

65. Find the value of tan 15º + cot 15º

(a) 2 (b) 8
(c) 4 (d) 6

Ans. (c) : $\tan 15^0 + \cot 15^0$

$$= \frac{\sin 15^0}{\cos 15^0} + \frac{\cos 15^0}{\sin 15^0}$$

$$= \frac{\sin^2 15^0 + \cos^2 15^0}{\sin 15^0 . \cos 15^0} \qquad \left(\because \sin^2\theta + \cos^2\theta = 1\right)$$

$$= \frac{1}{\sin 15^0 . \cos 15^0}$$

$$= \frac{2}{2\sin 15^0 . \cos 15^0}$$

$$= \frac{2}{\sin 30^0} \qquad \left(\because 2\sin\theta . \cos\theta = \sin 2\theta\right)$$

$$= \frac{2}{1/2}$$

$$= 4$$

66. Two cars start from Ahmedabad and run in opposite directions with one car's speed being 200 km/h more than the other. If they are 4500 km apart after 9h, then the sum of the speeds of both the cars is :

(a) 350 km/h (b) 250 km/h
(c) 150 km/h (d) 500 km/h

Ans. (d) : Let the speed of first car = x km/h

$\therefore$ Speed of second car = (x+200) km/h

Distance = Speed × Time

According to question –

4500 = 9 (2x + 200)

500 = 2x + 200

2x=300

speed of first car (x) = 150

speed of second car = x+200 = 150 + 200 = 350

sum of speed = 350 + 150 = 500

67. Where was the first British presidency established in India?

(a) Mumbai (b) Goa
(c) Surat (d) Kolkata

Ans. (c) : In India the first British Presidency was established in Surat. In between 1615–18 Thomas Roe reached in Jahangir's court and achieved grant/rights for the company. The order of entry of Foreigners in India is.

Portguese, Dutch, English, Danes, French.

68. When was Reserve Bank of India established?

(a) April, 1945 (b) April, 1936

(c) April, 1935 (d) April, 1948

Ans. (c) : The Reserve Bank of India was established on 1st April 1935, and was nationalised in 1949. The Bank was set up based on the recommedndations of the 1926 Hilton Young Commission. It is the nation's central bank. It is also known as "Bank of Banks". It is head quartered in Mumbai and its present governor is Shaktikanta Das.

* The first Governor of RBI was Sir Osborne Smith.

While the First Indian Governor of RBI was C.D. Deshmukh.

69. E is older than C, D is older than C but younger than E, A is younger than B and C, C is older then B. Who is the youngest.

(a) C (b) B

(c) D (d) A

Ans. (d) : According to the question–

E > D > C > B > A

Hence it is clear that A is the youngest.

70. What is the term of Non-permanent members of UN Security council?

(a) 2 years (b) 3 years

(c) 5 years (d) 4 years

Ans. (a) : The non-permanent members of UN Security council have a tenure of 2 years. The council has been created for proliferation of peace and security across the world. It is headquartered in Newyork. The council consits of 15 members

5 → Permanent

10 → Non-Permanent

Recently India has been choosen as the non-permanent member of UN security council.

71. Select the alphanumeric cluster from among the given option that can replace the question mark (?) in the following series.

D4C3B2A1, H8G7F6E5, L12K11J10I9, ?

(a) P16O15N14M13 (b) P16R15S14T13

(c) Q17P16O15N14 (d) M15N16O17P18

Ans. (a) : Given series follows as –

D	$\xrightarrow{+4}$	H	$\xrightarrow{+4}$	L	$\xrightarrow{+4}$	P
4	$\xrightarrow{+4}$	8	$\xrightarrow{+4}$	12	$\xrightarrow{+4}$	16
C	$\xrightarrow{+4}$	G	$\xrightarrow{+4}$	K	$\xrightarrow{+4}$	O
3	$\xrightarrow{+4}$	7	$\xrightarrow{+4}$	11	$\xrightarrow{+4}$	15
B	$\xrightarrow{+4}$	F	$\xrightarrow{+4}$	J	$\xrightarrow{+4}$	N
2	$\xrightarrow{+4}$	6	$\xrightarrow{+4}$	10	$\xrightarrow{+4}$	14
A	$\xrightarrow{+4}$	E	$\xrightarrow{+4}$	I	$\xrightarrow{+4}$	M
1	$\xrightarrow{+4}$	5	$\xrightarrow{+4}$	9	$\xrightarrow{+4}$	13

72. When the integer n is divided by 9, the remainder is 4. What is the remainder if 12 n is divided by 9?

(a) 2 (b) 3

(c) 5 (d) 4

Ans. (b) : According to the question –

Let quotient = a

$\because$ Dividend = Divisor × Quotient+ Remainder

$n = 9a + 4$

On multiplying both sides by

$12n = 108a+48$ ...(i)

On dividing equation (i) by 9

$$\frac{12n}{9} = \frac{108a}{9} + \frac{48}{9}$$

= 0 (Remainder) + 3 (Remainder)

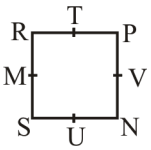
$$\frac{12n}{9} = 3$$

73. Eight people are sitting at a square table. Tina is sitting opposite Urmila, who is sitting between Sharda and Nita. Sharda is diagonally opposite Priya, who is sitting to the right of Vijaya. Vijaya is facing Madhu, who is to the right of Rita. Who is sitting diagonally opposite Nita?

(a) Sharda (b) Rita

(c) Madhu (d) Priya

Ans. (b) : According to question – Making the arrangement



By the figure, it is clear that Reeta is sitting diagonally opposite to 'Neeta'.

74. By default, how many worksheets are present in work book of Excel MS office–2010?

(a) 4 (b) 1

(c) 3 (d) 2

Ans. (c) : By default, 3 worksheets are present in work book of Excel MS office 2010. Microsoft office is a suite designed to perform office related tasks like to prepare draft, calculation, presentation etc. MS office first existed in 1989.

75. What was the sex ratio of India as per 2011 census?

(a) 925 (b) 930
(c) 940 (d) 960

Ans. (c) : * According to Census 2011, Highest Sex Ratio in Kerala (1084) and Lowest or Minimum Sex Ratio is in Haryana (879)
* In Union Territories → Highest – Puducherry (1037)
Lowest – Daman and Diu (533)
As per census 2011, the sex ratio in India was 943. The first census in India was held in 1872 during tenure of Lord Mayo.

76. Simplify
$17 - 4 \times (5.4 \div 9) + 6 \times 1.9$

(a) 22 (b) 24
(c) 28 (d) 26

Ans. (d) :
$17 - 4 \times (5.4 \div 9) + 6 \times 1.9$
$= 17 - 4 \times .6 + 11.4$
$= 17 - 2.4 + 11.4$
$= 28.4 - 2.4 = 26$

77. Find the rate of interest for a sum that becomes $\frac{14641}{10000}$ time of itself in 4 years compounded annually.

(a) 20% (b) 15%
(c) 12% (d) 10%

Ans. (d) : Let the rate of interest = r% per annum

$$\frac{14641}{10000} = \left(1 + \frac{r}{100}\right)^4$$

$$\left(\frac{11}{10}\right)^4 = \left(1 + \frac{r}{100}\right)^4$$

On comparing both sides

$$\frac{11}{10} = 1 + \frac{R}{100}$$

$$\frac{1}{10} = \frac{R}{100}$$

$$\boxed{R = 10\%}$$

78. Inventor of Bluetooth is _____.

(a) Charles Simonyi (b) Jaap Haartsen
(c) Paul Allen (d) Bill gates

Ans. (b) : Bluetooth is a device invented by Jaap Haartsen. It is a device which may be used in data sharing and in now-a-days is much famous for connecting peripheral devices to a main computer.
Charles Simonyi → Developer of MS office suite's first Edition.
Paul Allen & Billgates → Founders of Microsoft.

79. A few lead spheres of diameter 6 cm are dropped into a cylindrical beaker containing some water such that they are fully submerged. If the diameter of the beaker is 9 cm and the water level has risen by 32 cm, find the number of lead spheres dropped into the beaker.

(a) 16 (b) 14
(c) 18 (d) 15

Ans. (c) : Let number of lead sphere is n.

$$\text{Radius of beaker} = \frac{\text{Diameter}}{2} = \frac{9}{2} \text{ cm}$$

$$\text{Radius of each sphere} = \frac{6}{2} = 3 \text{ cm}$$

According to question
(Volume of Sphere × n = The volume of risen water in cylindrical breaker).

$$\frac{4}{3}\pi r_1^3 \times n = \pi r_2^2 h$$

$$\frac{4}{3}\pi(3)^3 \times n = \pi(9/2)^2 \times 32$$

$$n = \frac{81}{4} \times 32 \times \frac{3}{4} \times \frac{1}{27}$$

$$n = 9 \times 2$$

$$\boxed{n = 18}$$

80. Select the option that is related to the third term in the same way as the second term is related to the first term
Virus : Disease :: Exercise: ?

(a) Cycling (b) Walking
(c) Health (d) Jogging

Ans. (c) : Just as, virus is cause of disease same as, exercise is cause of health.

81. Which of the following bodies recommends minimum support price for crops?

(a) NITI Ayog (b) CACP
(c) NABARD (d) FCI

Ans. (b) : The Minimum Support Price (MSP) for-crops is determined on the recommendations of commission for Agricultural Costs and Prices (CACP). The body works under Ministry of Agriculture and Farmers Welfare As of now, CACP recommends MSPs of 23 commodities, which comprise of 7 cereals (Paddy, wheat, maize, sorghum, pearl, millet, barley and ragi), 5 pulses (gram, tur, moong, urad, lentil), 7 oilseeds and 4 commercial crops.

82. The average weight of P, Q and R is 58 kg. If the average weight of P and Q is 54 kg and that of Q and R is 48 kg, then the weight of Q is:

(a) 26 kg (b) 32 kg
(c) 30 kg (d) 28 kg

Ans. (c) :
Average weight of P, Q and R = 58 kg
Total weight of P, Q and R = 58×3=174 kg
P + Q + R = 174 kg ...(i)

Average weight P = 54 kg
Total weight of P and Q = 54×2 = 108kg
P + Q = 108 kg ...(ii)
Average weight of Q and R = 48 kg
Total weight of Q and R= 48 × 2 = 96kg
Q + R = 96 kg ...(iii)
From equation (ii) and (iii)
P + 2Q + R = 204kg ...(iv)
On subtracting equation (i) from equation (iv)
Hence, $\boxed{Q = 30\,Kg}$

83. Which city was the cleanest city of India (in category Cities> 10 Lakh) as per Swachh Survekshan 2020?

(a) Chandigarh (b) Bhopal
(c) Indore (d) Jaipur

Ans. (c) : Swachh Survekshan was started by central government in 2016, to promote competative feeling of cleanliness. In the 2020 Edition Indore topped the survey consecutively 4th times. Also, in 2021 Swachh Survekshan, Indore topped the table.

84. As of 2020, the only person who has received the Nobel prize for physics twice is:

(a) John Bardeen (b) Lawrence Bragg
(c) Marie Curie (d) Arthur Ashkin

Ans. (a) : In the given options, John Bardeen got Nobel Prize twice in Physics.
In 1956 – to discover Transistor
In 1972 – For BCS Theory of Superconductivity.

85. If $\sec\theta = 5x$ and $\tan\theta = \frac{5}{x}$, then the value of $10\left(x^2 - \frac{1}{x^2}\right)$ is :

(a) $\frac{3}{5}$ (b) $\frac{1}{5}$
(c) $\frac{2}{5}$ (d) 2

Ans. (c) : $\sec\theta = 5x$ ...(i)

$\tan\theta = 5/x$ ...(ii)

By equation (i) and (ii)

$$\sec^2\theta - \tan^2\theta = 25\left(x^2 - \frac{1}{x^2}\right)$$

$$1 = 25\left(x^2 - \frac{1}{x^2}\right)$$

$$\left(x^2 - \frac{1}{x^2}\right) = \frac{1}{25}$$

$$10\left(x^2 - \frac{1}{x^2}\right) = \frac{10}{25}$$

$$10\left(x^2 - \frac{1}{x^2}\right) = \frac{2}{5}$$

86. A question and three statements labelled (I), (II) and (III) are given, You have to decide which statement(s) is/are sufficient to answer the question.

Question: Who is the shortest among A, B, C, D and E?

Statement :

I. A is taller than E but shorter than D.

II. B is shorter than C but taller than E.

III. D is taller than C and A is taller than B.

(a) Statements I, II and III are insufficient
(b) Statements I and II together are sufficient.
(c) Statements I and III together are sufficient
(d) Statements I, II and III together are sufficient

Ans. (d) : From statement I
D>A>E
From statement II
C>B>E
From statement III
D>C
A>B
From statement (I), (II) and (III)
D>C/A>B>E
It is clear that E is the shortest.
Hence, the statement I, II and III together are sufficient to answer the given question.

87. Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.

ACDF, GIJL, MOPR, ?

(a) SVUX (b) STVX
(c) SVTX (d) SUVX

Ans. (d) : Given series are as follows −

A $\xrightarrow{+6}$ G $\xrightarrow{+6}$ M $\xrightarrow{+6}$ S
C $\xrightarrow{+6}$ I $\xrightarrow{+6}$ O $\xrightarrow{+6}$ U
D $\xrightarrow{+6}$ J $\xrightarrow{+6}$ P $\xrightarrow{+6}$ V
F $\xrightarrow{+6}$ L $\xrightarrow{+6}$ R $\xrightarrow{+6}$ X

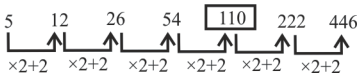
Hence 'SUVX' will be on the place of question mark.

88. Select the number from among the given options that can replace the question mark (?) in the following series.

5, 12, 26, 54, ?, 222, 446

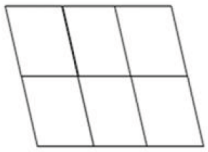
(a) 108 (b) 110
(c) 112 (d) 116

Ans. (b) : Given series is as follows –



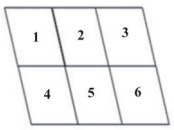
Hence 110 will be on the place of question mark.

89. Count the number of parallelograms in the following figure.



(a) 16 (b) 20
(c) 14 (d) 18

Ans. (d) :

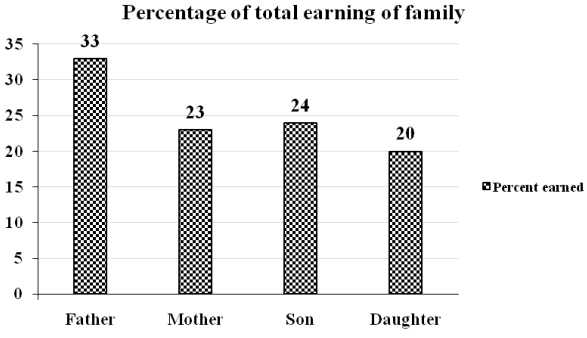


Total number of parallelograms = 1, 2, 3, 4, 5, 6 (1, 2) (2, 3) (4, 5) (5, 6) (1, 4) (2, 5) (3, 6) (1, 2, 3) (4, 5, 6) (1, 2, 4, 5) (2, 3, 5, 6) (1, 2, 3, 4, 5, 6)

Hence, the total number of parallelograms is 18.

90. Observe the bar graph and answer the question below.

The total annual earnings of a family of four members is ₹12 lakhs. The bar graph shows the percentage of contribution of each family member.



What is the difference in the salary of the highest and the lowest earning members?

(a) ₹15,600
(b) ₹11,60,000
(c) ₹1,560
(d) ₹1,56,000

Ans. (d) : By Given Bargraph

Percentage of difference between highest income and lowest income.

$= (33 - 20)\% = 13\%$

Required difference $= 1200000 \times \frac{13}{100} =$ ₹ 1,56,000

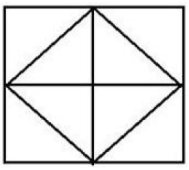
91. Select the option that best describes the given units?

Dollar, Rupee, Yen, Taka

(a) Finance (b) Wealth
(c) Currency (d) Economy

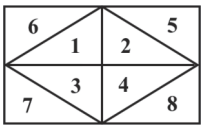
Ans. (c) : Dollar, Rupee, Yen, and Taka are best describes the unit of currency.

92. Count the number of triangles in the following figure.



(a) 12 (b) 10
(c) 16 (d) 9

Ans. (a) :



Number of Triangles = 1, 2, 3, 4, 5, 6, 7, 8 (1, 2) (3, 4) (1, 3) (2, 4)

Hence the number of triangle is = 12

93. How many straight lines does a cuboid have?

(a) 24 (b) 10
(c) 16 (d) 12

Ans. (d) : There are 12 straight line in a cuboid.

94. Study the given table carefully and select the number from among the given option that can replace the question mark (?).

9	8
17	8
25	16
?	8
49	8
57	16

(a) 41 (b) 49

(c) 33 (d) 32

Ans. (a) : Given series are as follows –

9 + 8 = 17

17 + 8 = 25

25 + 16 = 41

41 + 8 = 49

49 + 8 = 57

Hence, 41 will be on the place of question mark.

95. Select the number from among the given options that can replace the question mark (?) in the following series.

214, 197, 179, 160,?

(a) 159 (b) 147

(c) 149 (d) 140

Ans. (d) : Given series are as follows –

214 197 179 160 140

-17 -18 -19 -20

Hence, 140 will be on the place of question mark.

96. If 'some artist are celebrities' and 'all celebrities are millionaires', then which of the given conclusions follow?

(a) All artist are millionaires

(b) No celebrities are millionaires

(c) Some artists are millionaires

(d) No millionaires are celebrities

Ans. (c) : According to question Venn diagram is as follows –

Hence some artist are millionaire.

97. Select the option that is closest to the given shape?

Square, Rhombus, Rectangle, Parallelogram

(a) Scalene

(b) Quadrilateral

(c) Equiangular

(d) Equilateral

Ans. (b) : In given option quadrilateral is same as square, Rhombus, Rectangle and Parallelogram whereas other are different. Hence option (b) is right answer.

98. In a certain code language, VAGABOND is written as NDVABOGA. How will PRACTICE be written as in that Language?

(a) CEPRTIAC (b) CEACTIPR

(c) CERPTIAC (d) PRCETIAC

Ans. (a) : Just as,

1 2 3 4 5 6 7 8 → 7 8 1 2 5 6 3 4

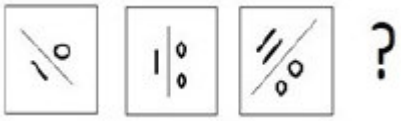
V A G A B O N D → N D V A B O G A

Same as,

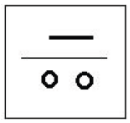
1 2 3 4 5 6 7 8 → 7 8 1 2 5 6 3 4

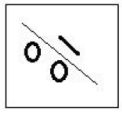
P R A C T I C E → C E P R T I A C

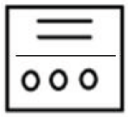
99. Select the pattern from among the given options that will come next in the following series.



(a) 

(b) 

(c) 

(d) 

Ans. (d) : Just as the second pattern can be obtained by increasing one zero in the first pattern and rotating the pattern 45^0 clock-wise, similarly by increasing the zero in the third pattern and rotating the pattern 45^0 clockwise, the option(d) pattern will be obtained.

100. Out of the four materials listed, three are alike in some manner and one is different. Select the odd one.

(a) Iron (b) Silver

(c) Steel (d) Gold

Ans. (c) : Iron, Silver and Gold are pure substance whereas steel is mixture of different element. Hence option (c) is right answer.

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 08.01.2021] **[Time : 10:30 am-12:00 pm**

1. Where was 11th WTO Ministerial Meeting organized?
(a) Switzerland (b) England
(c) China (d) Argentina

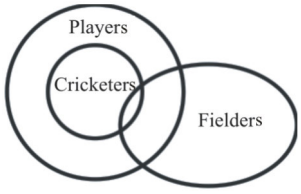
Ans. (d) : The 11th Ministerial Conference of WTO took place from 10 to 13 December 2017 in Buenos Aires, Argentina. It was chaired by Minister Susana Malcorra of Argentina.
The 12th Ministeral Conference will take place from 30 November to 3 December 2021 in Geneva, Switzerland.
World Trade Organisation (WTO) started functioning on 1 January, 1995. The WTO has 164 members states and 23 observers states. Afghanistan became the 164th member in July 2016. It is headquartered in Geneva, Switzerland.

2. Two numbers are in the ratio 19 : 17. Their HCF is 11. Find out the numbers.
(a) 221, 247 (b) 209, 187
(c) 190, 170 (d) 1700, 1900

Ans. (b) : Let both the numbers a and b be 19x and 17x respectively.
HCF(x) = 11
$\therefore$ a = 19 × x = 19 × 11 = 209
b = 17 × x = 17 × 11 = 187
Hence the numbers are 209 & 187.

3. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follows from the statements.
Statements:
1. All cricketers are players.
2. Some cricketers are fielders.
Conclusions:
1. Some fielders are cricketers.
2. Some fielders are players.
(a) Neither conclusion 1 nor 2 follow.
(b) Both conclusions 1 and 2 follow.
(c) Only conclusion 1 follows.
(d) Only conclusion 2 follows.

Ans. (b) : On drawing Venn diagram, as per question.



From the venn diagram, it is clear that both conclusions 1 & 2 follow the statements logically.

4. Which is the world's largest freshwater lake in terms of volume ?
(a) Caspian Sea
(b) Lake Superior
(c) Lake Baikal
(d) Lake Michigan-Huron

Ans. (c) : Lake Baikal is the largest fresh water lake by volume (23, 600 km^3) in the world and it is also the world's deepest lake. It is located in South Siberia, Russia. In 1996 it was declared as a UNESCO World Heritage Site.
Lake Superior is the world's largest freshwater lake by surface area. It is located in North America on the border between the United States and Canada.

5. Who was responsible for introducing Enfield rifles that used the greased cartridges which became the immediate reason of 1857 revolt.
(a) Captain Hearsey
(b) Henry Hardinge
(c) Lord William Bentinck
(d) Francis Grant

Ans. (b) : Henry Hardinge, who was governor general of India from 1844 to 1848, attempted to modernize the army's equipment as governor general. The enfield rifles that were introduced initially used the greased cartridges, the sepoys rebelled against that.

6. As of November 2020, Who is the President of the World Bank?
(a) David R Malpass
(b) Kristanlina Georgieva
(c) Shanta Devrajan
(d) Jim Yong Kim

Ans. (a) : David Robert Malpass was elected as the 13th President of the World Bank Group on 5 April, 2019.
Word Bank is an international financial institution. It was founded in July 1944. It's main objective is the reduction of poverty.

7. The floor of a hall measuring 16 meters in length and 12 meters in width is to be paved with square tiles. If the least number of tiles are to be used, then what is the length of each square tile?
(a) 4 meter (b) 12 meter
(c) 48 meter (d) 24 meter

Ans. (a) : Length of floor = 16m
Breadth of floor = 12m
$\therefore$ HCF of 16 & 12 = 4
Hence the length of each square tiles = 4 meter

8. The present MD and CFO of the World Bank, Anshula Kant was earlier the MD of _____.

(a) SBI
(b) Oriental Bank of Commerce
(c) Bank of Baroda
(d) IndusInd Bank

Ans. (a) : Anshula Kant was appointed as the Managing Director & Chief Financial Officer of the World Bank Group on 12 July 2019, earliar she was the MD of State Bank of India. In September 2018, she became MD of SBI for a period of 2 years.

9. Which missile-destroyer of the Indian Navy has been decommissioned after 36 years in May, 2019?

(a) INS Vikrant (b) INS Rana
(c) INS Ranjit (d) INS Vikramaditya

Ans. (c) : The Indian Navy's frontline missile destroyer INS Ranjit was commissioned on 15 September 1983. It was decommissioned on 6 May 2019 at Vishakhapatnam's naval dock yard. It was third of five Rajput - class destroyers bulit by former USSR.

10. Select the option, that is related to the fourth number in the same way as the first number is related to the second number.

3 : 36 :: ? : 20736

(a) 1728 (b) 3456
(c) 728 (d) 81

Ans. (a) : Just as,

$3 \times 12 \rightarrow 36$

Similarly,

From option (a)

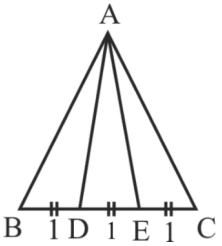
$1728 \times 12 \rightarrow 20736$

Hence, ? = 1728

11. The area of triangle ABC is 39 cm^2. D and E are two points on BC such that BD = DE = EC, then what is the area of triangle ADC?

(a) 26 cm^2 (b) $\frac{9}{4} cm^2$
(c) 13 cm^2 (d) 52 cm^2

Ans. (a) : According to the question,



$\because$ Area of ΔABC = 3 Units

$\therefore$ 3 Units $\rightarrow 39 cm^2$

1 Unit $\rightarrow 13 cm^2$

$\therefore$ Area of ΔADC = 2 Units

$\therefore$ 2 Units $\rightarrow 13 \times 2 = 26 cm^2$

12. A question and two statements are given. Identify which of the statements is/are sufficient to answer the question.

Question:

On which date is Evanshu's birthday?

Statements:

1. Evanshu's birthday is on the Republic Day of a country.

2. The country's national flag is a tricolour flag with an Ashoka Chakra in its centre.

(a) Statement 2 is sufficient but statement 1 is not sufficient.
(b) Both statements 1 and 2 are sufficient together.
(c) Statement 1 is sufficient but statement 2 is not sufficient.
(d) Both statements 1 and 2 are sufficient independently.

Ans. (b) : Evanshu was born on Republic Day on 26th January. From which it is clear that statement '1' is enough for his birth date.

Note:- The RRB has considered option 'b' as the appropriate answer of this question.

13. The diagonal of a square is $\sqrt{200}$ cm. If the sides of a rectangle are in the ratio 5 : 2, which is the same as the area of the square, then what is the length of the rectangle.

(a) $\sqrt{250}$ cm (b) $\sqrt{200}$ cm
(c) $2\sqrt{10}$ cm (d) $\sqrt{20}$ cm

Ans. (a) : $\because$ Diagonal of square $= \sqrt{2} \times$ side

$$\text{Side of square} = \sqrt{\frac{200}{2}} = 10\text{cm}$$

$\because$ Area of rectangle = Area of square

$5x \times 2x = 10 \times 10$

$x^2 = 10$

$x = \sqrt{10}$ cm

$\therefore$ Length of rectangle $= 5x = 5\sqrt{10}$

$= \sqrt{5^2 \times 10}$

$= \sqrt{250}$ cm

14. In an election, there were only two candidates. The losing candidate got 48% of the total votes. His opponent got 6000 votes more and won by a margin of 3% votes. What was the number of invalid votes?

(a) 2000 (b) 3200
(c) 6000 (d) 3000

Ans. (a) : Let total votes = 100%

Votes obtained by losing candidate = 48%

Votes obtained by winning candidate = 52%

Difference of obtained votes = 52 – 48 = 4%

As per question, difference of votes = 3%
it means that 1% votes are illegal/invalid

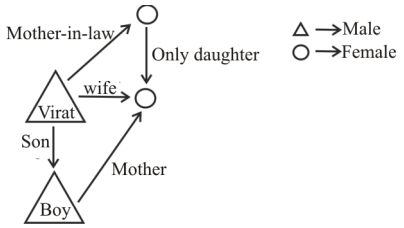
$\therefore$ 3% → 6000

1% (Invalid votes) = 2000

15. Introducing a boy, Virat Said, "His mother is the only daughter of my mother-in-law." How is the boy related to Virat?

(a) Son (b) Uncle
(c) Brother (d) Husband

Ans. (a) : According to the question the blood relation diagram is as follows –



Hence it is clear that the boy is "Son" of Virat.

16. If –5 is a root of the quadratic equation $2x^2 + px - 15 = 0$ and also of the quadratic equation $p(kx^2 + x) = 0$ then what are the values of p and k?

(a) 7, 0.2 (b) 7, –0.2
(c) –7, 0.4 (d) –7,–0.2

Ans. (a) : $2x^2+px - 15 = 0$, $p(Kx^2+x) = 0$

$\because$ Root = –5

$\therefore 2\times(-5)^2 + p(-5) - 15 = 0$

$p\times 5 = 35$

$p = 7$

Again, $p(kx^2 + x) = 0$

$7\left[k(-5)^2 + (-5)\right] = 0$

$7\times(k\times 25 - 5) = 0$

$175k - 35 = 0$

$k = \frac{35}{175}$

$k = \frac{5}{25} = 0.2$

$k = 0.2$

Hence the value of p & k is 7 and 0.2 respectively.

17. The price of sugar increased by 10%. A family of 5 members did not want to increase their expenditure. What is the percentage reduction in their consumption of sugar?

(a) 8 (b) 12
(c) $9\frac{1}{11}$ (d) 10

Ans. (c) : Percentage reduction = $\frac{10}{110}\times 100$

$= \frac{100}{11} = 9\frac{1}{11}\%$

18. Which of the following is one of the founding countries of ASEAN?

(a) India (b) Malaysia
(c) Australia (d) Cambodia

Ans. (b) : Association of Southeast Asian Nations (ASEAN) is an organisation formed by the governments of Malaysia, Indonesia, Philippines, Thailand and Singapore in 1967 to promote economic growth, peace, security, social progress and cultural development in the Southeast Asian region.

19. The speed of a boat in still water is 15 km/h. The speed of the current is 3 km/h. The difference between the time taken for upstream and downstream to complete two trips (i.e. from one end to the other coming back and repeating the same again) is 10 minutes. What is the distance between the two ends?

(a) 2.5 km (b) 2 km
(c) 3.5 km (d) 3 km

Ans. (d) : Let the distance between the ends = d km

Speed of Boat (B) = 15km/h

Speed of Current (C) = 3 km/h

$\therefore$ According to question,

$\frac{2d}{15-3} - \frac{2d}{15+3} = \frac{10}{60}$ Hrs

$\frac{2d}{2} - \frac{2d}{3} = 1$

$\Rightarrow \frac{6d-4d}{6} = 1$

$\Rightarrow 2d = 6$

Distance (d) = 3 km

20. Simplify:

$$1.8 + 2\times\frac{3}{2}\times\frac{1}{2}\left\{\frac{2}{5}\div\left(\frac{3}{5}\times\frac{2}{3}\right)\times\frac{3}{2} - 1\right\}$$

(a) 1 (b) –1
(c) 0.2 (d) 2.55

Ans. (d) : $1.8 + 2\times\frac{3}{2}\times\frac{1}{2}\left\{\frac{2}{5}\div\left(\frac{3}{5}\times\frac{2}{3}\right)\times\frac{3}{2} - 1\right\}$

$= 1.8 + 2\times\frac{3}{2}\times\frac{1}{2}\left\{\frac{2}{5}\times\frac{5}{2}\times\frac{3}{2} - 1\right\}$

$= 1.8 + 2\times\frac{3}{2}\times\frac{1}{2}\left\{\frac{1}{2}\right\}$

$= 1.8 + 3\times\frac{1}{2}\left\{\frac{1}{2}\right\}$

$= 1.8 + \frac{3}{4} = 1.8 + 0.75 = 2.55$

21. INTERPOL has its headquarters in _____.

(a) Germany (b) France
(c) Switzerland (d) Spain

Ans. (b) : The International Criminal Police Organization (INTERPOL) is an intergovernmental organization that helps to cordinate the police forces of 194 member countries. It is headquartered in Lyon, France. It was established in 1923.

22. The difference between the fractions 5 minutes of an hour and 20 seconds of an hour is:

(a) $\frac{16}{180}$ (b) $\frac{28}{270}$
(c) $\frac{0.7}{9}$ (d) $\frac{7}{12}$

Ans. (c) : The difference between the fractions 5 minutes of an hour and 20 seconds of an hour is-

$$= \frac{5}{60}\text{h} - \frac{20}{3600}\text{h}$$
$$= \frac{5}{60} - \frac{2}{360}$$
$$= \frac{30-2}{360}$$
$$= \frac{28}{360}$$
$$= \frac{7}{90} = \frac{0.7}{9}\text{h}$$

23. In a school the ratio of the number of boys and girls is 5:6. 20% boys and 25% girls are scholarship holders. How many students did not get a scholarship?

(a) $\left(\frac{950}{11}\right)\%$ (b) $\left(\frac{850}{11}\right)\%$
(c) $\left(\frac{8000}{11}\right)\%$ (d) $\left(\frac{750}{11}\right)\%$

Ans. (b) :

Let the number of boys = 500
and the number of girls = 600

Number of boys, who are not scholarship holder

$$= 500 \times \frac{80}{100} = 400$$

Number of girls, who are scholarship holder

$$= 600 \times \frac{75}{100} = 450$$

Percentage of students who are not scholarship holder

$$= \frac{400+450}{1100} \times 100$$
$$= \left(\frac{850}{11}\right)\%$$

24. Who said the following when laying the foundation stone ceremony of Banaras Hindu University, "There is no salvation for India unless you strip yourself of this jewellery and hold it in trust for your country men in India."

(a) Gopal Krishna Gokhale
(b) Mohammad Ali Jinnah
(c) Annie Basant
(d) Mahatma Gandhi

Ans. (d) : In February 1916, Mahatma Gandhi was invited to speak at the laying of foundation stone of the Banaras Hindu University (BHU). At there Mahatma Gandhi said that 'There is no salvation for India unless you strip because yourself of this jewellery and hold it in trust for your country men in India. Lord Hardinge, the Viceroy, has came specially to lay the foundation stone of BHU.

BHU was founded by Madan Mohan Malaviya on 4 February 1916.

25. Which two signs need to be interchanged to make the following equation correct.

3 + 3 × 3 – 3 ÷ 3 = 3

(a) – and + (b) + and ÷
(c) × and ÷ (d) + and ÷

Ans. (d) : The given equation is –

3+3×3–3÷3=3

On interchanging signs (+) & (÷) as per option (d)

3÷3×3–3+3=3
3–3+3=3
3=3

L.H.S = R.H.S

26. Which of the following is an example of non-infectious disease?

(a) Typhoid (b) Pneumonia
(c) High Blood Pressure (d) Influenza

Ans. (c) : Non-Communicable (infectious) disease are caused by a variety of reasons such as - genetics, nutritional deficiency, age and sex of the individual and so on. Examples include High Blood Pressure, Diabetes, Hypertension, Cancer etc. where as Typhoid, Pneumonia and Influenza are communicable diseases.

27. Seven chocolates, A, B, C, D, E, F and G, are bought at different costs between ₹40 and ₹50 (excluding both ₹40 and ₹50) but not necessarily in the same order. The cost of chocolate C is ₹5 less than that of chocolate E. The cost of chocolate A is a prime number. The cost of chocolate F is ₹2 more than that of chocolate A. The cost of chocolate F is more than that of chocolate E. The cost of chocolate D is an odd number. The cost of chocolate G is ₹3 more than the cost of chocolate D. None of the chocolates cost ₹44. The cost of chocolate B is an even number. What is the cost of chocolate E?

(a) ₹ 45 (b) ₹ 47
(c) ₹ 46 (d) ₹ 42

Ans. (c) : According to question,

Chocolate	Cost
A	47
B	42
C	41
D	45
E	46
F	49
G	48

Hence from the statement it is clear that the price of chocolate E is ₹46.

28. Which one of the following contains CFC?

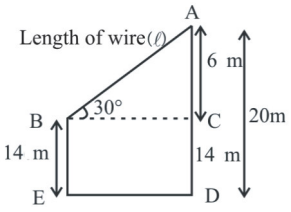
(a) Wall Paints (b) Aerated drinks
(c) Varnish (d) Refrigerants

Ans. (d) : Chlorofluorocarbons (CFCs) are the gases used for various purpose including solvents, refrigerants and aerosol sprays. CFCs are the organic chemicals that contain Carbon, Chlorine and Fluorine. CFCs have been banned since 1996 because they damage the earth's Ozone layer.

29. Two poles of height 20 meters and 14 meters are joined at the top by a wire which makes an angle of 30° with the horizontal. The length of the wire is:

(a) 10 m (b) 12 m
(c) 16 m (d) 14 m

Ans. (b) : Let the length of wire is ℓ.



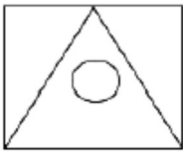
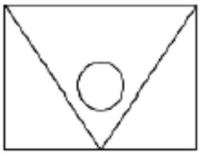
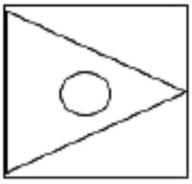
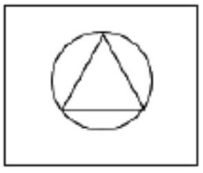
In ΔABC,

$$\sin 30° = \frac{AC}{AB}$$

$$\frac{1}{2} = \frac{6}{AB}$$

$$AB = 6 \times 2 = 12m$$

30. Four figures have been given, out of which three are alike in some manner and one is different. Select the odd one.

(a) 
(b) 
(c) 
(d) 

(a) b (b) d
(c) c (d) a

Ans. (b) : It is clear from the above question figures, that figure (a), (b) & (c) are similar to each other in which the circle is inside the triangle. While in figure (d), the triangle is inside the circle. Hence option 'd' is different amongst all.

31. At present the average age of 20 students of class ten is 15.5 years. The present age of the class teacher is 47 years. What will be the average age of the students and the class teacher after 5 years?

(a) 22.5 years (b) 22 years
(c) 21.8 years (d) 21.5 years

Ans. (b) : Total average age of students and teacher

$$= 20 \times 15.5 + 47$$

$$= 310 + 47 = 357 \text{ years}$$

Total age of the students and the class teacher after 5 years $= 357 + 20 \times 5 + 5$

$$= 462 \text{ years}$$

$\therefore$ Hence, the average age after 5 years $= \frac{462}{21} = 22$ years

32. A small text file created by a website that is stored in the user's computer temporarily for that session is called _____

(a) bug (b) cache
(c) cookie (d) malware

Ans. (c) : A small text file (upto 4 KB) created by a website that is stored in the user's computer either temporarily for that session only or permanently in storage is called cookies. Cookies provide a way for the website to recognize us and keep track of our preferences.

33. If DO is coded as 60 and SO is coded as 285, then which of the following will be the code for RED?

(a) 299 (b) 360
(c) 27 (d) 94

Ans. (b) : Just as,

$$\begin{matrix} D & & O \\ \downarrow & & \downarrow \\ 4 & \times & 15 \end{matrix} = 60$$

$$\begin{matrix} S & & O \\ \downarrow & & \downarrow \\ 19 & \times & 15 \end{matrix} = 285$$

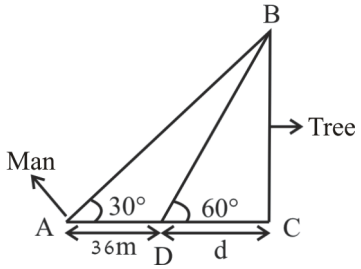
Similarly,

$$\begin{matrix} R & & E & & D \\ \downarrow & & \downarrow & & \downarrow \\ 18 & \times & 5 & \times & 4 \end{matrix} = \boxed{360}$$

34. A man standing on the banks of a river observes that the angle subtended by a tree on the opposite bank is 60º. He walk 36 meters backward on the bank and observes the angle to be 30º. What is the breadth of the river ?

(a) 20 meters (b) 18 meters
(c) 10 meters (d) 28 meters

Ans. (b) :



Let the breadth of river = d m

In ΔABC,

$$\tan 30° = \frac{BC}{36+d}$$

$$BC = \frac{36+d}{\sqrt{3}} \quad \text{------- (1)}$$

Again in ΔBDC,

$$\tan 60° = \frac{BC}{d}$$

$$BC = \sqrt{3}d$$

From eq^{n} (i)-

$$\sqrt{3}d = \frac{(36+d)}{\sqrt{3}}$$

$3d = 36+d$

$2d = 36$

$d = 18m$

35. Three statements are given, followed by three conclusions I, II and III. You have to consider the statements to be true even if they seem to be at variance with commonly known facts and then decide which of the given conclusions logically follow(s) from the given statements.

Statements:

Some tigers are rats.

All rats are elephants

All tigers are cats.

Conclusions:

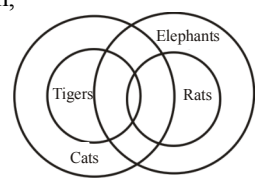
I. Some cats are elephants.

II. Some elephants are tigers.

III. Some cats are rats.

(a) Only conclusions II and III follow
(b) All conclusions I, II and III follow
(c) Only conclusions I and II follow
(d) Only conclusions I and III follow

Ans. (b) : As per question, on drawing the Venn diagram,



Hence from above it is clear that all conclusions I, II & III follow the statements logically.

36. The Virupaksha temple at Hampi is dedicated to:

(a) Lord Shiva (b) Lord Ganesha
(c) Lord Vishnu (d) Lord Brahma

Ans. (a) : Virupaksha temple is the oldest and principal temple in Hampi Karnataka. It is located on the bank of river Tungbhadra. It has been an important pilgrimage centre for the worshipping of Lord Shiva. Krishnadevaraya has been a major patron of this temple. Lakkan Dandesha who was the chieftain of Deva Raya II of Vijayangara Empire has commissioned this temple.

37. Which Indian state has the highest power generation capacity from thermal energy?

(a) Gujarat (b) Uttar Pradesh
(c) Maharashtra (d) Andhra Pradesh

Ans. (c) : The state of Maharashtra is at the top position in power generation capacity from Thermal Energy. India is the world's 5th largest electricity generator with installed capacity of 2, 27, 722 MW.

38. 25% of a number is 7 more than 30% of another number. The difference between the numbers is 29. What are the numbers?

(a) 39 and 10 (b) 40 and 11
(c) 34 and 5 (d) 37 and 8

Ans. (c) : Let the two numbers are x and y.

$\therefore$ According to question,

$25\% \times x = y \times 30\% + 7$

$$\frac{25 \times x}{100} = \frac{y \times 30}{100} + 7$$

$$\frac{x}{4} = \frac{3y}{10} + 7$$

$$\frac{x}{4} = \frac{3y+70}{10}$$

$5x = 6y + 140$

$5x - 6y = 140$ ..... (i)

Again as per question,

$\because$ $x - y = 29$ ..... (ii)

On multiplying by 5 in equation (ii) and then subtracting from equation (i)

$5x - 6y = 140$

$5x - 5y = 145$

$y = 5$

Putting the value of 'y' in equation (ii)

$x - y = 29$

$x - 5 = 29$

$x = 34$

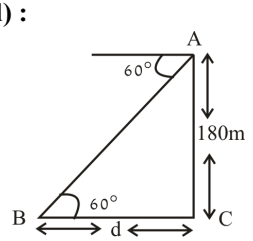
Hence the numbers are 34 & 5.

39. A guard observes an enemy boat, from an observation tower at height of 180 meters above the sea level, to be at an angle of depression of 60º. What is the distance of the boat from the foot of the tower?.

(a) $\frac{60}{\sqrt{3}}$ m (b) $\frac{30}{\sqrt{3}}$ m

(c) $30\sqrt{3}$ m (d) $60\sqrt{3}$ m

Ans. (d) :



Let the distance of boat from the base of tower = d m

In ΔABC,

$$\tan 60° = \frac{AC}{BC}$$

$$\Rightarrow \sqrt{3} = \frac{180}{d}$$

$$d = \frac{180}{\sqrt{3}} = 60\sqrt{3} \text{ m}$$

40. Three consecutive integers when taken in increasing order and multiplied by 2, 3 and 4 respectively adds up to 74. What is the greatest number?

(a) 8 (b) 14

(c) 10 (d) 9

Ans. (d) : Let the numbers be x, x + 1 and x + 2

$\therefore$ As per question,

$$2(x) + 3(x+1) + 4(x+2) = 74$$

$$2x + 3x + 3 + 4x + 8 = 74$$

$$9x + 11 = 74$$

$$9x = 63$$

$$x = 7$$

$\therefore$ The greatest number = x + 2 = 7 + 2 = 9

41. Rajni can do 25% less work than Mohan and Mohan can do 20% more work than Rizwan. At the end of the completion of the work, what will be Mohan's share out of the profit of ₹930.

(a) ₹300 (b) ₹350

(c) ₹360 (d) ₹260

Ans. (c) : Mohan : Rajni : Rizwan = 120 : 90 : 100

= 12 : 9 : 10

$$\text{Mohan's share} = \frac{930 \times 12}{31}$$

= ₹ 360

42. Six persons– Seema, Vaibhav, Ajay, Manisha, Tulika and Ananya– were born in six different states, namely Assam, Gujarat, Madhya Pradesh, Punjab, Bihar and Rajasthan, but not necessarily in the same order. They all play six different games, namely Chess, Football, Hockey, Ludo, Badminton and Cricket, but not necessarily in the same order. Ananya was born in Gujarat and she plays Cricket. Ajay does not play Chess or Ludo. The person who was born in Bihar plays Football, Seema plays Hockey and she was not born in Assam or Madhya Pradesh. Manisha was born in Rajasthan and she plays Badminton.

Identify the state in which Ajay was born?

(a) Assam (b) Punjab

(c) Madhya Pradesh (d) Bihar

Ans. (d) : According to the question –

Persons	States	Sports
Seema	Punjab	Hockey
Vaibhav	No Data	No Data
Ajay	Bihar	Football
Manisha	Rajasthan	Badminton
Tulika	No Data	No Data
Ananya	Gujarat	Cricket

Hence it is clear that Ajay was born in Bihar.

43. Which one of the following is a nuclear research reactor operated by Bhabha Atomic Research Centre?

(a) Shiva (b) Narayana

(c) Dhruva (d) Vishnu

Ans. (c) : Bhabha Atomic Research Centre (BARC) is India's premier nuclear research facility headquartered in Trombay, Mumbai, Maharashtra. The Atomic Energy Establishment, Trombay (AEET) was established in 1954. In 1966 after the demise of Dr. Homi Jehangir Bhabha, AEET was renamed as BARC.

The Dhruva reactor is the India's largest research reactor and primary source of weapons-grade Plutonium. It is located in the Mumbai suburb of Trombay at the BARC.

44. 'Natyashastra' the famous treatise on dramatic art was written by _____

(a) Harsha Vardhan (b) Bharat Muni

(c) Kalidasa (d) Vishnu Sharma

Ans. (b) : Natyashastra is the earliest literature on music and drama. It was written somewhere around 500 BC by Bharata Muni.

Harshvardhana wrote Ratnavali, Nagananda and Priyadarsika.

'Panchatantra' was written by Vishnu Sharma Kalidasa had wrote Meghaduta, Kumarasambhava and Raghuvamsa.

45. Which corporate organization has signed an MoU to plant Rudraksh trees in Uttarakhand as part of their Corporate Social Responsibility under 'Namami Gange Programme' in 2019

(a) Infosys (b) IBM
(c) HCL foundation (d) Wipro

Ans. (c) : In May 2019, a memorandum of Understanding (MoU) was signed between National Mission for Clean Ganga, HCL foundation and INTACH for taking up a project for 'Plantation of Rudraksh Trees in Uttarakhand' as a part of CSR Initiative under the 'Namami Gange' Programme.

46. Name the President of confederation of Indian Industry (CII) for 2020-21

(a) Vikram Kirloskar (b) TV Narendra
(c) Rakesh Bharti Mittal (d) Uday Kotak

Ans. (d) : Mr. TV Narendran, CEO and Managing Director of Tata Steel Limited is the present President of Confederation of Indian Industry. The Confederation of Indian Industry is a non governmental trade association and advocacy group headquartered in New Delhi, India, It was founded in 1895.
Note : As of financial year 2020-21, Uday Kotak was the president of confederation of Indian Industry.

47. Which of the following buildings was designed by F.W. Stevens?

(a) The Town Hall, Bombay
(b) Horniman Circle (formerly Elphinstone Circle)
(c) Bombay Secretariat
(d) Chhatrapati Shivaji Maharaj Terminus (Formerly Victorial Terminus)

Ans. (d) : Chhatrapati Shivaji Maharaj Terminus was designed by Fredrick William Stevens. It was earlier known as Victoria Terminus. It is an outstanding example of Victorian Gothic Revival architecture in India.

48. Which article of the Indian Constitution grants the right to equal opportunity in public employment ?

(a) Article 13 (b) Article 15
(c) Article 14 (d) Article 16

Ans. (d) : Article 16 of the Indian Constitution assures equality of opportunity in matters of public employment and prevents the state from any sort of discrimination on the grounds of religion, race, caste, sex, descent, place of birth residence or any of them.
Article 17 deals with abolition of Untouchability.

49. Which of the following medicinal plant can be used to treat blood pressure?

(a) Jamun (b) Tulsi
(c) Sarpagandha (d) Babool

Ans. (c) : Sarpagandha is taken from the roots of a plant named Indian Snakeroot and is a vital drug in Ayurveda used for high blood pressure, asthama and insomnia.

50. Rahim invested a certain sum at 5% simple interest for 3 years. His friend Hiralal invested the same sum for 2 years at 7% simple interest. Rahim got ₹30 more interest than Hiralal. What was the amount invested by them?

(a) ₹7, 000.00 (b) ₹3, 000.00
(c) ₹2, 000.00 (d) ₹5, 000.00

Ans. (b) : As per question,

$$\text{Rahim's SI - Hiralal's SI} = ₹30$$

$$\frac{P \times 3 \times 5}{100} - \frac{P \times 2 \times 7}{100} = ₹30$$

$$\frac{P}{100} = ₹30$$

$$\text{Principal Amount (P)} = ₹3000$$

51. Which former ISRO chairman has been awarded France's highest civilian honour in 2019?

(a) Kailasavadivoo Sivan
(b) G. Madhavan Nair
(c) K. Radhakrishnan
(d) A.S. Kiran Kumar

Ans. (d) : In 2019, former ISRO Chairman AS Kiran Kumar was conferred with France's highest civilian award-"Chevalier de I'order national de la Legion d' Honneur" for his contribution to India-France space Cooperation.

52. As of Nov 2020, who is the Chief Justice of India?

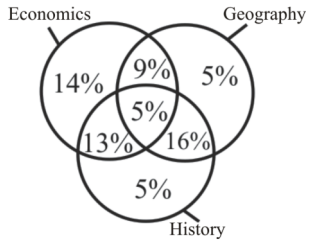
(a) S Arvind Bobde (b) Kurian Josef
(c) Deepak Mishra (d) J. Chelameswar

Ans. (a) : Sharad Arvind Bobde was appointed the 47th Chief Justice of India on 18 November 2019, succeeding Ranjan Gogoi. Justice C.V. Ramana is the current Chief Justice of India (48th).

53. In an examination, 41% of students failed in Economics, 35% of students failed in Geography and 39% of students failed in History, 5% of students failed in all the three subjects, 14% of students failed in Economics and Geography, 21% of students failed in Geography and History and 18% of students failed in History and Economics. Find the percentage of students who failed in only Economics.

(a) 16 % (b) 12 %
(c) 10 % (d) 14 %

Ans. (d) :



Percentage of students who failed only in Economics = 14%

54. Which country won the first ICC Men's T20 Cricket world cup title?

(a) India (b) England
(c) Pakistan (d) West Indies

Ans. (a) : The first ICC Men's T-20 World Cup was held in South Africa in 2007 where India defeated Pakistan in the final match. ICC Men's T20 World Cup 2021 which was held in the UAE and Oman, won by Australia by defeating Newzealand.

55. The product of any two even consecutive numbers is always divisible by:

(a) 8 (b) 16
(c) 12 (d) 6

Ans. (a) : The product of any two even consecutive numbers is always divisible by 8.

For Example

$\frac{2\times4}{8}=1$, $\frac{4\times6}{8}=3$ etc

56. A drum of water is 3/4 full. When 9 litres of water is drawn from it, it is 1/2 full. What is the capacity of the drum?

(a) 20 litres (b) 36 litres
(c) 28 litres (d) 37 litres

Ans. (b) : Let the capacity of drum = x ltr.

$$\frac{3x}{4}-9=\frac{x}{2}$$

$$\frac{3x-2x}{4}=9$$

x = 36 litres

57. Who invented 'www'?

(a) Tim Berners-Lee (b) Vint Cerf
(c) Charles Babbage (d) Robert E. Kahn

Ans. (a) : WWW was invented by Sir Tim Berners Lee in 1989, while working at CERN. WWW stands for "World Wide Web". It is a hypertext information system.

Charles Babbage is credited for invention of first mechanical computer.

58. Which state in India has the highest coal reserves?

(a) West Bengal (b) Jharkhand
(c) Orissa (d) Chhattisgarh

Ans. (b) : India holds the 5th largest coal reserve in world. Jharkhand has the largest coal reserve in India. It has an estimated reserve of 83,153 Million Ton. Odisha has the second largest coal reserve in India followed by Chhattisgarh and West Bengal.

In financial year 2020-21 Chhattisgarh registered highest the coal production followed by Odisha, MP and Jharkhand.

59. A student takes 1.5 hours from home to school at a speed of 5 km/h. By what percent should he increase his speed to reduce the time by 20% and cover the same distance from school to home?

(a) 20 % (b) 25 %
(c) 16 % (d) 15 %

Ans. (b) : Let the speed increased by 'v' km/h.

From $v_1t_1 = v_2t_2$

$5\times1.5 = (5+v)\times1.2$ $\left(\because 1.5\times\frac{80}{100}=1.2h\right)$

$25 = 20 + 4v$

$v = \frac{5}{4}$ km/h (increament)

Hence the required percentage increament $= \frac{\frac{5}{4}}{5}\times100$

$= \frac{5}{20}\times100$

$= 25\%$

60. The first passenger train in India was operated between: _____

(a) Howrah and Hoogly
(b) Roorkee and Piran Kaliyar
(c) Royampuram and Wallajah Road
(d) Bombay and Thane

Ans. (d) : On 16th April, 1853, the first passenger train ran between Bori Bunder (Bombay) and Thane, covered a distance of 34 km. It was operated by Great Indian Peninsula Railway.

61. Identify the name of the traditional folk theatre form of Maharashtra.

(a) Nautanki (b) Swang
(c) Tamasha (d) Rasleela

Ans. (c) : Tamasha is a traditional form of Marathi theatre often performed with singing and dancing. It is widely performed by local or travelling theatre groups within the state of Maharashtra. Rasleela, Nautanki and Swang are popular folk dance - theatre form in Uttar Pradesh.

62. In India, river dolphins are found in _____ river:

(a) Krishna (b) Luni
(c) Godavari (d) Ghaghara

Ans. (d) : River dolphins are usually freshwater aquatic mammals. These dolphins are found in Ghaghara river.

63. If the number 356yx is divisible by 90, then (y – x) is:

(a) 1 (b) 2
(c) 3 (d) 4

Ans. (d) : $\frac{356yx}{90} = \frac{356yx}{9 \times 10}$

Divisibility rule of 9 : $\rightarrow$ If the sum of digits of a number is divisible by 9, then the number will be divisible by 9.

$$3 + 5 + 6 + 4 + 0 = \frac{18}{9} = 2$$

On putting y = 4 & x = 0 the sum of digits of number is divisible by 9.

Divisibility rule of 10: A number whose last digit is '0', then the number is divisible by 10.

$$= \frac{3+5+6+4+0}{10} = 3564$$

$\therefore$ x = 0

(y – x) = (4 – 0)

(y – x) = (4)

64. Jon Beel Mela is the only fair in India where barter system is still used. In which state does it take place?

(a) Nagaland (b) Manipur
(c) Tripura (d) Assam

Ans. (d) : The Jonbeel Mela usually takes place a few days after Magh Bihu. It is celebrated at Dayang Belguri in Morigaon district in Assam. A cluster of tribes celebrates this from centuries. It is the only fair in India where barter system is still used.

The Jonbeel Mela is organized by the Tiwa community.

65. Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.

ABF, BCG, CDH, DEI, EFJ, ?

(a) FGC (b) FGL
(c) FGA (d) FGK

Ans. (d) : The given series is as follows.

A $\xrightarrow{+1}$ B $\xrightarrow{+1}$ C $\xrightarrow{+1}$ D $\xrightarrow{+1}$ E $\xrightarrow{+1}$ F
B $\xrightarrow{+1}$ C $\xrightarrow{+1}$ D $\xrightarrow{+1}$ E $\xrightarrow{+1}$ F $\xrightarrow{+1}$ G
F $\xrightarrow{+1}$ G $\xrightarrow{+1}$ H $\xrightarrow{+1}$ I $\xrightarrow{+1}$ J $\xrightarrow{+1}$ K

$\therefore$ Hence FGK will be at the place of (?).

66. Name the mission ISRO has conceived to study the sun.

(a) Exposat (b) Suraj
(c) Exoworld (d) Aditya L1

Ans. (d) : ISRO has launched Aditya L1 Mission using PSLV-XL. The objective of Aditya L1 mission is to study the Sun's corona, chromosphere and photosphere. In addition, it will study the particle flux emanating from Sun, and the variation of magnetic field strength.

67. Three friends arranged a party. Tanveer paid 2/3 as much as Yusuf paid. Yusuf paid 1/2 as much as Sachin paid. The fraction of the total expenditure by Yusuf was.

(a) $\frac{7}{11}$ (b) $\frac{5}{11}$
(c) $\frac{3}{11}$ (d) $\frac{2}{11}$

Ans. (c) : Ratio of expenditure Tanveer Yusuf and Sachin.

2 : 3 : 6 (LCM of 3, 2 = 6)

$\therefore$ Total expenditure by Yusuf = $\frac{3}{(2+3+6)} = \frac{3}{11}$

68. Which Bollywood celebrity has collaborated with the famous American talk show host, David Letterman for Netflix?

(a) Salman Khan (b) Amitabh Bachchan
(c) Shahrukh Khan (d) Anil Kapoor

Ans. (c) : Bollywood Superstar Shahrukh Khan has collaborated with the veteran American talk show host David Letterman for a Netflix stand-alone special.

69. Select the number from among the given options that can replace the question mark (?) in the following series.

3, 11, 27, 59, ?

(a) 129 (b) 122
(c) 121 (d) 123

Ans. (d) : The given series is as follows.

3 $\xrightarrow{\times 2+5}$ 11 $\xrightarrow{\times 2+5}$ 27 $\xrightarrow{\times 2+5}$ 59 $\xrightarrow{\times 2+5}$ 123

Hence 123 will be at the place of (?)

70. The difference between two numbers is 5. If 25 is subtracted from the smaller number and 20 is added to the greater number the ratio becomes 1 : 2. What is the greater number?

(a) 85 (b) 90
(c) 75 (d) 80

Ans. (d) : Let the numbers are x & x + 5 respectively.

$\therefore$ (x–25) : (x+5+20) = 1 : 2

$\frac{x-25}{x+25} = \frac{1}{2} \Rightarrow 2x - 50 = x + 25$

x = 75

$\therefore$ The Greater number = (x+5) = 75+5 = 80

71. Two angles of a triangle are in the ratio 1 : 2 and the sum of these angles is equal to the third angle. What is the measure of the smallest angle?

(a) 20º (b) 30º
(c) 25º (d) 40º

Ans. (b) : $\because$ As per question, $\angle A : \angle B = 1 : 2 = x : 2x$

Let $\angle \mathbf{A} = x$

$\angle B = 2x$

$\because \angle C = \angle A + \angle B$

$\therefore \angle A + \angle B + \angle C = 180°$

$x + 2x + 3x = 180°$

$6x = 180°$

$x = 30°$

Measure of the smallest angle $= \angle A = x = 30°$

72. Find the value of $\cos^2(270-\phi) - \sin^2(180-\phi) + \sin^2\left(\frac{\pi}{2}\right)\sin^2(270-\phi)$

(a) $\sin^2(\phi)$ (b) $\cos^2(\phi)$

(c) $\sin^2\left(\frac{\pi}{2}\right)$ (d) $\sin^2(\phi)-1$

Ans. (b) :

$\cos^2(270-\phi) - \sin^2(180-\phi) + \sin^2\left(\frac{\pi}{2}\right)\sin^2(270-\phi)$

$\left\{\begin{array}{l}\because \cos(270-\theta) = -\sin\theta \\ \sin(180-\theta) = \sin\theta \\ \sin(270-\theta) = -\cos\theta\end{array}\right\}$

$(-\sin\phi)^2 - \sin^2\phi + 1.(-\cos\phi)^2$

$= \sin^2\phi - \sin^2\phi + \cos^2\phi$

$= \cos^2\phi$

73. The first Indian flag to be hoisted on foreign soil was unfurled in _____ by Bhikaji Cama in 1907

(a) Russia (b) England

(c) France (d) Germany

Ans. (d) : On August 22, 1907 Madam Bhikaji Cama became the first person to hoist Indian flag on foreign soil in Stuttgart, Germany.

74. Simplify:

$\frac{3}{4} \div \frac{5}{12} - \frac{1}{3} \times \frac{9}{5}\left(\frac{2}{3} \div \frac{1}{3} - 1\right)$

(a) $\frac{6}{7}$ (b) $\frac{6}{5}$

(c) $\frac{5}{6}$ (d) $\frac{12}{5}$

Ans. (b) : $\frac{3}{4} \div \frac{5}{12} - \frac{1}{3} \times \frac{9}{5}\left(\frac{2}{3} \div \frac{1}{3} - 1\right)$

$= \frac{3}{4} \times \frac{12}{5} - \frac{1}{3} \times \frac{9}{5}\left(\frac{2}{3} \times 3 - 1\right)$

$= \frac{3}{4} \times \frac{12}{5} - \frac{1}{3} \times \frac{9}{5}(1)$

$= \frac{9}{5} - \frac{9}{15}$

$= \frac{27-9}{15} = \frac{18}{15}$

$= \frac{6}{5}$

75. In the computer field, FORTRAN stands for:

(a) Forenisc Transistor (b) Format Transformer

(c) Formula Translation (d) Foreign Tranmitter

Ans. (c) : The full form of FORTRAN is "Formula Translation". It was created by John Backus in 1957. It is the very first high level programming language.

76. Which session of the congress led to the divide between extremists and moderates in 1907?

(a) Madras (b) Bombay

(c) Surat (d) Kolkata

Ans. (c) : The Surat split was the splitting of Indian National Congress into two groups : The Extremists and the Moderates at the Surat Session in 1907. Ras Behari Ghosh was the President of Surat Session. The partition of Bengal became the rise of extremism in INC.

77. Which one of the following is a similarity between acids and bases?

(a) They are used as preservatives

(b) They have pH less than 7

(c) Process of mixing acid or base with water is exothermic

(d) They are bitter

Ans. (c) : If an acid or a base is mixed with water then reaction is an exothermic reaction, because it is due to hydration of constituent ions of acids and bases. Greater the extent of hydration more in exothermic nature.

78. Glucose molecule breaks down into _____

(a) Cytoplasm (b) Pyruvic acid

(c) Lactic acid (d) Mitochondria

Ans. (b) : Glycolysis is the anaerobic breakdown of the glucose molecule in the cytoplasm of the cell. In glycolysis, one molecule of glucose ($C_6H_{12}O_6$) forms two molecules of Pyruvic Acid ($CH_3COCOOH$).

79. A sum of money becomes ₹10648 after 3 years and ₹9680 after 2 years of compound interest computed yearly. What is the rate of interest?

(a) 10 % (b) 12%

(c) 8% (d) 9 %

Ans. (a) : $A = P\left(1+\frac{r}{100}\right)^n$

As per question,

$10648 = P\left(1+\frac{r}{100}\right)^3$ ..... (i)

$9680 = P\left(1+\frac{r}{100}\right)^2$ ..... (ii)

$\because \frac{10648}{9680} = \frac{P\left(1+\frac{r}{100}\right)^3}{P\left(1+\frac{r}{100}\right)^2}$

From equation (i) & equation (ii) we have –

$\frac{1331}{1210} = \left(1+\frac{r}{100}\right) \Rightarrow \frac{121}{1210} = \frac{r}{100}$

$r = \frac{121 \times 100}{1210} = 10\%$

80. If × means +, ÷ means –, + means × and – means ÷, then what will be the value of the following expression?

40 × 20 ÷28–4+2

(a) 46 (b) 64

(c) 54 (d) 45

Ans. (a) : $40 \times 20 \div 28 - 4 + 2$

As per question, on changing signs–

$= 40 + 20 - 28 \div 4 \times 2$

$= 40 + 20 - 7 \times 2$

$= 40 + 20 - 14$

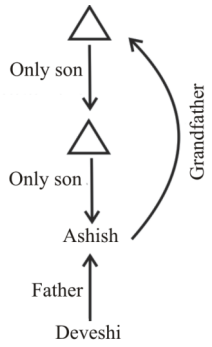
$= 46$

81. Introducing Deveshi to the guests, Ashish said, 'Her father is the only son of my paternal grandfather's only son'. How is Ashish related to Deveshi?

(a) Maternal Uncle (b) Brother

(c) Father (d) Grandfather

Ans. (c) : According to the statement, on drawing blood relation diagram.



Hence, it is clear that Ashish is the father of Deveshi.

82. Find the approximate value of

$(2.697 + 0.498)^2 - (2.697 - 0.498)^2$

(a) 2.199 (b) 3.195

(c) 5.37 (d) 2.00

Ans. (c) : $(2.697+0.498)^2 - (2.697-0.498)^2$

$\because a^2-b^2 = (a+b)(a-b)$

$= (2.697+2.697)(0.498+0.498)$

$= 5.394 \times 0.996$

$= 5.372424$

$= 5.37$ (approx)

83. When is National Science Day celebrated in India?

(a) 21 March (b) 19 February

(c) 20 January (d) 28 February

Ans. (d) : National Science Day is celebrated on 28th February every year to commemorate the discovery of the "Raman Effect" by Sir Chandrasekhara Venkata Raman, for which he was awarded the Nobel Prize in 1930. The first National Science Day was celebrated in 1987.

84. In an effort to provide a safe and secure-payment option, RBI has launched ____

(a) Vision 2021 (b) Vision 2020

(c) Vision 2019 (d) Vision 2020

Ans. (a) : The Reserve Bank of India has released Payment and Settlement System in India. Vision 2021, a vision document for safe, secure, quick and affordable e-payment is Empowering Exceptional (E) Payment Experience, that stresses on empowering every Indian to access a bunch of e-payment options safely and conveniently.

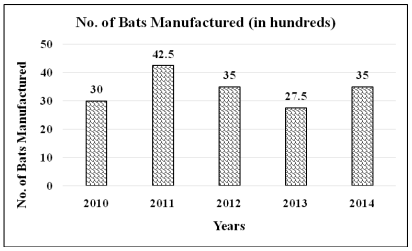
85. Which is the second highest constitutional post in India?

(a) Vice President (b) Governor

(c) Prime Minister (d) President

Ans. (a) : The President of India holds the highest rank in the "Order of Precedence", followed by the Vice-President and the Prime Minister respectively. Governors of states within their respective states are at 4th rank in "Order of Precedence".

86. The following graph shows the number (in hundreds) of bats manufactured by a factory in Meerut over the period of 2010 to 2014.



What is the average number of bats manufactured during 2010 to 2014?

(a) 3450 (b) 3600

(c) 3400 (d) 3655

Ans. (c) :

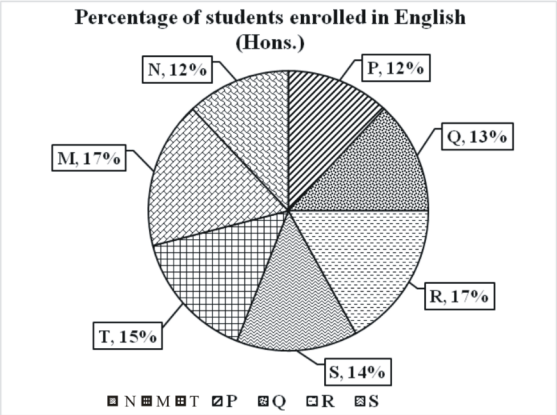
The total average of manufactured bats in between 2010-2014

$$\text{Total average} = \frac{30+42.5+35+27.5+35}{5}$$

$$= \frac{170}{5} = 34 \text{ (In hundreds)}$$

$$= 3400$$

87. The following pie chart shows the distribution of students enrolled in an English (Hons.) course in seven different colleges (P, Q, R, S, T, M and N) of a university.



If the total number of students enrolled in the English (Hons.) course from all the seven colleges is 2800, then how many students from colleges M and S are enrolled in the course ?

(a) 940 (b) 752
(c) 868 (d) 913

Ans. (c) : College M → 17%
College S → 14%
As per question,
Total no of students = 2800
∴ No. of students enrolled in colleges M & S
$= 2800\times17\%+2800\times14\%$
$= 2800(17\%+14\%) = 2800\times\frac{31}{100}$
$= 868$

88. The given table shows the number of people who joined four different gyms in Delhi during 2014 to 2018.

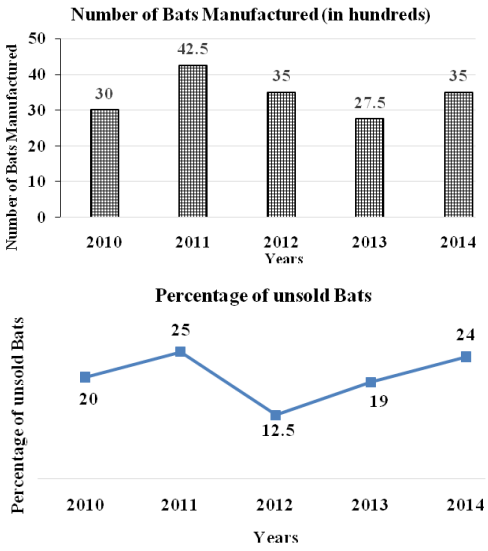
GYM / YEAR	A	B	C	D
2014	190	113	95	176
2015	210	227	310	277
2016	183	161	191	239
2017	169	117	225	196
2018	278	269	213	293

By what approximate percentage is the number of people who joined gym A in 2018 greater than that who joined gym D in 2016?

(a) 12 (b) 14
(c) 10 (d) 16

Ans. (d) : The number of people who joined gym A in 2018 = 278
The number of people who joined gym D in 2016 = 239
∴ Required percentage $= \frac{39}{239}\times100 = 16.31\%$
$= 16\%$ Approx.

89. The given graph shows the number (in hundreds) of bats manufactured and the following line graph shows the percentage of unsold bats by a factory in Meerut over the period of 2010-2014



What is the difference between the number of bats sold in the year 2010 and year 2014?

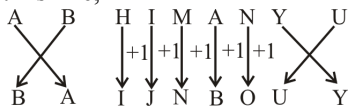
(a) 240 (b) 260
(c) 500 (d) 200

Ans. (b) : Difference between the number of bats sold in the year 2010 and year 2014
$= 3000\times80\%$
$\sim 3500\times76\%$
$= 2400 \sim 2660$
$= 2660 - 2400$
$= 260$

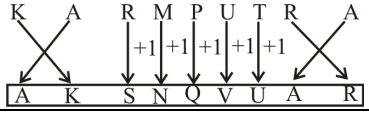
90. In a certain code language, ABHIMANYU is written as BAIJNBOUY. How will KARMPUTRA be written as in that language?

(a) AKSNQVUAR (b) ABRNQVUSR
(c) AKSPMTUSB (d) ABRNVUTAR

Ans. (a) : As like,



Similarly,



91. The average weight of a group of 20 boys was calculated to be 65 kg and it was later discovered that the weight of a boy was misread as 76 kg instead of the correct weight 66 kg. The correct average weight was:

(a) 63 kg (b) 65.5 kg
(c) 66 kg (d) 64.5 kg

Ans. (d) : Average $= \frac{\text{Sum of weight of boys}}{\text{Number of boys}}$
Wrong sum of weight of boys $= 65\times20$
$= 1300$

Correct sum of weight of boys = 1300–(76–66)

= 1300–10

= 1290

Hence the required average = $\frac{1290}{20}$

= 64.5 kg

92. Select the option that is related to the third word in the same way as the second word is related to the first word.

Painter : Brush :: Author :

(a) Book (b) Story

(c) Words (d) Pen

Ans. (d) : As the Painter draws a painting with the help of a Brush, in the same way an Author performs writing with the help of Pen. Hence the Pen is related to Author.

93. If p + q implies p – q, p – q implies p × q, p × q implies p÷ q and p ÷ q implies p + q, then find the value of 5 + 6 – 75 × 15 ÷ 30

(a) 5 (b) –5

(c) 0 (d) 10

Ans. (a) : 5 + 6 – 75 × 15 ÷ 30

As per question, on changing signs –

= 5 – 6 × 75 ÷ 15 + 30

= 5 – 6 × 5 + 30

= 5 – 30 + 30

= 5

94. Read the following set of statements, A, B, C, D, and select the set/s in which the third statement is a logical conclusion of the first two.

(A) Rahul is an actor. Some actors are smart. Rahul is smart.

(B) Some men are soldiers. All soldiers are patriotic. Some men are patriotic.

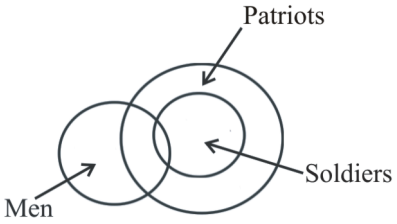
(C) All cricketers are athletes. Some men are soldiers. Some men are patriotic.

(D) All actors are handsome. Aman is not an actor. Aman is not handsome

(a) Only D (b) Only A, B and D

(c) Only D and B (d) Only B

Ans. (d) : On drawing Venn diagram as per statement.



From the above it is clear that in statement (B) the third statement is a logical conclusion of first two statements.

95. Letters of a word are jumbled and each letter has been given a unique number. Select the combination of numbers from among the given options, so that the letters arranged accordingly will form the meaningful word.

R A M S T

1 2 3 4 5

(a) 32514 (b) 13245

(c) 43215 (d) 25431

Ans. (c) :

R	A	M	S	T
1	2	3	4	5

On arranging alphabets

The meaningful word is–

S	M	A	R	T
4	3	2	1	5

96. Read the given statements and conclusions carefully and decide which of the conclusions logically follow(s) from the statements.

Statements:

John is a renowned sportsperson.

All sportspersons are fit and active.

John earns a large amount every year through advertisements of various products.

Conclusions:

A. All renowned sportspersons earn large amount through advertisements.

B. John is fit and active.

C. John being popular advertises only famous products.

(a) Only conclusion C follows

(b) Both conclusions A and C follows.

(c) Both conclusions A and B

(d) Only conclusion B follows

Ans. (d) : As per statements,

Statement A is wrong because John is a famous sportsperson and earns huge amounts from advertisement. While conclusion A talks about all famous players.

According to conclusion 'C' John being popular advertises only famous products and it is not clear from the conclusion. Hence it is wrong.

B - Conclusion 'B' seems to be true, because John is a fit and active sportsperson and this is clear in statements.

Only conclusion 'B' follows the statements logically.

97. In a certain code language, MINIATURE is written as 495912395. How will PRIVATE be written as in that language?

(a) 7904125 (b) 9749125

(c) 7919125 (d) 7994125

Ans. (d) : Just as,

(13)	M	$\xrightarrow{1+3}$	4
(9)	I	$\xrightarrow{9}$	9
(14)	N	$\xrightarrow{1+4}$	5
(9)	I	$\xrightarrow{9}$	9
(1)	A	$\xrightarrow{1}$	1
(20)	T	$\xrightarrow{2+0}$	2
(21)	U	$\xrightarrow{2+1}$	3
(18)	R	$\xrightarrow{1+8}$	9
(5)	E	$\xrightarrow{5}$	5

Similarly,

(16)	P	$\xrightarrow{1+6}$	7
(18)	R	$\xrightarrow{1+8}$	9
(9)	I	$\xrightarrow{9}$	9
(22)	V	$\xrightarrow{2+2}$	4
(1)	A	$\xrightarrow{1}$	1
(20)	T	$\xrightarrow{2+0}$	2
(5)	E	$\xrightarrow{5}$	5

98. A question and two statements are given. Identify which of the statements is/are sufficient to answer the question

Question:

Find the area of the equilateral triangle.

Statement:

1. The measure of one of the sides of the triangle side is 7 cm.

2. The perimeter of the triangle is 21 cm.

(a) Statement 1 is sufficient but statement 2 is not sufficient.

(b) Both statements 1 and 2 are sufficient independently.

(c) Statement 2 is sufficient but statement 1 is not sufficient.

(d) Neither statement 1 nor 2 is sufficient independently.

Ans. (b) : ∵ As we know that, the all the sides of an equilateral triangle are equal

$\therefore$ Perimeter of triangle $= 3\times$ side

$= 3\times 7 = 21$ cm

$\therefore$ Area of equilateral triangle $= \frac{\sqrt{3}}{4}\times \text{side}^2 = \frac{49\sqrt{3}}{4}$ cm^2

Hence both statements 1 & 2 are sufficient independently.

99. Four words have been given, out of which three are similar in meaning and one is different. Select the odd one.

(a) Composed (b) Scared

(c) Afraid (d) Apprehensive

Ans. (a) : Scared, Afraid, Apprehensive are quite synonym to each other. Hence, "Composed" is different among all.

100. Consider the given statement and decide which of the given assumptions is/are implicit in the statement.

Statement:

In the last year, Pune University has launched a number of vocational courses for the better future of students.

Assumptions:

A. Pune University believes that vocational education provides a better future for students.

B. Pune University is conscious about the future of students.

(a) Only assumption A is implicit.

(b) Neither assumption A nor B is implicit.

(c) Only assumption B is implicit.

(d) Both assumptions A and B are implicit.

Ans. (d) : From the above statement it is clear that the assumptions A & B are implicit.

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 09.01.2021] **[Time : 10:30 am-12:00 pm**

1. How many schedules are there in the Wildlife Protection Act, 1972 of India.?

(a) VII (b) VI

(c) IV (d) V

Ans. (b) : The Wildlife Protection Act, 1972 was passed in 1972 and has 6 schedules.

Schedule 1st → Provide protection to wildlife animals.

Schedule 2nd → Punishment for crime against animals.

Schedule 3rd & 4th → It provides protection to species which are not threatened.

Schedule 5th → It includes the species which may become a prey.

Schedule 6th → Conservation of critical plants.

2. Why do stars twinkle in the sky at night?

(a) Due to advance light

(b) Due to atmospheric refraction of starlight

(c) Due to dispersion of light

(d) Due to hot air

Ans. (b) : The stars twinkle at the night in sky due to atmospheric refraction of starlight. As a star's light enters into the earth's atmosphere, its light get refracted through multiple mediums. As the layers of atmosphere are not stable and hence many refractions take place at a certain time, and the star may be observed twinkling.

3. After independence, during the second Five Year Plan (1956-61), which steel plant was set up with the collaboration of Germany?

(a) Bhilai Steel Plant

(b) Durgapur Steel Plant

(c) Rourkela Steel Plant

(d) Bokaro Steel Plant

Ans. (c) : Five Year Plans (FYP) resemble a centralised and integrated national economic programme for growth and development During 2nd FYP, the main objective was shifted from agriculture to Industrial Sector. During 2nd FY plan which was based on P.C. Mahanalobis model, 3 steel plants at Durgapur, Rourkerala and Bhilai were established.

Rourkerala plant → It was developed with help of Germany.

Bhilai Plant → With the help of USSR.

Durgapur Plant → With the help of UK.

4. The Sum of the zeros of the polynomial $5x^2 + (5p - 1)x - (2p+ 5)$ is the same as one fourth of their product. Find the value of p.

(a) -2 (b) 2

(c) $-\frac{1}{2}$ (d) $\frac{1}{2}$

Ans. (d) : $5x^2 + (5p - 1)x - (2p+ 5) = 0$

$$\text{Sum of zeros} = \frac{-b}{a} = -\frac{(5p-1)}{5}$$

$$\text{Product of zeros} = \frac{c}{a} = -\frac{(2p+5)}{5}$$

According to question,

$$\frac{(5p-1)}{5} = \frac{(2p+5)}{5} \times \frac{1}{4}$$

$$20p - 4 = 2p + 5$$

$$18p = 9$$

$$p = \frac{1}{2}$$

5. International day of Multilateralism and Diplomacy is celebrated on_____.

(a) 24th April

(b) 4th January

(c) 21st June

(d) 3rd May

Ans. (a) :

Date	Day
24 April	− International day of Multilateralism and Diplomacy.
4th Jan	− World Braille Day
21st June	− International Yoga Day
3rd May	− World Press Freedom Day

6. Artificial fertilizers were first created during the _____ century.

(a) 19th

(b) 16th

(c) 17th

(d) 18th

Ans. (a) : Artificial fertilizers were first created during 19th century. The first artificial fertilizer was superphosphate, which was discovered by John Benhet Lawes.

7. Sum of the digits of a two-digit number is 6. If the digits are reversed, the new number equals double of the original number decreased by 6. Find the number.

(a) 24 (b) 42

(c) 15 (d) 51

Ans. (a) : Let the original number be $(10x + y)$

$x + y = 6$ ...(i)

According to question –

$2(10x+y) - 6 = 10y + x$

$19x - 8y = 6$ ...(ii)

By equation (i) and (ii)

$x = 2,\ y = 4$

So, original number $= 10x + y = 10 \times 2 + 4 = 24$

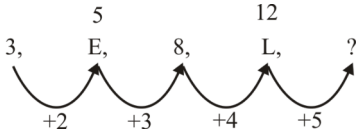
8. Select the number from among the given option that can replace the question mark (?) in the following series.

3, E, 8, L, ?

(a) 19 (b) 11

(c) 23 (d) 17

Ans. (d) : The Given series is as follows –



So, ? = 12 + 5 = 17

9. Express $0.03\overline{7}$ in the form of $\frac{p}{q}$, where p is a whole number and q is a natural number.

(a) $\frac{17}{450}$ (b) $\frac{37}{1000}$

(c) $\frac{34}{99}$ (d) $\frac{17}{45}$

Ans. (a) : Let,

$x = 0.037$ ...(i)

Multiplying by 100 in equation (i)

$100x = 3.777$ ...(ii)

Multiplying by 10 in equation (ii)

$1000x = 37.777$ ...(iii)

Subtracting eq^n (ii) from eq^n (iii) –

$900x = 34$

$x = \frac{34}{900} = \frac{17}{450}$

or

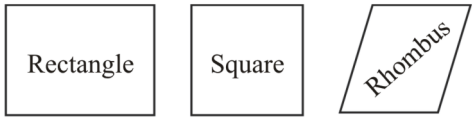
$\frac{p}{q} = \frac{17}{450}$

10. Which of the following shapes is most similar to rectangle and square?

(a) Triangle (b) Circle

(c) Rhombus (d) Sphere

Ans. (c) :



In the given options, Rhombus, Rectangle and Square are similar.

11. Which of the United Nation's organization has the International Institute of Educational Planning at Paris as its part?

(a) UNICEF (b) ILO

(c) UNESCO (d) UNU

Ans. (c) : It is located in "Paris". International Institute of Education Planning is a part of UNESCO. It was established on 1963. UNESCO was established on 4th Nov, 1946, which is headquartered in Paris. It is a part of United Nations.

12. In which city/district of India was the first cash-and carry store opened by CSC to promote rural marketing?

(a) Surat (b) Bhopal

(c) Moradabad (d) Haridwar

Ans. (c) : In order to promote rural marketing, the first cash and carry store was opened by CSC in Moradabad. As per the norms of Digital India mission CSC's are providing citizen centric services.

13. Which is called as brain of any computer system?

(a) UPS (b) Monitor

(c) ALU (d) CPU

Ans. (d) : CPU is known as the brain of computer. It functions as a main part of computer. It regulates softwares and commands over hardwares, through processor and microprocesses.

14. Select the option that is related to the third number in the same way as the second number is related to the first number.

23 : 529 : 27 : ?

(a) 676 (b) 729

(c) 576 (d) 625

Ans. (b) : Just as,

$(23)^2 = 529$

Same as,

$(27)^2 = 729$

So, ? = 729

15. In which of the following cities was the 45th G7 summit held in 2019?

(a) New York (b) Tokyo

(c) London (d) Biarritz

Ans. (d) : The 45th G7 Summit in 2019 was held in Biarritz (France). While 47th G7 Summit was held from 11-13th June 2021 in Cornwall, England. It is an intergovernmental organisation established in 1975. Its members are → USA, Canada, UK, France, Germany, Italy, Japan.

16. Which of the following Viceroy of India did take the initiative to create elected local government bodies?

(a) Lord Rippon (b) Lord Irwin

(c) Lord Reading (d) Lord Wavell

Ans. (a) : In the year 1870, Lord Mayo gave the power and responsibilities to local institutions, for growth and development. After that Lord Rippon followed and extended the same policy and in 1882, Lord Rippon gave a democratic structure to the local bodies.

17. Who was the Governor General at the time of Sepoy Mutiny?

(a) Lord Canning (b) Lord Hastings
(c) Lord Cornwallis (d) Lord Dalhousie

Ans. (a) : At the time of Sepoy Mutiny, the Governor General was Lord Canning. The Sepoy Mutiny was a result of series of contemporary causes but the use of "enfield rifles" was a famous one. Lord Canning is also termed as the first Viceroy of India.

18. Between which two countries has an MOU been signed on CO-operation in the field of peaceful use of outer space in January 2019?

(a) India and Denmark (b) India and Germany
(c) India and Finland (d) India and Iran

Ans. (c) : As per Jan 2019, India and Finland have signed MOU on Co-operation in field of peaceful use of outer space. It also includes other provisions like remote sensing satellite, communication satellite based navigation, space science etc.

19. If $\sqrt{3}\sin\theta - \cos\theta = 0$ (θ is an acute angle), then the value of $\cos^3\theta - \sqrt{3}\sin^3\theta$ will be:

(a) $\frac{\sqrt{3}}{2}$ (b) -1
(c) $\frac{3}{8}$ (d) $\frac{\sqrt{3}}{4}$

Ans. (d) : Given, $\sqrt{3}\sin\theta - \cos\theta = 0$

$\sqrt{3}\sin\theta = \cos\theta$

$\sqrt{3} = \frac{\cos\theta}{\sin\theta}$

$\cot\theta = \sqrt{3}$

$\theta = 30^0$

$\because \cos^3\theta - \sqrt{3}\sin^3\theta = \cos^3 30^0 - \sqrt{3}\sin^3 30^0$

$= \left(\frac{\sqrt{3}}{2}\right)^3 - \sqrt{3}\left(\frac{1}{2}\right)^3$

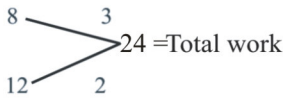
$= \frac{3\sqrt{3} - \sqrt{3}}{8}$

$= \frac{\sqrt{3}}{4}$

20. A man and a woman can complete a task in 8 and 12 days respectively. In how many days will 2 men and 3 women be able to complete the task?

(a) 5 days (b) 4 days
(c) 2 days (d) 3 days

Ans. (c) : According to question –



Work efficiency of man : work efficiency of woman = 3: 2

2 Men and 3 Women will complete $= \frac{24}{2\times3 + 3\times2}$

$= \frac{24}{12} = 2$ days

21. Select the option that is related to the third term in the same way as the second term is related to the first term.

Rat : Hole : : Horse : ?

(a) Burrow (b) Stable
(c) Cage (d) Den

Ans. (b) : Just as Habitat of Rat is hole. Same as Habitat of Horse is stable.

22. Which of the following leaders signed the Tashkent Agreement?

(a) Jawaharlal Nehru and Jinnah
(b) Jawaharlal Nehru and Ayub Khan
(c) Lal Bahadur Shastri and Ayub Khan
(d) Vallabhbhai Patel and Jinnah

Ans. (c) : Tashkent Agreement was signed between India and Pakistan in 1966. According to this, India and Pakistan won't use their power against one another and will resolve the conflicts peacefully. It was signed in the middlemanship of USSR. Comtemporary Indian PM was Lal Bahadur Shashtri and Pak General Ayub Khan.

23. Which ministry of Government of India has published Goods and Service Tax (GST) Act, 2017

(a) Office of the Prime Minister
(b) Ministry of Corporate Affairs
(c) Ministry of Law and Justice
(d) Ministry of Finance

Ans. (c) : On 1st July 2017, GST was imposed in India. On 29th March 2017, 4 bill were introduced for this.

1 → Central GST bill, 2017

2 → Integrated GST bill, 2017

3 → Union Territory GST bill, 2017

4 → GST (Indemnity to states) Act, 2017

These were introduced by Ministry of Law and Justice.

24. Which type of mirror is used by dentists to see large image of patients' teeth?

(a) Spherical and convex mirror
(b) Spherical mirror
(c) Concave mirror
(d) Convex mirror

Ans. (c) : In order to have big images of teeth, dentists use concave mirror. A concave mirror gives the dentist a magnified reflection of the mouth while also refracting a bit of light.

25. _____ deciphered Brahmi and Kharoshti script that were used for earlier inscriptions.

(a) Marshall (b) Cunningham

(c) James Princep (d) Wheeler

Ans. (c) : Script, is a system of signs under which a language is developed. Scripts are of many kinds in which Brahmi and Kharoshti were firstly read by James Princep. Brahmi & Kharoshthi scripts were a major part of Ashokan Inscriptions.

26. The international Gandhi Peace Prize 2018 was given to _____ by the President of India.

(a) Vivekanand Kendra

(b) Sulabha International

(c) Akshay Patra Foundation

(d) Yohei Sasakawa

Ans. (d) : The International Gandhi Peace Prize was given to Shri Yohei Sasakawa in 2018, while it was given to Sheikh Mujibur Rahman in 2020. The Government of India established the prize in 1995 on 125th birthday of Mahatma Gandhi.

27. By selling an article for ₹1360 a dealer loses 15%. At what price should he sell the article to gain 10%.

(a) ₹1,760 (b) ₹1,560

(c) ₹1,600 (d) ₹1,360

Ans. (a) : According to question–

$\because$ $\text{cost price} = \dfrac{\text{Selling price} \times 100}{(100 - \text{loss}\%)}$

$\text{Cost price} = \dfrac{1360 \times 100}{85} \Rightarrow$ Cost price= ₹ 1600

Selling price of an article at 10% profit

$= 1600 \times \dfrac{110}{100}$

= ₹ 1760

28. A box contains 6 white, 2 black and 3 red balls. if a ball is drawn at random, what is the probability that it will not be white?

(a) $\dfrac{5}{11}$ (b) $\dfrac{6}{11}$

(c) $\dfrac{5}{6}$ (d) $\dfrac{6}{5}$

Ans. (a) : Total Ball = 6 + 2 + 3 = 11

Probability of an event P(E)

$= \dfrac{\text{Number of favorable outcomes}}{\text{Total number of outcomes}}$

Number of favorable outcome of ball will not be white = 5

Total number of outcomes = Total Balls

So, probability of ball that will not be white $= \dfrac{5}{11}$

29. The top of two towers of heights x and y standing on level ground, subtend angles of 60º and 30º respectively at the midpoint of the line joining their feet. The value of x : y is

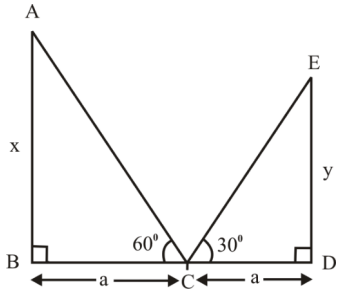
(a) 3 : 1

(b) 2 : 1

(c) 1: 3

(d) 1 : 2

Ans. (a) : According to question –



Suppose C is the centre of the line joining the feet of the two towers i.e. BD.

Now, In ΔABC ,

$\tan 60^0 = \dfrac{x}{a} \Rightarrow \sqrt{3} = \dfrac{x}{a}$

$x = a\sqrt{3}$

Also,

In ΔEDC ,

$\tan 30^0 = \dfrac{y}{a} \Rightarrow \dfrac{1}{\sqrt{3}} = \dfrac{y}{a}$

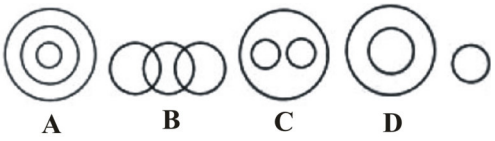
$y = \dfrac{a}{\sqrt{3}}$

$x : y = a\sqrt{3} : \dfrac{a}{\sqrt{3}}$

$= 3 : 1$

30. Select the Venn diagram that best represents the relationship between the given set of classes.

Year, Month, Day

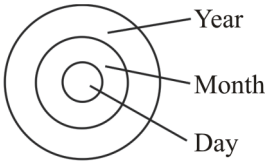


(a) A (b) D

(c) B (d) C

Ans. (a) : Year consists of months

month consists of days.



Hence option (a) is correct.

31. Twelve men can complete a task in 16 days. Thirty-two women can complete the same task in 12 day. Eight men and eight women together worked for 12 days, after which the women dropped and 8 men joined. In how many days the men will be able to complete the remaining task?

(a) 9 days (b) 2 days
(c) 3 days (d) 10 days

Ans. (c) : According to question –
MD = WD [M – Man, W – Woman]
$12M \times 16 = 32W \times 12$
$M = 2W$
$\because$ $32W \times 12 = 12\,(8M + 8W) + (8M + 8M) \times Day$
$32W \times 12 = 12(16W + 8W) + 32W \times day$
$32 \times 12 = 12 \times 24 + 32 \times day$
$48 = 36 + 4 \times day$
$day = \frac{12}{4} = 3$
So, remaining work will be complete in 3 days.

32. Name the compendium of Digital India which was released in 2019?

(a) Digital Bharat, Unnat Bharat
(b) Digital Bharat, Saksham Bharat
(c) Digital India, Educated India.
(d) Nayi Udaan, Digital Bharat

Ans. (b) : The 2019 released compendium of Digital India was "Digital Bharat, Saksham Bharat". Its main aim was to promote the success of Digital India Mission. The Digital profile of India includes critical analysis and comparison of Digital India programme with others and its effect on Indian citizen.

33. The length of a rectangle is 2 m less than thrice its breadth. If its perimeter is 28 m, find its breadth.

(a) 4 m (b) 10 m
(c) 7.5 m (d) 6 m

Ans. (a) : Let the breadth of a rectangle = x m
Thrice its breadth = 3x m
Length of a rectangle = (3x–2) m
$\because$ Perimeter of a rectangle = 2 (l+b)
$\therefore$ According to question –
$2(3x–2+x) = 28$
$4x – 2 = 14$
$4x = 16$
$x = 4$
Breadth = x = 4m.

34. What is the name of India's first manned space flight?

(a) Gagan Viman (b) Vayuyaan
(c) Gaganyaan (d) Pushpakyaan

Ans. (c) : Gaganyaan is the name of India's first manned space flight. It's a mission of ISRO to be launched in 2022-23. With the help of this 3 space missions will be sent in which two will be unmanned mission and left one would be a manned space mission.

35. Where is the headquarters of OPEC located?

(a) Geneva (b) Brussels
(c) Vienna (d) Zurich

Ans. (c) : OPEC was established in 1960 in Baghdad, headquartered in Vienna, Austria. Its full name is Organisation of Petroleum Exporting Countries. It has 13 members- Iraq, Iran, Quwait, UAE, Saudi Arab, Algeria, Libya, Nigeria, Gabon, Equatorial Guinea, Congo, Angola and Venezuela.

36. Which Public Sector Enterprise has the status of Maharatna?

(a) Indian Oil Corporation Limited
(b) Indian Ralway Catering & Toursiam Corprations Limited
(c) Hindustan Aeronautics Limited
(d) Airport Authority of India

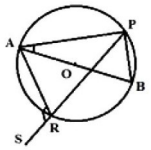
Ans. (a) : The Indian Government has given the status of Maharatna to "Hindustan Petroleum Corporation Ltd., "Power Grid Corporation of India Ltd." and "Power Finance Corporation" Earlier than this there were 8 Maharatnas companies in India but now after these three number touches 10.

37. The 5th volume of which dictionary was released by Prime Minister Narendra Modi in 2019?

(a) Dictionary of Vedas
(b) Dictionary of Idioms and Phrases
(c) Dictionary of Martyrs
(d) Dictionary of Terms

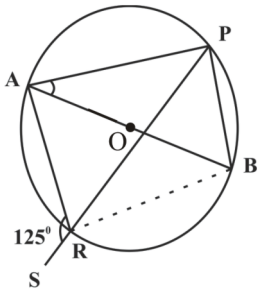
Ans. (c) : On 7th March 2019, PM Modi inaugurated the 5th volume of "Dictionary of Martyrs" prepared by Indian Council of Historic Research. On the 150th anniversary of 1857 revolt. In this a person has been called a "Martyr" if he got died during India's freedom struggle.

38. In the figure, O is the centre of the circle. If ∠ARS = 125°, then find the measure of ∠PAB.



(a) 125^0 (b) 55^0
(c) 145^0 (d) 35^0

Ans. (d) : According to question –



$\angle ARP = 180^0 - 125^0 = 55^0$

Angle formed in semicircle will be right angle.

$\angle APB = 90^0$

$\angle APB + \angle ARB = 180^0$ (Cyclic quadrilateral)

$90^0 + \angle ARP + \angle PRB = 180^0$

$90^0 + 55^0 + PRB = 180^0$

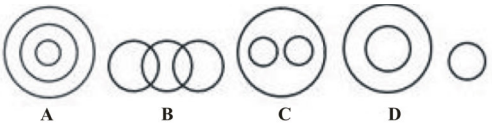
$\angle PRB = 35^0$

$\angle PAB = \angle PRB = 35^0$

Angle formed at circumference at circle by a chord is always same.

39. Select the Venn diagram that best represents the relationship between the given set of classes.

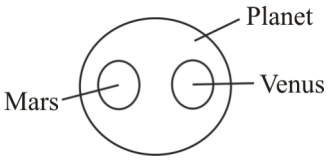
Mars, Venus, Planets



(a) C (b) D

(c) B (d) A

Ans. (a) : Mars and Venus both are planets.



Hence option (a) is correct.

40. How many numbers from 3 to 60 are odd numbers that are exactly divisible by 5?

(a) 7

(b) 5

(c) 8

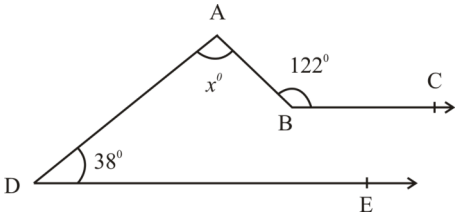
(d) 6

Ans. (d) : Odd numbers between 3 to 60 which is divisible by 5.

5, 15, 25, 35, 45, 55

So total number is 6.

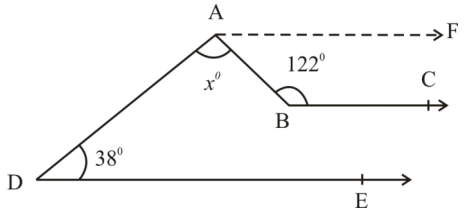
41. In the given figure, BC || DE then find the value of x



(a) 20^0 (b) 84^0

(c) 142^0 (d) 38^0

Ans. (b) : According to question –



BC || DE || AF

$\angle FAB + \angle ABC = 180^0$ (Interior angle)

$\angle FAB = 180^0 - 122^0 = 58^0$

$\angle FAD + \angle ADE = 180^0$ (Interior angle)

$\angle FAB + \angle BAD + 38^0 = 180^0$

$58^0 + x^0 + 38^0 = 180^0$

$x^0 = 180^0 - 96^0$

$x = 84^0$

42. The Ayushman Bharat Scheme was started in _____ in the year 2018.

(a) Odisha

(b) Jharkhand

(c) Chandigarh

(d) Madhya Pradesh

Ans. (b) : The Ayushman Bharat Scheme was started on 23rd Sept. 2018 from Ranchi. Its main objective is to provide health facility to common man. It includes a total insurance of ₹50,0000 per year for a family for secondary and tertiary level treatment.

43. What is the rank of India in World Economic Forum's (WEF) Global Competitiveness Index for 2019?

(a) 71st (b) 50th

(c) 68th (d) 52nd

Ans. (c) : On 9th Oct 2019, Geneva based World Economic Forum launched Global Competativeness Report (GCR) 2019. India slipped by 10 positions and reached at 68th position. Singapore topped the score while Chad was at the bottom.

44. _____ is a communication protocol.

(a) HTP (b) CP

(c) TP (d) HTTP

Ans. (d) : HTTP → Hypertext Transfer Protocol is a communication protocol whose main work is to establish communication between web server and user. Its a kind of network protocol, which are used to get information from World Wide Web (WWW).

45. Ribosomes make _____

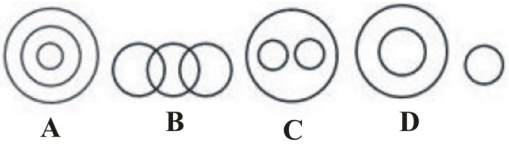
(a) Fats (b) lipids

(c) Proteins (d) Starch

Ans. (c) : Ribsomes are a complex structure and are found in all living cells. They are also found in nucleus and mitochondria with the process of Protein synthesis Ribosomes are useful for protein formation from amino acid in body.

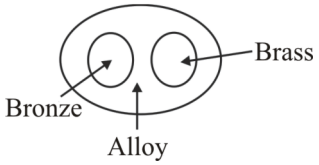
46. Select the Venn diagram that best represents the relationship between the given set of classes.

Bronze, Brass, Alloys



(a) B (b) D
(c) A (d) C

Ans. (d) : By question –



In the given words Bronze and Brass both are Alloy. Hence option(d) is correct.

47. In 2019, the Uttar Pradesh government created a World Record by planting over 22 crore saplings in one days on 77th anniversary of the .....

(a) Narmada Bachao Andolan
(b) Chipko Andolan
(c) Dandi March
(d) Quit India Movement

Ans. (d) : On the 77th aniversary of Quit India Movement, the regional public of Uttar Pradesh planted a record 22 crore plants on 9th August. In Prayagraj's Parade Ground the distribution of 66 thousand trees became a subject matter of "Guinness Book of World Records".

48. Which organization has been the successor of GATT?

(a) UNCTAD
(b) ILO
(c) WTO
(d) ECOSOC

Ans. (c) : WTO in 1947 came as a replacement of GATT (General Agreement on Tariffs and Trade). The WTO's background formation got started on during Uruguay conference and it started to work from 1st Jan 1995. Ngozi-Okonjo-Iweala is the current Director General of WTO from Nigeria.

49. Zamir buys an article with off-season discount of 40% and sells at 25% discount on the marked price. Find his percentage profit/loss

(a) 25% loss (b) 15% loss
(c) 25 % profit (d) 15 % profit

Ans. (c) : Let Marked price of the article be Rs. 100.

Hence Selling price of the article $= 100 \times \frac{75}{100} = ₹75$

And cost price of the article $= 100 \times \frac{60}{100} = ₹60$

Required profit $\% = \frac{75-60}{60} \times 100$

$= 25\%$ profit

50. In the respiration process, complex organic compounds such as glucose are broken down to provide energy in the form of_____ .

(a) CAL (b) ATP
(c) NAC (d) PTA

Ans. (b) : During the process of respiration, the complex carbon compounds usually break into the form of ATP (Adenosine - Tri Phosphate). ATP is the energy currency of cell. It is a organic compound composed of the phosphate groups, adenine and the sugar ribose.

51. How many numbers between 300 and 1000 are divisible by 7?

(a) 994 (b) 301
(c) 101 (d) 100

Ans. (d) : Total number divisible by 7 between 1 to 1000

$= \frac{1000}{7} = 142$

Total number divisible by 7 between 1 to 300

$= \frac{300}{7} = 42$

So, Total divisible number by 7 between 300 to 1000

$= 142 - 42 = 100$

52. Which was the venue of final match of ICC Men's Cricket World Cup 2019?

(a) Edgbaston, Birmingham
(b) The Oval, London
(c) Brinstol County Ground Bristol
(d) Lord's London

Ans. (d) : ICC World Cup 2019 (Mens) final was played between England and New-Zealand on 14th July 2019. The Venue was Lords Stadium, London. In the final match got draw and later was decided by the boundaries and England was declared as winner.

53. Name the monument which is a testimony to successful restoration and preservation of an archaeological

(a) Palika bazaar (b) India Gate
(c) Gateway of India (d) Sanchi Stupa

Ans. (d) : Stupa is a circular mound structure which is used to keep/preserve the holy remainings of Buddhist religion. The most famous stupa of India is Sanchi Stupa, built by Ashoka in 3rd Century BC.

54. Which is the Sixth largest country of the world in terms of area?

(a) Australia (b) India
(c) China (d) Brazil

Ans. (a) : The correct descending order of countries in accordance with area is as follows-
Russia > Canada > USA > China > Brazil > Australia > India.

55. If 140 g brass is mixed with copper to prepare an alloy having brass and copper in the ratio 4 :3 then how much copper has been taken to prepare the alloy?

(a) 60 g (b) 245 g
(c) 105 g (d) 80 g

Ans. (c) : According to question – $\frac{\text{Brass}}{\text{Copper}} = \frac{4}{3}$

$\frac{140}{\text{Copper}} = \frac{4}{3}$

$\text{Copper} = \frac{140 \times 3}{4} = 105\text{g}$

56. Grandfather of Sukhdev and Baldev divided an amount of ₹ 2150 between them in the ratio 20 : 23. They both donated ₹ 100 each for charity out of their Shares. What will be the new ratio of their respective amounts?

(a) 80:77 (b) 6:7
(c) 19:22 (d) 120:123

Ans. (b**) :** According to question –

Share of Sukhdev $= \frac{2150 \times 20}{43} = 1000$

Share of Baldev $= \frac{2150 \times 23}{43} = 1150$

Ratio after donating ₹ 100

$= (1000 - 100) : (1150 - 100)$

$= 900 : 1050 = 6 : 7$

57. Sum of four consecutive multiples of 3 is 78. The largest of these numbers is:

(a) 24 (b) 21
(c) 27 (d) 18

Ans. (a) : Let consecutive number of multiples of 3 = 3x, 3(x+1), 3(x+2), 3(x+3)
According to question –
3x + 3(x+1) +3 (x+2) +3 (x+3) = 78
x + x + 1 + x + 2 + x + 3 = 26
4x = 26 – 6
x = 5
So largest number = 3(x+3)
= 3(5 + 3)
= 24

58. The LCM of two numbers is 91 times their HCF. The sum of the HCF and LCM is 2760. If one of the numbers is 210, Then find the second number.

(a) 30 (b) 2730
(c) 390 (d) 420

Ans. (c) : Let HCF is x then LCM will be 91x.
According to question –
91x + x = 2760
92x = 2760
x = 30
∵ First number × Second number = LCM × HCF
210 × Second number = 91× 30 × 30
Second number = 13 × 30 = 390

59. A wheel of a cycle makes 7000 revolutions in moving 11 km. What is the diameter of the wheel?

(a) 50 cm (b) 25 cm
(c) 100 cm (d) 10 cm

Ans. (a) : Total travelled distance by wheel = Circumference of wheel × number of rotations.

$11 \times 1000 \times 100 = 2\pi r \times 7000$

$1100 = 2r \times \frac{22}{7} \times 7$ $(11\text{km} = 11000 \times 100\,\text{cm})$

$2r = \frac{1100}{22} = 50\,\text{cm}$ [d = 2r]

Hence, the diameter of the wheel is 50 cm.

60. The speed of a boat in still water is 14 km/h. It goes 28 km downstream in 1 h 45 min. Find the speed of the stream.

(a) 2 km/h (b) 7 km/h
(c) 12km/h (d) 16km/h

Ans. (a) : Let the speed of the stream be x km/h.

$1\text{h } 45\,\text{min} = 1 + \frac{45}{60} = 1 + \frac{3}{4} = \frac{7}{4}\text{h}$

According to question –

$14 + x = \frac{28}{7/4}$

$14 + x = 16$

$x = 2\,\text{km/h}$

Hence, Speed of the stream is 2 km/h.

61. Zaved borrowed ₹10000 for 2 years on compound interest, compounded annually and paid ₹12544 at the end of 2 years. If he had borrowed the amount on simple interest, then how much money he would have saved?

(a) ₹144 (b) ₹12,400
(c) ₹4,944 (d) ₹2,400

Ans. (a) : According to question –

$\left(1 + \frac{r}{100}\right)^2 = \frac{12544}{10000}$

$1 + \frac{r}{100} = \frac{112}{100}$

$\frac{r}{100} = \frac{12}{100}$

$r = 12\%$

Compound Interest $= 12544 - 10000 = ₹2544$

Simple Interest $= \frac{10000 \times 12 \times 2}{100} = ₹2400$

Saved Money $= 2544 - 2400$

$= ₹144$

62. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements :

Some shirts are pants.

All pants are coats.

Some coats are shoes.

Conclusions :

I. Some pants are shoes.

II. Some shirts are coats.

III. All shirts are coats.

IV. No pants are shoes.

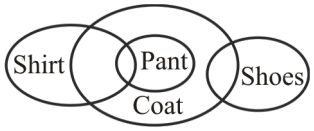
(a) Only conclusion III follows.

(b) Either conclusion I or II and IV follow.

(c) Either conclusion I or II follows.

(d) Only conclusion II follows.

Ans. (d) :



It is clear from the diagram that only conclusion II follows.

63. Solve the following?

5 + 3 × 72 ÷ 24 – 12 = ?

(a) 113 (b) -22

(c) 12 (d) 2

Ans. (d) : By question–

$5 + 3 \times 72 \div 24 - 12$

$= 5 + 3 \times 3 - 12$

$= 14 - 12$

$= 2$

64. In the following series, how many times is the number 0 immediately followed by number 2?

2132 50278020345202078

(a) 3 (b) 6

(c) 5 (d) 4

Ans. (a) : Given series –

2132 5027802034520278

So, 3 times 2 is immediately after 0.

65. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

Some apples are grapes.

Some grapes are mangoes.

Conclusions:

I. All apples are mangoes.

II. Some mangoes are apples.

(a) Only conclusion I follows.

(b) Either conclusion I or II follows

(c) Only conclusion II follows

(d) neither conclusion I nor II follows

Ans. (d) : According to question –

Hence it is clear by Venn diagram that neither conclusion I nor II follows.

66. Solve the following

3.03 + 31.003 + 13.33 + 3.331

(a) 35.97

(b) 50.370

(c) 50.694

(d) 3.597

Ans. (c) : According to question –

$3.03 + 31.003 + 13.33 + 3.331$

$= 50.694$

67. The difference between 82% and 73% of the same number is 72. What is 48% of the number?

(a) 418 (b) 384

(c) 360 (d) $\frac{1440}{31}$

Ans. (b) : Let number is x.

$x \times \frac{82}{100} - x \times \frac{73}{100} = 72$

$\frac{9x}{100} = 72$

$x = 800$

48% of the number $= 800 \times \frac{48}{100} = 384$

68. If SUN is coded as 54, then how will MOON be coded as?

(a) 58 (b) 55

(c) 56 (d) 57

Ans. (d) : Just as,

S	U	N	
↓	↓	↓	
19	+21	+14	= 54

Same as,

M O O N
↓ ↓ ↓ ↓
13 +15 +15 +14 = 57

69. Who is the author of 'Politics of Jugaad: The Coalition Handbook?'
(a) Tom Hanks
(b) Chetan Bhagat
(c) Jhumpa Lahiri
(d) Saba Naqvi

Ans. (d) : The writer of the book 'Politics of Jugaad: The Coalition Handbook' is Saba Naqvi who is a famous journalist. He is also considered as one of eminent writer and a thinker. The book deals a lot with the coalition governments in India.

70. Which of the following, like the Chipko Movement, aims to protect forests in the Uttara Kannada district ?
(a) Appiko Movement
(b) Narmada Bachao Andolan
(c) Al Baydha Project
(d) Delhi Chalo Movement

Ans. (a) : After getting inspiration from the 'Chipko Movement', a parallel movement was started in North Kannada district of Karnataka in September, 1983. Men and Women in Salkani started hugging trees to prevent their cutting and later it came to known as Appiko Movement. Pandurang Hegde was a prominent leader of this movement.

71. Solve the following

$$\left\{1-\frac{1}{4}\right\}\left\{1-\frac{2}{4}\right\}...\left\{1-\frac{5}{4}\right\}\left\{1-\frac{6}{4}\right\}=?$$

(a) $\frac{3}{64}$ (b) 0
(c) $\frac{3}{256}$ (d) $-\frac{3}{256}$

Ans. (b) : By question –

$$\left\{1-\frac{1}{4}\right\}\left\{1-\frac{2}{4}\right\}...\left\{1-\frac{5}{4}\right\}\left\{1-\frac{6}{4}\right\}$$

$$=\left(1-\frac{1}{4}\right)\left(1-\frac{2}{4}\right)\left(1-\frac{3}{4}\right)\left(1-\frac{4}{4}\right)\left(1-\frac{5}{4}\right)\left(1-\frac{6}{4}\right)$$

$$=\frac{3}{4}\times\frac{2}{4}\times\frac{1}{4}\times 0\times-\frac{1}{4}\times-\frac{2}{4}=0$$

72. Information and Communication Technology (ICT), now integrated under RMSA, was launched in the year _____.
(a) 2002 (b) 2004
(c) 2006 (d) 2009

Ans. (b) : The Information and Communication Technology was launched in 2004 under RMSA. In the schools also it has been launched under umbrella of RMSA (Rashtriya Madhyamik Shiksha Abhiyan).

73. Dalip Rai borrowed ₹ 24000 from Amarjeet at simple interest of 9% per annum. Find the sum he will have to return after 3 years.
(a) ₹ 4,800 (b) ₹ 6,480
(c) ₹ 30,480 (d) ₹ 28,800

Ans. (c) : According to question –

$$\text{Simple Interest}=\frac{24000\times 9\times 3}{100}=₹\,6480$$

$$\text{Compound amount}=24000+6480$$
$$=₹\,30480$$

74. Four number-pairs have been given, out of which three are alike in some manner and one is different. Select the number-pair that is different from the rest.
(a) 11 : 13 (b) 17 : 19
(c) 12 : 15 (d) 21 : 23

Ans. (c) : 11+13=24 (Even)
17+19=36 (Even)
12+15=27 (Odd)
21+23=44 (Even)
Hence it is clear that option (c) is different from the rest.

75. Solve the following

$$\sqrt{37+\sqrt{130+2\sqrt{56-\sqrt{16}-\sqrt{9}}}}=?$$

(a) 252 (b) 200
(c) 7 (d) 229

Ans. (c) : $\sqrt{37+\sqrt{130+2\sqrt{56-\sqrt{16}-\sqrt{9}}}}$

$$=\sqrt{37+\sqrt{130+2\sqrt{56-4-3}}}$$
$$=\sqrt{37+\sqrt{130+2\times 7}}$$
$$=\sqrt{37+12}$$
$$=\sqrt{49}=7$$

76. Demographic Transition is described as _____.
(a) A stage in which the population growth of the country is zero.
(b) A process where there is a decline in the birth-rate.
(c) A process of change in a society's population over time.
(d) A process where there is a decline in the death rate.

Ans. (c) : The Demographic Transition Theory was given by W.M. Thompson and Frank Notestin. It shows a process of change in society's population overtime. It provides explanation of how fertility and mortality rates impacts the age distribution and growth rate of population.

77. Elements in the modern Periodic Table are arranged in _____ vertical columns.

(a) 18 (b) 16

(c) 9 (d) 12

Ans. (a) : As per the Modern Periodic Table, its divided into 18 groups and 7 periods. The elements have been classified into different categories such as metal, non-metals etc.

78. If the letters of the word UNIVERSITY are arranged in alphabetical order, then which letter will be seventh from the left end?

(a) U (b) S

(c) N (d) T

Ans. (d) : In the given letters T is 7th place from the left.

UNIVERSITY ⟶ EIINRSTUVY

7th place

79. Who among the following won the Nobel Peace Prize in the year 2019?

(a) Abiy Ahmed

(b) Rainer Weiss

(c) Barack Obama

(d) John Bardeen

Ans. (a) :

Year	Person/Institution
2019	Abiy Ahmed (PM of Ethiopia)
2020	World Food Programme
2021	Maria Ressa (Phillippines) Dmitry Muratov (Russia)

80. Select the option that is related to the third term in the same way as the second term is related to the first term.

EFGH : VUTS :: JKLM : ?

(a) QPNO (b) QNPO

(c) QOPN (d) QPON

Ans. (d) : Just as, [where ⇌ opposite]

E F G H

V U T S

Same as,

J K L M

Q P O N

81. The mean of ages of 9 children in a joint family is 14 years. the ages of their grandfather and grandmother are 71 years and 67 years respectively. Find the mean of the ages of children and grandparents.

(a) 25 years (b) 51 years

(c) 24 years (d) 16 years

Ans. (c) : Total sum of age of 9 children = 9 × 14 =126 years

Total sum of children and grandfather, grandmother ages

=126 + 71 + 67 = 264

Mean of age of all = $\frac{264}{11}$ = 24 years

82. What is the HCF of 52 and 100?

(a) 4 (b) 52

(c) 44 (d) 48

Ans. (a) : According to question –

$52 = \underline{2 \times 2} \times 13$

$100 = \underline{2 \times 2} \times 5 \times 5$

HCF of 52 and 100 = 2 × 2 = 4

83. Solve the following

80 ÷ (16 ÷ 2) + {[(6 × 5) – 15 × 2 + 4] – 12}

(a) –62 (b) 148

(c) 2 (d) –17

Ans. (c) : According to question –

80 ÷ (16 ÷ 2) + {[(6 × 5) – 15 × 2 + 4] – 12}

= 80 ÷ 8 + {[30 – 30 + 4] – 12}

=10 + 4 – 12

= 2

84. What protects the earth from the ultra violet radiation of the sun?

(a) Ozone (b) Nitrogen

(c) Oxygen (d) Magnesium

Ans. (a) : The Ozone layer lying in Stratosphere is very beneficial for existence of human beings. It prevents us from ultraviolet (UV) rays.

85. Which river stretch is known as National Waterways-2?

(a) Mahanadi (b) Ganga

(c) Godavari (d) Brahmaputra

Ans. (d) : In 1988, from Dhubri to Sadiya the 891 km long-waterway was declared as National Waterway - 2. Dhubri is a huge terminal on Brahmputra River. NW-2 has a most significant port 'Pandu'. Currently 111 WaterWays have been officially notified in India.

86. The following are the weights (in kg) of 25 students:
58, 55, 53, 50, 53, 51, 52, 54, 53, 52, 54, 53, 58, 53, 59, 55, 53, 52, 51, 54, 53, 59, 55, 53, 52
What is the weight (in kg) of the heaviest student?
(a) 56 (b) 58
(c) 55 (d) 59

Ans. (d) : In the given weight of 25 students 59 kg students is heaviest.

87. The following are the weights (in kg) of 25 students:
58, 55, 53, 50, 53, 51, 52, 54, 53, 52, 54, 53, 58, 53, 59, 55, 53, 52, 51, 54, 53, 59, 55, 53, 52.
What is the most commonly observed weight (in kg)?
(a) 53 (b) 54
(c) 52 (d) 55

Ans. (a) : The weight of the given 25 students has the highest frequency is 53 which came 8 times.

88. The following are the weights (in kg) of 25 students:
58, 55, 53, 50, 53, 51, 52, 54, 53, 52, 54, 53, 58, 53, 59, 55, 53, 52, 51, 54, 53, 59, 55, 53, 52
Among the following options, what is the weight (in kg) that appears least number of times in the given data?
(a) 52 (b) 58
(c) 50 (d) 54

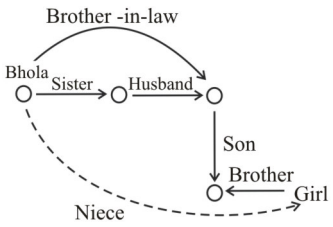
Ans. (c) : In the given weight of 25 students 50 kg is the weight that appears least number of times.

89. The following are the weights (in kg) of 25 students:
58, 55, 53, 50, 53, 51, 52, 54, 53, 52, 54, 53, 58, 53, 59, 55, 53, 52, 51, 54, 53, 59, 55, 53, 52
What is the range of the given data.
(a) 6 (b) 8
(c) 9 (d) 7

Ans. (c) : Range of given data = 59 – 50 = 9

90. Introducing a girl to his son-in-law, Bhola said, "Her brother is the only son of my brother-in-law." How is the girl related to Bhola
(a) Niece
(b) Sister
(c) Sister-in-law
(d) Daughter

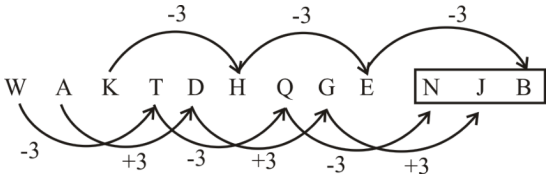
Ans. (a) : According to question –



It is clear from the blood relation diagram that girl is Bhola's niece. .

91. Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.
WAK, TDH, QGE, ?
(a) MJB (b) MJA
(c) NJA (d) NJB

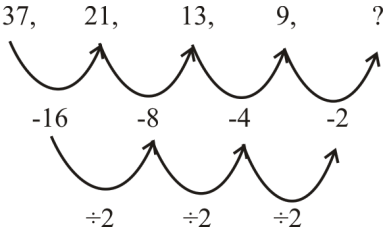
Ans. (d) : Given letter series is as follows–



So, ? = NJB

92. Select the number from among the given option that can replace the question mark (?) in the following series.
37, 21, 13, 9, ?
(a) 12 (b) 10
(c) 8 (d) 7

Ans. (d) : The Given letter series is as follows–



So, ? = 9 – 2 = 7

93. Select the number from among the given options that can replace that question mark (?) in the following series.
ADG, BEH, CFI, ?
(a) DFH (b) DGJ
(c) DGH (d) DGK

Ans. (b) : Given letter series is as follows–

A $\xrightarrow{+1}$ B $\xrightarrow{+1}$ C $\xrightarrow{+1}$ D

D $\xrightarrow{+1}$ E $\xrightarrow{+1}$ F $\xrightarrow{+1}$ G

G $\xrightarrow{+1}$ H $\xrightarrow{+1}$ I $\xrightarrow{+1}$ J

So, ? = DGJ

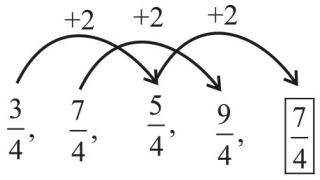
94. Select the fraction from among the given options that can replace the question mark (?) in the following series.

$\frac{3}{4}, \frac{7}{4}, \frac{5}{4}, \frac{9}{4}, ?$

(a) $\frac{7}{4}$ (b) $\frac{9}{4}$

(c) $\frac{13}{4}$ (d) $\frac{5}{4}$

Ans. (a) : The Given series is as follows–



So, $? = \frac{7}{4}$

95. Four publications have been listed, out of which three are alike in some manner and one is different. Select the odd one.

(a) Hindustan Times

(b) The Hindu

(c) India Today

(d) Indian Express

Ans. (c) : In the given letters all are newspaper except option 'c'.

96. 'Manipur' is related to 'Imphal' in the same way as 'Nagaland' is related to '_____'

(a) Gangtok (b) Aizawl

(c) Shilong (d) Kohima

Ans. (d) : Just as,

'Imphal' is the capital of Manipur.

Same as,

'Kohima' is the capital of Nagaland.

97. In a row of 12 students, when Karan was shifted by three places towards the right, he became fifth from the right end. What was his earlier position from the left end?

(a) Seventh

(b) Fifth

(c) Sixth

(d) Eighth

Ans. (b) : Total numbr of students in a row = 12

------- place from right after shifted three places towards right.

$= 5^{th}$

------- place from right before shifted = $5 + 3 = 8^{th}$

Hence, earlier position from the left = $12 - 8 + 1 = 5^{th}$

98. If 'P' means '+', 'Q' means '–', 'R' means '×' and 'S' means '÷', then find the value of the following expression.

$\frac{2}{3} S \frac{1}{3} Q 7 P 7 R 5$

(a) 30 (b) 50

(c) 10 (d) 40

Ans. (a) : Given, $P \rightarrow +, Q \rightarrow -, R \rightarrow x, S \rightarrow \div$

$\frac{2}{3} S \frac{1}{3} Q 7 P 7 R 5 = \frac{2}{3} \div \frac{1}{3} - 7 + 7 \times 5$

$= 2 - 7 + 35$

$= 30$

99. Select the combination of letters that when sequentially placed in the blanks will create a repetitive pattern.

c_bca- c_bc_b

(a) abaa (b) abbc

(c) abac (d) abcc

Ans. (a) : By question –

c - b c a - c - b c - b

a b a a

cab, cab, cab, cab

So 'abaa' will come at the place of blank space.

100. 'Church' is related to 'Christians' in the same way 'Synagogue' is related to '_____'.

(a) Muslims

(b) Jews

(c) Parsis

(d) jains

Ans. (b) : Church is the place of worship of Christians.

Similarly, "Synagogue" is the worship place of Jews.

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 12.01.2021] **[Time : 03:00 pm-04:30 pm**

1. Which former judge of the Supreme Court of India has been appointed as the Chairperson of the News Broadcasting Standards Authority (NBSA) in May 2019 ?

(a) Anil R Dave (b) Arjan Kumar Sikri
(c) Jasti Chelameswar (d) Madan Lokur

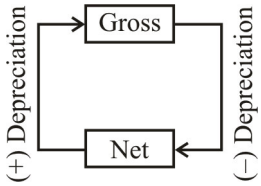
Ans. (b) : As of May 2019, former Supreme Court Judge, Justice A K Sikri was the Chairperson of the News Broadcasting Standards Authority (NBSA).
News Broadcasting Standards Authority (NBSA) is an independent body set up by the News Broadcasters Association (NBA). Rajat Sharma is the present chairman of NBA.

2. The value of the gross investment in order to accommodate regular wear and tear of capital is called :

(a) depreciation (b) deficit
(c) new investment (d) debt

Ans. (a) : The term "Depreciation" refers to a fall in the value of fixed asset. It is also known as Current Replacement Cost or Capital Consumption Allowance. Depreciation of assets occurs mainly due to three reasons –
(i) Normal wear and tear
(ii) Passage of time
(iii) Expected obsolescence

Gross value = Net value + Depreciation



3. How much percentage above the cost price should a shopkeeper mark his goods so that after allowing a discount 25% he should gain 12% ?

(a) $33\frac{1}{3}\%$ (b) 25 %
(c) 40 % (d) $49\frac{1}{3}\%$

Ans. (d) : The profit or loss % is the equivalent percentage of the mark up % and the discount %.
Let Mark Up(M) % = x %
We know that ;

$$\because \text{ P/L\%} = M - D - \frac{M \times D}{100}$$

$$12 = x - 25 - \frac{25x}{100}$$

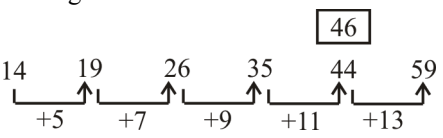
$$37 = \frac{3x}{4}$$

$$x = \frac{148}{3} = 49\frac{1}{3}\%$$

4. Identify the number that does NOT belong to the following series.
14, 19, 26, 35, 44, 59

(a) 59 (b) 26
(c) 44 (d) 14

Ans. (c) : The given series is as follows –



Hence, 44 is not related to the series.

5. The sum of total fixed cost and total variable cost is known as ?

(a) total expenditure (b) total cost
(c) total revenue (d) total product

Ans. (b) : Total cost is the sum of fixed and variable cost.
Fixed Cost – It is the cost which is unaffected by the change in production/output at a given capacity level.
Variable Cost – It is the cost per unit which varies with the output.

6. Popular folk song 'Kajari' is famous in ?

(a) Uttar Pradesh (b) Madhya Pradesh
(c) Chhattisgarh (d) Haryana

Ans. (a) : Kajari is one of the most popular folk music of Uttar Pradesh sung by classical and semi-classical musicians. It is sung in large regions of U.P. but Mirzapur (in eastern UP) is considered to be the origin of the Kajari while other state's songs are :
Madhya Pradesh – Pandvanigeet
Chhattisgarh – Bhojali, Jasgeet
Haryana – Raganis

7. The ability of a medium to refract light is also expressed in terms of its:

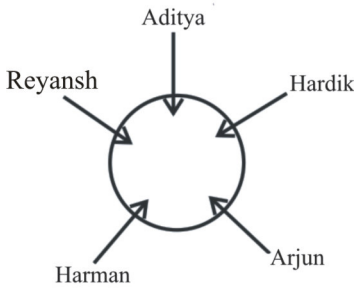
(a) optical mass (b) optical density
(c) optical volume (d) optical illusion

Ans. (b) : The ability of a medium to refract light is also expressed in terms of its "Optical density". Optical density is not as same as mass density. Optical Density is also referred as "Absorbance".

8. Five friends are sitting around a table facing the centre. Arjun is to the right of Harman. Hardik is to the left of Aditya and to the right of Arjun. Harman is to the right of Reyansh. Who is sitting to the immediate right of Aditya?

(a) Hardik (b) Harman
(c) Arjun (d) Reyansh

Ans. (d) :



Hence, Reyansh is sitting to the immediate right of Aditya.

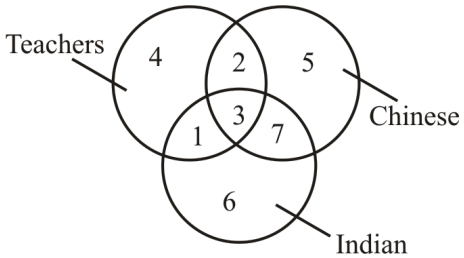
9. If x is less than y by 40%, then y exceeds x by?

(a) $33\frac{1}{3}\%$ (b) 66 %
(c) $66\frac{2}{3}\%$ (d) $66\frac{1}{3}\%$

Ans. (c) : Let, y = 100
x = 60

$$\text{Required increase \%} = \frac{100-60}{60}\times 100$$
$$= \frac{40}{60}\times 100$$
$$= 66\frac{2}{3}\%$$

10. Study the diagram and identify the region representing teachers who are Indian and Chinese.



(a) 1, 7 (b) 2, 3
(c) 1, 2, 7 (d) Only 3

Ans. (d) : The region shown by number 3 is that region which represents teachers who are Indian and Chinese.

11. Solve the following :
3.142 + 3.61 – 2.12 + 4 – 7.6 = ?

(a) 10.02 (b) 1.002
(c) 2.002 (d) 1.032

Ans. (d) : 3.142 + 3.61 – 2.12 + 4 –7.6
= 10.752 – 9.72
= 1.032

12. In 2014, the Department of Science and Technology in India took a gaint step forward and brought all the women centric schemes and programmes under one ambit named:

(a) TIFAC (b) KIRAN
(c) SUMAN (d) CURIE

Ans. (b) : Abbreviation KIRAN stands for Knowledge Involvement in Research Advancement through Nurturing. It provides various career opportunities for women scientists and technologists.

13. If $p = 5 - 2\sqrt{6}$, then find the value of $p^2 + \frac{1}{p^2}$

(a) $\sqrt{6}-\sqrt{5}$ (b) 100
(c) $25+\sqrt{6}$ (d) 98

Ans. (d) : $p = 5 - 2\sqrt{6}$

$$\frac{1}{p} = \frac{1}{5-2\sqrt{6}}\times\frac{5+2\sqrt{6}}{5+2\sqrt{6}} = \frac{5+2\sqrt{6}}{25-24} = 5+2\sqrt{6}$$

$$p+\frac{1}{p} = 10$$

On squaring both sides–

$$p^2+\frac{1}{p^2} = (10)^2 - 2 = 98$$

14. If the LCM of $20x^3y^2$ and $10x^4y^4$ is $20x^4y^4$ find the HCF.

(a) $10x^2y^2$ (b) $20x^3y^2$
(c) $10x^3y^2$ (d) $20x^2y^2$

Ans. (c) : We know that –
First Number × Second Number = HCF × LCM

$$\text{HCF} = \frac{20x^3y^2\times 10x^4y^4}{20x^4y^4}$$
$$= 10x^3y^2$$

15. There are four table clocks. They ring every 10 min, 15 min, 20 min and 25 min respectively. If they all ring together at 10 am, then at what time will they ring together again?

(a) 10:00 a.m. (b) 3:00 p.m.
(c) 10:00 p.m. (d) 3:30 p.m.

Ans. (b) :
L.C.M. of 10,15,20 and 25 = 300 min = 5 hours
Hence the table clock will again ring at 10:00 am + 5 hours simultaneously = 3 : 00 pm

16. If Sohan is taller than Mohan but shorter than Geeta and Mohan is as tall as Meghna but taller then Komal, the Meghna is:

(a) Taller than Geeta
(b) Shorter than Komal
(c) Shorter than Sohan
(d) Shorter than Mohan

Ans. (c) : The descending order of their height is as follows –
Geeta > Sohan > Mohan = Meghna > Komal
Hence, Meghna is shorter than Sohan.

17. Who is the first Indian woman scientist to be selected for the Fellowship of The Royal Society, United Kingdom in 2019?

(a) Paramjeet Khurana
(b) Sunetra Gupta
(c) Indira Hinduja
(d) Gagandeep Kang

Ans. (d) : Gagandeep Kang became the India's first female scientist to be elected as Royal Society Fellowship. Kang is known for her interdisciplinary research, development and prevention of enteric infections and their sequelae in children in India.

18. Which of the following instrument is used for measuring growth in plant ?

(a) Bolometer (b) Crescograph
(c) Chronometer (d) Cardiograph

Ans. (b) : A crescograph is a device used for measuring the growth in plants. It was invented by Sir Jagadish Chandra Bose in 1928.
Besides Crescograph, Auxanometer is also used for measuring the growth of the plant in terms of length.
Bolometer – instrument for measuring heat radiation.
Chronometer– measures accurate time of a fixed location
Cardiograph – It graphically registers movements of the heart.

19. Which steel plant was established with Russian collaboration in Durg district of Chattisgarh and started production in 1959?

(a) Rourkela Steel Plant
(b) Bokaro Steel Plant
(c) Bhilai Steel Plant
(d) Durgapur Steel Plant

Ans. (c) :

Steel Plant	State	Est. with the help of
Bhilai Steel Plant	Chhattisgarh	Russia
Rourkela Steel Plant	Odisha	Germany
Bokaro Steel Plant	Jharkhand	Soviet Union
Durgapur Steel Plant	West Bengal	United Kingdom

20. Out of the number-pairs listed below, three are alike in the way they are related to each other. Select the odd one.

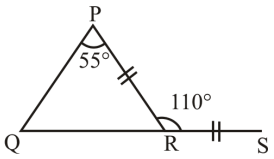
(a) 20 : 5 (b) 36 : 6
(c) 56 : 8 (d) 42 : 7

Ans. (b) : From options –
(a) $20 = 5 \times (5 - 1)$
(b) $36 \neq 6 \times (6 - 1)$
(c) $56 = 8 \times (8 - 1)$
(d) $42 = 7 \times (7 - 1)$
Hence it is clear from the above that option (b) is different.

21. In ΔPQR , QR is extended up to S, so that RS = RP. If ∠RPQ = 55º and ∠PRS = 110º, then find the measure of ∠PQS.

(a) 75^o (b) 65^o
(c) 55^o (d) 15^o

Ans. (c) :



From the exterior angle theorem –
$\angle PRS = \angle PQS + \angle QPR$
$110° = \angle PQS + 55°$
$\angle PQS = 55°$

22. Which among these established in lieu of league of Nations ?

(a) Amnesty International
(b) United Nations
(c) World Bank
(d) International Monetary Fund

Ans. (b) : The League of Nations was established at the end of World War I (1914 – 18) as an international peacekeeping organization in 1919. It effectively resolved some international conflicts but failed to prevent the outbreak of the Second World War.
On the basis of this, the United Nations Organization was established on 24 October 1945. It's headquaters is in New York, US.
→ Amnesty International – headquartered in London
→ World Bank & IMF – headquatered in Washington D.C., USA.

23. Lactic acid is a:

(a) Three-carbon molecule
(b) One-carbon molecule
(c) Two-carbon molecule
(d) Four-carbon molecule

Ans. (a) : Lactic acid ($C_3H_6O_3$) contains three carbon atoms. A molecule of lactic Acid contains atoms of Carbon, Hydrogen and Oxygen. Lactic Acid is a chemical compound that plays a major role in a number of chemical reactions. It was first isolated in 1780 by Swedish chemist Carl Wilhelm Scheele.

24. Who is called the 'Milkman of India'?

(a) Verghese Kurien (b) Arjun Dev
(c) Charan Singh (d) Manoj Kumar

Ans. (a) : Dr. Verghese Kurien is known as the "Milkman of India". He is the father of "White Revolution". Kurien was a social enterpreneur whose idea "Operation Flood" became the world's largest agricultural dairy development programme.

25. If '+' means '÷', '–' means '×', '÷'means '+' and '×' means '–', then find the value of $2-1\times4\div4+2$?

(a) –2 (b) 0
(c) –4 (d) 3

Ans. (b) : $2-1\times4\div4+2$
On changing the symbol according to the question,
$= 2\times1-4+4\div2$
$= 2-4+2=0$

26. Solve the following :

$3\left[35+\left(45+10\div2\times3-50\right)+5\right]$

(a) 125 (b) 150
(c) 123 (d) 50

Ans. (b) : $3[35+(45+10\div2\times3-50)+5]$
$= 3[35+(45+15-50)+5]$
$= 3[35+15]$
$= 3\times50=150$

27. Which physician came to India and served in the Bengal Medical service from 1794 to 1815 and also undertook pioneering survey explorations in several diverse regions of India.

(a) Francis Buchanan
(b) Sir William Jones
(c) William Bentinck
(d) Warren Hastings

Ans. (a) : Francis Buchanan (also known as Hamilton) undertook pioneering survey explorations in several diverse regions of the Indian subcontiment during his 20 years career as a surgeon naturalist with the British East India Company.

28. GATT was established to regulate world trade in 1948. GATT stands for:

(a) Gradual Aggregate of Tariffs and Trade
(b) Gradual Agreement of Tariffs and Trade
(c) General Agreement on Tariffs and Trade
(d) Gradual Agreement of Tariffs and Trade

Ans. (c) : GATT stands for The General Agreement on Tariffs and Trade (GATT). It was signed by 23 countries in October 1947 after Second World War and became law on January 1, 1948.
The purpose of the (GATT) was to make international trade easier.

29. The following observations are arranged in ascending order. If the median of the data is 19, then find the value of x.
6, 9, 15, x + 4, x + 8, x + 12, 30, 32

(a) 13 (b) 8
(c) 10 (d) 5

Ans. (a) : 6,9,15, (x + 4), (x + 8) , (x +12), 30, 32
Number of terms (n) = 8 (even)

$$\Rightarrow \quad \text{Median} = \frac{\frac{n^{th}}{2}\text{ term} + \left(\frac{n}{2}+1\right)^{th}\text{ term}}{2}$$

$$19 = \frac{4^{th}\text{ term} + 5^{th}\text{ term}}{2}$$

$$38 = x+4+x+8$$

$$26 = 2x$$

$$x = 13$$

30. Who is the author of the book 'Wealth of Nations'?

(a) Adam Smith (b) Karl Marx
(c) Alan Greenspan (d) John Stuart Mill

Ans. (a) : Adam Smith wrote the book "The Wealth of Nations" in 1776 and gave the concept of political economy, which studies in depth how prosperity achieve by a nation.
Adam Smith is renowned as the Father of Economics.

31. Where is Manora Fort situated ?

(a) Rajasthan (b) Tamil Nadu
(c) Uttar Pradesh (d) Madhya Pradesh

Ans. (b) : Manora Fort is situated in Thanjavur district of Tamil Nadu. It was constructed by King Serfoji II in 1815. It stands as a symbol of Thanjavur Maratha King's loyalty to the British Empire.

32. Which state is the largest producer of bauxite?

(a) Madhya Pradesh (b) Andhra Pradesh
(c) West Bengal (d) Odisha

Ans. (d) : Odisha is the largest bauxite producing state accounting for more than half of the total production of India. The total recoverable reserves in the state are estimated at 1,370.5 million tonnes. Bauxite is an important ore which is used for making aluminium. It is an oxide of Aluminium.

33. In a plant, the seed contains the embryo which develops into a seedling under appropriate conditions. This process is known as.

(a) Germination (b) Cross- pollination
(c) Pollination (d) Transpiration

Ans. (a) : Seeds contain embryo which develop into a seedling when grown under appropriate conditions. The endosperm inside the seeds helps in the growth and development of the embryo. It has starch as stored nutrition which allows the rapid growth of embryo. This process is called germination.

34. Where was the 5th ABU Media Summit on climate Action and Disaster Preparedness held in 2019 ?

(a) Nepal (b) Bhutan
(c) China (d) India

Ans. (a) : The 5th ABU (Asia Pacific Broadcasting Union) Media Summit on Climate Action and Disaster Preparedness began from 25–26 April 2019 in Kathmandu, Nepal.
ABU was established in 1964, and has secretariat in Kualalumpur, Malaysia.

35. If $f(x)=\frac{x+1}{x-1}$ find the value of f(f(f(2)))

(a) 2 (b) 1
(c) –1 (d) 3

Ans. (d) : $f(x)=\frac{x+1}{x-1}$

$f(2)=\frac{2+1}{2-1}=\frac{3}{1}=3$

$f(f(2))=\frac{3+1}{3-1}=\frac{4}{2}=2$

$f(f(f(2)))=\frac{2+1}{2-1}=3$

36. When people are financed through the budget and a public good is made available free of any direct payment it is referred to as:

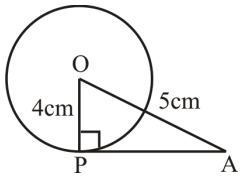
(a) public production (b) allocation function
(c) public provision (d) stabilisation

Ans. (c) : Public provision means that they are financed through the budget and made available free of any direct payment. These goods may be produced directly under government's management by the private sector.

37. The length of a tangent drawn to a circle of radius 4 cm from a point 5 cm away from the center of the circle is:

(a) $5\sqrt{3}$ cm (b) $3\sqrt{3}$ cm
(c) 5 cm (d) 3 cm

Ans. (d) :



∵ The radius of the circle is perpendicular to the tangent.

$\therefore \angle OPA = 90°$

$OA^2 = OP^2 + AP^2$

$25 = 16 + AP^2$

$9 = AP^2$

$AP = 3cm$

38. Read the given statements and conclusions carefully and decide which of the conclusions logically follows from the statements.

Statements:

(i) All ships are boats.

(ii) All anchors are ships.

Conclusions:

I. All anchors are boats.

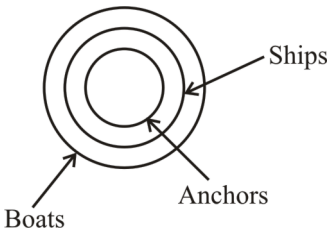
II. Some ships are anchors.

III. No anchor is boat

IV. Some boats are anchors.

(a) All four conclusions follow.
(b) Only conclusions I and III follow.
(c) Only conclusions I, II and IV follow
(d) Only conclusion III follows

Ans. (c) : According to the statement, venn diagram relation is as follows –



Hence, conclusions I, II and IV follow the statements logically.

39. The value of :

$1 + 2 + 3 + ... + 30 + 31 + 30 + 29 + ... + 3 + 2 + 1 = ?$

(a) 900 (b) 999
(c) 961 (d) 1000

Ans. (c) : We know that –

$\therefore$ 1 + 2 + 3 + 4 + ---------- n + (n - 1) + (n - 2) + ------- 3, 2, 1 = n^2

Ex-– $1 + 2 + 3 + 4 + 3 + 2 + 1 = 16 = (4)^2$

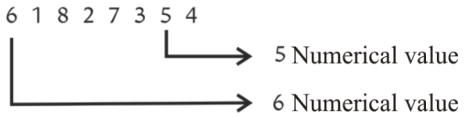
Hence, 1 + 2 + 3 + ----- + 30 + 31+ 30 + 29 + 28 + ---- - 3 + 2 + 1

$= (31)^2 = 961$

40. Find the sum of the face values of 6 and 5 in 61827354

(a) 60000300 (b) 30
(c) 40 (d) 11

Ans. (d) :



Required sum = 6 + 5 = 11

41. Out of four consecutive numbers, the sum of the first two numbers is equal to the fourth number. What is half of the sum of the four numbers.

(a) 14 (b) 7
(c) 9 (d) 2

Ans. (b) : Let four consecutive number be x, (x + 1), (x +2) and (x + 3)

According to question,

$x + (x + 1) = x + 3$

$x = 2$

Half of the sum of four number = $\frac{4x+6}{2} = 2x + 3$

$= 2 \times 2 + 3$

$= 7$

42. Who among the following resisted the demand of the formation of Pakistan?

(a) Maulana Ashraf Ali Thanvi
(b) Muhammad Iqbal
(c) Khan Abdul Gaffar Khan
(d) Muhammad Ali Jinnah

Ans. (c) : The demand for the formation of Pakistan was opposed by Khan Abdul Ghaffar Khan. He strongly opposed the proposal for the partition of India into the Hindu majority Dominion of India and Muslim majority Dominion of Pakistan.
Khan Abdul Ghaffar khan was a great statesman of the frontier and Balochistan who participated in the freedom struggle of India and due to his work he came to known as "Sarhadi Gandhi" or "Frontier Gandhi". He was also known as "Badshah Khan" or "Bacha Khan".

43. Select the option that is related to the third term in the same way as the second term is related to the first term.
Haryana : Chandigarh : : Punjab : ?

(a) Patiala (b) Ludhiana
(c) Amritsar (d) Chandigarh

Ans. (d) : Just as Chandigarh is the capital of Haryana, same as Chandigarh is also the the capital of Punjab.

44. There is 60% increase in the amount in 6 years at simple interest. What will be the compound interest of ₹10000 after 3 years at the same rate?

(a) ₹13,300 (b) ₹3,310
(c) ₹13,500 (d) ₹3,500

Ans. (b) : Rate of simple interest $= \frac{60\%}{6} = 10\%$

C.I. of 3 years C. I. $= P\left[\left(1+\frac{R}{100}\right)^{t}-1\right]$

$= 10000\left[\left(1+\frac{10}{100}\right)^{3}-1\right]$

$= 10000\left[\frac{1331}{1000}-1\right]$

$= 10000\times\frac{331}{1000}$

$= ₹\ 3310$

45. Which is one of the newest nuclear power plants of India?

(a) Tarapur (b) Kudankulam
(c) Kalpakkam (d) Narora

Ans. (b) : Kudankulam Nuclear Power Plant is located in Tirunelveli District of Tamil Nadu. It is being developed by the Nuclear Power Corporation of India with the help of Russian technology.

Nuclear Power Plant	Place
Tarapur (1969)	Maharashtra
Narora (1991-92)	Uttar Pradesh
Kudankulam 2013 (Unit-I)	Tamil Nadu

46. The speed of a stream is 3 km/h and the speed of a man in still water is 6 km/h. The time taken by the man to swim 37 km downstream is:

(a) $4\frac{1}{3}$h (b) $4\frac{1}{9}$h
(c) $4\frac{3}{4}$h (d) $1\frac{3}{4}$h

Ans. (b) : Speed of man in the downstream
= speed of man + speed of current
= 6 + 3 = 9 km/h
$\therefore$ Required time = $\frac{37}{9} = 4\frac{1}{9}$ hr.

47. In which generation were computers bulky, vacuum based and costly?

(a) Fourth generation (b) Fifth generation
(c) First generation (d) Third generation

Ans. (c) :

Generation	Uses	Examples
Ist Generation (1940 - 1956)	Vaccum Tubes	UNIVA, ENAIC IBM-650
2nd Generation (1956 – 1963)	Transistors	IBM - 1620, UNIVAC 1108
3rd Generation (1964 – 1971)	IC (Integrated Circuit)	IBM - 360 series
4th Generation (1971 – Present)	Microprocessors	STAR 1000, DECIO
5th Generation (Present and Beyond)	Artifical Intelligence	

48. Which fibre crop is used for making coarse cloth, bags, sacks and decorative items?

(a) Hemp (b) Hoopvine
(c) Jute (d) Cotton

Ans. (c) : Jute is one of the most affordable natural fibres. Jute fibres are composed primarily of the plant material cellulose and lignin. Jute is used in making of ropes, mats, bags, sacks, etc. Jute is mainly of two types.
– White Jute
– Dark Jute
India is the largest producer of the Jute in the world.

49. Which article of the Constitution of India is related to the appointment of Governor?

(a) Article 143 (b) Article 148
(c) Article 149 (d) Article 155

Ans. (d) : Article 155 says that "The Governor of a state shall be appointed by the President by warrant under his hand and seal".

* The office of Governor have been discussed under Article 153 to Article 162 of the Constitution.
Governor has a dual role.
* He is the constitutional head of the state, bound by the advice of his council of ministers.
* He acts as a vital link between the Union Government and the State Government.
* The governor shall hold office during the pleasure of the President.

50. Four words have been listed, out of which three are alike in some manner and one is different. Select the odd one.
(a) Plan (b) Design
(c) Scheme (d) Instruct

Ans. (d) : Plan, Design and Scheme are synonyms to each other whereas Instruct is an inconsistent word.

51. Amnesty International is an organization focused on protection of:
(a) Environment
(b) Human rights
(c) Endangered species
(d) Malnutrition of Children

Ans. (b) : Amnesty International (AI), an international non-govermental organization (NGO) founded in London on July 1961 which seeks to publicize violations by governments and other entities of rights recognized in the Universal Declaration of Human Rights (1948).

52. Which movement was negative enough to be peaceful but positive enough to be effective?
(a) Khilafat Movement
(b) Swadeshi Movement
(c) Non-Cooperation Movement
(d) Quit India Movement

Ans. (c) : Non-Cooperation Movement was negative enough to be peaceful but positive enough to be effective. Mahatma Gandhi transformed Indian Nationalism through this Non-Cooperation Movement of 1920.
Khilafat Movement – (1919 – 24)
Swadeshi Movement – 7 August 1905
Quit India Movement – 8 August 1942.

53. If A : B = 3 : 5 and B : C = 4 : 7, then the value of A : B : C is :
(a) 12 : 35 : 20 (b) 12 : 20 : 35
(c) 20 : 12 : 5 (d) 3 : 5 : 7

Ans. (b) : A : B = (3 : 5) × 4
B : C = (4 : 7) × 5
$\therefore$ A : B : C = 12 : 20 : 35

54. If $\sqrt{45}+\sqrt{125}=17.89$, then what will be the value of $\sqrt{180}+\sqrt{80}$?
(Give your answer to one decimal place.)
(a) 22.4 (b) 71.9
(c) 13.5 (d) 21.6

Ans. (a) : $\sqrt{45} + \sqrt{125} = 17.89$
$3\sqrt{5} + 5\sqrt{5} = 17.89$
$8\sqrt{5} = 17.89$
$\sqrt{5} = \frac{17.89}{8}$
Hence, $\sqrt{180} + \sqrt{80} = \sqrt{9\times5\times4} + \sqrt{16\times5}$
$= 6\sqrt{5} + 4\sqrt{5} = 10\sqrt{5}$
$= 10\times\frac{17.89}{8} = 22.3625$
$= 22.4$ (approx)

55. A train 180m long is running at a speed of 90 km/h. How long will it take to pass a post?
(a) 5.5 s (b) 7.8 s
(c) 7 s (d) 7.2 s

Ans. (d) : The time taken by the train to cross the post –
$= \frac{180}{90\times\frac{5}{18}}$
$= \frac{180}{25} = 7.2$ seconds

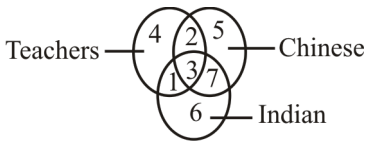
56. For which book Arundhati Roy was conferred with the Booker Prize ?
(a) Power Politics
(b) The Cost of Living
(c) An Ordinary Person's Guide to Empire
(d) The God of Small Things

Ans. (d) : Arundhati Roy won the prestigious Booker Prize in 1997 for her first novel "The God of Small Things'. Two other Indian origin authors had won this prize i.e. Kiran Desai and Arvind Adiga.
Power Politics – Arundhati Roy
The Cost of Living – Arundhati Roy
An Ordinary Person's Guide to Empire – Arundhati Roy

57. The Saubhagya Scheme is under control of which Ministry of the Central Government?
(a) Ministry of Petroleum and Natural Gas
(b) Ministry of Finance
(c) Ministry of Power
(d) Ministry of Agriculture and Farmers Welfare

Ans. (c) : The Pradhan Mantri Sahaj Bijli Har Ghar Yojna (PM Saubhagya) was launched on 25th September 2017 which targeted to 100% electrification nationwide. It is regulated by. The Ministry of Power.

58. Study the diagram and identify the region representing teachers who are Chinese but not Indian.



(a) Only 2 (b) 2, 3
(c) 1, 7 (d) 1, 2, 7

Ans. (a) : The area shown by number 2 represents the teachers who are Chinese but not Indian.

59. Who was the Governor-General of Bengal when the Permanent Settlement was introduced in 1793?
(a) Robert Francis (b) Warren Hastings
(c) Charles Cornwallis (d) William Hodges

Ans. (c) : The Permanent Settlement of Bengal was brought into effect by the East India Company headed by the then Governor - General Lord Cornwallis in 1793. This was basically an agreement between East India Company and the Zamindars to fix the land revenue. Charles Cornwallis is known as "The Father of Civil Services in India".

60. In a web address, the domain indicator (Suffix) '.com' stands for :
(a) Computer (b) Communication
(c) Common (d) Commercial

Ans. (d) : ".com" is the most common and recognized domain suffix. It stands for "Commercial" and is used by mostly commercial websites.

61. 1.236576576 ... can be written in the form of:
(a) $\frac{125334}{99000}$ (b) $\frac{123534}{99000}$
(c) $\frac{123534}{99900}$ (d) $\frac{125434}{99900}$

Ans. (c) : $1.236576576\ldots\ldots$

$= 1 + 0.236\overline{576}$

$= 1 + \frac{236576 - 236}{999000}$

$= \frac{1235340}{999000}$

$= \frac{123534}{99900}$

62. If $\cos(x+y) = \frac{1}{2}$, and sin (x–y) = 0, where x and y are positive acute angles and $x \geq y$, then x and y are:
(a) 30º and 30º (b) 45º and 45º
(c) 60º and 60º (d) 80º and 80º

Ans. (a) : $\cos(x + y) = \frac{1}{2} = \cos 60°$

$x + y = 60^0$ .....(1)

$\sin(x - y) = 0 = \sin 0°$

$x - y = 0^0$ ..... (2)

On solving the equation (1) and (2)

$x = 30°, y = 30°$

63. If book is called 'pen', pen is called 'wheat' wheat is called 'chair', chair is called 'cup' and cup is called 'book', then which of the following is edible?
(a) Chair (b) Wheat
(c) Pen (d) Book

Ans. (a) : Since wheat is used for food but in the question wheat is called chair, hence chair is the correct answer.

64. Who coined the famous slogan 'Jai Jawan Jai Kisan'?
(a) Lal Bahadur Shastri
(b) Indira Gandhi
(c) Sardar Patel
(d) Jayaprakash Narayan

Ans. (a) : 'Jai Jawan Jai Kisan' is a famous slogan coined by Lal Bahadur Shastri in 1965 at a public gathering at Ramlila Maidan, Delhi.
Lal Bahadur Shastri was the second Prime Minister of India. Shastriji was born on 2 October 1904, in Mughal Sarai, Uttar Pradesh.

65. In human beings, which of the following has a high affinity for oxygen?
(a) Carbon dioxide (b) Haemoglobin
(c) Melanin (d) White blood cells

Ans. (b) : Respiratory pigments like haemoglobin, myoglobin have high affinity with oxygen. Haemoglobin functions as oxygen carrier in blood from the lung to the rest of the body.

66. If the ratio of the 11^{th} term of an AP to its 18^{th} term is 2 : 3. find the ratio of the sum of its first five terms to the sum of its first 10 terms.
(a) 1 : 2 (b) 5 : 4
(c) 6 : 17 (d) 17 : 6

Ans. (c) : Let the first term of A.P. is a and difference is d.

n^{th} term $(a_n) = a + (n - 1).\ d$

$\frac{a_{11}}{a_{18}} = \frac{a + 10d}{a + 17d} = \frac{2}{3}$

$3a + 30d = 2a + 34d$

$a = 4d$

$\because S_n = \frac{n}{2}\ [2a + (n - 1).d]$

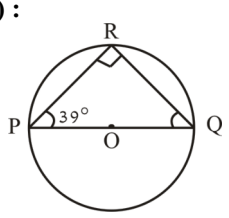
$\frac{S_5}{S_{10}} = \frac{\frac{5}{2}[2a + 4d]}{\frac{10}{2}[2a + 9d]}$

$= \frac{8d + 4d}{2[8d + 9d]}$ $[\because a = 4d]$

$= \frac{6d}{17d} = 6 : 17$

67. PQ is a diameter of a circle whose centre is O. If a point R lies on the circle and ∠RPO is 39º, then find the measure of ∠RQP.
(a) 51º (b) 125º
(c) 129º (d) 151º

Ans. (a) :



$\therefore$ POQ is the diameter of circle

but the angle subtended in a semicircle is a right angle.

$\therefore$ $\angle PRQ = 90°$

In Δ RPQ –

$\angle RPQ + \angle PRQ + \angle PQR = 180°$

$39° + 90° + \angle PQR = 180°$

$\angle PQR = 180° - 129° = 51°$

68. When was the Border Road Organisation established in India?

(a) May, 1960 (b) May, 1962

(c) September, 1962 (d) September, 1960

Ans. (a) : The Border Roads Organization (BRO) was established on 7 May 1960. The BRO functions under the control of the Ministry of Defence (since 2015). The body is responsible for maintaining the Road Networks in the border areas of India. The Atal Tunnel in Himachal Pradesh is the world's longest (8.8 km) Highway tunnel constructed by BRO.

Currently the Director General of BRO is Lt Gen Rajeev Chaudhary.

69. Four geometric shapes have been listed, out of which three are alike in some manner and one is different. Select the odd one.

(a) Square (b) Circle

(c) Triangle (d) Rectangle

Ans. (b) : Rectangle, Triangle and Square have four vertexes and more than one straight lines whereas in circle there is no vertex and is not made up of straight line.

70. When was the Human Space Flight Centre (HSFC) inaugurated by ISRO?

(a) June, 2018 (b) June 2019

(c) January, 2019 (d) January, 2018

Ans. (c) : The Human Space Flight Centre (HSFC) was inaugurated by ISRO on 30 January 2019 at ISRO's headquarters campus in Bengaluru. The agency will be responsible for implementation of the Gaganyaan project. Dr. K. Sivan is the present chairman of Indian Space Research Organization (ISRO). ISRO was formed on 15 August, 1969.

71. The arithmetic mean of X observations is m. If two observations 0 and m are added, then the new mean will be:

(a) $\frac{mx}{x+1}$ (b) m

(c) $\frac{m}{x+1}$ (d) $\frac{m(x+1)}{x+2}$

Ans. (d) : Sum of x observations = mx

If 0 and m are added to them, then the new mean –

$$\text{Mean} = \frac{mx+0+m}{x+2}$$

$$= \frac{m(x+1)}{x+2}$$

72. Who stayed in India for 23 years (1802-25) painting portraits, landscapes and scenes of everyday life of common people?

(a) George Chinnery (b) Walter Statesman

(c) William Hodges (d) Walter Sherwill

Ans. (a) : George Chinnery was an English Painter who, spent most of his life in Asia, specially in India and Southern China. He was from London, England.

73. Find the least number which must be added to the number 6412 to get a perfect square.

(a) 149 (b) 129

(c) 181 (d) 150

Ans. (a) : $(80)^2 = 6400$

$(81)^2 = 6561$

Hence on adding 6561 – 6412 = 149, 6412 will be the perfect square.

74. Which of the following protocols is used for WWW?

(a) FTP (b) SMTP

(c) TCP/IP (d) HTTP

Ans. (d) : HTTP (Hypertext Transfer Protocol) is the protocol used to transmit all data present on the World Wide Web (WWW).

TCP (Transmission Control Protocol) used with IP (Internet Protocol).

FTP (File Transfer Protocol) is used for the transfer of computer files.

SMTP (Simple Mail Transfer Protocol) is an internet standard communication protocol for electronic mail transmission.

75. If the income of Richa is $9\frac{1}{11}\%$ more than that of Meena, then the income of Meena is less than that of Richa by:

(a) $8\frac{3}{12}\%$ (b) $8\frac{10}{12}\%$

(c) $8\frac{4}{12}\%$ (d) $7\frac{10}{12}\%$

Ans. (c) : $9\frac{1}{11}\% = \frac{1}{11}$

Let the income of Meena = 11

Income of Richa = 12

Required decrease % = $\frac{1}{12} \times 100 = 8\frac{4}{12}\%$

76. In a certain code language, RIPPLE is written as 762248 and PREACH is written as 278391. How will CHAIR be written in that language?

(a) 91367 (b) 91673
(c) 91637 (d) 93176

Ans. (a) : Just as,

R → 7
I → 6
P → 2
P → 2
L → 4
E → 8

And,

P → 2
R → 7
E → 8
A → 3
C → 9
H → 1

Similarly, by using the above code –

C → 9
H → 1
A → 3
I → 6
R → 7

77. The famous novel 'Untouchable' was written by:

(a) R.K. Narayan
(b) Mulk Raj Anand
(c) K.R. Srinivasan Iyengar
(d) A.K. Ramanujan

Ans. (b) : The novel 'Untouchable' was written by Mulk Raj Anand. The powerful story of Untouchable is based on India's caste system.

RK Narayan's Novels are "Maalgudi Days", "Swami and Friends", "The Dark Room". etc.

78. Rohan can travel from Delhi to Kanyakumari in 30h. If he reduces his speed by 1/15th, he goes 10 km less in the same time. Find the speed.

(a) 5 km/h (b) 3 km/h
(c) 2.5 km/h (d) 8 km/h

Ans. (a) : Let, the speed of Rohan initially was x km/h.

Distance = 10 km

Time = 30 hr

Distance = Speed × Time

Now, Reduced Speed $= \frac{x}{15}\text{km/h}$

$10 = x \times \frac{1}{15} \times 30$

$10 = \frac{30x}{15}$

$150 = 30x$

$\boxed{x = 5}$

Hence speed of Rohan = 5 km/h

79. Select the letter cluster from among the given options that can replace the question mark (?) in the following series.

AZP, BYQ, CXR, ?

(a) DWS (b) DVW
(c) DWT (d) DUR

Ans.(a) : The given series is as follows –

A $\xrightarrow{+1}$ B $\xrightarrow{+1}$ C $\xrightarrow{+1}$ D
Z $\xrightarrow{-1}$ Y $\xrightarrow{-1}$ X $\xrightarrow{-1}$ W
P $\xrightarrow{+1}$ Q $\xrightarrow{+1}$ R $\xrightarrow{+1}$ S

Hence, $\boxed{? = \text{DWS}}$

80. If the roots of the equation $(4+m)x^2+(m+1)x+1 = 0$ are equal, then find the values of m.

(a) m = 0, 5 (b) m = –1, –3
(c) m = 2, 3 (d) m = 5, –3

Ans. (d) : $(4 + m)x^2 + (m + 1)x + 1 = 0$

$\because$ If quadratic equation $ax^2 + bx + c = 0$ have equal roots,

then, $D = b^2 - 4ac = 0$

On comparing we have –

$(m + 1)^2 - 4 \times (4 + m) \times 1 = 0$

$m^2 + 1 + 2m - 16 - 4m = 0$

$m^2 - 2m - 15 = 0$

$m^2 - 5m + 3m - 15 = 0$

$m(m - 5) + 3(m - 5) = 0$

$(m - 5)(m + 3) = 0$

$\therefore$ m = 5, – 3

81. Which of the following will be the correct sequence of the words if they are arranged as their order in an English dictionary?

(a) Pigment→Pile→Pilgrim→Pillow
(b) Pile→Pilgrim→Pigment→Pillow
(c) Pillow→Pilgrim→Pigment→Pile
(d) Pigment→Pile→Pillow→Pilgrim

Ans. (a) : Arranged order according to English Dictionary.

Pigment → Pile → Pilgrim → Pillow

82. A sum of ₹800 becomes ₹920 in 3 years at simple interest. If interest is increased by 4%, then the amount will increase to:

(a) ₹1,050 (b) ₹999
(c) ₹1,016 (d) ₹216

Ans. (c) : Simple interest for 3 yrs = 920 – 800 = ₹ 120

Simple interest for 1 yrs = ₹ 40

Rate of S.I. $= \frac{40}{800} \times 100 = 5\%$ $\left(\because R = \frac{SI \times 100}{P \times T}\right)$

New Interest Rate = 5 + 4 = 9%

Rate of interest for three yrs = 9 × 3 = 27%

Hence, increased amount = $800 + 800 \times \frac{27}{100} = ₹\ 1016$

83. If $\sin(3x-20)^\circ = \cos(20-3y)^\circ$, then the value of x – y will be :

(a) 30° (b) 60°

(c) 45° (d) 20°

Ans. (a) : $\sin(3x - 20)° = \cos(20 - 3y)°$

$\sin(3x - 20)^0 = \sin\{90^0 - (20 - 3y)^0\}$

$3x - 20^0 = 70^0 - 3y$

$3x - 3y = 90°$

$x - y = 30°$

84. Which of the following state has the most number of cotton mills and most of them produced yarn rather than cloth?

(a) Tamil Nadu (b) Kerala

(c) Karnataka (d) Goa

Ans. (a) : As per the latest government data, Ministry of Textiles disclosed that there are 1399 operational, non-small scale industry (Non-SSI) textile mills in the country. Tamil Nadu topped the list with 752 mills followed by Maharashtra (135) and Andhra Pradesh (112).

85. The center of the reflecting surface of a spherical mirror of a point called

(a) Center of Curvature (b) Pole

(c) Focus (d) Principal axis

Ans. (b) : The center of the reflecting surface of a spherical mirror of a point is called the Pole. It lies on the surface of the mirror. The pole is usually represented by the letter P. Also it is the midpoint of the aperature of the spherical mirror.

86. Study the table and answer the question that follows.

Annual Rainfall (in cm) in Indian states

State \ Year	2000	2005	2015
Himachal Pradesh	110	90	150
Uttar Pradesh	120	85	90
Madhya Pradesh	90	65	80
Andhra Pradesh	55	75	65
Tamil Nadu	150	90	115

In which state was the annual rainfall (in cm) for 2005 greater than the average annual rainfall (in cm) for all three years?

(a) Andhra Pradesh (b) Uttar Pradesh

(c) Madhya Pradesh (d) Himachal Pradesh

Ans. (a) :

State	Rainfall for three years
H.P.	$\frac{110+90+150}{3} = 116.67$
U.P.	$\frac{120+85+90}{3} = 98.33$
M.P.	$\frac{90+65+80}{3} = 78.33$
A.P.	$\frac{55+75+65}{3} = 65$
Tamil Nadu	$\frac{150+90+115}{3} = 118.33$

Therefore, the annual rainfall in the state of Andhra Pradesh in 2005 is higher than the average annual rainfall for all the three years.

87. Study the table and answer the question that follows.

Annual Rainfall (in cm) in Indian States.

State \ Year	2000	2005	2015
Himachal Pradesh	110	90	150
Uttar Pradesh	120	85	90
Madhya Pradesh	90	65	80
Andhra Pradesh	55	75	65
Tamil Nadu	150	90	115

Which state has the maximum percentage decrease in annual rainfall between the years 2000 and 2015?

(a) Madhya Pradesh (b) Tamilnadu

(c) Uttar Pradesh (d) Andhra Pradesh

Ans. (c) : Percentage decrease in rainfall between 2000 and 2015.

For Uttar Pradesh= $\frac{30}{120} \times 100 = 25\%$

For Madhya Pradesh = $\frac{10}{90} \times 100 = 11.11\%$

For Tamil Nadu = $\frac{35}{150} \times 100 = \frac{70}{3} = 23.33\%$

Hence, the maximum percentage of rainfall in the state of Uttar Pradesh was decreased between 2000 and 2015.

88. Study the given pattern carefully and select the number from among the given options that can replace the question mark (?) in it.

(a) 7 (b) 8

(c) 11 (d) 6

Ans. (d) : The numbers of the second pentagon will be obtained by adding the numbers of the first pentagon to the numbers of the third pentagon.

$1 + 2 = 3$

$2 + 6 = 8$

$1 + 9 = 10$

$1 + 5 = \boxed{6}$

$1 + 8 = 9$

Hence, $\boxed{? = 6}$

89. Study the table and answer the question that follows.

Production of grains in Indian States (in lakh tonnes)

State \ Year	2015	2018
Maharashtra	120	150
Karnataka	115	90
Himachal Pradesh	125	95
Kerala	85	65
Tamil Nadu	90	115

Which state has maximum percentage change in the production of grains between the year 2015 and 2018?

(a) Maharashtra (b) Kerala

(c) Karnataka (d) Tamil Nadu

Ans. (d) :

State	**Percentage change in the Production of grains between 2015 to 2018.**
Maharashtra	$\frac{30}{120}\times 100 = 25\%$
Karnataka	$\frac{25}{115}\times 100 = 21.74\%$
Himachal Pradesh	$\frac{30}{125}\times 100 = 24\%$
Kerala	$\frac{20}{85}\times 100 = 23.53\%$
Tamil Nadu	$\frac{25}{90}\times 100 = 27.7\%$

Hence the maximum percentage change occured in the state of Tamil Nadu.

90. Four parts of the human body are listed, out of which three are alike in some manner and one is different. Select the odd one.

(a) Throat (b) Tongue

(c) Nose (d) Mouth

Ans. (b) : Throat, Nose, Mouth are the external parts of the body while Tongue is an internal organ. Hence option(b) is odd one.

91. Select the number from among the given options that can replace the question mark (?) in the following series.

16, 25, 36, 49, ?

(a) 67 (b) 64

(c) 72 (d) 70

Ans. (b) : The given series is as follows –

16	25	36	49	$\boxed{64}$
↓	↓	↓	↓	↓
4^2	5^2	6^2	7^2	8^2

Hence, $\boxed{? = 64}$

92. Observe the four number-pairs listed below. In three of them, the numbers are related to each other by a specific logic. Select the number pair that does not follow the same logic as the other three.

(a) 729 - 81 (b) 2197 - 169

(c) 1331 - 144 (d) 216 - 36

Ans. (c) : From options –

(a) $729 \xrightarrow{(9)^3} 81 \xrightarrow{(9)^2}$ (b) $2197 \xrightarrow{(13)^3} 169 \xrightarrow{(13)^2}$

(c) $1331 \xrightarrow{(11)^3} 144 \xrightarrow{(12)^2}$ (d) $216 \xrightarrow{(6)^3} 36 \xrightarrow{(6)^2}$

Hence it is clear from the above that option (c) is different from others.

93. Which of the following number, when added to itself 14 times gives 135 as result?

(a) 8 (b) 9

(c) 11 (d) 12

Ans. (b) : Let the number be = x

According to question –

$x + 14x = 135$

$15x = 135$

$x = 9$

94. If Apple is called 'Shampoo', Shampoo is called 'Milk', Milk is called 'Pen', Pen is called 'Hair' and Hair is called 'Apple', then which of the following will be used for drinking ?

(a) Hair (b) Shampoo

(c) Apple (d) Pen

Ans. (d) : Milk is used for drinking. But in the question Milk is called Pen. Hence Pen is the correct answer.

95. Five athletes Deepak, Aslam, Raju, Joni and Monu took part in a race. Joni finished before Raju but he is behind Monu. Aslam finished before Deepak but he is behind Raju. Who came third in the race?

(a) Aslam (b) Raju

(c) Joni (d) Deepak

Ans. (b) : Ranks of athletes in Race –

Monu > Joni > Raju > Aslam > Deepak

(1) (2) (3) (4) (5)

Hence, Raju is at the third place.

96. Among five friends, Ravi is taller than Anand but he is not as tall as Sunil. Rohit is taller than Sonu but shorter than Anand. Who is the shortest in their group?

(a) Sunil (b) Rohit

(c) Sonu (d) Anand

Ans. (c) : Descending order of their height is as follows –

Sunil > Ravi > Anand > Rohit > Sonu

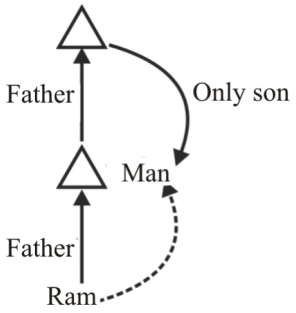
Hence Sonu is the shortest in group.

97. Ram introduces a man as the only son of his father's father. How is the man related to Ram?

(a) nephew (b) son

(c) uncle (d) father

Ans. (d) : Blood Relation diagram is as follows –



Hence it is clear that the man is the father of Ram.

98. Read the given statement carefully and select from among the given options, the conclusion that logically follows from the statement.

Statement :

Ability is a poor man's wealth.

(a) A poor man can earn wealth if he has ability.

(b) A poor man does not have the ability to earn wealth.

(c) A wealthy man is always able.

(d) A poor man is always able.

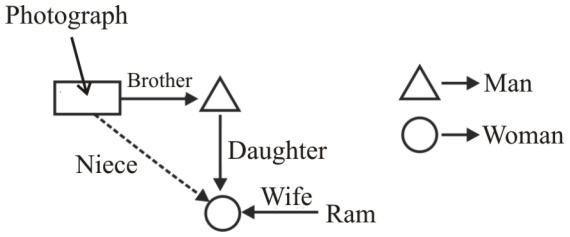
Ans. (a) : The conclusion of the given statement is that a poor person can earn money only if he has the ability. Hence, the conclusion of option (a) logically follows the given statement.

99. Pointing to a photograph, Ram said, "This man's brother's daughter is my wife." How is his wife related to the man in the photograph?

(a) Daughter (b) Paternal Niece

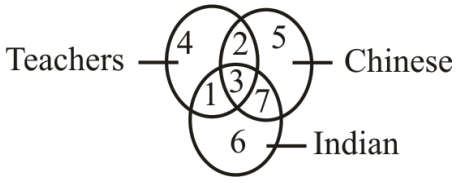
(c) Daughter-in-law (d) Sister

Ans. (b) : Blood Relation diagram is as follows –



So, it is clear that Ram's wife is the Paternal Niece of the person in the photograph.

100. Study the diagram and identify the region representing teachers who are Indian but not Chinese.



(a) 3, 7 (b) 4, 1, 6

(c) only 1 (d) 1, 3

Ans. (c) : The region shown by number 1 represents the teachers who are Indian but not Chinese.

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 13.01.2021] **[Time : 10:30 am-12:00 pm**

1. Who built the Shahi (Royal) road to strengthen and consolidate his empire from the Indus Valley to the Sonar Valley in Bengal, and it was renamed the GT road during the British period.

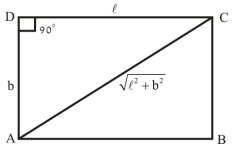
(a) Aurangazeb (b) Sher Shah Suri
(c) Bahadur Shah Zafar (d) Alam Shah

Ans. (b) : Sher Shah Suri was built the Shahi (Royal) road to strengthen and consolidate his empire from the Indus valley to the Sonar valley in Bengal. This road was renamed as Grand Trunk (GT) road during British period connecting Calcutta and Peshawar. At present it extends from Amritsar to Kolkata.

2. The area of a rectangle is 60 sq. units and its perimeter is 34 units then find its diagonal :

(a) 12 units (b) 17 units
(c) 13 units (d) 14 units

Ans. (c) : According to the question,



Given,

Perimeter of rectangle = $2(\ell + b) = 34$

$l + b = 17$

Area of rectangle = $lb = 60$

Diagonal AC = $\sqrt{\ell^2 + b^2}$

With the help of above question,

$= \sqrt{(\ell + b)^2 - 2\ell b}$

$= \sqrt{(17)^2 - 2 \times 60}$

$= \sqrt{289 - 120}$

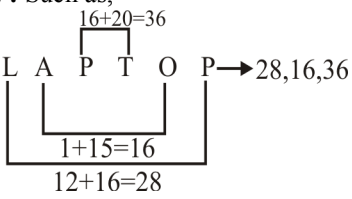
$= \sqrt{169}$

= 13 units

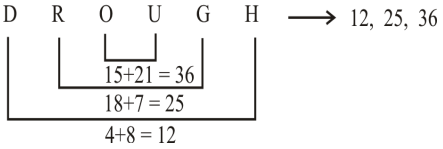
3. In a certain code language, LAPTOP is coded as 28 16 36 and DROUGH is coded as 12 25 36, then what is the code for MEMBER in that code language?

(a) 31 11 15 (b) 31 10 15
(c) 31 10 05 (d) 13 01 51

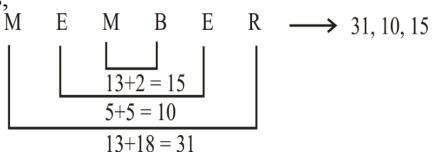
Ans. (b) : Such as,



and,



Same as,



∴ ? = 31, 10, 15

4. Name the world famous scientist known for his 'Theory of Relativity'?

(a) Thomas Alva Edison (b) Christian Bernard
(c) Albert Einstein (d) John Dalton

Ans. (c) : Theory of Relativity was formulated by Albert Einstein which states that space and time are relative and all the motion must be relative to a frame of reference. It is a notion that states, law of physics are same everywhere. The nobal Prize in physics 1921 was Awarded to Albert Einstein for his discovery of the law of photoelectric effect.

5. Which of the following banks was established in India at Calcutta under European Management (in 1770)?

(a) National Bank of India
(b) Bank of Hindustan
(c) Bank of India
(d) Indus Bank of India

Ans. (b) : 'Bank of Hindustan' was the first Bank of India. This Bank was established at Calcutta under European Management. It was liquidated in 1830-32. It was setup by the Agency House of Alexander and Company in the year 1770.

6. Name the place in India where one can find the Zero Mile Stone consisting of four horses and a pillar made up of sandstone.

(a) Bhopal (b) Surat
(c) Itarsi (d) Nagpur

Ans. (d) : Zero Mile Stone is a monument built by Britishes during Great Trigonometrical Survey of India during 1907 in Nagpur, Maharashtra. The zero mile stone consists of four horses and a pillar made up of sadstone. It is a monuments locating the geographical center of colonial India.

7. The C++ programming language was developed at AT & T Bell Laboratories in the early____ by Bjarne Stroustrup.

(a) 1980 (b) 1990
(c) 1960 (d) 1970

Ans. (a) : C++ programming language was developed in 1980 by Bjarne Stroustrup at Bell laboratories of American Telephone and Telegraph located in U.S.A. It was developed for adding a feature of object oriented programming and other capabilities without significantly changing the C component.

8. In an election, candidate A got 75% of total valid votes. If 15% of total votes were declared invalid and the total number of votes is 560000, then the number of valid votes polled in favour of A is:

(a) 355000 (b) 357000
(c) 356000 (d) 358000

Ans. (b) : Total number of valid votes cast in favour of A,

$$\text{Number} = 560000 \times \frac{85}{100} \times \frac{75}{100}$$
$$= 3,57,000$$

9. A solid sphere of surface area S, is cut into four equal pieces by two radial planes. The total surface area of all the pieces?

(a) Becomes S (b) Becomes 4S
(c) Becomes 2S (d) Becomes 3S

Ans. (c) : On cutting the solid sphere vertically and horizontally, the surface area equal to four circles will increase and the radius of those circles will also be equal to the radius of solid sphere.

Hence, the surface area of the solid sphere = $4\pi r^2$

$$S = 4\pi r^2$$

The total surface area of the four pieces after making the vertical and horizontal cuts = $4\pi r^2 + 4\pi r^2$

$$= 8\pi r^2$$
$$= 2 \times 4\pi r^2$$
$$= 2\,S$$

10. In which year did India conduct its second nuclear test in Pokhran?

(a) 1998 (b) 2003
(c) 1996 (d) 2001

Ans. (a) : In May 1998 India conducted a series of nuclear tests in Pokhran, Rajasthan and code name operation SHAKTI (Called Pokhran-II tests). On 18 May 1974 India had conducted its first nuclear test, code named 'Smiling Buddha' in Rajasthan's Pokhran.

11. A man can complete a work in 5 days working 4 hours per day in the first 5 days, 5 hours per day in the next 5 days and 6 hours per day in the last 5 days. If he works 8 hours a day with half an hour launch break, in how many days will he complete the work ?

(a) 7.5 days (b) 12 days
(c) 10 days (d) 8 days

Ans. (c) : According to the question,
Total work = $5 \times 4 + 5 \times 5 + 5 \times 6$
= 75 units
After a half hour break = 8 hours – 30 min
= 7 : 30 hours
According to the question,
$75 = 7.5 \times D$
$D = 10$ days

12. If J= 17 and N = 13, then JUNIOR = ?

(a) 1751318129 (b) 1771318129
(c) 1741318129 (d) 1761318129

Ans. (d) : Given-
J = 17 N = 13
J $\rightleftharpoons$ Q (opposite letter)
10 17
N $\rightleftharpoons$ M (opposite letter)
14 13
J $\rightleftharpoons$ Q(17)
U $\rightleftharpoons$ F(6)
N $\rightleftharpoons$ M(13)
I $\rightleftharpoons$ R(18)
O $\rightleftharpoons$ L(12)
R $\rightleftharpoons$ I(9)
Hence, JUNIOR = 1761318129

13. The region where all of the light from the source is blocked is called:

(a) Penumbra (b) Umbra
(c) Antumbra (d) Shadow

Ans. (b) : The numbra, penumbra and antumbra are three distinct, Parts of a shadaw, created by any light source after impinging on an opaque object. When an opaque object is placed between an extended source of light and a screen, we obtain, on the screen, a shadow consisting of two parts, an inner part which is perfectly dark and called umbra and an outer part called Penumbra which is partly illuminated. The antumbra is the region from which the occtuding body appears entirely within the disc of the light source.

14. Consider the given statement and decide which of the given assumptions is/are implicit in the statement.

Statement:

Chain snatching incidents are increasing day-by-day.

Assumptions:

I. Police personnel are involved in such incidents:

II. Chain snatchers have no fear of punishment.

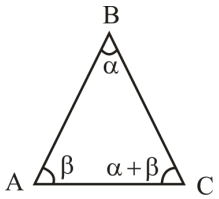
(a) Only assumption I is implicit
(b) Both assumptions I and II are implicit
(c) Only assumption II is implicit
(d) Neither assumption I nor II is implicit

Ans. (c) : Incidents of chain snatching are increasing day by day because chain snatchers have no fear of punishment. Hence only assumption (II) is implicit.

15. The sum of two angles of a triangle is equal to its third angle. Find the measure of the third angle?

(a) 120º (b) 90º
(c) 60º (d) 50º

Ans. (b) :



If two angles of a triangle are α and β, then the third angle will be α+β

In ΔABC,

$$\angle A + \angle B + \angle C + = 180°$$
$$\alpha + \beta + \alpha + \beta = 180°$$
$$2(\alpha + \beta) = 180°$$
$$(\alpha+\beta) = 90°$$

16. India's 'Statue of Unity' is situated in the state of:

(a) Gujarat (b) Tamil Nadu
(c) Karnataka (d) Maharashtra

Ans. (a) : In 2018, Prime Minister Narendra Modi inaugurated the 'Statue of Unity'. It is located in the Gujarat on the bank of Narmada River in the Kevadiya Colony, facing the Sardar Sarovar Dam. It was built in honour of Sardar Vallabhbhai Patel. It is tallest statue in the world. It is at a height of 182 m and is 23 m taller than China's spring Temple Buddha statue and almost double the height of 'Statue of Liberty' (93 m) in USA.

17. Theophrastus is called the father of:

(a) Chemistry (b) Botany
(c) Physics (d) Zoology

Ans. (b) : Theophrastus is known as the 'Father of Botany'. Aristotle is called 'Father of Zoology and Biology'. Antoine Lavoisier is known as the 'Father of Chemistry'.

18. In which of the following continent are the 6 most populated countries located?

(a) Asia (b) North America
(c) South America (d) Africa

Ans. (a) : Asia is the largest and most populous continent of the world. 6 most populated countries of the world are located in Asian continent. The Top 6 most populated countries of Asian continent are : China, India, Indonesia, Pakistan, Bangladesh and Japan.

19. $\dfrac{\left(3\sqrt{5}+\sqrt{125}\right)}{\left(\sqrt{80}+6\sqrt{5}\right)}$ **.....is**

(a) A rational number
(b) A natural number
(c) An integer
(d) An irrational number

Ans. (a) : Given that-

$$\frac{3\sqrt{5}+\sqrt{125}}{\sqrt{80}+6\sqrt{5}}$$
$$=\frac{3\sqrt{5}+5\sqrt{5}}{4\sqrt{5}+6\sqrt{5}}$$
$$=\frac{8\sqrt{5}}{10\sqrt{5}}=\frac{8}{10}=\frac{4}{5}\text{ (Rational number)}$$

Hence, $\dfrac{3\sqrt{5}+\sqrt{125}}{\sqrt{80}+6\sqrt{5}}$ is a rational number.

20. The _____ is a simple query language used for accessing handling and .....data in a relation database.

(a) ISO (b) DDL
(c) SQL (d) DML

Ans. (c) : SQL stands for Structured Query language.
* SQL lets you access and manipulate databases.
* SQL became a standard of the American National Standard Institute (ANSI) in 1986 and the International Organization for Standardisation (ISO) in 1987.

21. Let N be the greatest number such that when 1300, 4660 and 6900 are divided by N, the remainder is the same. The sum of the digits in N is.

(a) 4 (b) 3
(c) 6 (d) 5

Ans. (a) : According to the question,
H.C.F. of N = [(4660 – 1300), (6900 – 4660),(6900 – 1300)]
H.C.F. of N = [3360 , 2240, 5600]
N = 1120
∴ Sum of N's digits = 1 + 1 + 2 + 0 = 4

22. Which of the following is valid for $(a + b)^2 = a^2 + b^2$.

(a) May be true for only a finite number of (a, b)
(b) May be true for exactly one pair (a, b)
(c) Cannot be true for any set of (a, b)
(d) May be true for infinite number of (a, b)

Ans. (d) : $(a+b)^2 = a^2 + b^2$

$\Rightarrow a^2 + b^2 + 2ab = a^2 + b^2$

$2ab = 0$

$ab = 0$

$\Rightarrow a = 0$ or $b = 0$

$\therefore$ (0, b) or (a,0)

Here, the value of 'a' and 'b' can be infinite. Thus it can be true for an infinite number of (a, b).

23. Aman great-grandfather age is 105 years. Aman father Ram Singh age is 1/3 of his grandfather's age. Five years ago, when Aman was born, Ram Singh's mother was twice the age of Ram singh. Find the age of difference between of Aman and Ram singh.

(a) 25 years (b) 30 years
(c) 20 years (d) 35 years

Ans. (b**) :** Aman great grandfather age = 105 years

Aman father Ram singh age = $\frac{105}{3}$ = 35 years

Ram Singh mother age at the time of Aman birth

= 30 × 2 = 60 years

Present age of Aman = 5 years

Present age of his father Ram Singh = 35 years

Difference = 35 – 5 = 30 years

24. A laptop costs ₹27000. You will have to pay 15% extra to purchase an extended warranty of 2 years. What will be the final cost of the laptop if 6% GST must be paid on the whole amount ?

(a) ₹32,913 (b) ₹31,050
(c) ₹31,293 (d) ₹32,670

Ans. (a) : Laptop final price (with 6% GST)

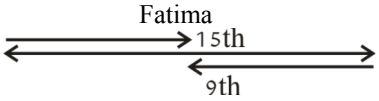
$= 27000 \times \frac{115}{100} \times \frac{106}{100}$

$= ₹\ 32913$

25. In a row of girls, Fatima is 15th from the one end and 9th from the other end. Find the total number of girls in the row.

(a) 25 (b) 26
(c) 24 (d) 23

Ans. (d) : According to the question,



Hence, the total number of girls in the row = (15+9) –1

= 23

26. The NITI Aayog was formed by replacing the Planning Commission of India on _____ 2015.

(a) 2 April (b) 1 February
(c) 1 January (d) 2 March

Ans. (c**) :** Planning Commission of India was replaced by a new institution – NITI Aayog on January 1, 2015. It is country's premier policy making institution that is expected to boost the economic growth of the country. It is a public policy think tank of the Government of India (GOI).

27. Famous singer and Bharat Ratna Awardee, Bhupen Hazarika, belongs to the state of:

(a) Assam (b) Odisha
(c) West Bengal (d) Nagaland

Ans. (a**) :** Bhupen Hazarika is popularly known as the Bard of Brahmaputra. He was awarded with Bharat Ratna on 25 January 2019 (posthumously). He was born in 1926 in the small town Sadiya in Assam's Tinsukia district. He died on 5 November, 2011.

28. The HCF and LCM of 36 and N are 9 and 180 respectively. Then find the value of N ?

(a) 65 (b) 63
(c) 45 (d) 90

Ans. (c) : From Formula,

Multipliction of both number = L.C.M. × H.C.F.

$36 \times N = 9 \times 180$

$N = 45$

29. The value of $\sqrt{4}$ is

(a) 4 (b) 2 or –2
(c) Only 2 (d) Only –2

Ans. (b**) :** From question,

$a = \sqrt{4}$

$a = \pm 2$

$a = 2$ or -2

30. If the speeds of a train in 10 successive hours are a_1, a_2, a_3, a_4, a_5, a_6, a_7, a_8, a_9 and a_{10} then the average speed of the train is:

(a) Geometric mean of a_1, a_2, a_3, a_4, a_5, a_6, a_7, a_8, a_9 and a_{10}.
(b) Harmonic mean of a_1, a_2, a_3, a_4, a_5, a_6, a_7, a_8, a_9 and a_{10}.
(c) Arithmetic mean of a_1, a_2, a_3, a_4, a_5, a_6, a_7, a_8, a_9 and a_{10}.
(d) Median of a_1, a_2, a_3, a_4, a_5, a_6, a_7, a_8, a_9 and a_{10}.

Ans. (c) : Average speed of train = $\frac{\text{Total distance}}{\text{Total time}}$

$= \frac{a_1 + a_2 + a_3 + a_3 + a_4 + a_5 + a_6 + a_7 + a_8 + a_9 + a_{10}}{10}$

So, it is clear that the average speed of the train is equal to the arithmetic mean of a_1, a_2, a_3, a_4 .....a_{10}.

31. If $\left(a + b\sqrt{2}\right)^2 = 19 + 6\sqrt{2}$, then a is equal to:

(a) 4 (b) 3
(c) 2 (d) 1

Ans. (d) : $\left(a + b\sqrt{2}\right)^2 = 19 + 6\sqrt{2}$

$= 19 + 2 \times 3\sqrt{2}$

$= 19 + 2 \times 1 \times 3\sqrt{2}$

$= 1 + 18 + 2 \times 1 \times 3\sqrt{2}$

$= 1^2 + (3\sqrt{2})^2 + 2 \times 1 \times 3\sqrt{2}$

From formula $(a+b)^2 = a^2 + b^2 + 2ab$

$$(a + b\sqrt{2})^2 = (1+3\sqrt{2})^2$$

$$a + b\sqrt{2} = 1 + 3\sqrt{2}$$

Comparing of both sides,

a = 1 and b = 3

32. In a bucket, milk and water are mixed in the ratio 2 : 1. If the ratio of milk to water is to be 1 : 2, the quantity of water to be added to the mixture is:

(a) $\frac{1}{3}$ of the bucket. (b) On full bucket.

(c) $\frac{1}{4}$ of the bucket. (d) Half of the bucket.

Ans. (b) : Let x liters of water be mixed in the bucket.

According to the question,

$$\frac{2}{1+x} = \frac{1}{2}$$

$$1 + x = 4$$

$$x = 3$$

Hence, $\frac{\text{Added amount of water}}{\text{Initial total quantity}} = \frac{3}{2+1} = \frac{3}{3} = 1$

∴ A full bucket of water was mixed.

33. Name the first Indian Woman to be appointed to the International Cricket Council (ICC) as a match referee.

(a) Harpreet Kaur

(b) GS Lakshmi

(c) Jhulan Nishit Goswami

(d) Mithali Raj

Ans. (b) : India's G.S. Lakshmi had became the first woman to be appointed to ICC's international Panel of match referees on 14 May 2019.

34. Select the option that is related to the third term in the same way as the second term is related to the first term.

EIOR : HFRO:: JLQW : ?

(a) HSDL (b) WBLY

(c) CYTO (d) MITT

Ans. (d) : Just as,

E I O R

+3 -3 +3 -3

H F R O

Same as,

J L Q W

+3 -3 +3 -3

M I T T

∴ ? = M I T T

35. Three of the four rivers given as options share a certain relation while one is different. Select the river which is different from the rest.

(a) Godavari (b) Ganga

(c) Indus (d) Brahmaputra

Ans. (a) : The Indus river, the Ganga river and the Brahmaputra river comprise the Himalayan river systems. Where as Godavari River is the largest river in Peninsular India. Its source is in Triambakeshwar, Nashik, Maharashtra, 80 km from Arabian Sea.

36. The Reserve Bank of India was established on 1 April ____ with a share capital of Rs. 5 crore.

(a) 1940 (b) 1935

(c) 1945 (d) 1930

Ans. (b) : In 1926, the Hilton Young Commission recommended the setting up of the Reserve Bank of India. At that time, the authorized capital of the Reserve Bank of India was Rs. 5 crores. Reserve Bank of India was established on 1 April 1935 in accordance with the provisions of the RBI Act, 1934. The central office of the RBI was initially established in Calcutta but was permanently moved to Mumbai in 1937. It regulates the credit and currency system in India.

37. Which of the following is NOT a part of the Indian Parliament?

(a) President

(b) Rajya Sabha

(c) Lok Sabha

(d) State Legislative Assemblies

Ans. (d) : Parliament is the supreme legislative body in India. The Indian Parliament comprises of President and the two houses-Rajya Sabha (Upper House) and Lok Sabha (Lower House) The President has the power to summon and Prorogues either House of Parliament or to disolve Lok Sabha.

38. If x% of y = y% of z, then:

(a) x = z (b) x = 3z

(c) x = 2z (d) x = 4z

Ans. (a) : From question,

x % of y = y% of z

$$\Rightarrow \frac{x}{100} \times y = \frac{y}{100} \times z$$

$$\Rightarrow x = z$$

39. The number 1.112123123412345.....is a/an:

(a) Integer (b) Natural number

(c) National number (d) Irrational number

Ans. (d) : The number 1.112123123412345 ..... is an irrational number.

40. In 1798, who became the Governor General and built a massive palace, Government House, for himself in Calcutta?

(a) Lord Clive (b) Lord Bentinck

(c) Lord Cornwallis (d) Lord Wellesley

Ans. (d) : In 1798, Lord Welleseley became the Governor General. He built a massive Palace, called Government House for himself in Calcutta, a building that was expected to convey the authority of the British. Government house is now known as Raj Bhavan of Kolkata.

41. A student erroneously multiplied a number by 2/5 instead of 5/2. The percentage error in the calculation is:

(a) 24% (b) 74%
(c) 54% (d) 84%

Ans. (d) : Let the number is x.
Hence, According to question-

$$\% \text{ error} = \frac{x \times \frac{5}{2} - x \times \frac{2}{5}}{x \times \frac{5}{2}} \times 100$$

$$= \frac{21}{25} \times 100 = 84\%$$

42. A collection of interrelated files and a set of programs that allow users to access and modify these files is known as:

(a) Data Analytic System
(b) Database Management System
(c) Data files
(d) System Management

Ans. (b) : A Database Management System (DBMS) is a collection of interrelated data and a set of programs to access data. It provides a solution for storing large amount of data in an organized (relational) way. A DBMS serves as an interface between an end-user and a database, allowing users to create, read, update and delete date in the database.

43. Biogas is an excellent fuel as it contains up to 75% _____.

(a) Methane (b) Sulphide
(c) Oxygen (d) Hydrogen

Ans. (a) : Biogas is an excellent fuel as it contains 75% Methane along with other gases like carbon dioxide, hydrogen and hydrogen sulphide. It is an excellent fuel because it burns without smoke, leaves no residue like ash in wood, charcoal and coal burning.

44. Who built the Buland Darwaza, which is located in Fatehpur Sikri?

(a) Babar (b) Akbar
(c) Noor Jahan (d) Shah Jahan

Ans. (b) : Akbar built the Buland Darwaza to commemorate his victory over Gujarat in 1575 AD. It is the main entrance to the Jama Masjid as Fatehpur Sikri Buland Darwaza is the highest gateway in the world and it is an example of Mughal Architecture.

45. When a number is divided by 45, the remainder is 28. What will be the remainder when the same number is divided by 15?

(a) 11 (b) 12
(c) 10 (d) 13

Ans. (d) : Let the number is N.
According to the question,

$$N = 45Q + 28$$

On dividing N by 15,

$$\frac{N}{15} = \frac{45Q + 28}{15}$$

Putting [Q = 1, 2, 3, ...n]
Keeping Q = 1,

$$N = \frac{45 \times 1 + 28}{15}$$

$$N = \frac{73}{15}$$

N = 13
Hence, dividing N by 15 will leave a remainder of 13.

46. Which of the following cities is known as 'City of Palaces' in India?

(a) Kolkata (b) Jaipur
(c) Lucknow (d) Patna

Ans. (a) : Kolkata is known as 'City of Palaces' because of the number of buildings built by the Britishers during the 19th Century. This city is also known as 'City of Joy'. Udaypur is called as 'City of lake' in India. Surat is known by 'The Silk City' and the Diamond City Jaipur is also known as 'Pink City of India'.

47. Who was the first Governor General of independent India?

(a) Lord Willingdon (b) Lord Mountbatten
(c) Lord Irwin (d) Lord Wavel

Ans. (b) : Lord Mountbatten was the first governor-general of the Dominion of India and the first and last governor - general of Independent India was C. Rajagopalachari.

48. A man bought a horse for a certain amount and sold it at a loss of 8%. If he had received ₹1800 more, he would have gained $14\frac{1}{2}\%$. The cost price of the horse is:

(a) ₹3500 (b) ₹6000
(c) ₹5000 (d) ₹8000

Ans. (d) : Let cost price of horse = ₹ x
According to question –

$$x \times \frac{229}{200} - x \times \frac{92}{100} = 1800$$

$$\frac{229x - 184x}{200} = 1800$$

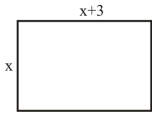
$$\frac{45x}{200} = 1800$$

$$x = ₹\ 8000$$

49. A rectangle has a length 3m more than its width and a perimeter numerically equal in value to its area. The integer part of the value of its diagonal is:

(a) 7 (b) 9
(c) 8 (d) 6

Ans. (d) :



Let, Breadth = x m

Length = x+3 m

According to question

Perimeter of rectange = Area of rectangle

$2(x+x+3) = x(x+3)$

$2(2x+3) = x^2+3x$

$4x+6 = x^2+3x$

$\Rightarrow \quad x^2-x-6 = 0$

$\Rightarrow \quad x^2-3x+2x-6 = 0$

$x(x-3)+2(x-3) = 0$

$(x-3)(x+2) = 0$

$x = 3, -2$

$\therefore$ Length = 3+ 3

= 6 m

Breadth = 3m

Diagonal = $\sqrt{\text{Length}^2 + \text{Breadth}^2}$

$= \sqrt{36+9}$

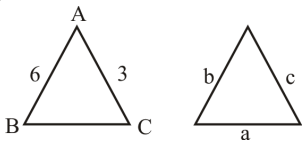
$= \sqrt{45} = 6.7 = 6$ (Integer part).

50. The sides of traingle are positive integers if the measures of two sides are 6 cm and 3 cm, then find the possible number of such distinct triangles:

(a) 3 (b) 9

(c) 7 (d) 5

Ans. (d) :



In any triangle $\rightarrow |b-c|<a<|b+c|$

So in Δ ABC, $|AB - AC| < BC < |AB+AC|$

$|6-3|<BC<|6+3|$

$3<BC<9$

$\therefore$ BC is a positive integer, so all possible value of BC = 4, 5, 6, 7, 8

Hence, total number of triangle will be 5.

51. Who provided the basic theory about the 'Nature of Matter'?

(a) John Milton (b) John Dalton

(c) Mendel (d) Lavoisier

Ans. (b) : John Dalton Provided basic theory about the 'Nature of Matter'. He told that the matter is composed of exceedingly small particles called Atoms. Atoms are neither created nor destroyed during chemical change. An Atom is the smallest unit of an element that can participate in a chemical change.

52. The greatest number of four digits which is divisible by 15, 20, 25, and 45 is.

(a) 9090 (b) 9900

(c) 9990 (d) 9000

Ans. (b) : The greatest number of four digits which is completely divisible by 15, 20, 25 and 45 = [LCM(15, 20, 25, 45] K

N = 900 K

Keeping K = 11

$\therefore$ N = 900 × 11 = 9900

53. The 'Ganga Gram Project' is launched by the:

(a) Ministry of Rural Development

(b) Ministry of Youth Affairs and Sports

(c) Ministry of Drinking Water and Sanitation

(d) Ministry of Human Resource Development

Ans. (c) : Union Ministry of Drinking Water & Sanitation had launched 'Ganga Gram Project' at the Ganga Gram Swachhta Sammelan held in New Delhi on 23 Dec, 2017. It is an integrated approach for holistic development of villagers situated on the bank of holy river Ganga with active participation of villagers.

54. When did India's first biofuel-powered flight land at the Indira Gandhi International Airport in New Delhi from Dehradun?

(a) August, 2018 (b) June, 2018

(c) September, 2018 (d) July, 2018

Ans. (a) : On 27 August, 2018, Spice Jet operated India's first technology demonstrator flight on biofuel India's first ever eco-friendly biofuel powered flight between Dehradun and New Delhi was Propelled by blend of oil from Jatropha seeds and aviation turbine fuel.

55. _____ was Chef de Mission of the Indian contingent at the 2018 Asian Games.

(a) Brij Bhushan Saran Singh

(b) Pawan Kumar

(c) Vinayak Singh

(d) Sushil Kumar

Ans. (a) : Wrestling federation of India president Brij Bhushan Sharan Singh was appointed as the Chef de Mission of the Indian contingent for the 2018 Asian Games held in twin cities of Jakarta & Palmbang.

Asian Games – The Asian Games, also known as Asiad, is a continental multi-sport event held every-four years among athletes all over Asia. Its first event held in 1951 in New Delhi, India.

56. The ratio in lowest terms of 4767 and 11123 is:

(a) 3 : 13 (b) 3 : 17

(c) 3 : 27 (d) 3 : 7

Ans. (d) : From question,

$$\frac{4767}{11123} = \frac{7\times 681}{7\times 1589}$$

$$= \frac{7\times 3\times 227}{7\times 7\times 227} \Rightarrow \frac{3}{7} = 3:7$$

57. In which year did the voting age for the Lok Sabha and the State Legislative Assembly elections change from 21 to 18 year?

(a) 2001 (b) 1991

(c) 1998 (d) 1988

Ans. (d) : On 20 December 1988, the Rajya Sabha passed the 61st Amendment Act which lowered minimum voting age from 21 to 18 years. The Act came into force on 28th March 1989.

58. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known fact, decide which of the given conclusions logically follow(s) from the statements.

Statements:

A. Some bakeries are outlet showrooms.

B. All outlet showrooms are shops.

Conclusion:

1. Some shops are bakeries as well as outlet showrooms.

2. All bakeries are shops

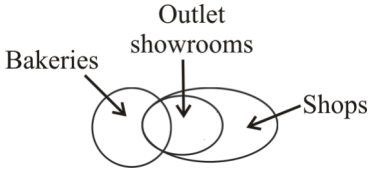
(a) Neither conclusions 1 nor 2 follows

(b) Only conclusion 1 follows

(c) Both conclusions 1 and 2 follow

(d) Only conclusion 2 follows

Ans. (b) : From Venn diagram,



It is clear from Venn diagram that only conclusion I is follow.

59. Which of the following options is equal to

$16 \div 4 \times 2 - 5 + 1$

(a) $\{16 \div (4 \times 2) - (5 + 1)\}$

(b) $\{(16 \div 4) \times 2\} - (5 + 1)$

(c) $\left[\{(16 \div 4) \times 2\} - 5\right] + 1$

(d) $\left[\{16 \div (4 \times 2)\} - 5\right] + 1$

Ans. (c) : From question,

$\Rightarrow 16 \div 4 \times 2 - 5 + 1$

$= 4 \times 2 - 5 + 1$

$= 8 - 5 + 1$

$= 4$

From option,

Option (a) $\rightarrow \{16 \div (4 \times 2) - (5 + 1)\}$

$= \{16 \div 8 - 6\}$

$= -4$

Option (b) $\rightarrow \{(16 \div 4) \times 2\} - (5 + 1)$

$= 8 - 6 = 2$

Option (c) $\rightarrow [\{(16 \div 4) \times 2\} - 5] + 1$

$= [\{8\} - 5] + 1$

$= 3 + 1 = 4$

Hence, option (c) is correct

60. If 67 = 1764 and 93 =729, then which of the given options will be the value of 74 = ?

(a) 847 (b) 784

(c) 567 (d) 972

Ans. (b) : Just as,

$67 = (6 \times 7)^2 = 1764$

and $93 = (9 \times 3)^2 = 729$

Same as, $74 = (7 \times 4)^2 = 784$

61. Name the person who was appointed as the first Surveyor General of India in 1815.

(a) Ottoman (b) Bernier

(c) Abul Fazal (d) Colin Mackenzie

Ans. (d) : In 1815 Colin Mackenzie was appointed as the first Surveyor General of India. He holds this post from 1815 to 1821. The Surveyor General of India is the Head of Department of Survey of India. The East India Company appointed James Rennell to survey the Bengal Presidency in 1767.

62. A boy does 1/4th of the work done by a man in the same time. 15 men complete a particular work in 17 days. If 3 men are replaced by 3 boys, the work will be complete in.

(a) 20 days (b) 24 days

(c) 22 days (d) 18 days

Ans. (a) : Given,

B : M = 1 : 4

Let the work be completed in D days.

According to question,

$M_1D_1 = M_2D_2$

$15 \times 4 \times 17 = D \times (12 \times 4 + 3 \times 1)$

$D \times (48 + 3) = 15 \times 4 \times 17$

$D \times 51 = 15 \times 4 \times 17$

$D = 20$ days

63. The sides of a parallelogram are 3x + 2 and 5x + 4. It has a perimeter of 44 cm and an area of 64 cm^2. The value of the acute angle between its sides in degrees is:

(a) Between 60º and 75º

(b) Less than 30º

(c) Between 30º and 60º

(d) Greater than 75º

Ans. (c) : Perimeter of parallelogram=2(3x+2) + 2(5x+4)

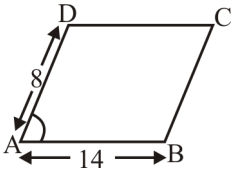
$\Rightarrow 16x + 12 = 44$

$16x = 32$

$x = 2$

Hence the adjacent sides = 3x + 2, 5x + 4

= 8 , 14



Given that the area of parallelogram = 64 cm^2

$$\frac{1}{2}ab\sin\theta = 64$$

$$8\times14\sin\theta = 64$$

$$\sin\theta = \frac{4}{7} = 0.571$$

$$\sin30° = \frac{1}{2} < \sin\theta = \frac{4}{7} < \sin60° = \frac{\sqrt{3}}{2}$$

Acute angle $= 30° < \theta < 60°$

Hence, option (c) will be true.

64. Vikram Sarabhai Space Centre is located at:

(a) Hyderabad
(b) Mumbai
(c) Bengaluru
(d) Thiruvananthapuram

Ans. (d) : Vikram Sarabhai Space Centre (VSSC) is located at Thiruvananthapuram, Kerala. It is a major research space centre of ISRO focusing on rocket and space vehicles for India's satellite programme.

65. Megalopolis a Greek word meaning "great city" was popularized by _____ (1957)

(a) Patrick (b) Jean Gottman
(c) Lewis Mumford (d) Griffin

Ans. (b) : Megalopolis refers to a cluster of densely populated cities stretching over a large region. Jean Gottman had popularized the term in 1957 to classify the region from Washington to Bostan, including New York, Philadelphia and Balfimore.

66. If OFG = M and ICM = P, then find KDE = ?

(a) I (b) J
(c) H (d) K

Ans. (a) : Just as, and

O F G ⇒ M I C M ⇒ P
↓ ↓ ↓ ↓
6 + 7 = 13 3 + 13 = 16

In this the value of the first letter is fixed.

Same as,

K D E ⇒ I
↓ ↓
4 + 5 = 9

Hence, KDE = I

67. Under whose presidency did the Indian National Congress declare Poorna Swaraj as its ultimate goal on December 19, 1929 at Lahore?

(a) V.D. Sawarkar
(b) Mahatma Gandhi
(c) Jawahar Lal Nehru
(d) Subhash Chandra Bose

Ans. (c) : The Indian National Congress (INC) in December 1929 passed the historic Purna Swaraj at its Lahore session. This session presided by Jawahar Lal Nehru. In this session it was decided that the 26 January 1930 should be observed as Poorna Swaraj Day.
Mahatma Gandhi has presided Belgaum Session in 1924. Subhash Chandra Bose has presided Haripura session in 1938.

68. Aadhar is a 12-digit unique number that is issued by the _____.

(a) Unique Identification Authority of India
(b) Unique Indian Demographic Association of India
(c) Unique Identification Association of India
(d) Unique Indian Digital Authority of India

Ans. (a) : Aadhar is a 12 digit number. It records a person's demographic and biometric information. Unique Identification Authority of India (UIDAI) is the issuing and managing body for Aadhaar cards in the country.

69. If 34@24?6#5=131 and 15@18?3#9 = 81, then which of the given number 17@72?9#5 will be the value of the expression:

(a) 81 (b) 51
(c) 41 (d) 131

Ans. (d) : From question
34 @ 24 ? 6 # 5 = 131 .....(i)
15 @ 18 ? 3 # 9 = 81 .....(ii)
@ = (×)
? = (÷)
Keeping # = (–)
On changing the sign in eq^n (i),
34×24÷6–5
= 34×4–5
136–5 = 131
On changing the sign in eq^n (ii),
15 × 18 ÷ 3 – 9
= 15 × 6 – 9
90 – 9 = 81
Same as, 17@ 72 ? 9 # 5
= 17×72÷9–5
= 17×8–5
= 131

70. Ram runs fasters than Sumit wheres as Sumit run faster than Hardik and Tarun. After a training of three months Hardik will be able to beat Ram. But Tarun would not be able to beat even Sumit. If a competitive race takes place after three months training, which of the following could be the sequence of the top three runners?

(a) Hardik, Ram and Sumit
(b) Ram, Hardik and Sumit
(c) Ram, Sumit and Hardik
(d) Hardik, Ram and Tarun

Ans. (a) : According to question,
Before training = Ram > Sumit > Hardik & Tarun
After training = Hardik > Ram > Sumit > Tarun

71. Who was the young economist involved in drafting the plan of the First Five Year Plan (1951-1956)?
(a) K.N. Raj (b) Swaran Singh
(c) P.C. Mahalanobis (d) BV Keskar

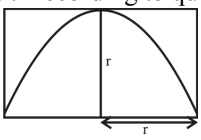
Ans. (a) : Kakkadan Nandanath Raj was as Indian economist. He played an important role in India's planned development, drafting sections of India's first five year plan, specially the introductory chapter when he was only 26 year old. First five year plan was based on the Harrod-Domar model.

72. Select the number set from the given options that can replace the question mark (?).
3846 : 9 64 16 36 ::? : 25 1 64 49
(a) 5 1 3 7 (b) 5 1 8 7
(c) 5 1 3 2 (d) 5 1 7 8

Ans. (b) : Such as,
$3846 \rightarrow (3)^2\ (8)^2\ (4)^2\ (6)^2 \rightarrow 9, 64, 16, 36$
Same as,
$5187 \leftarrow (5)^2\ (1)^2\ (8)^2\ (7)^2 \leftarrow 25, 1, 64, 49$
? = 5 1 8 7

73. The area of semicircle is 1250π cm^2 inscribed inside a rectangle. The diameter of the semicircle coincides with the length of the rectangle. The area of the rectangle is:
(a) 4000 cm^2 (b) 3000 cm^2
(c) 2000 cm^2 (d) 5000 cm^2

Ans. (d) : According to question,



Length of rectangle = 2r
Width of rectangle = r
Area of rectangle = Length × Width
$= 2r \times r$
$= 2r^2$

Again, according to question, $\frac{\pi r^2}{2} = 1250\pi$

$r^2 = 2500$
$r = 50$
Area of rectangle = $2r^2 = 2\times(50)^2 = 5000$ cm^2

74. Which of the following principles is related to solar power system?
(a) Photovoltaic effect (b) Photokinetic effect
(c) Photosynthesis effect (d) Photoelectric effect

Ans. (a) : Photovoltaic effect is related to solar power system. Photovoltaic (PV) effect is the conversion of sunlight energy into electricity. In a PV system the PV cells exercise this effect.

75. Which of the following correctly depicts Indian Standard time?
(a) GMT + 4.30 (b) GMT - 5.30
(c) GMT - 4.30 (d) GMT +5.30

Ans. (d) : Indian Standard Time (IST) is the time zone observed through out India. It does not take into account daylight saving time along with other seasonal factors. Indian Standard Time is a head of GMT by 5:30 hours (GMT+5:30). Greenwich Mean Time is the mean solar time at the Royal observatory in Greenwich London, counted from midnight.

76. Who described the kingdom of Awadh as 'A cherry that will drop into our mouth one day'?
(a) Waren Hastings (b) Lord Wellesley
(c) Lord Dalhousie (d) Lord Curzon

Ans. (c) : Lord Dalhousie described the kingdom of Awadh as 'A cherry that will drop into our mouth one day". He said this in 1851. In 1856, Awadh was formally annexed to the British Empire under the terms of the Doctrine of Lapse on the grounds of alleged internal misrule.

77. Which of the following is the headquarters of World Health Organization?
(a) New York (b) Paris
(c) Vienna (d) Geneva

Ans. (d) : The World Health Organisation (WHO) is a specialized agency of the United Nations that looks into matters of public health. It was established on 7 April 1948. Its headquarter is located in Geneva, Switzerland. The WHO is headed by its Director-General Currently the WHO has 194 member countries.

78. How many times has India entered the ICC Men's Cricket World Cup (ODI) finals?
(a) One (b) Three
(c) Four (d) Two

Ans. (b) : Indian Men's Cricket team had entered three times in the ODI World Cup final till 2019. India had won the ICC Men's Cricket World Cup (ODI) in 1983 & 2011. India is also the runner up at the 2003 World Cup. The BCCI is the governing body for cricket in India.

79. The numbers x and y are such that x : y = 4 : 5. If x is more than z by 20%, then y will be more than z by.
(a) 40% (b) 30%
(c) 50% (d) 60%

Ans. (c) : Given –
x : y = 4 : 5
According to question, $x = z \times \frac{120}{100}$
x : z = 6 : 5
Or z : x = 5 : 6
And x : y = 4 : 5
With the help of above ratio,

$\therefore$ z : x : y = 20 : 24 : 30

Hence, the percentage of y greater than z.

$$= \frac{y-z}{z} \times 100\% = \frac{10}{20} \times 100$$

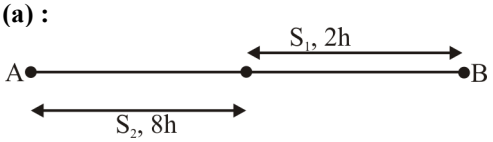
$$= 50\%$$

80. Ram is at A and Shyam is at B. They proceed towards each other simultaneously. After meeting each other in the way, Ram takes 2 h to reach B and Shyam takes 8 h to reach A. If the speed of Ram is 40 km/h, the speed of Shyam is:

(a) 20 km/h (b) 25 km/h

(c) 30 km/h (d) 35 km/h

Ans. (a) :



Formula,

$$\text{From, } \frac{S_1}{S_2} = \sqrt{\frac{t_2}{t_1}}$$

$$\frac{40}{S_2} = \sqrt{\frac{8}{2}}$$

$$S_2 = 20 \text{ km/h}$$

81. The Swaraj Party was formed in the year:

(a) 1921 (b) 1933

(c) 1930 (d) 1923

Ans. (d) : Swaraj Party was formed on 1 January 1923 by CR Das and Motilal Nehru. The formation of the Swaraj Party came after various significant events like the withdrawal of Non-Cooperation Movement, the Government of India Act 1919 and 1923 elections. Prominent leader of this party included NC Kelkar, Huseyn Shaheed Suhrawardy and Subhas Chandra Bose.

82. The ratio of the perimeter to the length of a rectangle is 5 : 1. If the area of the rectangle is 216 cm^2, then the length of the rectangle (in cm) is:

(a) 12 cm (b) 18 cm

(c) 14 cm (d) 16 cm

Ans. (a) :

Let the length of rectangle is x cm. and perimeter is 5x cm.

$$2 \times \text{Width} = \text{Perimeter} - 2\ell$$

$$= 5x - 2x$$

$$\text{Width} = \frac{3x}{2}$$

$$\text{Area} = \text{Length} \times \text{Width} = 216 \text{ cm}^2$$

$$x \times \frac{3x}{2} = 216$$

$$3x^2 = 216 \times 2$$

$$x^2 = 72 \times 2$$

$$x = 12 \text{ cm}$$

Hence, length of rectangle (x) = 12 cm.

83. When the cost price of x articles is equal to selling price of y articles, the profit is 25% then find the ratio of x : y.

(a) 4 : 5 (b) 5 : 4

(c) 5 : 3 (d) 3 : 3

Ans. (b) : According to question,

C.P. of x article (CP) = S.P. of y article (SP)

$$\frac{SP}{CP} = \frac{x}{y}$$

$$\text{Given } \frac{SP}{CP} = \frac{125}{100} = \frac{5}{4}$$

$$\text{Hence, } \frac{x}{y} = \frac{5}{4}$$

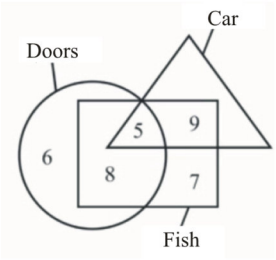
84. United Nations Day is celebrated every year on:

(a) 24 October (b) 4 November

(c) 26 June (d) 30 October

Ans. (a) : United Nations Day is celebrated on 24 October every year. Since 1948 it marks the official establishment of the United Nations in 1945 of the UN charter. United Nations is headquartered in New York USA. The UN charter is the founding document of this great non-partisan institution that has been working towards global peace and equality.

85. How many doors are fish?



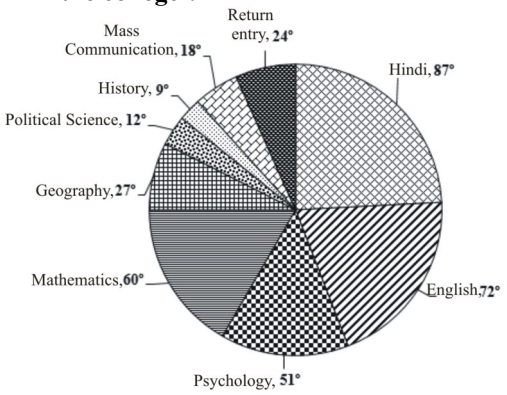
(a) 14 (b) 6

(c) 8 (d) 13

Ans. (d) : It is clear from given figure that 13 (8+5=13) doors are fish.

86. There are 1800 students in a college. The given pie-chart represents (in degrees) the number of students studying various subjects. Study the chart and answer the question below it.

How many students are studying mathematics in the college ?



(a) 300 (b) 240

(c) 280 (d) 260

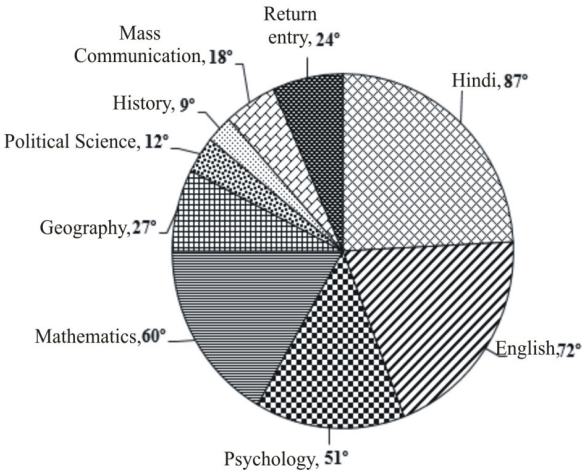
Ans. (a) :

Number of students studying mathematics in the college

$$= \frac{\text{Number of total students}}{360} \times \text{Mathematics'radius angle}$$

$$= \frac{1800}{360} \times 60 = 300$$

87. There are 1800 students in a college. The given pie-chart represents (in degrees) the number of students studying various subjects. Study the chart and answer the question below it.



If the course called political science is discontinued and the students studing in it are equally distributed among history and mass communications courses, then calculate the increase in the number of students in mass communication course?

(a) 30 (b) 90

(c) 120 (d) 75

Ans. (a) : Angular expansion of students studying Political Science = 12^0

Equally distributed share in History and Mass Communication = $\frac{12}{2} = 6°$

The increase in Mass Communication due to the closure of Political Science = $\frac{1800}{360} \times 6 = 30$

88. The given table represents the height (in cm) of 50 students of a class:

Height (in cm)	156	154	155	151	157	152	153
Number of Student	8	5	12	5	6	4	10

How many students have a height of more than 151 cm, but less than 156 cm?

(a) 14 (b) 50

(c) 19 (d) 31

Ans. (d) : It is clear from the table that the number of students whose height is more that 151 cm and less than 156 cm = 5+12+4+10

= 31

89. The following table shows the weight (in kg) of workers in a factory :

Weight (in Kg)	65	55	70	50	60

What is the average weight of the workers?

(a) 55 (b) 70

(c) 65 (d) 60

Ans. (d) : According to question,

Average weight of workers = $\frac{65+55+70+50+60}{5}$

$$= \frac{300}{5} = 60$$

90. Select the letter-cluster from the given options that can replace the question mark (?) in the given series.

ZHC, XLF, VPL, ?

(a) TTX (b) HCP

(c) TXT (d) TPX

Ans. (a) : The given series is as follows –

Z $\xrightarrow{-2}$ X $\xrightarrow{-2}$ V $\xrightarrow{-2}$ T

H $\xrightarrow{+4}$ L $\xrightarrow{+4}$ P $\xrightarrow{+4}$ T

C $\xrightarrow{+3}$ F $\xrightarrow{+6}$ L $\xrightarrow{+12}$ X

Hence, ? = T T X

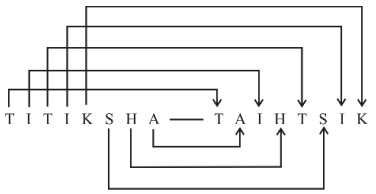
91. Select the option that is related to the third term in the same way as the second term is related to the first term.

TITIKSHA: TAIHTSIK :: HARSHITA:?

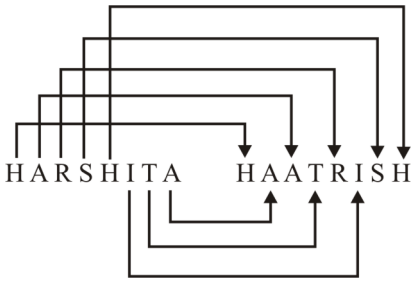
(a) HAETRISH (b) HAATRISH

(c) HTAHRISH (d) HATTSHRI

Ans. (b) : Just as,



Same as,

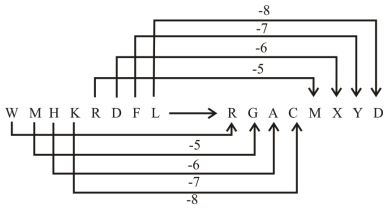


92. In a certain code language, "WMHKRDFL" is written as 'RGACMXYD'. What is the code for 'RSLTKQMN' in that code language.

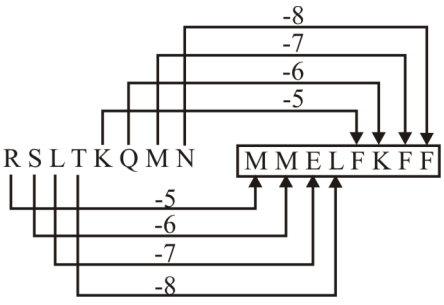
(a) MNDLEFKEE (b) MNELFKEF

(c) MMDLFKEF (d) MMELFKFF

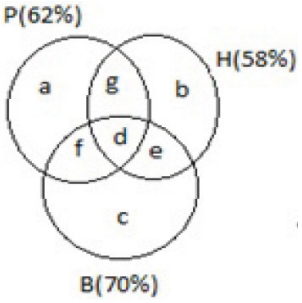
Ans. (d) : Just as,



Same as,



93. Study the given Venn diagram and answer the question that follows.

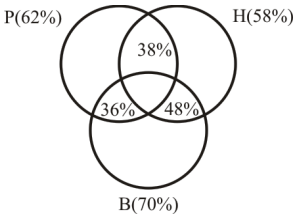


There are 7500 officers in a state. Among them, 62% officer punctual (P), 58% officers are honest (H) and 70% officers are brave (B). 38% officers are punctual (P) and honest (H), 48% are honest (H) and brave (B) and 36% are punctual (P) and brave (B). What percentage of officers are punctual (P), honest (H) and brave (B) = ?

(a) 90% (b) 22%

(c) 68% (d) 32%

Ans. (d) :



$\Rightarrow n(P \cup H \cup B)$

$= n(P)+n(H)+n(B)-[n(P \cap H)+n(H \cap B)+n(B \cap P)]+n(P \cap H \cap B)$

$100\% = 62\%+58\%+70\%-(38+48+36)\% + n(P \cap H \cap B)$

$100\% = 190-122+n(P \cap H \cap B)$

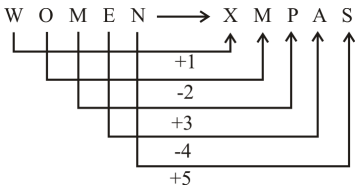
$\therefore \; = n(P \cap H \cap B) = 100\% - 68\% = 32\%$

94. If in a code language WOMEN is written as XMPAS, then how will TREND be written in that code language?

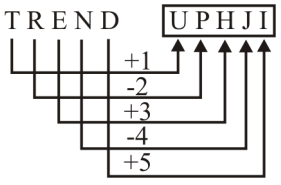
(a) UHPIJ (b) UPHJI

(c) UPIJH (d) UPJIH

Ans. (b) : Just as,



Same as,



95. Select the option that is related to the third term in the same way as the second term is related to the first term.

Himalayas : Ganga : : Satpura : ?

(a) Kaveri (b) Narmada

(c) Godavari (d) Yamuna

Ans. (b) : Just as the Ganga originates from the Himalayas, similarly the Narmada originates from the Satpura hills.

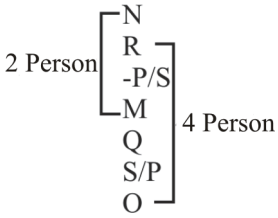
96. Seven persons M, N, O, P, Q, R and S are sitting one above the other on a ladder (not necessarily in the same order). Only four persons sit between O and R. Only two persons sit between N and M and M sits immediately above Q. O sits below M. N sits above M.

How many persons are sitting between P and S?

(a) One (b) Three

(c) Zero (d) Two

Ans. (d) :



It is clear from the figure that two persons are sitting between P and S.

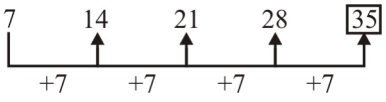
97. Select the number from the given option that can replace the question mark (?) in the given series.

7, 14, 21, 28, ?

(a) 35 (b) 36

(c) 32 (d) 30

Ans. (a) : The given series is as follows–



98. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known fact, decide which of the conclusions logically follow(s) from the statement.

Statement:

Villagers have a cooperative attitude towards any stranger.

Conclusions:

I. Urban people have an uncooperative attitude towards strangers.

II. Urbanization destroys our moral values.

(a) Only I follow

(b) Neither I nor II follows

(c) Either I or II follows

(d) Only II follows

Ans. (b) : The attitude of the villagers towards any unfamiliar person is cooperative. This statement does not conclude that the attitude of urban people towards unfamiliar people is uncooperative and urbanization destroys our moral values. Hence neither conclusion I nor conclusion II follows.

99. Select the number set which is different from the rest.

(a) (63, 91) (b) (14, 27)

(c) (32, 48) (d) (50, 85)

Ans. (b) : In the given alternatives, option (b) → (14, 27) are co-prime numbers. Hence (b) is inconsistent with all the other options.

100. There are twelve persons sitting in a circle facing each other keeping equal distance between neighboring members. L and H are sitting opposite to each other while G and I are sitting opposite to each other

L is sitting to the immediate right side of I.

A is sitting immediately next to G and in-between H and C.

On the basis of the above information select the correct statement from among those given in the options.

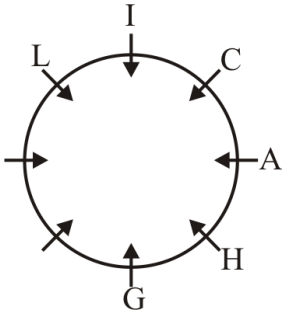
(a) I is 4th person to the right of C

(b) G is sitting to immediate left of H.

(c) A is 5th person to the left of I.

(d) C and L are sitting beside each other.

Ans. (b) :



It is clear from the above figure that G is sitting to the left of H.

Hence, option (b) is true.

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

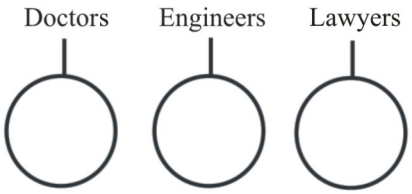
Exam Date : 16.01.2021] **[Time : 3:00 p.m.-4:30 pm**

1. Which of the following venn diagrams best represents the relationship between Doctors, Engineers and Lawyers.

(a)  (b) 

(c)  (d) 

Ans. (b) :



Hence option 'C' is right answer.

2. The addition of which of the following adds fizz to soft drinks?

(a) Carbonic acid
(b) Sulphuric acid
(c) Acetic acid
(d) Citric acid

Ans. (a) : Carbonic acid is a carbon-containing compound which has the chemical formula H_2CO_3. Carbonic acid, which is formed by the dissolution and hydrolysis of CO_2 in water, is the major natural leaching agent in many temperate ecosystem. H_2CO_3 is a very important compound with a wide range of applications –
the preparation of carbonated water, sparkling wine and other aerated drinks involve the use of carbonic acid.

3. A train covers a certain distance at a speed of 240 km/h in 5 hours. If a flight has to cover the same distance in 45 mins, it must travel at a speed of:

(a) 1250 km/h
(b) 1600 km/h
(c) 1440 km/h
(d) 1200 km/h

Ans. (b) : Let the speed of flight is *x* km/h.
According to question,

$$5 \times 240 = x \times 45 \times \frac{1}{60}$$

$$x = \frac{5 \times 240 \times 60}{45}$$

$$x = 1600 \text{ km/h}$$

4. If $x^2 + 1 = 2x$, then find $x - \left(\frac{1}{x}\right)$

(a) 2 (b) 4
(c) 0 (d) 12

Ans. (c) : $x^2 + 1 = 2x$

$$x + \frac{1}{x} = 2$$

On squaring both side,

$$x^2 + \frac{1}{x^2} + 2 = 4$$

$$x^2 + \frac{1}{x^2} = 2$$

$$x^2 + \frac{1}{x^2} - 2 = 0$$

$$\left(x - \frac{1}{x}\right)^2 = 0$$

or $\left(x - \frac{1}{x}\right) = 0$

5. The _____ gland, which hangs by a thin stalk from the hypothalamus, is called the master gland of the human body.

(a) Thyroid (b) Adrenal
(c) Pituitary (d) Pancreas

Ans. (c) : The pituitary gland, also known as the hypophysis, is a pea-sized endocrine gland situated at the base of our brain. It is often referred to as the 'Master Gland' because it controls the functions of many other endocrine glands. The pituitary gland is divided into three parts, also called lobes :
* Anterior pitutary
* Intermediate pituitary
* Posterior pituitary

6. In which year the new currency symbol of the Indian rupee was officially adopted?

(a) 2018 (b) 2010
(c) 1995 (d) 2000

Ans. (b) : The Indian Rupee symbol was adopted by the Government of India on 15th July 2010. It was designed by Udaya Kumar. The design was based on Devanagari letter 'र' and its symbol is (₹).

7. A group of workers who are highly qualified, skilled and that do mental work are called:

(a) Farmers (b) Artisans
(c) White collar workers (d) Plumbers

Ans. (c) : White collar workers belongs to the class of employees known for earning higher average salaries by doing highly skilled work, but not by performing manual labor at their jobs. Examples of white collar jobs are - Accountants, Attorneys, Bankers, Managers etc.

8. If the radius of a cylinder is 5 cm, its vertical height is 172 cm, what will be the volume?

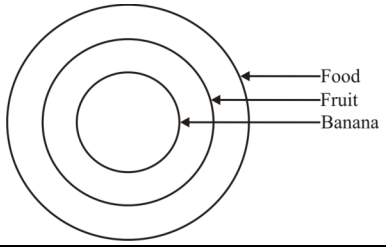
(a) 1500π cm^3 (b) 4300π cm^3
(c) 1000π cm^3 (d) 4100π cm^3

Ans. (b) : As per question,
Radius of cylinder (r) = 5cm
Height of cylinder (h) = 172cm
$\therefore$ Volume of cylinder $= \pi r^2 h$
$= \pi \times 5^2 \times 172$
$= 4300\pi$ cm^3

9. Which of the following Venn diagrams best represents the relationship between the classes: Banana, Food, and Fruit

(a) 
(b) 
(c) 
(d) 

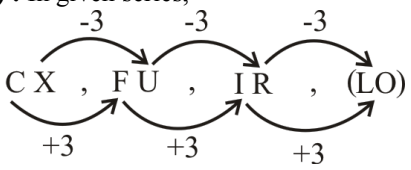
Ans. (d) : In given venn diagram, Banana comes under Fruit and Fruit comes under Food.



10. Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.
CX, FU, IR, (?)

(a) JQ (b) LO
(c) HS (d) KP

Ans. (b) : In given series,



So, ? = LO

11. What will be the LCM of 48 and 65?

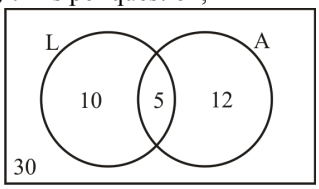
(a) 3120 (b) 1
(c) 65 (d) 48

Ans. (a) : LCM of 48 and 65 $= 2\times2\times2\times2\times3\times5\times13$
$= 3120$

12. L and A are classmates as well as good friends. In a class of 30 students, L has 10 unique friends and 5 friends who are common to A. A has a total of 17 friends in the class. How many students are friends with neither L nor A?

(a) 5
(b) 2
(c) 4
(d) 3

Ans. (d) : As per question,



From above diagram,
Number of students who are neither friends of L nor friends of A.
$= 30 - (10 + 5 + 12)$
$= 30 - 27$
$= 3$

13. Vikas can complete a job in 15 days. Bablu can do the same job in 10 days. In how many days can they complete the job if they work together?

(a) 5 days (b) 8 days
(c) 9 days (d) 6 days

Ans. (d) : According to question,

$$1 \text{ day's work of Vikas \& Bablu} = \frac{1}{15}+\frac{1}{10}$$
$$= \frac{5}{30} = \frac{1}{6} \text{ part}$$

Total time taken to do the work by both Vikas & Bablu
$$= \frac{1}{1/6} = 6 \text{ days}$$

14. Which of the following statements is NOT TRUE about fishes?

(a) Blood is pumped through the fishes' gills and gets oxygenated.
(b) Fishes have only two chambers to their hearts.
(c) Fishes have double circulation.
(d) Blood goes only once in one cycle through the heart of a fish.

Ans. (c) : Fish have a closed circulatory system with a heart that pumps blood around the body in a single loop from the heart to the gills, from the gills to the rest of the body, and then back to the heart. All the above option is correct about fishes but option (c) is not correct.

15. Who was the first and only acting PM of India?

(a) H D Deve Gowda (b) I K Gujral
(c) V P Singh (d) Gulzarilal Nanda

Ans. (d) : Gulzarilal Nanda was best known for being the acting Prime Minister of India twice. Nanda became the acting Prime Minister of India in 1964, after Jawaharlal Nehru's demise and again, two years later, after Lal Bahadur Shastri's death. He remained the PM for thirteen days on each term.

16. The value of $8+\left(\frac{1}{2}+\frac{1}{4}\right)\times 16$ is

(a) 20 (b) 10
(c) 4 (d) 35

Ans. (a) : According to question –

$$8+\left(\frac{1}{2}+\frac{1}{4}\right)\times 16$$
$$= 8+\frac{3}{4}\times 16$$
$$= 8 + 12$$
$$= 20$$

17. In a certain code language, LOTUS is written as KPSVR. How will WATER be written in that code?

(a) UQSGB (b) VBFSQ
(c) UBFSQ (d) VBSFQ

Ans. (d) : Just as,

L $\xrightarrow{-1}$ K
O $\xrightarrow{+1}$ P
T $\xrightarrow{-1}$ S
U $\xrightarrow{+1}$ V
S $\xrightarrow{-1}$ R

Same as,

W $\xrightarrow{-1}$ V
A $\xrightarrow{+1}$ B
T $\xrightarrow{-1}$ S
E $\xrightarrow{+1}$ F
R $\xrightarrow{-1}$ Q

So WATER will be written as VBSFQ.

18. Ashokbhai spends 10% of his monthly income and saves ₹5400 every month. What is his monthly income?

(a) ₹6,000 (b) ₹5,000
(c) ₹6,400 (d) ₹5,400

Ans. (a) : Let income of Ashokbhai is ₹ x

$$\text{Saving} = x\times\frac{90}{100}$$

According to the question,

$$x\times\frac{90}{100} = 5400$$
$$x = ₹\ 6000$$

19. Name the major revolt inspired by Mahatma Gandhi against the forced cultivation of indigo.

(a) Dandi March
(b) Munda uprising
(c) Champaran Satyagaraha
(d) Non–Cooperation Movement

Ans. (c) : The Champaran Satyagraha of 1917 was a farmer's uprising that took place in Champaran district of Bihar in India. The farmers were protesting against having to grow indigo with barely any payment for it.

20. Which of the following is a pigment present in human blood that carries oxygen out from lungs to all parts of the body?

(a) Platelets (b) White Blood cells
(c) Lymph (d) Haemoglobin

Ans. (d) : Haemoglobin is the iron-containing pigment that enables red blood cells to carry high concentration of oxygen to the tissues. It carries oxygen out from lungs to all parts of the body.

21. If x : y = 2 : 3 then what is the value of (5x+3y) : (5x-3y)

(a) 19 : 3 (b) 19 : 2
(c) 9 : 1 (d) 19 : 1

Ans. (d) : $x : y = 2 : 3 \Rightarrow \frac{x}{y}=\frac{2}{3}$

Let us consider $x = 2,\ y = 3$
Then, $(5x + 3y) : (5x – 3y)$
$(5 \times 2 + 3 \times 3) : (5 \times 2 – 3 \times 3)$
$(10 + 9) : (10 – 9)$
$19 : 1$

22. A domain name is a unique name given to each website on the internet. The last part of the domain name is known as a domain extension. Which of the following is a domain extension of any government website?

(a) .gov (b) .net
(c) .com (d) .mil

Ans. (a) : A domain name is a unique name given to each website on the internet. The last part of the domain name is known as a domain extension. ".gov" is a domain extension of any government website.

23. _____ is NOT an example of an insulator.

(a) Rubber (b) Diamond
(c) Human body (d) Glass

Ans. (c) : The human body is a conductor of electricity. This is because the cells of the body contain various ions such as sodium ion, potassium ion, chloride ion and many more which helps to conduct electricity.
Conductors are those material through which electric charge can flow easily.

24. _____ was the first president of Indian National Congress.

(a) J. B. Kriplani
(b) Womesh Chandra Bannerjee
(c) Jawaharlal Nehru
(d) Annie Besant

Ans. (b) : The Indian National Congress (INC) was founded on 28 December 1885 at Gokuldas Tejpal Sanskrit College, Gwaliya Tank, Mumbai. Its founder name was A.O. Hume. Its Initial name was Indian National Association, but on the suggestion of Dadabhai Naoroji, it was renamed as Indian National Congress. Its first session was held in 1885 Mumbai, which was presided over by Womesh Chandra Bannerjee.

25. Name the country that has officially proclaimed 'Gross National Happiness (GNH)' as the measure of its progress.

(a) Bhutan (b) India

(c) Nepal (d) Sri Lanka

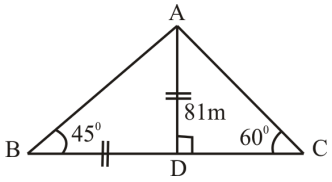
Ans. (a) : Gross National Happiness is a term coined by the fourth king of Bhutan, Jigme Singye Wangchuk in the 1970s. The concept implies that sustainable development should take a holistic approach towards nations of progress and give equal importance to non-economic aspects of wellbeing.

26. Two ships are sailing in the sea on the two sides of a light house. The angles of elevation of the top of the lighthouse as observed from the ships are 45º and 60º respectively. If the lighthouse is 81 m high, then the distance between two ships :

(a) $\frac{81}{\sqrt{3}}$ m (b) $\frac{\left[81\left(1+\sqrt{3}\right)\right]}{\sqrt{3}}$ m

(c) $\frac{\left(1+\sqrt{3}\right)}{\sqrt{3}}$ m (d) $\frac{\left(1+\sqrt{3}\right)}{81\sqrt{3}}$ m

Ans. (b) : Let AD be the light house and the ships are sailing at points B and C respectively.



In ΔABD,

$$\tan 45° = \frac{81}{BD}$$

$$1 = \frac{81}{BD}$$

$$BD = 81m$$

In ΔADC,

$$\tan 60° = \frac{81}{DC}$$

$$DC = \frac{81}{\sqrt{3}} m$$

Hence distance beween two ships-

$$BC = BD + DC$$

$$= 81 + \frac{81}{\sqrt{3}}$$

$$= \frac{81\left(\sqrt{3}+1\right)}{\sqrt{3}} \text{ m}$$

27. If a : b = $\sqrt{7} : \sqrt{3}$, then the value of (3a + 2b) : (3a-2b) is equal to:

(a) $\frac{2+\sqrt{21}}{\left(-2+\sqrt{21}\right)}$ (b) $\frac{2+\sqrt{21}}{\left(2-\sqrt{21}\right)}$

(c) $\frac{2+\sqrt{21}}{\left(-2-\sqrt{21}\right)}$ (d) $\frac{2-\sqrt{21}}{\left(2+\sqrt{21}\right)}$

Ans. (a) : Given,

$$a : b = \sqrt{7} : \sqrt{3} \Rightarrow \frac{a}{b} = \frac{\sqrt{7}}{\sqrt{3}}$$

Let, $a = \sqrt{7}$, $b = \sqrt{3}$

Then, $(3a + 2b) : (3a - 2b)$

$$= \left(3\times\sqrt{7}+2\times\sqrt{3}\right) : \left(3\times\sqrt{7}-2\times\sqrt{3}\right)$$

$$= \left(3\sqrt{7}+2\sqrt{3}\right) : \left(3\sqrt{7}-2\sqrt{3}\right)$$

$$= \frac{3\sqrt{7}+2\sqrt{3}}{3\sqrt{7}-2\sqrt{3}}$$

On multiplying by $\sqrt{7}$ in numerator and denominator,

$$= \frac{21+2\sqrt{21}}{21-2\sqrt{21}} = \frac{\sqrt{21}\left(\sqrt{21}+2\right)}{\sqrt{21}\left(\sqrt{21}-2\right)}$$

$$= \frac{2+\sqrt{21}}{-2+\sqrt{21}}$$

28. Read the given statement and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow (s) from the statements.

Statement:

Driving on wrong side has become a common practice these days.

Conclusions:

I. Drivers do not know which side they are supposed to drive.

II. Chances of accidents increase.

(a) Either I or II follows

(b) Only II follows

(c) Neither I nor II follows

(d) Only I follows

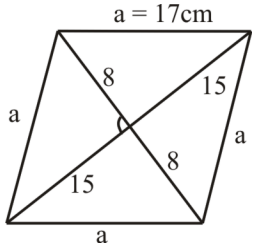
Ans. (b) : It is clear from the above statement that driving on wrong side increase the chances of accidents. Hence only conclusion (II) follows.

29. The perimeter of a rhombus is 68 cm and one of its diagonals is 16 cm. find the area of the rhombus.

(a) 220 sq cm (b) 200 sq cm

(c) 320 sq cm (d) 240 sq cm

Ans. (d) :



Given,

Diagonal (d_1) = 16 cm

$\frac{d_1}{2} = 8$ cm

Perimeter of the rhombus

4a = 68 cm

a = 17 cm

$\left(\frac{d_2}{2}\right) = \sqrt{17^2 - 8^2}$

= 15 cm

Diagonal (d_2) = 15 × 2 = 30 cm

Area of rhombus = $\frac{1}{2} d_1 \times d_2$

$= \frac{1}{2} \times 16 \times 30 = 240 \text{ cm}^2$

30. The internet works by using a protocol called TCP/IP. What is the full form of TCP/IP?

(a) Transmission Control Protocol/Internet Protocol

(b) Tele Computer Protocol/Internet Protocol

(c) Temporary Computer Protocol/Internet Protocol

(d) Transmission Computer Programme/Internet Protocol

Ans. (a) : TCP/IP stands for - Transmission Control Protocol/Internet Protocol. It is a suite of communication protocols used to interconnect network devices over the internet. TCP/IP is also used as a communication protocol in a private computer network. TCP/IP specifies how data is exchanged over the internet by providing end to end communications that identify how it should be broken into packets, addressed transmitted, routed and received at the destination.

31. Vikas buys an old bike for ₹30,000 and spends ₹5,000 on its repairs. If he sells the bike for ₹42000, his gain percentage.

(a) 20%

(b) 18%

(c) 17%

(d) 19%

Ans. (a) : Total cost price of bike = 30000 + 5000

= ₹ 35000

Selling price = ₹42000

$\text{Profit } \% = \frac{42000 - 35000}{35000} \times 100$

$= \frac{7000}{35000} \times 100$

$= \frac{100}{5} = 20\%$

32. Which article of the Constitution of India gives the parliament the power to amend the constitution?

(a) Article 356 (b) Article 144

(c) Article 368 (d) Article 198

Ans. (c) : The Constitution of India is the combination of both rigid and flexible features. The process of constitutional amendment is mentioned in Article 368 of Part-XX of the Constitution. There are three methods of amending the Constitution by the parliament –

(1) By simple majority

(2) By special majority

(3) By special majority and with the approval of half the states.

33. The sum of the interior angles of a polygon measure 3240°. How many sides does the polygon have?

(a) 10 (b) 20

(c) 5 (d) 15

Ans. (b) :

The sum of interior angles of a polygon

= (n – 2) × 180°

3240° = (n – 2) × 180°

n – 2 = 18

n = 20

Hence number of sides in the polygon is 20.

34. Where is Sri Guru Ram Das Jee International Airport located?

(a) Shimla (b) Chandigarh

(c) Bareilly (d) Amritsar

Ans. (d) : Amritsar Airport, officially known as Sri Guru Ramdas Jee International Airport, which serves in the Indian city of Amritsar, Punjab. It is named after Guru Ram Das who was the fourth Sikh Guru and the founder of Amritsar city.

35. To which country does the famous 'Zulu' tribe belong?

(a) Pakistan (b) South Africa

(c) India (d) China

Ans. (b) :

Country	-	Tribes
Pakistan	-	Pashtuns, Sindhis
South Africa	-	Zulu
India	-	Gonds,Bhils, Munda
China	-	Manchu, Hui

36. If $a \cot \theta = b$, the the value of $\frac{a\cos\theta - b\sin\theta}{a\cos\theta + b\sin\theta}$ =?

(a) 2a (b) a + b
(c) 0 (d) a - b

Ans. (c) : Given,

$$a \cot \theta = b \Rightarrow \cot \theta = \frac{b}{a}$$

then, $\frac{a\cos\theta - b\sin\theta}{a\cos\theta + b\sin\theta}$

On dividing by sinθ in both numerator and denomerator-

$$= \frac{\frac{a}{b}\cot\theta - 1}{\frac{a}{b}\cot\theta + 1}$$

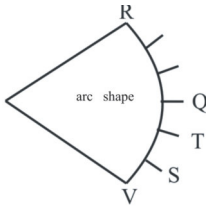
$$= \frac{\frac{a}{b}\times\frac{b}{a} - 1}{\frac{a}{b}\times\frac{b}{a} + 1} = \frac{1-1}{1+1}$$

$$= \frac{0}{2} = 0$$

37. Seven friends are sitting in an arc shape facing inwards. R and V are sitting on the corner sides. T says that, "On my right-hand side more than two persons are sitting and R is the last one". Q says that, "On my left-hand side there are three persons sitting in which V is the last one." S and V are sitting beside each other. How many persons are sitting to the left and right side of T respectively?

(a) Four and Three (b) Three and Three
(c) Two and Four (d) One and Five

Ans. (c) : On drawing figure according to question,



So, 2 persons are sitting to the left-hand side and 4 persons are sitting to the right-hand side of T.

38. If CHARGER is coded as 129 then HINGES will be coded as:

(a) 99 (b) 100
(c) 102 (d) 101

Ans. (b) : Just as,

C	H	A	R	G	E	R	
↓	↓	↓	↓	↓	↓	↓	
X	S	Z	I	T	V	I	Opposite letter
↓	↓	↓	↓	↓	↓	↓	
24	19	26	9	20	22	9	= 129

Same as,

H	I	N	G	E	S	
↓	↓	↓	↓	↓	↓	
S	R	M	T	V	H	Opposite letter
↓	↓	↓	↓	↓	↓	
19	18	13	20	22	8	= 100

39. _____ is India's first multi-petaflop supercomputer that has been set up at Indian Institute of Tropical Meteorology (IITM), Pune. Developed at a cost of ₹450 crore, the supercomputer is used for weather and climate predictions.

(a) Pratyush (b) Aaditya
(c) Param (d) Pratyaksh

Ans. (a) : Union minister of Science and Technology, Dr. Harsh Vardhan dedicated India's fastest and first Multi-Purpose super-computer to the country on January 2018. Developed at a cost of about 450 crores, this supercomputer will be used for forecasting weather and climate. This supercomputer was named Pratyush after the Sun.

40. As of 31st October 2020, the United Nations comprises _____ member states.

(a) 150 (b) 250
(c) 193 (d) 100

Ans. (c) : The name United Nations was given by the then President of America, Franklin D. Roosevelt. The United Nations Organisation was established on 24 October, 1945. At present, the UN comprises of 193 member countries. Its headquarters is located in New York City, US. It has two working languages, English and French. The main organs of the United Nations are –

(1) United Nations General Assembly
(2) Security Council
(3) United Nations Economic and Social Council
(4) United Nations Council of Trustees
(5) International Court of Justice
(6) United Nations Secretariat

41. E and C mutually like to work with each other. A like to work with C and H. H and L do not like to work with anyone. Who is isolated in the office?

(a) A (b) Both H and L
(c) L (d) H

Ans. (c) : It is clear from the question that L is isolated in office and all others are like to work together.

42. If $x\cos 45^\circ \sin 120^\circ + \sin 60^\circ = -x\sin 90^\circ + 1$, then the value of x is:

(a) $\frac{\left(2+\sqrt{3}\right)}{\sqrt{2}+\sqrt{3}}$ (b) $\frac{\left(2-\sqrt{3}\right)}{2\sqrt{2}+\sqrt{3}}$

(c) $\frac{\left(2-\sqrt{3}\right)}{\sqrt{2}+\sqrt{3}}$ (d) $\frac{2\sqrt{2}-\sqrt{6}}{2\sqrt{2}+\sqrt{3}}$

Ans. (d) : $x \cos45° \sin120° + \sin60° = -x \sin90° + 1$

$$x \times \frac{1}{\sqrt{2}} \times \frac{\sqrt{3}}{2} + \frac{\sqrt{3}}{2} = -x \times 1 + 1$$

$$\left(\frac{\sqrt{3}}{2\sqrt{2}} + 1\right) x = 1 - \frac{\sqrt{3}}{2}$$

$$\left(\frac{\sqrt{3} + 2\sqrt{2}}{2\sqrt{2}}\right) x = \frac{2 - \sqrt{3}}{2}$$

$$x = \frac{2\sqrt{2} - \sqrt{6}}{2\sqrt{2} + \sqrt{3}}$$

43. Who wrote the book, 'Why I am Hindu'?

(a) Manmohan Singh (b) Shashi Tharoor

(c) Atal Bihari Vajpayee (d) Narendra Modi

Ans. (b) :

Book	-	**Writer**
Why I am Hindu	-	Shashi Tharoor
Changing India	-	Manmohan Singh
National Unification - 1961	-	Atal Bihari Vajpayee
Karmayogi	-	M.S. Ashokan

44. If $x + y = 5$ and $xy = 6$, then find $x^3 + y^3$.

(a) 35 (b) 45

(c) 25 (d) 55

Ans. (a) : Given,

$x+y = 5$..... (i)

$xy = 6$..... (ii)

On cubing both side of equation (i)

$(x+y)^3 = (5)^3$

$x^3+y^3 + 3xy(x + y) = 125$

$x^3+y^3 + 3\times6\times5 = 125$

$x^3+y^3 = 125 - 90$

$x^3+y^3 = 35$

45. Who among following is NOT related with Indian Space Programme?

(a) K. Sivan

(b) Satish Dhawan

(c) Satyendra Nath Bose

(d) A S Kiran Kumar

Ans. (c) : Indian Space Research Organization (ISRO) is the space agency of the Government of India, under which various space programs are carried out. It was established on 15th August 1969 and its headquarters is located in Bangalore. Its first chairman was Dr. Vikram Sarabhai. In the given options Dr. K. Sivan, Dr Satish Dhawan and Dr. A.S. Kiran Kumar have all been the chairman of ISRO while Satyendra Nath Bose was an Indian mathematician, best known for his work on quantum mechanics and state of matter Bose-Einstein condensate (BEC).

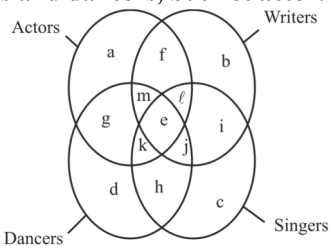
46. In which year was the 'National Human Rights Commission' established in India?

(a) 1857 (b) 1993

(c) 1950 (d) 1947

Ans. (b) : The National Human Rights Commission (NHRC) is an independent statuatory body, established on 12 October 1993 under the provisions of the Protection of Human Rights Act, 1993. The NHRC is a multi-member body consisting of a chairman, four full-time members and four honorary members.

47. Study the following Venn diagram and find the region representing persons who are writers, singers and dancers, but not actor.



Actors, Writers, Dancers, Singers

(a) e (b) j

(c) k (d) f

Ans. (b) : It is clear from the venn diagram that the region represented by letter 'J' are the persons who are Writers, Singers and Dancers but not Actor.

48. If $a = \frac{3}{7}b$, then the value of $\frac{8a - b}{2a + 3b}$ is:

(a) 17 (b) $\frac{17}{27}$

(c) $\frac{21}{27}$ (d) $\frac{17}{2}$

Ans. (b) : Given,

$$a = \frac{3}{7}b$$

$$\frac{a}{b} = \frac{3}{7}$$

Let, $a = 3, b = 7$

then, $\frac{8a - b}{2a + 3b} = \frac{8\times3 - 7}{2\times3 + 3\times7}$

$= \frac{24 - 7}{6 + 21} = \frac{17}{27}$

49. What will be the LCM and HCF of 27 and 81?

(a) 27; 27 (b) 81; 27

(c) 81; 81 (d) 27; 81

Ans. (b) : As per question-

LCM 27 and 81= 81

HCF 27 and 81 = 27

50. In which year did the East India Company acquire 'Diwani' rights over Bengal and Bihar?

(a) 1865 (b) 1765

(c) 1675 (d) 1965

Ans. (b) : The Diwani of Bengal, Bihar and Orissa was granted to the East India Company by the Mughal emperor Shah Alam II in 1765 AD. After the Nawab of Awadh was defeated in the Battle of Buxar in 1764 AD, the company took control of Allahabad and its surrounding area. The Company handed over this area to the Emperor and in return received the Diwani of Bengal.
Gaining Diwani meant that the Company got the right to collect revenue in Bengal, Bihar and Orissa. In return, the company used to give Rs 26,00000 annually to Mughal emperor Shah Alam II.

51. What will be smallest number, which on adding 25 to it, is exactly divisible by 25, 36 and 40?
(a) 3575 (b) 25
(c) 3725 (d) 2225

Ans. (a) : Let the number is x
L.C.M of 25,36 and 40 = 1800
Required number = 1800k – 25
On putting the value K = 2
Required number = 3600 – 25
= 3575

52. Select the option that is related to the third term in the same way as the second term is related to the first term.
Assam : Tezpur :: Kerala: ?
(a) Jaipur (b) Midnapore
(c) Thenzawl (d) Kochi

Ans. (d) : Just as Tezpur is a district in Assam same as Kochi is also a district in Kerala.

53. _____ was the first bank that was established in India in 1770.
(a) Indian Bank
(b) Bank of Hindustan
(c) State Bank of India
(d) Bank of Baroda

Ans. (b) : The first bank established in India was the Bank of Hindustan, which was started in 1770 by the agency house Alexander and Company. The bank became defunct in March, 1832. The second was the General Bank of India, which started in 1786.

54. In which year was the Railway introduced by the British in India for passengers?
(a) 1953 (b) 1853
(c) 1385 (d) 1583

Ans. (b) : On 16th April 1853, the first passenger train ran between Bori Bunder (Bombay) and Thane, covering a total distance of 34 km. It was operated by three locomatives, names Sahib, Sultan and Sindh, and had thirteen carriages.

55. The Vedas are considered the earliest literary record of Indo-Aryan civilization. There are four Vedas: Rigveda, Samaveda, Yajurveda and the fourth one is _____.
(a) Atharvaveda (b) Dhanurveda
(c) Ayurveda (d) Shilpaveda

Ans. (a) : The Vedas are considered the earliest literary record of Indo-Aryan Civilisation, which was compiled by Maharishi Krishna Vyasa Dwaipayana. They give information about the arrival of the Aryans. These are of four types-Rigveda, Yajurveda, Samaveda and Atharvaveda.

56. The value of x, if $3x + 4 \times 8 \div 9 = x \div 3 - 1$, is:
(a) $\frac{21}{24}$ (b) $-\frac{41}{24}$
(c) 1 (d) 2

Ans. (b) : From question-

$$3x + 4 \times 8 \div 9 = x \div 3 - 1$$
$$3x + \frac{32}{9} = \frac{x}{3} - 1$$
$$\frac{27x + 32}{9} = \frac{x - 3}{3}$$
$$27x + 32 = 3x - 9$$
$$24x = -41$$
$$x = -\frac{41}{24}$$

57. Swachh Survekshan is an annual survey of cleanliness, hygiene and sanitation in cities and towns across India. Swachh Survekshan 2020 declared _____ as India's cleanest city.
(a) Delhi (b) Jaipur
(c) Indore (d) Mumbai

Ans. (c) : Indore was declared the cleanest city in India for the fourth consecutive time in the Swachh Survekshan, 2020 – India's annual survey on cleanliness, Indore, the country's cleanest city, has now been declared as the first 'water plus' city of India under the Swachh Survekshan 2021.

58. The value of $\sqrt{\frac{1+\cos 2A}{1-\cos 2A}}$ = ? (Note A is non zero)
(a) tan A (b) cos A
(c) sin A (d) cot A

Ans. (d) :
$$\sqrt{\frac{1+\cos 2A}{1-\cos 2A}} = \sqrt{\frac{1+(2\cos^2 A - 1)}{1-(1-2\sin^2 A)}}$$
$$= \sqrt{\frac{1+2\cos^2 A - 1}{1-1+2\sin^2 A}}$$
$$= \sqrt{\frac{2\cos^2 A}{2\sin^2 A}}$$
$$= \sqrt{\cot^2 A} = \cot A$$

59. A person crosses a 500 m long street in 10 minutes. What will the person's speed be in kilometers per hour?
(a) 7 km/h (b) 8 km/h
(c) 3 km/h (d) 5 km/h

Ans. (c) : $10\text{minute} = 10 \times \frac{1}{60} = \frac{1}{6}$ hour

$500 \text{ meter} = 500 \times \frac{1}{1000} = \frac{1}{2}$ km

$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$

$\text{Speed of the person} = \frac{\frac{1}{2}}{\frac{1}{6}} = \frac{6}{2} = 3$ km/h

60. Which one of the following is NOT a sub-field of economic geography?

(a) Geography of Resources
(b) Geography of Tourism
(c) Geography of Agriculture
(d) Political Geography

Ans. (d) : Economic geography is a branch of human geography. It is concerned with how humans exploit the economic resources of the earth produces various goods and how they are transported distributed, consumed or exchanged. Its sub-field are geography of resources, geography of tourism and geography of agriculture, while political geography is not its sub-field.

61. The area of a square field is 7200 m^2. How long will a cycle take to cross the field diagonally at a constant rate of 4 km/h?

(a) 25 minutes (b) 30 minutes
(c) 5 minutes (d) $\frac{9}{5}$ minutes

Ans. (d) : Let the length of one side of the square field = a meter

$a^2 = 7200$

$a = 60\sqrt{2}$ m

then,

diagonal of the square $= a\sqrt{2}$

$= 60\sqrt{2} \times \sqrt{2} = 120$ m

or $\frac{120}{1000}$ km.

Time taken to walk diagonally $= \frac{\frac{120}{1000}}{4}$

$= \frac{3}{100}$ hour

or $\frac{3}{100} \times 60 = \frac{9}{5}$ minutes.

62. Which infantry battalion was involved in the killing of all its white officers in the Revolt of 1857?

(a) 21th Native Infantry
(b) 41st Native Infantry
(c) 20th Native Infantry
(d) 1st Native Infantry

Ans. (b) : 41st Native Infantry battalion was involved in the killing of all white officers in the Revolt of 1857. The 41st Infantary were stationed at Sitapur Cantonment when the Indian mutiny (1857–1859) began. On 3 June 1857, in tandem with the 9th and 10th Oudh Irregular Infantry, they turned on their officers, looted the treasury and killed all Europeans who had not yet escaped to Lucknow.

63. When was National Rural Health Mission launched?

(a) 1 January, 2000 (b) 30 December, 2003
(c) 12 April 2005 (d) 15 August 2005

Ans. (c) : The National Rural Health Mission (NRHM) was launched on 12th April 2005, to provide accessible, affordable and quality health care to the rural population, especially the vulnerable groups. Basic objectives to implement NRHM are reduction in infant mortality rate and maternal mortality rate, ensuring population stabilisation. etc.

64. Kidney failure is treated periodically on a kidney machine. The process is known as _____.

(a) Hemodialysis (b) Metabolism
(c) Circulation (d) Excretion

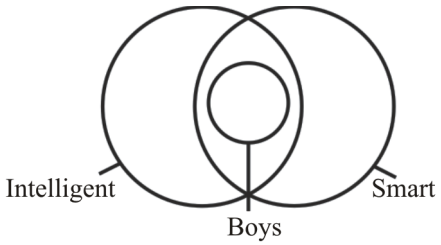
Ans. (a) : Hemodialysis is the process of cleaning the blood of toxins, extra salt and fluids through a dialysis machine. It helps to maintain proper chemical balance such as potassium, sodium and chloride and keeps blood pressure under conrol.

65. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusion(s) is logically true.

Statements:
A. All boys are intelligent.
B. All boys are smart.
Conclusions:
1. Some boys are smart and intelligent.
2. All intelligent are smart.

(a) Both conclusions 1 and 2 are true.
(b) Only conclusion 2 is true.
(c) Neither conclusion 1 nor 2 is true.
(d) Only conclusion 1 is true.

Ans. (d) : According to the statement venn diagram relation is as follows-



It is clear from above venn diagram that only conclusion 1 logically follows.

66. Which of the following cities is known as 'The Queen of the Arbian Sea'?

(a) Port Blair (b) Mumabi
(c) Visakhapatnam (d) Kochi

Ans. (d) :

Geographical Surname	-	City
The Queen of the Arabian Sea	-	Kochi
City of Seven Island	-	Mumbai
Machester of India	-	Ahemdabad
India's Paris	-	Jaipur

67. Which of the following films was NOT nominated for an Oscar award?

(a) Salam Bombay (b) Lagaan
(c) Mother India (d) Karma

Ans. (d) : India has been nominating for the Oscar Award in the foreign language feature film category since 1957 in which Mother India (1957), Salaam Bombay (1988), Lagaan (2001) etc. have been nominated, while the film Karma has not been nominated for the Oscar award.

68. Which was the first vehicle to soft-land safely on the surface of the Moon?

(a) Luna 9 (b) Ranger 6
(c) Sputnik 25 (d) Apollo

Ans. (a) : Luna 9 was an unmanned spaceflight programme of the Soviet Union's Luna program which was the first spacecraft to land on the Lunar surface on 3 February 1966.

69. The cost price of 120 pens is the same as the selling price of x pens. If the profit is 25%, then the value of x is:

(a) 91 (b) 95
(c) 96 (d) 90

Ans. (c) : Cost price of 120 pens = Selling price of x pens

$$\frac{\text{Cost price}}{\text{Selling price}} = \frac{x}{120}$$

$$\text{Profit } \% = \frac{\text{S.P.}-\text{C.P.}}{\text{C.P.}} \times 100$$

$$25 = \frac{120-x}{x} \times 100$$

$$x = 120 \times 4 - 4x$$

$$5x = 120 \times 4$$

$$x = \frac{120 \times 4}{5}$$

$$x = 96$$

70. The value of $\left[3 \div 5 - 8 \text{ of } 4 + 3 \times \{8 \div 2 - (4+3)\}\right]$ is:

(a) $-\frac{202}{5}$ (b) $-\frac{202}{10}$
(c) $-\frac{101}{5}$ (d) $-\frac{201}{5}$

Ans. (a) : $[3 \div 5 - 8 \text{ of } 4 + 3 \times \{8 \div 2 - (4+3)\}]$

$$= \left[\frac{3}{5} - 32 + 3 \times \{4-7\}\right]$$

$$= \left[\frac{3-160}{5} + 3 \times \{-3\}\right]$$

$$= -\frac{157}{5} - 9$$

$$= -\frac{157-45}{5} = -\frac{202}{5}$$

71. Find the value of $15 - (6+6\times6) \div (2+5)$

(a) 8 (b) 5
(c) 7 (d) 9

Ans. (d) : From question,

$$15 - (6 + 6 \times 6) \div (2+5)$$

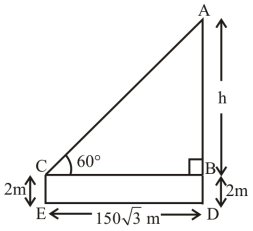
$$= 15 - (6+36) \div 7$$

$$= 15 - \frac{42}{7} = 15 - 6 = 9$$

72. An observer 2 m tall is $150\sqrt{3}$ m away from a tower. The angle of elevation from his eye to the top of the tower is 60º Find the height of tower.

(a) 400 m (b) 450 m
(c) 480 m (d) 452 m

Ans. (d) : From question,



In Δ ABC,

$$\tan 60° = \frac{h}{150\sqrt{3}}$$

$$h = 150\sqrt{3} \times \sqrt{3}$$

$$= 450 \text{ m}$$

Height of the tower (AD) = AB + BD

$$= 450 + 2$$

$$= 452 \text{ m}$$

73. Which of the following sites is NOT a part of the Indus Valley civilization?

(a) Mohanjo-Daro (b) Harappa
(c) Lothal (d) Uruk

Ans. (d): The major sites of the Indus Valley Civilization were Mohanjodaro, Kalibanga, Harappa, Dhaulavira, Lothal and Rakhigarhi while Uruk was a city of Sumerian Civilization. The early site of the Indus Civilization or Harappa was centered around the Indus River. Hence it was called Indus Civilization.

74. ISRO launched India's first lunar probe mission in October 2008. Who was the chairman of ISRO at that time?

(a) G Madhavan Nair (b) K Kasturirangan
(c) APJ Abdul Kalam (d) A S Kiran Kumar

Ans. (a) : Shri G Madhavan Nair was the chairman of ISRO from 2003 to 2009. At that time, ISRO launched India's first Lunar probe on 22 October 2008. At present the chairman of ISRO is Dr. K. Sivan.

75. Which one of the following is NOT a web browser?

(a) Google Chrome (b) Wikipedia
(c) Opera (d) Mozilla Firefox

Ans. (b) : A web browser is a software application that is used to access the World Wide Web (WWW).
It is an interface between user and the information available on the web. Some of the common browsers are Google, Mozilla Firefox, Safari, Internet Explorer, Netscape etc.

76. _____ is a Serbian-Australian motivational speaker born with tetra-amelia syndrome, a rare disorder characterized by the absence of all four limbs.

(a) Nick Vujicic (b) Tony Robbins
(c) Lisa Nichols (d) Dave Ramsay

Ans. (a) : Nick Vujicic is a Serbian-Australian moti vational speaker born with tetra-amelia syndrome, a rare disorder characterised by the absence of all four limbs.

77. In a certain code language, A is written as 26 and O is written as 12. How will AMAZON be written as in that language?

(a) 26122611213 (b) 26132611213
(c) 26152611213 (d) 26142611213

Ans. (d) : A = 26 , O = 12
Here the letters are coded with the number of the letter opposite to them.

A	M	A	Z	O	N
↓	↓	↓	↓	↓	↓
26	14	26	1	12	13

Hence, AMAZON = 26142611213

78. A vender bought toffees at 10 for a rupee. How many for a rupee must he sell to gain 25%.

(a) 8 (b) $\frac{1}{5}$
(c) 6 (d) 30

Ans. (a) : Let the x toffees sold for Rs.1

C.P. of 1 toffee = $\frac{1}{10}$

S.P. of 1 toffee = $\frac{1}{x}$

According to the question,

$$\frac{1}{10}\times\frac{125}{100}=\frac{1}{x}$$

$$x=\frac{1000}{125}=8$$

Hence, the vender should sell 8 toffees for a rupee to gain 25%.

79. Find the value of $4\times5\div2-8\times7+9-(3+2)$

(a) 35 (b) 70
(c) -42 (d) 21

Ans. (c) : From question,

$$4\times5\div2-8\times7+9-(3+2)$$
$$=\frac{20}{2}-56+9-5$$
$$=10+9-61$$
$$=19-61$$
$$=-42$$

80. Among the four words listed below, three are a like in some manner and one is different. Select the odd one.

(a) Fear (b) Intelligence
(c) Happiness (d) Anger

Ans. (b) : Fear, Happiness and Anger are the feelings of the mind whereas Intelligence is different from all there.

81. Factors that make a person's place of origin seem less attractive for reasons such as unemployment, poor living conditions and unpleasant climate are called _____ factors.

(a) pull (b) negative
(c) climate (d) push

Ans. (d) : The push factors make the place of origin seem less attractive for reasons like umemployment poor living conditions, political turmoil, unpleasant climate, natural disasters, epidemics and socio economic backwardness.

82. If PI = Y and SD = W , then find GN = ?

(a) Z (b) X
(c) U (d) V

Ans. (c) : Just as,

P	I	→	Y		S	D	→	W
↓	↓		↓	and	↓	↓		↓
16	+ 9	=	25		19	+ 4	=	23

Similarly,

G	N		U
↓	↓		↓
7	+ 14	=	21

Hence, GN = U

83. Who among the following got elected as the Head of the State for four times?

(a) Viktor Zubkov (b) Vladimir Putin
(c) Dmitry Medvedev (d) Boris Yeltsin

Ans. (b) : Vladimir Putin got elected as the Head of the State for four times in Russia. He is the President of Russia since 7 May 2012.

84. Find the value of $180 \div 20\{(15-6)+(24-18)\}$

(a) 180 (b) 110

(c) 135 (d) $\frac{9}{15}$

Ans. (d) : From question,

$180 \div 20 \{(15 - 6) + (24 - 18)\}$

$= 180 \div 20 \{9 + 6\}$

$= 180 \div 300$

$= \frac{180}{300} = \frac{9}{15}$

85. Who among the following was appointed as UNICEF's global Goodwill Ambassador in 2018

(a) Novak Djokovic

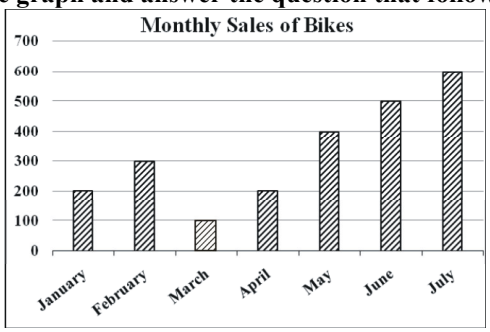
(b) Millie Bobby Brown

(c) Lilly Singh

(d) Priyanka Chopra

Ans. (b) : UNICEF was one of the first organizations to enlist Goodwill Ambassadors. In 1954, Danny Kaye pioneered the role as Ambassador paving the way for Goodwill Ambassadors. Emmy–nominated actress Millie Bobby Brown was announced as UNICEF's youngest - ever Goodwill Ambassador on World Children's Day in 2018.

86. The graph below represents number of bikes sold over a period of seven months. Observe the graph and answer the question that follows:



In which of the following months, was the sales nearest to the average sales for the period January to July?

(a) April

(b) February

(c) January

(d) May

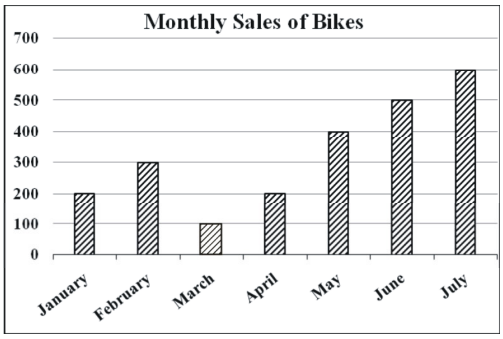
Ans. (b) : Total bikes sold from January to July.

$= 200 + 300 + 100 + 200 + 400 + 500 + 600$

Average $= \frac{2300}{7} = 328.57$

Hence, the sales for the month of February are almost equal to the average sale for the period January to July.

87. The graph below represents number of bikes sold over a period of seven months. Observe the graph and answer the question that follows:



The sales in July was _____ times the sales in January.

(a) 2.5 (b) 2

(c) 3 (d) 3.5

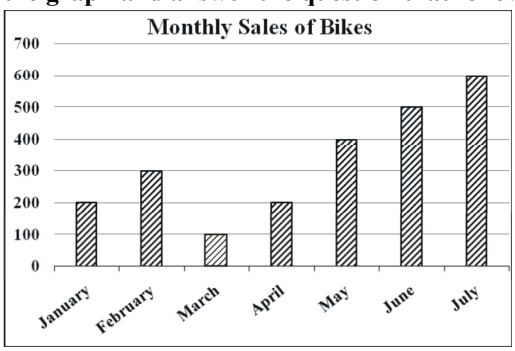
Ans. (c) : Let the sales in the month of July be x times the sales in the month of January.

According to the question,

$x \times 200 = 600$

$x = 3$

88. The graph below represents number of bikes sold over a period of seven months. Observe the graph and answer the question that follows:



What is the approximate percentage increase in average sales between the period January to March and the period April to June?

(a) 71%

(b) 83%

(c) 91%

(d) 17%

Ans. (b) :

Sales from January to March $= 200 + 300 + 100 = 600$

Sales from April to June $= 200 + 400 + 500 = 1100$

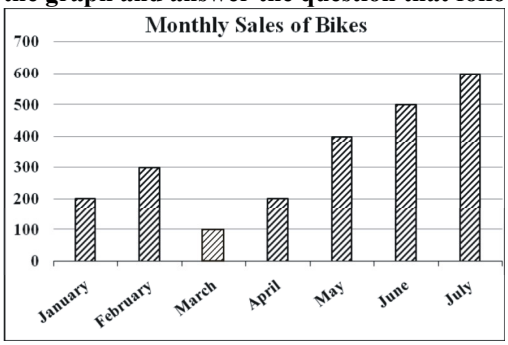
Required average percetage increase %

$= \frac{1100 - 600}{600} \times 100$

$= \frac{500}{6} = 83.33\%$

$\approx 83\%$

89. The graph below represents number of bikes sold over a period of seven months. Observe the graph and answer the question that follows:



In which month was the percentage sales compared to the previous month, the highest?

(a) April
(b) June
(c) February
(d) May

Ans. (a/d) : From option,
Percentage increase in the month of April
$= \frac{200-100}{100} \times 100 = 100\%$
Percentage increase in the month of June
$= \frac{500-400}{400} \times 100 = 25\%$
Percentage increase in the month of February
$= \frac{300-200}{200} \times 100 = 50\%$
Percentage increase in the month of May
$= \frac{400-200}{200} \times 100 = 100\%$
Highest percentage increase is in the both the months of May and April but by Railway Recruitment Board (RRB) option (d) is correct.

90. Read the given statement and assumptions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given assumptions logically follow from the statement.

Statement:

During exams, invigilators are not supposed to used mobile phones in the examination hall.

Assumptions:

I. Mobile disturbs students during examination.

II. Keeping mobiles switched off helps to improve their vigilance.

(a) Both I and II follow.
(b) Only I follows.
(c) Only II follows.
(d) Neither I nor II follows.

Ans. (a) : According to the statment both conclusions I and II follow.

91. Among the four numerical expression given below, three are alike in some manner and one is different. Select the odd one.

(a) 5 4 2 5 = 51
(b) 6 5 8 9 = 28
(c) 8 4 3 7 = 22
(d) 7 4 9 3 = 23

Ans. (a) : From question –
(a) $5 + 4 + 2 + 5 = 16 \neq 51$
(b) $6 + 5 + 8 + 9 = 28$
(c) $8 + 4 + 3 + 7 = 22$
(d) $7 + 4 + 9 + 3 = 23$
Hence option (a) is inconsistent with the others.

92. Select the number from the given options that is related to the third number in the same way as the second number is related to the first number.

18 : 27:: 28 : ?

(a) 48 (b) 36
(c) 54 (d) 42

Ans. (d) : From question –
18 : 27 :: 28 : ?
$\frac{18}{27} = \frac{28}{?} \Rightarrow ? = \frac{28 \times 27}{18} = 42$
Hence, ? = 42

93. Among the four numbers given below, three are a like in some manner and one is different. Select the odd one.

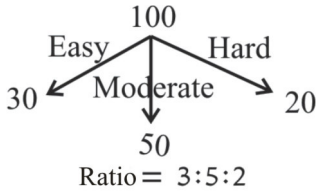
(a) 143 (b) 159
(c) 165 (d) 187

Ans. (b) : From option
First digit + Third digit = Second digit
(a) 143 ⇒1+3 = 4
(b) 159 ⇒ 1+9 ≠ 5
(c) 165 ⇒ 1+5 = 6
(d) 187 ⇒ 1+7= 8
Hence, option (b) is in consistent with the others.

94. There are 100 questions in which each right answer has 1 mark credit. Out of 100 questions 30, 50 and 20 questions are easy, medium and difficult respectively. The questions paper covers five abilities with an equal number of questions and similar distribution of difficulty levels for each ability. Sachin has excellent knowledge in three abilities but in the other two abilities he can solve only easy questions. If the evaluator deducts 0.33 marks for each wrong answer and Sachin attempts all questions which of the following would be his expected score?

(a) 62.60 (b) 62.49
(c) 62.76 (d) 62.98

Ans. (c) :



Ratio = 3:5:2

According to the question,

Section	Easy	Moderate	Hard
20	6	10	4
20	6	10	4
20	6	10	4
20	6	10	4
20	6	10	4

Total question solved by Sachin in three sections = $(6 + 10 + 4) \times 3 = 60$

again, the rest easy questions = $6 + 6 = 12$

Total number of question solved by Sachin = $60 + 12 = 72$

Questions with wrong answer = $10 \times 2 + 4 \times 2 = 28$

Expected score = $72 - \frac{28}{3} = 62.76$

95. Select the number from among the given options that can replace the question mark (?) in the following series.
6, 10, 20, 24, 48, 52, (?)
(a) 56 (b) 64
(c) 100 (d) 104

Ans. (d) : The given series is as follows –

6 , 10 , 20 , 24 , 48 , 52 , (104)
+4 ×2 +4 ×2 +4 ×2

Hence, ? = 104

96. Select the number from among the given options that can replace the question mark (?) in the following series.
47, 64, 448, ?, 2315, 2328, 6987
(a) 459 (b) 463
(c) 461 (d) 465

Ans. (b) : The given series is as follows –

47 64 448 463 2315 2328 6984
+17 ×7 +15 ×5 +13 ×3
-2 -2 -2 -2

Hence, ? = 463

97. Select the number from among the given options that can replace the question mark (?) in the following series.
439, 503, 628, 844, ?
(a) 1817 (b) 1187
(c) 1893 (d) 1983

Ans. (b) : The given series is as follows –

439 , 503 , 628 , 844 , 1187
$+4^3$ $+5^3$ $+6^3$ $+7^3$

Hence, ? = 1187

98. As of this year, the average age of a family of 8 members is 39 years. Assuming that after six years the family adopts a new-born baby, what will be the average age of the family 10 years from now?
(a) 46 years 8 months (b) 49 years 6 months
(c) 49 years (d) 44 years

Ans. (d) : At present, total age of the family = $39 \times 8 = 312$ years

adopted child after 6 years from now–

Child's age = 4 years

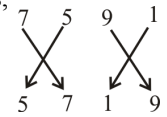
Ten years from now,

Total age of the whole family = $312 + 4 + 8 \times 10$
= 396 years

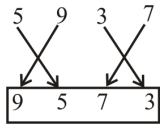
Average age of the whole family = $\frac{396}{9} = 44$ years

99. Select the option that is related to the third number-cluster in the same way as the second number-cluster is related to the first number-cluster.
7591 : 5719 :: 5937 : ?
(a) 9573 (b) 9537
(c) 5973 (d) 3795

Ans. (a) : Just as,



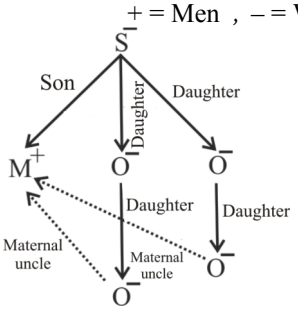
Similarly,



100. S is a female member of a family and has three children. M is the son of S. M is the maternal uncle of two girls who are not sisters, but whose mothers are siblings. Based on the information provided, which of the following statements is most likely to be true?
(a) S has one son, two daughters.
(b) S has two sons, one daughter
(c) S has one son, and the other two cannot be determined.
(d) S has one son, one daughter and third cannot be determined.

Ans. (a) : According to the question–

+ = Men , – = Women



It is clear from above diagram that S has one sons and two daughter Hence, option (a) wile be true.

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 17.01.2021] **[Time : 03:00 pm-4:30 pm**

1. Every interior angle of a regular octagon is 135º. Find the exterior angle of the octagon.

(a) 45º (b) 75º

(c) 65º (d) 55º

Ans. (a) : According to question,

Interior angle + exterior angle = 180º

135° + exterior angle = 180º

135° + exterior angle = 180º – 135º

= 45°

2. If ACE = 35, AGED = 91 then CARE = ?

(a) 359 (b) 323

(c) 288 (d) 358

Ans. (a) : Just as,

$$\underset{\downarrow}{A}\ \underset{\downarrow}{C}\ \underset{\downarrow}{E}$$

$$(1)^2 + (3)^2 + (5)^2 = 35$$

and

$$\underset{\downarrow}{A}\ \underset{\downarrow}{G}\ \underset{\downarrow}{E}\ \underset{\downarrow}{D}$$

$$(1)^2 + (7)^2 + (5)^2 + (4)^2 = 91$$

Same as,

$$\underset{\downarrow}{C}\ \underset{\downarrow}{A}\ \underset{\downarrow}{R}\ \underset{\downarrow}{E}$$

$$(3)^2 + (1)^2 + (18)^2 + (5)^2 = \boxed{359}$$

Hence CARE = 359

3. The cost price of a car was ₹1,50,000. It was sold by X at a profit of 5% to Y. It was later sold back to X by Y at a 1% loss. Find X's profit in the entire transaction.

(a) ₹4000 (b) ₹3,150

(c) ₹4500 (d) ₹1,575

Ans. (d) : Money spent by X = ₹ 1,50,000

Money received by X = ₹ 105% of 1,50,000

$$= 150000 \times \frac{105}{100}$$

= ₹ 157500

Cost price received by X when he buys it again

$$= \frac{99}{100} \times 157500$$

= ₹ 155925

Hence profit of X = 157500 – 155925

= ₹1575

4. Select the number from among the given options that can replace the question mark (?) in the following series.

0, 4, 18, 48, ?

(a) 78 (b) 121

(c) 100 (d) 98

Ans. (c) : The given series is as follows–

$1^3 - 1^2 = 0$

$2^3 - 2^2 = 4$

$3^3 - 3^2 = 18$

$4^3 - 4^2 = 48$

$5^3 - 5^2 = 100$

Hence ? = 100

5. 'Light' is related to 'Darkness' in the same way as 'Transparent' is related to'_____'.

(a) Glass (b) Translucent

(c) Paper (d) Opaque

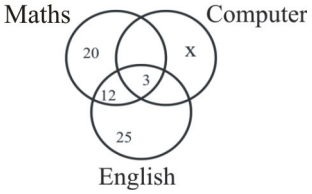
Ans. (d) : Just as antonyms of 'light' is 'dark' similarly antonyms of 'transparent' is 'opaque'.

6. In a class of 65 students, 20 students like only Maths, 25 students like only English and 15 students like both English and Maths. 8 students like Computer and 3 students like all three subjects. There are no students who like Computer and English. Also, there are no students who like Maths and Computer. How many students like only Computer?

(a) 3 (b) 11

(c) 5 (d) 2

Ans. (c) : Let, number of people who like computer be x.



$\because$ 20+25+12+3+x = 65

60+x = 65

x = 65–60

x = 5

Hence, there are 5 students who like only computer.

7. If one-fourth of half of a number is 25, then 20% of that number is:

(a) 40 (b) 80

(c) 20 (d) 60

Ans. (a) : Let, number be x.

According to the question,

$$\left(\frac{x}{2}\right)\times\frac{1}{4} = 25$$

$$x = 25 \times 8 = 200$$

$$20\% \text{ of } x = 200 \times \frac{20}{100} = 40$$

8. The HCF and LCM of two numbers are in the ratio of 1 : 30 and the difference between the HCF and LCM is 493. Find the product of LCM and HCF.

(a) 8670 (b) 540

(c) 6064 (d) 4040

Ans. (a) : Let H.C.F = x

and, L.C.M = 30x

According to the question,

$$L.C.M - HCF = 493$$

$$30x - x = 493$$

$$29x = 493$$

$$x = 17$$

Hence, $L.C.M \times H.C.F = 30x \times x$

$$= 30 \times 17 \times 17 = 8670$$

9. If Reeta types the numbers from 2 to 222, both inclusive, then how many times will she have to press the buttons on the number pad?

(a) 555 (b) 558

(c) 557 (d) 556

Ans. (c) : According to the question,

No. of buttons on the number pad pressed from 2 to 9 = 8

No. of buttons on number pad pressed from 10 to 99

$$= 90 \times 2$$

$$= 180$$

again, no. of buttons on number pad pressed from 100 to 222

$$= 123 \times 3$$

$$= 369$$

Hence, total no. of buttons pressed on the number pad

$$= 8 + 180 + 369$$

$$= 557$$

10. Select the option that will replace the question mark (?) in the given equation.

$$\mathbf{? + \frac{18}{24} + 3\frac{3}{4} = 23\frac{13}{24}}$$

(a) $19\frac{13}{24}$ (b) 0

(c) 1 (d) $19\frac{1}{24}$

Ans. (d) : From questions,

$$? + \frac{18}{24} + \frac{15}{4} = \frac{565}{24}$$

$$? + \frac{18+90}{24} = \frac{565}{24}$$

$$? + \frac{108}{24} = \frac{565}{24}$$

$$? = \frac{565}{24} - \frac{108}{24}$$

$$? = \frac{457}{24}$$

Hence $? = 19\frac{1}{24}$

11. When did Babur defeat Ibrahim Lodhi?

(a) 1761 (b) 1739

(c) 1628 (d) 1526

Ans. (d) : On 21st April 1526, Babur defeated Ibrahim Lodhi in the first Battle of Panipat and quickly occupied Delhi despite vast and superior troops. Ibrahim Lodhi lost in the battle due to Babur's superior strategy and use of artillery. The first Battle of Panipat marked the foundation of Mughal dominion in India.

Battle	Year	Remarks
Battle of Khanwa	1527	Babur defeated Rana Sanga of Mewar and his allies.
Battle of Ghagra	1529	Babur defeated the joint forces of the Afghans and Sultanate of Bengal.
Battle of Chausa	1539	Sher Shah Suri defeated Humayun.

12. Given below are four numbers, of which three are alike in some manner and one is different. Choose the odd one.

(a) 131 (b) 79

(c) 83 (d) 123

Ans. (d) : The numbers given in option (a), (b) and (c) are the prime numbers whereas number given in option (d) is a composite number. Hence, option (d) is odd.

13. Which is the correct full form of IPBES from below?

(a) Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services

(b) International Programme of Biodiversity and Ecosystem Sciences

(c) Intergovernmental Platform on Biodiversity and Ecosystem Services
(d) International Policy of Biodiversity and Ecosystem Services

Ans. (a) : The Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services (IPBES) is an independent intergovernmental body established by states to strengthen the science policy interface for biodiversity and ecosystem services for the conservation and sustainable use of biodiversity, long-term human well being and sustainable development. It was established in Panama City, on 21 April 2012 by 94 governments. It is not a United Nations body. However, at the request of the IPBES Plenary and with the authorization of the UNEP Governing Council in 2013, The United Nations Environment Programme (UNEP) provides secretariat services to IPBES.

14. From the given options, select the one in which the following are arranged in the most meaningful order.

1. Paint 2. Plan 3. Furnish 4. Build 5. Live

(a) 2, 1, 4, 3, 5 (b) 2, 4, 5, 1, 3
(c) 2, 3, 5, 1, 4 (d) 2, 4, 1, 3, 5

Ans. (d) : By arranging the given words in a meaningful order–

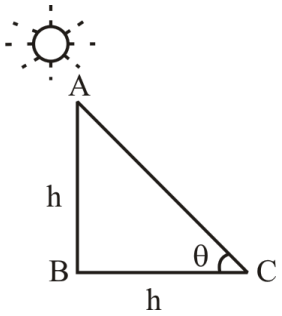
Plan → Build → Paint → Furnish → Live
(2) (4) (1) (3) (5)

Hence, the meaningful sequence is 2, 4, 1, 3, 5.

15. The angle of elevation of the sun when the length of the shadow of a pole is equal to its height is:

(a) 30° (b) 60°
(c) 90° (d) 45°

Ans. (d) :



From figure,

$$\tan\theta = \frac{AB}{BC}$$

$$\tan\theta = \frac{h}{h}$$

$$\tan\theta = 1$$

$$\tan\theta = \tan 45°$$

$$\therefore \quad \theta = 45°$$

16. What is the average temperature of the surface water of the oceans?

(a) 32 degrees Celsius (b) 27 degrees Celsius
(c) 20 degrees Celsius (d) 17 degrees Celsius

Ans. (d) : The average temperature of the surface water of the oceans is about 17 degrees Celsius (62.6 degrees Fahrenheit). 90% of the total volume of ocean is found below the thermocline in the deep ocean.

17. Who is the Sports Minister of India as of October 2020?

(a) RVS Rathore (b) Kiren Rijiju
(c) Dilip Pandey (d) Hardeep Singh

Ans. (b) : Kiren Rijiju became the Union Minister of Youth Affairs and Sports after the BJP led government returned to office in the 2019 Lok Sabha polls. Over the past two years, he has been associated with several initiatives in the sports ministry including the Fit India Movement. In July 2021, he became Minister of Law and Justice in the Prime Minister Narendra Modi's second regime when cabinet overhaul happened. Anurag Thakur has succeeded Kiren Rijiju to become the 17th sports minister of India on 7th July 2021.

18. According to the Department of Agriculture and Cooperation of India, what is the approximate share of India in the production of pulses worldwide?

(a) 25 percent (b) 11.2 percent
(c) 32.5 percent (d) 21 percent

Ans. (a) : According to the Department of Agriculture and Cooperation of India, India is the largest producer (25% of global production), consumer (27% of world consumption) and importer (14%) of pulses in the world. The major contributors of this production were Madhya Pradesh, Maharashtra, Uttar Pradesh, Rajasthan and Andhara Pradesh. Madhya Pradesh is a major pulse producing state in the country; it caters up to 32 percent of the country's total production.

19. The Sharia is the law governing the _____ community.

(a) Jewish (b) Cristian
(c) Jain (d) Muslim

Ans. (d) : Shariah, also spelled Sharia, the fundamental religious concept of Islam-namely, its law. The religious law of Islam is seen as the Muslims and in application, constitutes a system of duties that are incumbent upon all Muslims by virtue of their religious belief known as the Shariah (literally, "the path leading to the watering place"). The law represents a divinely ordained path of conduct that guides Muslims toward a practical expression of religious conviction in this world and the goal of divine favour in the world to come.

20. When were the first Lok Sabha elections held?

(a) 1948-49 (b) 1953-54
(c) 1951-52 (d) 1949-50

Ans. (c) : The first Lok Sabha elections were held in 1951-52. It was held in 68 phases for 489 seats from 25 October 1951 to 21 February 1952. With 44.99 percent votes, the Congress staged a massive victory in the polls overshadowing all the others in the race for a seat in the House.

21. Which acid is produced by human's stomach?

(a) Lactic acid (b) Hydrochloric acid
(c) Citric acid (d) Sulphuric acid

Ans. (b) : Hydrochloric Acid (HCl) is produced by the parietal cells of the stomach. To begin with, water (H_2O) and carbon dioxide (CO_2) combine within the parietal cell cytoplasm to produce carbonic acid (H_2CO_3). The stomach is a gastrointestinal organ that is responsible for preliminary digestion.

22. Where is the famous Wagah Border located?

(a) Ahmedabad (b) Kashmir
(c) Amritsar (d) Jaipur

Ans. (c) : The Wagah Border is an army outpost on the India and Pakistan border, lying between the cities of Amritsar and Lahore (Pakistan). It is around 28 km from Amritsar and is one of the main access points overland to the neighbouring country of Pakistan. Among its many buildings, roads and barriers, one can witness the impressive Beating and Retreat ceremony, held everyday. During the ceremony, an infantry man stands at attention on both sides of the gate.

23. 7.98 expressed as a percent of 1.9 is :

(a) 7% (b) 4.2%
(c) 420% (d) 42%

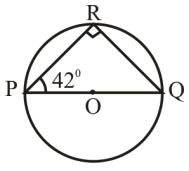
Ans. (c) : According to the question,

$$\frac{7.98}{1.9}\times 100 = 4.2 \times 100 = 420\%$$

24. PQ is a diameter of circle whose centre is O. If a point R lies on a circle and ∠RPO is 42°, then find ∠RQP.

(a) 48° (b) 39°
(c) 25° (d) 51°

Ans. (a) : According to the question,



Given, ∠RPO = 42°

∵ Angle subtended in a semicircle is a right angle.

Hence, ∠PRQ = 90°

In Δ PQR,

∠PRQ+∠RQP+∠QPR = 180°

90°+∠RQP+42° = 180°

∠RQP = 180° – 132°

∴ ∠RQP = 48°

25. If $\frac{9^m \times 3^5 \times 27^3}{3 \times 81^4} = 3^9$ then the value of m is:

(a) 6 (b) 5
(c) 7 (d) 12

Ans. (a) : Given,

$$\frac{9^m \times 3^5 \times 27^3}{3 \times 81^4} = 3^9$$

$$9^m = \frac{3^9 \times 3 \times (3^4)^4}{3^5 \times (3^3)^3}$$

$$9^m = \frac{3^9 \times 3^1 \times 3^{16}}{3^5 \times 3^9}$$

$$9^m = 3^{26} \times 3^{-14}$$

$$3^{2m} = 3^{12}$$

$$2m = 12$$

$$\therefore \quad m = 6$$

26. As of Post Monsoon Estimates of 2018-19, which of the following is the largest coffee - producing state in India, according to the Coffee Board India?

(a) Bihar (b) Punjab
(c) Andhra Pradesh (d) Karnataka

Ans. (d) : Coffee production in India is dominated in the hill tracts of South Indian states, with Karnataka accounting for 71%. It is followed by Kerala with 21% and Tamil Nadu (5% of overall production with 8,200 tonnes). There are about 250,000 coffee growers in the country; 98% of them are small growers. Almost 80% of Indian coffee is exported. Indian coffee, grown mostly in southern states under monsoon rainfall conditions, is also termed as "Indian Monsoon Coffee".

27. A can complete a piece of work in 60 days. He worked for 15 days and B finished the remaining work in 30 days. If they work together then the work will the completed in:

(a) 25 day (b) 10 day
(c) 24 day (d) 12 day

Ans. (c) : According to the question,

A's 1 day work $= \frac{1}{60}$ part

A's 15 day work $= 15 \times \frac{1}{60} = \frac{1}{4}$ part

Remaining work = $1-\frac{1}{4}=\frac{3}{4}$ part

Time taken by B to complete $\frac{3}{4}$ part of the work = 30days

Total time taken by B to complete the whole work = $30\times\frac{4}{3}=40$ days

A and B's one day work = $\frac{1}{60}+\frac{1}{40}=\frac{1}{24}$ part

so A & B together will complete the work in 24 days.

28. Which of the following missile systems are offered by the US to India as an alternative to Russian S-400s?

(a) THAAD and PAC-3 (b) S-300
(c) M-11 (d) ARROW-2

Ans. (a) : The United States has offered Terminal High Altitutde Area Defence (THAAD) and Patriot as an alternative to Russian S-400.

29. Which of the following agendas was signed by the world leaders in 1992 at UNCED that works for achieving Global Sustainable Development?

(a) Agenda 27 (b) Agenda 32
(c) Agenda 23 (d) Agenda 21

Ans. (d) : Agenda 21 of the Rio Summit 1992 is related to Sustainable Development. United Nations Conference of Environment and Development (UNCED), also known as the Rio Summit. It was held in Rio de Janeiro, Brazil in June 1992. The summit was convened for addressing the urgent problem of environmental protection and socio-economic development at the global level. The Rio Convention endorsed global forest principles and adopted Agenda 21 for achieving sustainable development in the 21st century.

30. Who among the following has authored (edited) "India : The Future Is Now"?

(a) Narendra Modi (b) Anita Desai
(c) Shashi Tharoor (d) Kiran Desai

Ans. (c) : "India : The Future Is Now" is a book written by Shashi Tharoor. It is regarding an inspiring vision on India by the young parliamentarians of the country. This book is a collection of 12 essays by 12 MPs from different states and parties, compiled by Shashi Tharoor, a leader himself.

31. Which of the following is the memorial of India's second Prime Minister Lal Bahadur Shastri?

(a) Vijay Ghat (b) Raj Ghat
(c) Kisan Ghat (d) Shanti Ghat

Ans. (a) : Vijay Ghat is the memorial of India's second Prime Minister Lal Bahadur Shastri. Vijay means victory and his memorial was named after the victory led India in the 1965 war against Pakistan. The memorial marks the spot where Shastri was cremated and prayer services are held every year on his birth and death anniversary.

Kishan Ghat	Delhi	former PM Chaudhary Charan Singh
Raj Ghat	Delhi	Mahatma Gandhi
Shanti Van	Delhi	Jawaharlal Nehru

32. Where is the cache memory located?

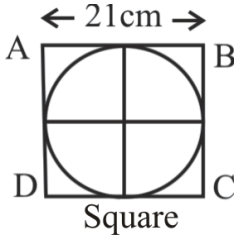
(a) RAM (b) CPU
(c) CU (d) Monitor

Ans. (b) : Cache memory increases a computer's performance. The cache memory is located very close to the CPU, either on the CPU chip itself or on the motherboard in the immediate vicinity of the CPU and connected by a dedicated data bus. So instructions and data can be read from it (and written to it) much more quickly than in the case with normal RAM.

33. The area of the greatest circle that can be inscribed inside a square of side 21 cm is:

(a) 351.5 cm^2 (b) 350.5 cm^2
(c) 346.5 cm^2 (d) 347 cm^2

Ans. (c) : According to the question,



$\because$ Radius = $\frac{\text{Diameter}}{2}=\frac{\text{Side of square}}{2}$

$=\frac{21}{2}=10.5$ cm

$\therefore$ Area of circle= πr^2

$=\frac{22}{7}\times 10.5\times 10.5$

$=346.5\ cm^2$

34. Being light and non-inflammable, _____ gas is used to blow balloons.

(a) Oxygen (b) Neon
(c) Helium (d) Chlorine

Ans. (c) : Helium has a molecular weight of 4 and, hydrogen is lighter than air. While helium is not as light as hydrogen, it is inert and non-flammable (unlike hydrogen, which is highly flammable). For this reason, helium is used to inflated party balloons as they will rise in air.

35. In which of the following states is the Pachmarhi Biosphere Reserve located?

(a) Punjab (b) Madhya Pradesh
(c) Uttar Pradesh (d) Kerala

Ans. (b) : The Pachmarhi Biosphere Reserve is a non-use conservation area and biosphere reserve in the Satpura Range of Madhya Pradesh state, in Central India. The conservation area was created in 1999 by the Indian government. UNESCO designated it a biosphere reserve in 2009. The Pachmarhi Biosphere Reserve is located within area of Hoshangabad, Betul and Chhindwara districts in Madhya Pradesh state in India. The biosphere reserve's total area is 4,926.28 square kilometres. It includes three wildlife conservation units:

(i) Bori Sanctuary (518.00 km^2)

(ii) Pachmarhi Sanctuary (461.37 km^2)

(3) Satpura National Park (524.37 km^2)

36. When did Non- Cooperation and Khilafat Movement begin?

(a) 1928 (b) 1931
(c) 1920 (d) 1946

Ans. (c) : The Khilafat movement begun on the 27th October 1919 when the day was observed as the Khilafat Day all over the India. On the 23rd November 1919 the first Khilafat conference met at Delhi. It was at this session that the Muslims considered the feasibility of Non-cooperation as a means of compelling the British government to redress the Khilafat wrong. On 10th March 1920 the Khilafat conference met at Calcutta and decided upon Non-Cooperation as the best weapon to further the object of their agitation. The Non-Cooperation commenced on 1st August 1920.

37. When was the INSAT-1B launched??

(a) 1987 (b) 1990
(c) 1989 (d) 1983

Ans. (d) : INSAT-1B, the second in the INSAT-1 series was successfully launched by Space Shuttle of USA on August 30, 1983. It was stationed at 74ºE in place of INSAT-1A. It was the first operational satellite in the Indian National Satellite System (INSAT) series and provided telecommunication, broadcasting radio networking, weather observation and forecasting services. It was operational till July 1990 with all its 4375 two way vice or equivalent circuits in use.

38. ONGC comes under which of the following sectors?

(a) Health (b) Education
(c) Agriculture (d) Energy

Ans. (d) : Maharatna status company ONGC (Oil and Natural Gas Corporation Limited) is the largest crude oil and natural gas company in India, contributing around 71 percent to Indian domestic production. Crude oil is the raw material used by downstream companies like IOC, BPCL, HPCL and MRPL (last two are subsidiaries of ONGC) to produce petroleum products like Petrol, Diesel, Kerosene, Nephtha and Cooking Gas, LPG.

39. A bus moving at the speed of 45 km/h overtakes a truck 150 m ahead, going in the same direction in 30 sec. The speed of the truck is:

(a) 24 km/h (b) 25 km/h
(c) 20 km/h (d) 27 km/h

Ans. (d) : Let the speed of truck = x km/h
Their relative speed in same direction = (45 – x) km/h
According to question,

$$\text{Time} = \frac{\text{Total distance}}{\text{Speed}}$$

$$30 = \frac{150}{(45-x)\times\frac{5}{18}}$$

$$30 = \frac{150\times 18}{(45-x)\times 5}$$

$150 \times (45 - x) = 150 \times 18$

$45 - x = 18$

$x = 27$ km/h

40. Two numbers are in the ratio 2:3. If 20 is added to 20% of the smaller number. It will be equal to 10% of the larger number added 25. Then the smaller number is_____.

(a) 180 (b) 100
(c) 200 (d) 160

Ans. (b) : Let the numbers be x & y

Given, $\frac{x}{y} = \frac{2}{3} \Rightarrow 3x = 2y \Rightarrow y = \frac{3x}{2}$

According to question,

$$\left(x\times\frac{20}{100}\right) + 20 = \left(y\times\frac{10}{100}\right) + 25$$

$$\frac{x}{5} + 20 = \frac{y}{10} + 25$$

$$\frac{x}{5} + 20 = \frac{3x}{20} + 25 \qquad \left(\because y = \frac{3x}{2}\right)$$

$$\frac{x+100}{5} = \frac{3x+500}{20}$$

$20x + 2000 = 15x + 2500$

$5x = 500$

$x = 100$

41. Solve the following.

$(243)^2 \div (27)^2 \times 16 \div 8 = ?$

(a) 81 (b) 70

(c) 162 (d) 1

Ans. (c) : $(243)^2 \div (27)^2 \times 16 \div 8 = ?$

$$= \frac{243 \times 243}{27 \times 27} \times \frac{16}{8}$$

$= 9 \times 9 \times 2$

$= 81 \times 2$

$= 162$

42. According to National Tiger Conservation Authority (NTCA), approximately how much percentage is accounted for tiger deaths due to poaching and electrocution from 2012 to 2018?

(a) 12% (b) 23%

(c) 42% (d) 31%

Ans. (d) : Poaching and electrocution were behind 31.5% (207) of the 656 tiger deaths reported in the country between 2012 and 2018, according to data released by the National Tiger Conservation Authority (NTCA). As many as 750 tigers have died in the country in the last eight years due to poaching and other causes, with Madhya Pradesh reporting the highest casualties at 173, according to an official data. Of these total tiger mortalities, 369 were due to natural causes, 168 due to poaching, 70 deaths are under scrutiny and 42 due to unnatural reasons, including accident or conflicts events.

43. Identify the letter-pair from among the given options that expresses a relationship most similar to that expressed in the following letter - pairs.

yb, ve, tg, ?

(a) jl pk ms ot (b) pk

(c) ms (d) ot

Ans. (b) :

Just as,

y $\xrightarrow{\text{Opposite letter}}$ b

v $\xrightarrow{\text{Opposite letter}}$ e

t $\xrightarrow{\text{Opposite letter}}$ g

Same as from option (b).

p $\xrightarrow{\text{Oppostie letter}}$ k

44. From the given options, select the one in which the following are arranged in the most meaningful order.

1. Cosmos 2. Earth 3. Milky Way 4. Human

(a) 1, 3, 2, 4 (b) 1, 2, 3, 4

(c) 1, 2, 4, 3 (d) 1, 3, 4, 2

Ans. (a) : On arranging the given words in a meaningful order.

Cosmos → Milky way → Earth → Human

(1) (3) (2) (4)

Hence the meaningful order will be 1, 3, 2, 4

45. The smallest positive number which must be added to the greatest number of 4 digits in order that the sum may be exactly divisible by 307 is:

(a) 307 (b) 132

(c) 306 (d) 176

Ans. (b) : The greatest number of 4 digits = 9999

307)9999(32

−921

789

614

175

Hence the number to be added = 307−175

= 132

46. In a certain code language, if SINGER is coded as TJOFDQ then, which of the following will be the code for STUPID in that language?

(a) TUQQJE (b) TUVOHC

(c) TUVQJE (d) JOQQIE

Ans. (b) : Just as,

S	I	N	G	E	R
+1	+1	+1	-1	-1	-1
T	J	O	F	D	Q

Same as,

S	T	U	P	I	D
+1	+1	+1	-1	-1	-1
T	U	V	O	H	C

47. Which of the following states had the highest value in literacy according to the HDI (Human Development Index) report for 2011?

(a) Delhi (b) Punjab

(c) Kerala (d) Odisha

Ans. (c) : Kerala is able to record the highest value in the HDI largely due to its impressive performance in achieving near hundred percent literacy. In a different scenario the states like Bihar, Madhya Pradesh, Odisha, Assam and Uttar Pradesh have very low literacy. India has a HDI value (using international goal posts) of 0.504. The HDI is the highest for Kerala (0.625) followed by Punjab (0.569) and the lowest for Odisha (0.442), Bihar (0.447) and Chhattisgarh (0.449).

48. As of January 2019, which of the following ports is listed amongst the world's top 30 container ports as per latest Lloyd report?

(a) Murmogao Port
(b) Kandla Port
(c) Haldia Port
(d) Jawahar lal Nehru Port

Ans. (d) : The Jawaharlal Nehru Port Trust, (JNPT) India's Premiere container port got listed among the top 30 container ports globally, as per the latest Lloyds report. JNPT notched up five spots, to be 28th on the list, compared to its previous ranking. This is a validation of all the efforts and strategic initiatives being implemented at JNPT in order to enhance overall port efficiency.

49. The price of rice is increased by 25%. By what percent should a family decrease its consumption so that their expenditure remains the same?

(a) 25% (b) 7.5%
(c) 5% (d) 20%

Ans. (d) : Let, price of rice = ₹100
and consumption of rice = 100 kg
So, total cost = 100 ×100 = 10,000
Price of rice after 25% increment = ₹125
Let consumption after increase = x kg
According to question,
x ×125 = 10,000
x = 80
Hence percentage reduction in consumption of rice = $\frac{100-80}{100}\times 100\%$
= 20%

50. A sum of money doubles itself at a compound interest in 15 years. In how many years will it become 8 times the original amount?

(a) 58 years (b) 40 years
(c) 52 years (d) 45 years

Ans. (d) : According to the question,
A = 2P , t = 15, Rate = R%

$\because A = P\left(1+\frac{R}{100}\right)^{t}$

$2P = P\left(1+\frac{R}{100}\right)^{15}$

$2 = \left(1+\frac{R}{100}\right)^{15}$

On cubing both side–

$(2)^3 = \left[\left(1+\frac{R}{100}\right)^{15}\right]^3$

$8 = \left(1+\frac{R}{100}\right)^{45}$

On multiplying by P both sides

$8P = P\left(1+\frac{R}{100}\right)^{45}$

Hence principal amount will become 8 times in 45 years

51. Which was the first state to implement 10% reservation in government jobs and higher education for economically weaker sections?

(a) Maharashtra (b) Uttar Pradesh
(c) Gujarat (d) Madhya Pradesh

Ans. (c) : Gujarat has become the first state to provide 10 percent reservation in jobs and educational institutions to the economically weaker sections (EWS) in the general category. It will be implemented in all on going recruitment processes including where only an advertisement has been published and a first stage of examination is yet to be held. 124th Constitutional Amendment passed in parliament on the last day of the winter session of parliament allows for this quota.

52. Solve the following.
$(625)^{0.17} \times (625)^{0.08} = ?$

(a) 5 (b) 25
(c) 1 (d) 2.5

Ans. (a) : From question,
$(625)^{0.17} \times (625)^{0.08} = ?$
$= [(25)^2]^{0.17} \times [(25)^2]^{0.08}$
$= [(5^2)^2]^{0.17} \times [(5^2)^2]^{0.08}$
$= 5^{0.68} \times 5^{0.32}$
$= 5^{0.68+0.32}$
$? = 5$

53. Which article of the Indian Constitution guarantees 'equality of opportunity' in the matters of public employment?

(a) Article 16 (b) Article 18
(c) Article 15 (d) Article 17

Ans. (a) : Article 16 was debated on 30th November 1948. It provided for equality of opportunity in all government employment. It stated that no citizen can be discriminated on grounds of religion, race, caste, sex, descent, place of birth, or residence for government employment. It also allowed the state to make reservations in public employment for citizens from any backward class.

54. As of October 2020, who among the following is the CEO of Amazon and the owner of Blue Origin?

(a) Jeff Bezos (b) Eric Schmidt
(c) Tim Cook (d) Mark Zuckerberg

Ans. (a) : As of October 2020, entrepreneur and e-commerce pioneer Jeff Bezos is the founder and CEO of the e-commerce company Amazon, and the founder of the space exploration company Blue Origin. His successful business ventures have made him one of the richest people in the world. Andy Jassy is the current president and CEO of Amazon.com and also serves in the Board of Directors, successor of Bezos. It was founded on 5 July 1994, Bellevue, Washington, U.S.

55. Which among the following was the capital city of British India (1773-1911)?

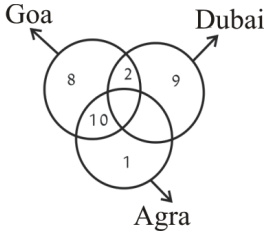
(a) Delhi (b) Calcutta
(c) Lucknow (d) Bombay

Ans. (b) : In 1773, when Calcutta was announced as the capital of British India, Warren Hastings, the first and most famous of the British Governor-General of India moved all important offices from Murshidabad, the former capital of Bengal during Mughal period to Calcutta. The city was India's capital under the British Raj from 1773 until 1911, when the capital was moved to New Delhi. The foundation of the new capital, Delhi was laid on December 12, 1911 by King George V during Delhi Durbar.

56. In a group of people, 8 persons like only Goa and 9 persons like only Dubai. There is only one person who likes only Agra 10 person like both Goa and Agra while 2 persons like both Dubai and Goa. There is no such person who likes both Agra and Dubai and there is no one in the group who likes all three. How many total persons are there in the group

(a) 42 (b) 30
(c) 39 (d) 31

Ans. (b) :



Hence from the above diagram the total number of persons in the group

$= 8 + 2 + 9 + 10 + 1$

$= 30$

57. Which fluid carries absorbed fat from intestine and drains excess fluid from extra cellular space back into the blood?

(a) Platelets (b) Capillaries
(c) Plasma (d) Lymph

Ans. (d) : Lymph is a fluid connective tissue which plays a major role in the process of transportation. Capillaries contain pores through which small amount of plasma, proteins and blood cells flow out into the inter cellular spaces. Lymphatic vessels present in the intestinal villi absorb fatty acids and carries the digested food and fats from the small intestine. It acts as a reservoir of digested food and water.

58. Among the following, which satellite facility is equipped with the state-of-the-art data acquisition systems that receive data from various satellites?

(a) AGEOS (b) SCATSAT-1
(c) ISRO (d) IMGEOS

Ans. (d) : Integrated Multi Mission Ground Segment for Earth Observation Satellites (IMGEOS) facility is established in Shadnagar campus. This facility is equipped with state of the art data acquisition systems which receives data from various satellites. Payload programming requests are consolidated at the respective sub systems based on the feasibility of tracking a particular satellite and acquisition schedules generated for each of the antenna in ground station.

59. Sarita buys two old Samsung and three Mi mobile phones for ₹40200. If she sells the Samsung phones at a 10% profit and the Mi Phones at a 20% profit then her total profit is ₹5640. The cost price of the Mi Phone is:

(a) ₹5,400 (b) ₹1,200
(c) ₹4,400 (d) ₹5,000

Ans. (a) : Let price of samsung phone = ₹ x
and price of Mi phone = ₹ y

According to the question,

Total cost price $= 2 \times x + 3 \times y = 40200$ .....(1)

$$\text{Total selling price} = \frac{110}{100} \times 2x + \frac{120}{100} \times 3y$$

$$= \frac{11x}{5} + \frac{18y}{5}$$

Total price = total selling price – total cost price

$$5640 = \frac{11x}{5} + \frac{18y}{5} - (2x + 3y)$$

$$5640 = \frac{x}{5} + \frac{3y}{5}$$

$x + 3y = 5 \times 5640$

$x + 3y = 28200$ .....(2)

On multiplying by 2 in equation (2), then substracting from equation (1),

$2x + 3y = 40200$

$-\ \underline{2x + 6y = 56400}$

$-3y = -16200$

$y = ₹\ 5400$

Total cost price of Mi-Phone is 5400.

60. The study of landforms and their evolution is called:

(a) Geomorphology

(b) Soil Geography (c) Hydrology

(d) Climatology

Ans. (a) : Geomorphology is the science dealing with the study and interpretation of the origin and development of landforms on the earth's surface. Geomorphology is an aid to resource evolution, engineering contractions and plannings. It includes the study of the landforms and of the processes operating on them.

61. When did archaeologist B.B. Lal carry out excavations at Hastinapura, situated in Meerut district?

(a) 1962-63 (b) 1951-52

(c) 1957-58 (d) 1949-50

Ans. (b) : In 1951-52, Prof. B.B. Lal carried out excavations at Hastinapura, situated in Meerut district. Interestingly, the excavation at Hastinapura revealed that around 800 B.C. a heavy flood in the Ganga destroyed a considerable portion of polished grey ware settlement.

62. Which letter from among the given options, will replace the question mark (?) in the following series.

a, b, d, g, ?

(a) m (b) l

(c) j (d) k

Ans. (d) : The given series is as follows–

a , b , d , g , k

+1 +2 +3 +4

Hence ? = k

63. An amount of money given by the employer to the employee at the time of retirement for services rendered is called?

(a) Bonus (b) Gratuity

(c) Provident fund (d) Pension

Ans. (b) : Gratuity is a benefit which is payable under the payment of Gratuity Act 1972. It is a sum of money paid by an employer to an employee for services rendered in the company. But, gratuity is paid only to employees who complete five or more years with the company.

64. Solve the following

$11 + 11 \div 11 + 11 \times 11 - 11 = ?$

(a) $\frac{13}{11} - 11$ (b) 1

(c) 122 (d) 0

Ans. (c) : $11 + 11 \div 11 + 11 \times 11 - 11 = ?$

$= 11 + 1 + 121 - 11$

$= 12 + 110$

$? = 122$

65. Solve

$49 + 1331 \div 121 - 72 - 5 = ?$

(a) –17

(b) 17

(c) –27

(d) 0

Ans. (a) : $49 + 1331 \div 121 - 72 - 5$

$= 49 + 11 - 72 - 5$

$= 60 - 72 - 5$

$= 60 - 77$

$? = -17$

66. Which company has acquired British toy makers Hamleys?

(a) TATA

(b) Reliance Brands

(c) Future Group

(d) K Raheja Corp group

Ans. (b) : Mukesh Ambani- led Reliance Brands, on 8 May 2019, announced it will acquire iconic British toymakers, Hamleys for 67.96 million pounds (around Rs 620 crores) in an all-cash deal. Hamleys, a 259-years old toymakers, has struggled to generate profits in that times. It reported a profit after tax of 11.24 million pounds in 2018 after suffering a loss of 11.24 million pounds in 2017.

67. Which of the following acid is the constituent of eyewash ?

(a) Acetic acid (b) Boric acid

(c) Sulphuric acid (d) Hydrochloric acid

Ans. (b) : Boric Acid can often be included as on ingredient in eye wash solutions. Despite the fact that other boric acid preparations can be toxic (if ingested), the concentration of boric acid in products is so low that it is not harmful for to use.

68. Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.

ab, fg, jk, mn, ?

(a) no (b) op

(c) mn (d) lm

Ans. (b) : The given series is as follows–

a $\xrightarrow{+5}$ f $\xrightarrow{+4}$ j $\xrightarrow{+3}$ m $\xrightarrow{+2}$ o

b $\xrightarrow{+5}$ g $\xrightarrow{+4}$ k $\xrightarrow{+3}$ n $\xrightarrow{+2}$ p

Hence ? = op

69. Solve the following:

$$\left(1^3+2^3+3^3+....+8^3\right)^{\frac{-5}{2}}$$

(a) $36^{-7.5}$ (b) $8^{-7.5}$

(c) 6^{-10} (d) 10^3

Ans. (c) : Given,

$(1^3 + 2^3 + 3^3 + \text{----------} + 8^3)^{-5/2}$

The sum of cubes of 'n' natural numbers $= \left\{\frac{n(n+1)}{2}\right\}^2$

$$= \left[\left\{\frac{8(8+1)}{2}\right\}^2\right]^{-5/2}$$

$$= \left[(4\times 9)^2\right]^{-5/2}$$

$$= \left[(36)^2\right]^{-5/2}$$

$$= (36)^{-5}$$

$$= \frac{1}{36^5}$$

$$= \frac{1}{(6^2)^5} = 6^{-10}$$

70. Who among the following is one of the founders of Google?

(a) Jerry Yang (b) Larry Page

(c) Jon koum (d) Mark Zuckerberg

Ans. (b) : Google, in full Google LLC formerly Google Inc. (1998-2017), an American search engine company, founded in 1998 by Sergey Brin and Larry Page, that is a subsidiary of the holding company Alphabet Inc. More than 70 percent of worldwide online search requests are handled by Google, placing it at the heart of the most internet users' experience. Its headquarters is in Mountain View, California, US.

71. If $\sin(3A - 20°) = \cos(20° - 3B)$, then the value of A – B is:

(a) 30° (b) 45°

(c) 20° (d) 60°

Ans. (a) : Given,

$\sin(3A–20°) = \cos(20°–3B)$

$\{\because \sin\theta = \cos(90° - \theta)\}$

$\sin(3A - 20°) = \sin\{90° - (20° - 3B)\}$

$3A - 20° = 70° + 3B$

$90° = 3A - 3B$

$\therefore$ $A - B = 30°$

72. Which one of the following programmes aims at creating self-employment opportunities?

(a) PMRY (b) ICDS

(c) NRHM (d) SSA

Ans. (a) : Prime Minister Rozgar Yojana (PMRY) was launched in 1993 and implemented by the Ministry of Labour and Employment. PMRY is initiated by the Central Government of India to provide sustainable self employment opportunities to 10 lakh educated unemployed youth and women in India. It is designed to provide employment to educated unemployed youth by setting up micro-enterprises. The scheme covers the whole of the country.

73. The Government of India, with its flagship programme Swachh Bharat Mission, aims at a _____

(a) Corruption free environment

(b) Pollution free environment

(c) Terror free environment

(d) Poverty free environment

Ans. (b) : Swacch Bharat Mission was launched by the Prime Minister Narendra Modi on 2 October 2014. The mission aims to achieve Pollution - Free environment and to encourage hygienic sanitation practice. The scheme is also known as the "Clean Indian Mission". The project was launched as a tribute to Mahatma Gandhi. It is a nation-wide compaign aiming to clean up the streets, roads, cities and rural areas.

74. Find the smallest perfect square number which must be added to the number 12519 to get a perfect square number.

(a) 16 (b) 25

(c) 20 (d) 9

Ans. (b) : According to question,

The perfect square number nearest to = 12544

$= (112)^2$

Hence the number to be added = 12544 – 12519

= 25

75. When was the Anandpur Sahib Resolution passed?

(a) 1973 (b) 1975

(c) 1980 (d) 1970

Ans. (a) : After peaceful measures failed (Check Punjabi Suba Movement), Sikhs decided to make a draft of all demands in 1973, and was given the name 'Anandpur Sahib Resolution'. Some of the points were-
reminded of the Federal structure for Punjab, that Punjab should have an antimony to make its own decisions, as promised before the independence.
Remove casteism from Punjab.
To help the farmers by restricting the tax strategy etc.

76. The cell with dark boundary in _____ is called active cell

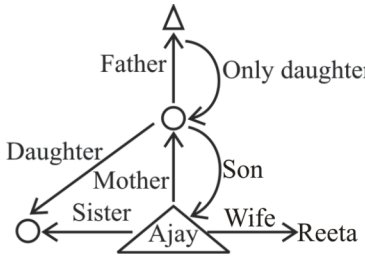
(a) MS Excel (b) MS DOS
(c) MS Word (d) MS Power Point

Ans. (a) : The cell in MS Excel with dark boundary is called the active cell. The active cell can refer to the cell present is the excel spreadsheet which is selected currently be chucking the mouse or the keyboard keys.

77. Pointing to a lady, Ajay said, "She is the only daughter of my mother's father. She has two children. Her only son's wife is Reeta."
Ajay is the lady's _____

(a) Son (b) Brother
(c) Nephew (d) Husband

Ans. (a) : According to question,



Hence it is clear from the blood relation diagram that Ajay is the son of women.

78. FAO is a specialized agency that works on the behalf of UN. Choose its full form.

(a) Fund for Agriculture Organization
(b) Food and Agriculture Organization
(c) Foreign Aviation Organization
(d) Foreign Agriculture Organization

Ans. (b) : The Food and Agriculture Organization (FAO) of the United Nations leads international effects to defeat hunger. Serving both developed and developing countries, FAO acts as a neutral forum where all nations meet as equals to negotiate agreements and debate policy. FAO is the largest of the UN agencies. It was established in 1945 and its headquarters is in Rome, Italy.

79. If $\cos^4\theta - \sin^4\theta = \frac{2}{3}$, then the value of $1 - 2\sin^2\theta$ is:

(a) $\frac{5}{3}$ (b) $\frac{2}{3}$
(c) -1 (d) 0

Ans. (b) : Given,

$$\cos^4\theta - \sin^4\theta = \frac{2}{3}$$

$$(\cos^2\theta)^2 - (\sin^2\theta)^2 = \frac{2}{3}$$

$$(\cos^2\theta + \sin^2\theta)(\cos^2\theta - \sin^2\theta) = \frac{2}{3}$$

$$\cos^2\theta - \sin^2\theta = \frac{2}{3} \quad \because (\cos^2\theta + \sin^2\theta = 1)$$

$$1 - \sin^2\theta - \sin^2\theta = \frac{2}{3}$$

$$\therefore 1 - 2\sin^2\theta = \frac{2}{3}$$

80. The speed of a stream is 3 km/h and the speed of a man in still water is 5 km/h. The time taken by the man to swim 26 km downstream is:

(a) $3\frac{1}{4}$ hours (b) $4\frac{1}{3}$ hours
(c) $1\frac{3}{4}$ hours (d) $4\frac{3}{4}$ hours

Ans. (a) : Let the time taken by man is T hours.
Speed of stream = 3 km/h
Speed of man = 5 km/h
According to the question,

$$\text{Speed in direction of stream} = \frac{\text{Distance}}{\text{Time}}$$

$$\Rightarrow 5 + 3 = \frac{26}{T}$$

$$T = \frac{26}{8} = 3\frac{1}{4} \text{ hours}$$

81. If $\sqrt{54} + \sqrt{150} = 19.60$, then what will the value of $\sqrt{216} + \sqrt{96}$ be? Give your answer, correct to one decimal place.

(a) 24.6 (b) 24.5
(c) 17.7 (d) 23.9

Ans. (b) : Given , $\sqrt{54}+\sqrt{150}=19.60$

$3\sqrt{6}+5\sqrt{6}=19.60$

$8\sqrt{6}=19.60$

$\sqrt{6}=2.45$

$\because \quad \sqrt{216}+\sqrt{96}=6\sqrt{6}+4\sqrt{6}$

$=10\sqrt{6}=10\times2.45=24.5$

82. The floor of a hall is rectangular. Its length is 30 m and breadth is 24 m. How many carpets of size 6m × 4m are required to cover it?

(a) 36 carpets (b) 28 carpets

(c) 24 carpets (d) 30 carpets

Ans. (d) : Area of floor = $l \times b$

$= 30\times24$

$= 720\ m^2$

Area of carpet = $l \times b$

$= 6\times4$

$= 24\ m^2$

$\therefore$ Number of carpets $= \dfrac{\text{Area of floor}}{\text{Area of one carpet}}$

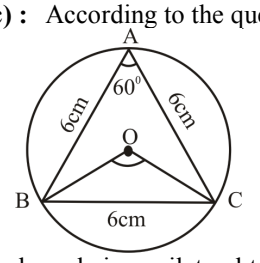
$= \dfrac{720}{24} = 30$ carpets

83. ABC is an equilateral triangle and O is its circum centre. If the side of triangle is 6 cm, then the ∠BOC is:

(a) 36° (b) 60°

(c) 120° (d) 30°

Ans. (c) : According to the question,



$\because$ Each angle in equilateral triangle is 60º.

$\because$ We know that, the angle subtended by an arc of a circle on the circumference of a circle is half of the angle subtended at the centre.

$\because \angle BOC = 2\times\angle BAC$

$\angle BOC = 2\times60°$

$\therefore \angle BOC = 120°$

84. In a group of 35 persons, 20 are young and 18 are girls. How many young girls are there in the group ?

(a) 1 (b) 3

(c) 18 (d) 2

Ans. (b) : According to question,

Number of young girls in the group = (20+18) – 35

= 38 – 35 = 3

85. 40% is the passing criteria in an examination. Out of 9 students who appeared, 4 failed and the remaining received 80%, 55%, 52%, 66% and 81% marks. The median of the percentage marks is equal to:

(a) 58% (b) 66%

(c) 52% (d) 81%

Ans. (c) : According to question,

The criteria of pass the exam is 40%.

$\because$ 4 examinees have failed.

Let the % marks of 4 candidates be – A% , B%, C% and D% respectively.

Hence on putting all the percentage marks in ascending order.

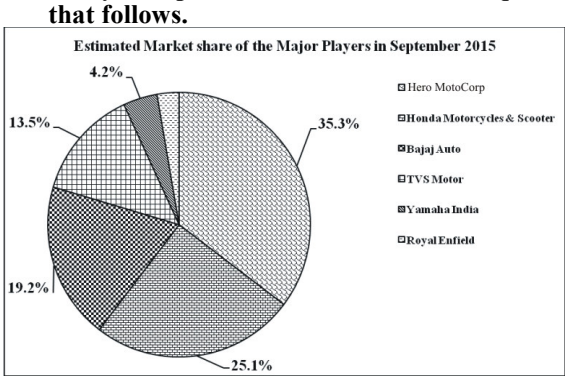
Number of candidates = 9 (odd)

Median of obtained marks = $\left(\dfrac{N+1}{2}\right)$ term

Hence, the median of the obtained marks = **52%**

Direction:–(Question 86 to 89)

Study the pie chart and answer the question that follows.



86. What is the percentage of the market share of Royal Enfield?

(a) 13.7 (b) 3.7

(c) 2.7 (d) 1.7

Ans. (c) : From question,

Total market share = 4.2 + 13.5 + 19.2 + 25.1 + 35.3

= 97.3 **%**

Market share of Royal Enfield = 100% – 97. 3%

= 2.7%

87. The total of Honda Motorcycles & Scooter India and TVS Motors is almost double which company's market share?

(a) Bajaj Auto (b) Royal Enfield

(c) Hero MotoCorp (d) Yamaha India

Ans. (a) : From question,

Total share of Honda Motorcycles and Scooter India and TVS = 25.1% + 13.5 %

= 38.6%

Market share of Bajaj Auto company = 19.2 %

Hence total share of Honda Motorcycles & TVS is almost twice that of Bajaj Auto.

88. How much degree of the area is covered by the Yamaha India and Hero MotoCorp's market share in the pie chart?

(a) 142.2 (b) 140.4

(c) 127.4 (d) 39.5

Ans. (a) : From question,

Market share of Yamaha India to be covered

$= \dfrac{4.2}{100} \times 360°$

$= 15.12°$

Market share of Hero MotoCorp to be covered,

$$= \frac{35.3}{100} \times 360°$$
$$= 127.08°$$

Hence, the degree covered = 15.12+127.08
= 142.2°

89. If 3 companies with largest market share are combined together in pool A and the remaining ones are clubbed in Pool B.
what is the approximate difference between the area (in degrees) of Pool A and Pool B?
(a) 245 (b) 232
(c) 213 (d) 230

Ans. (c) : From given pie chart,
∵ Share of Royal Enfield = 100 – 97.3
= 2.7%
In pool A, 3 companies with the highest market share
= 35.3 + 25.1 + 19.2
= 79.6 %
In pool B, Market share of remaining companies
= 2.7 + 4.2 + 13.5
= 20.4%
Hence, required difference

$$= \frac{79.6}{100} \times 360° - \frac{20.4}{100} \times 360°$$
$$= 286.56 - 73.44$$
$$= 213.12 \simeq 213$$

90. In a certain language:
'Stairs going up' means 'QEW ADS ZCX'
'How many Stairs' means 'PIO LJK ADS'
'He is going' means 'QEW RYT FHG'
Which of the following options will mean 'up'?
(a) QEW (b) ZCX
(c) ADS (d) LJK

Ans. (b) :
Stairs going up → QEW ADS ZCX
How many Stairs → PIO LJK ADS
He is going → QEW RYT FHG
Hence, 'ZCX' will mean 'up'.

91. Given below are four numbers, three of which are alike in some manner and one is different. Pick the odd one out.
(a) 3546 (b) 1333
(c) 1744 (d) 4913

Ans. (d) : From the given options,
(a) 3 + 5 + 4 + 6 = 18 Composite number
(b) 1 + 3 + 3 + 3 = 10 Composite number
(c) 1 + 7 + 4 + 4 = 16 Composite number
(d) 4 + 9 + 1 + 3 = 17 Prime number
It is clear that the number of option (d) is inconsistent.

92. Select the number pair in which the two numbers are related in the same way as are the two numbers of the following number-pair:
9 : 49
(a) 64 : 81 (b) 9 : 16
(c) 121 : 289 (d) 4 : 78

Ans. (c) : Just as,
9 : 49
3^2 7^2
Prime number
Same as, from option (c)
121 : 289
$(11)^2$ $(17)^2$
Prime number

93. Select the number from among the given options that can replace the question mark (?) in the following series.
1, 1, 3, 5,11, 21, 43, ?
(a) 86 (b) 85
(c) 87 (d) 55

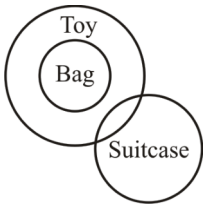
Ans. (b) : The given series is as follows–
1 , 1 , 3 , 5 , 11 , 21 , 43 , 85
(+2, +2^3, +2^5; +2^2, +2^4, +2^6)
Hence ? = 85

94. Ram has 5 cars which he uses for travel from his home to his office from Monday to Friday. He drives Skoda on the next day after the day he drives Honda and Honda is not used on Tuesday and Wednesday. He drives Nissan on the last working day. He does not drive Tata and Maruti on Monday. Then which car does he drive on Monday?
(a) Nissan (b) TATA
(c) Honda (d) Skoda

Ans. (c) : According to given conditions–
Honda → Monday
Skoda → Tuesday
Maruti/Tata → Wednesday
Maruti/Tata → Thursday
Nissan → Friday
Hence, Ram drives Honda on monday.

95. Two statements are given below. Decide which of the options logically follow from these statements.
Statement 1 : All bags are toys.
Statement 2 : Some toys are suitcases.
(a) All bags are Suitcases
(b) Some bags are suitcases
(c) No bag is a toy.
(d) Some bags are toys.

Ans. (d) : According to the statement on making Venn diagram

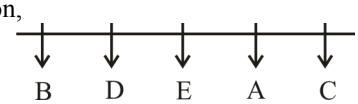


Thus, it is clear from the Venn diagram that out of the given options only option (d) logically follows from the statements.

96. A, B, C, D and E are sitting in a row facing towards south (not necessarily in the same order). A is to the immediate right of C. Only two persons are sitting between A and B and B is not the neighbour of E. Who is sitting to immediate right of A?

(a) C (b) B
(c) E (d) D

Ans. (c) : On arranging the sitting order according to question,

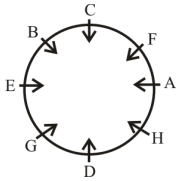


Thus, it is clear that E is sitting to the right of A.

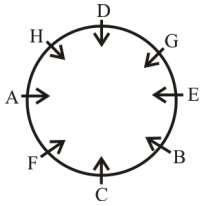
97. 8 Persons A, B, C, D, E, F, G and H are sitting around a circular table facing the centre (not necessarily in the same order). F is to the immediate left of C and is adjacent to A. H is to the immediate right of D. Only three persons are sitting between B and H. B is to immediate left of E and E is not adjacent to C.
If each person interchanges his or her position with the person seated opposite to him or her, then who will be on the immediate right of E?

(a) B (b) H
(c) G (d) C

Ans. (c) : Sitting order of all persons according to question is as follows–



Again, the order of arrangement of persons on changing their positions from the person sitting infront of them is as follows–



It is clear from the above arrangement that 'G' is sitting to the Immediate right of E.

98. Read the given statement and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow (s) from the statements.
Statement:
Doing exercises in the morning is good for health.
Conclusion-1
Health can be maintained by doing exercises only.
Conclusion-2
Without doing exercises, people will become ill.

(a) None of the conclusions follow the statement.
(b) Conclusion 2 follows the statement
(c) Both conclusions follow the statement
(d) Conclusion 1 follows the statement

Ans. (a) : According to the statement, none of the conclusions follow.

99. Select the alphanumeric-cluster from among the given options that can replace the question mark (?) in the following series.
k11, m13, q17, s19, ?

(a) v24 (b) r20
(c) w23 (d) x25

Ans. (c) : The given series is as follows:–
k11, m13, q17, s19, _____.

Sequence of english alphabet
k → 11
m → 13
q → 17
s → 19

Similarly, from option (c) → 23
Hence ? = w 23

100. Read the given statements and conclusions carefully and select the conclusion(s) that logically follows(s) from the statements.
Statements:
Indian Education is lacking quality due to low funds. India is allocating additional funds to education sector.
Conclusions:
I. There would be improvement in quality of education in India.
II. Only funds can improve the education standards.

(a) Only conclusion I follows
(b) Either I or II follows
(c) Only conclusion II follows
(d) Neither I nor II follows

Ans. (a) : Indian education lacks quality due to low funds. India is allocating additional funds to the education sector which will improve the quality of education in India. Hence conclusion (I) logically follows from the given statement.

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 21.01.2021] **[Time : 10:30 pm-12 pm**

1. The book which keeps a record of all the endangered animals and plants is _____.
(a) Red Data Book
(b) Wild Life Analysis Book
(c) Eco Survey Book
(d) Animal Survey Book

Ans. (a) : Red Data Book keeps a record of all the endangered animals, plants and species. It contains a list of species that are in danger of becoming extinct. The book was based on research conducted between 1961 and 1964 by biologists in Russia. Hence, it is also called the Russian Red Data Book. Currently, the International Union for Conservation of Nature (IUCN) maintains the Red Data Book. The IUCN was founded in 1948 with an aim of maintaining a complete record of every species that ever lived. The headquarters is located in Gland, Switzerland.

2. Which one of the following is not an operating system?
(a) Ubuntu (b) MS DOS
(c) Java (d) Mint

Ans. (c) : Java is not an operating system but it is a computer language. This high level language was developed by James Gosling of Sun Microsystems. It was developed mainly for use over the Internet. It is also used in electronic products like TVs, telephones etc.

3. Who among the following has never been a Governor for Reserve Bank of India?
(a) K Kasturi Rangan
(b) Dr. Manmohan Singh
(c) D. Subba Rao
(d) Bimal Jalan

Ans. (a) : Krishnaswamy Kasturirangan has never been the Governor of the Reserve Bank of India. He is an Indian space scientist who headed the Indian Space Research Organization (ISRO) from 1994 to 2003. It is significant that, the Kasturirangan Committee was formed for the protection of the Western Ghats. This committee declared 37 percent of the total Western Ghats area as ESZ, without categorizing the ESZ (Ecologically Sensitive Zones). In addition, in June 2017 for the formulation of the New Education Policy, a committee was constituted under the chairmanship of Dr. K. Kasturirangan. This committee had presented the 'Draft National Education Policy' in May 2019.

4. Which of the following is NOT an environmental concern?
(a) Growing pollution levels
(b) Global warming
(c) Increasing consumption and use of plastics
(d) Raising ozone layer

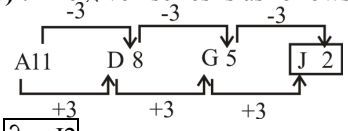
Ans. (d) : Air pollution, global warming, increasing consumption and use of plastics, poor management of waste, growing water scarcity, falling ground water tables, water pollution, preservation and quality of forests, biodiversity loss and land/soil degradation are some of the major environmental issues in India and the world today. The ozone layer acts as a natural filter, absorbing most of the sun's ultraviolet (UV) rays.

5. In which year were the powers of the East India Company passed to the British crown by the British Parliament?
(a) 1858 (b) 1859
(c) 1862 (d) 1857

Ans. (a) : On August 2, 1858, less than a month after Canning proclaimed the victory of British arms, Parliament passed the Government of India Act, transferring British power over India from the East India Company, whose ineptitude was primarily blamed for the mutiny, to the crown.

6. Select the term from among the given options that can replace the question mark (?) in the following series
A11, D8, G5, ?
(a) K2 (b) J2
(c) G2 (d) J11

Ans. (b) : The given series is as follows–



Hence ? = J2

7. Hindi was declared as the official language of Union under Article _____ of Indian Constitution.
(a) 333 (b) 343
(c) 345 (d) 334

Ans. (b) : Article 343 is about the official language of the Union of India. According to this Article, it is to be Hindi in Devnagri script, and numerals should follow the international form of Indian numerals. It is noteworthy that on 14 September 1949, on the 50th birthday of Beohar Rajendra Sinha, Hindi was chosen as the official language of India by the Constituent Assembly. This decision came into effect with the coming into force of the Indian Constitution on 26 January 1950. Other than this, Article 351 gives power to the union government to issue a directive for development of the Hindi language.

8. Which of the following is an example of non - volatile memory?

(a) VLSI (b) ROM
(c) RAM (d) LSI

Ans. (b) : Non-volatile memory is the computer memory that can retain the stored information even when it is not powered. Examples of non-volatile memory include Read Only Memory (ROM), flash memory, most types of magnetic computer storage devices (e.g. hard disk, floppy disk and magnetic tape), optical discs and early computer storage methods such as paper tape and punched cards.

9. The process of depositing a layer of any desired metal on another material, by means of electricity, is called_____

(a) Electroplating
(b) Electro conductor
(c) Electromagnet
(d) Electrode

Ans. (a) : The process of depositing a layer of any desired metal on another material by means of electricity is called electroplating. This is accomplished using an electroplating apparatus that includes a brine solution, a battery, wires and alligator clips that hold carbon rods attached to the metal to be electroplated and the metal to be layered.

10. The ratio of the volumes of two cubes is 64 : 1331. What is the ratio of their total surface areas?

(a) 16 : 121 (b) 121 : 16
(c) 16 : 4 (d) 4 : 121

Ans. (a) : Let side of both cubes are a and b respectively.

According to question,

$$\frac{a^3}{b^3}=\frac{64}{1331}=\frac{(4)^3}{(11)^3} \Rightarrow \frac{a}{b}=\frac{4}{11}$$

The ratio of their total surface area,

$$=\frac{6a^2}{6b^2}=\frac{a^2}{b^2}$$

$$=\left(\frac{a}{b}\right)^2=\left(\frac{4}{11}\right)^2$$

$$=\frac{16}{121}\Rightarrow 16:121$$

11. The value of $\frac{\left\{(13)^3-4^3\right\}}{13-8\div 2}\div 8-\{2+6\times 9\}$ is:

(a) $-\frac{217}{8}$ (b) $-\frac{211}{8}$
(c) $-\frac{685}{8}$ (d) $\frac{685}{8}$

Ans. (b) : From question,

$$\frac{\left\{(13)^3-4^3\right\}}{13-8\div 2}\div 8-\{2+6\times 9\}$$

$$=\frac{(2197-64)}{13-4}\times\frac{1}{8}-(2+54)$$

$$=\frac{2133}{9}\times\frac{1}{8}-56$$

$$=\frac{711}{3}\times\frac{1}{8}-56$$

$$=\frac{711}{24}-\frac{56}{1}$$

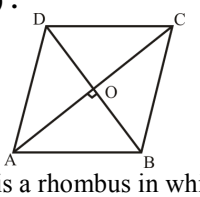
$$=\frac{711-1344}{24}=-\frac{633}{24}$$

$$=-\frac{211}{8}$$

12. What is the area of a rhombus, whose sides are 25 cm and one of the diagonals is 14 cm?

(a) 336 cm^2
(b) 310 cm^2
(c) 330 cm^2
(d) 300 cm^2

Ans. (a) :



ABCD is a rhombus in which,
AB = BC = CD = DA = 25 cm
and diagonal AC = 14 cm

∵ Diagonals of a rhombus bisect each other at right angle.

∴ AB = 25 cm, OA = $\frac{14}{2}$ =7 cm

In Δ AOB,

$\angle AOB = 90°$

Now, $OB^2 = (AB^2 - OA^2)$

$= (25^2 - 7^2) = (625 - 49)$

$OB^2 = 576$

$\Rightarrow OB = \sqrt{576}$

OB = 24 cm

BD = (2×OB)

BD = 2×24 = 48 cm

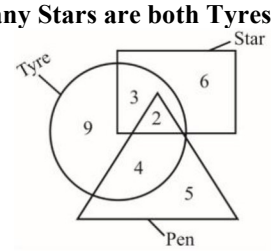
∴ Area of Rhombus = $\frac{1}{2}\times AC\times BD$

$=\frac{1}{2}\times 14\times 48$

$= 7\times 48$

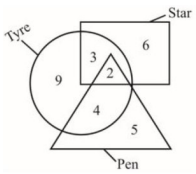
$= 336\ cm^2$

13. How many Stars are both Tyres and Pen?



(a) 3 (b) 6
(c) 4 (d) 2

Ans. (d) :



From the above diagram it is clear that there are 2 Stars which are both Tyres and Pens.

14. What is the value of x, if
$-3\times\sqrt{196}+\sqrt{x}=8\times3-2$ **?**
(a) 1064
(b) 135
(c) 128
(d) 4096

Ans. (d) : Given–

$$-3\times\sqrt{196}+\sqrt{x}=8\times3-2$$
$$-3\times 14+\sqrt{x}=24-2$$
$$-42+\sqrt{x}=22$$
$$\sqrt{x}=22+42$$
$$\sqrt{x}=64$$

On squaring both sides,

$$(\sqrt{x})^2=(64)^2$$
$$x=64\times64$$
$$x=4096$$

15. Which country will be hosting the ICC Men's Cricket World cup in 2023?
(a) India (b) Australia
(c) England (d) South Africa

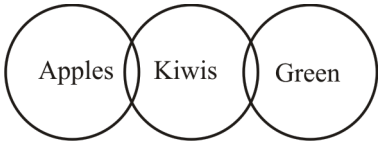
Ans. (a) : The 2023 ICC Men's Cricket World Cup will be held in India from February 9 to March 26, 2023. It will be the 13th edition of the Men's Cricket World Cup and will also mark the first time that the tournament will be solely hosted by India. The country has previously hosted the tournament thrice (1987, 1996, 2011) but every time co-hosting it with its Asian neighbours.

16. The Mysore Palace in Karnataka was an official residence of which of the following dynasties?
(a) Chalukya (b) Wadiyar
(c) Chola (d) Pallava

Ans. (b) : The Mysore Palace, is a historic palace and a royal residence in Mysore, in Karnataka, used to be the official residence of the Wadiyar dynasty, who ruled from 1399 to 1950. Mysore Palace is also known as Amba Villa. Henry Irwin was the architect of the Mysore place. In the 14th century Yaduraya built the first palace inside the old fort, which was demolished and restored several times. The present building was built between 1897 and 1912, after the burning of the old palace.

17. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.
Statements:
1. Some kiwis are green.
2. Some apples are kiwis.
Conclusions:
1. Some kiwis are yellow.
2. An apple is green.
(a) Only conclusion 1 follows.
(b) Neither conclusion 1 nor 2 follows.
(c) Only conclusion 2 follows.
(d) Either conclusion 1 or 2 follows.

Ans. (b) : On making Venn diagram according to the statements-



Hence, it is clear from diagram that neither conclusion I nor II follows.

18. Which of the following banks became State Bank of India after nationalisation in the year 1955 and has the largest number of branches in the World?
(a) National Bank of India
(b) Bank of India
(c) Indus Bank of India
(d) Imperial Bank of India

Ans. (d) : On January 27, 1921 the Presidency Banks (Bank of Bengal, Bank of Bombay, Bank of Madras) were merged and the reorganized banking entity was known as "Imperial Bank of India". After independence, in accordance with the provisions of the State Bank of India Act 1955, the Reserve Bank of India, which is the Central Bank of India, acquired control of the 'Imperial Bank of India. On July 1, 1955, the name of 'Imperial Bank of India' was changed to 'State Bank of India'. SBI, the largest Indian Bank with 1/4th market share, has an extensive branch network, with over 22,000 branches in India and 229 offices in 31 foreign countries.

19. The Big Inch pipeline transports which among the following?
(a) Edible Oil (b) Water
(c) Petroleum (d) Sugar Syrup

Ans. (c) : Big Inch pipeline, which carries petroleum from the oil wells of the Gulf of Mexico to the North-eastern states in USA. About 17% of all freight per tonne-km. is carried through pipelines in USA. It is significant that, two 1943 oil pipelines from Texas to the East Coast helped to win World War II. "Big Inch" carried oil from East Texas oil fields. "Little Big Inch" carried gasoline, heating oil, diesel oil, and kerosene.

Construction of the Big Inch began August 3, 1942, and was completed on August 14, 1943. Little Big Inch construction began April 23, 1943, with the placing of the last pipe on the East Coast on October 8.

20. Which of the following is a prime number?
(a) 1331 (b) 157
(c) 81 (d) 121

Ans. (b) : A prime number is the natural number greater than 1 with only two factors i.e. itself the number and 1. Hence, number given in option (b) 157 is a prime number.

21. If '+' means 'subtraction', '÷' means 'addition', '–' means 'multiplication' and '×' means 'division', then what is the value of 15 ÷ (5 + 8)?
(a) 12 (b) 11
(c) 28 (d) 15

Ans. (a) : Given that,
+ = subtraction, ÷ = addition, − = multiplication, × = division,
The given term
$15 \div (5+8)$
On interchanging the sign,
$= 15+(5-8)$
$= 15-3$
$= 12$

22. Among the four terms listed, three are alike in some manner and one is different. Select the term that is different from the rest.
(a) R22 (b) A4
(c) P19 (d) K14

Ans. (a) : From options–
(a) R 22 → 18 (different), +4
(b) A 4 → 1 (Alike), +3
(c) P 19 → 16 (Alike), +3
(d) K 14 → 11 (Alike), +3
Hence from above, it is clear that option (a) is different.

23. In the Word VIBGYOR, which of the following two consecutive letters have the least difference between them in terms of letters of the English alphabet?
(a) I and B (b) B and G
(c) Y and O (d) O and R

Ans. (d) : Out of two consecutive letters in the word 'VIBGYOR', the difference between 'O' and 'R' with reference to the English alphabet is the least difference 3.

24. Which ruler wanted to build the Alai Minar near the Qutub Minar, but could not complete it?
(a) Ala-ud-Din Khilji
(b) Nasir-ud-Din Mahmud
(c) Raziya Sultana
(d) Iltutmish

Ans. (a) : The unfinished Alai Minar is situated with the complex of Qutub Minar, which was built by Ala-ud-Din Khilji, who was the second ruler of the Khilji Dynasty. He wanted to build a tower, which would be twice as tall as the Qutub Minar. Ala-ud-Din Khilji could not complete this tower, as he died before 24.5m tall structure was completed.

25. What is the value of the following expression?
(tan 2º tan 88º) (tan3º tan87º).... (tan43º tan47º) tan45º
(a) 0 (b) 1
(c) –1 (d) ∞

Ans. (b) : From question,
(tan2° tan88°) (tan3° tan87°) **.....** (tan43° tan47°) tan45°
=tan2°.tan(90°–2°).tan3°.tan(90°–3°) **.....** tan43° tan(90–43°)**.** tan 45°
= (tan2°.cot2°)(tan3°.cot3°) **.....** (tan43°.cot43°).tan45°
= 1×1 **.....** 1×1 [tanθ. cotθ =1]
= 1

26. If a : b = 7 : 9 and b : c = 1 : 12, then a : b : c is:
(a) 7 : 9 : 12
(b) 7 : 9 : 8
(c) 7 : 9 : 108
(d) 7 : 8 : 9

Ans. (c) : Given,
a : b = 7 : 9
b : c = 1 : 12
Then,
a : b : c = 7×1 : 9×1 : 9×12
a : b : c = 7 : 9 : 108

27. Grey revolution in India is related to which of the following?
(a) Coal production
(b) Mustard production
(c) Crude Oil production
(d) Fertilizer production

Ans. (d) :

Revolution	Products/Aim
Grey Revolution	Fertilizers Production
Black Revolution	Petroleum Production
Silver Revolution	Egg Production
Red Revolution	Meat and Tomato Production
White Revolution	Milk Production
Yellow Revolution	Oilseed Production (especially Mustard and Sunflower)
Pink Revolution	Onion and Prawns Production

28. If '+' means 'subtraction', '÷' means 'addition', '–' means 'multiplication' and '×' means 'division', then what is the value of (8 +2 – 19) – (4 + 27 × 3)?
(a) –85 (b) –150
(c) 85 (d) 150

Ans. (d) : Given that,
+ = subtraction, ÷ = addition, – = multiplication, × = division
Now, (8+2–19) – (4+27×3)
On interchanging signs,
= (8 – 2×19) ×(4 –27÷3)
= (8–38)×(4–9)
= (–30) ×(–5)
= 150

29. What is the value of $\sqrt{\frac{1.21\times0.9}{1.1\times0.11}}$?
(a) 6 (b) 3
(c) 12 (d) 9

Ans. (b) : From question,
$\sqrt{\frac{1.21\times0.9}{1.1\times0.11}}$
$= \sqrt{\frac{121\times9}{11\times11}}$
$= \sqrt{9} = 3$

30. A large marble building in Kolkata, built by the British whose design echoes the Taj Mahal is_____.
(a) St. Paul's Cathedral (b) Victoria Memorial
(c) Fort William (d) Writers Building

Ans. (b) : The Victoria Memorial is a large and stately white Makrana Marble building whose design has echoes of the Taj Mahal. The Victoria Memorial is located in the heart of Kolkata, in West Bengal. It was built to commemorate Queen Victoria. Designed by Sir William Emerson, widely hailed as the finest specimen of Indo-British architecture in India, and often referred to as the "Taj of the Raj", the Victoria Memorial Hall had its foundation stone laid by the Prince of Wales in January 1906 and formally opened to the public in 1921.

31. The first five year plan's main emphasis was to improve the condition of agriculture in India. It began in the year _____.
(a) 1950 (b) 1961
(c) 1931 (d) 1951

Ans. (d) : First five year plan was launched for the duration of 1951 to 1956, under the leadership of Jawaharlal Nehru. It was based on the Harrod-Domar Model with a few modifications. Its main focus was on the agriculture development of the country. This plan was successful and achieved a growth rate of 3.6% (more than its target of 2.1%). At the end of this plan, five IITs were set up in the county.

32. Which among the following nations won the 2019 Copa America Soccer Tournament?
(a) Colombia (b) Brazil
(c) Argentina (d) Ecuador

Ans. (b) : Five-times World Cup Winner and host, Brazil beat Peru 3-1 in the final of the 2019 Copa America to win its ninth South-American Championship. The 2019 Copa America (46th edition) was held in Brazil and took place between 14 June and 7 July 2019 at 6 venues across the county. Other than this, Argentina won their first major title in 28 years on 10 July, 2021 when an Angel Di Maria goal gave them a 1-0 win over Brazil, in 2021 Copa America.

33. What is the value of $\sin(48^\circ+\theta) - \cos(42^\circ-\theta)$?
(a) 2 (b) –1
(c) 1 (d) 0

Ans. (d) : $\sin(48^\circ+\theta) - \cos(42^\circ-\theta)$
$= \sin(48^\circ+\theta) - \cos\{90^\circ-(48^\circ+\theta)\}$
$= \sin(48^\circ+\theta) - \sin(48^\circ+\theta)$
$= 0$

34. The 'Third Mysore War' was fought between the years:
(a) 1790-92 (b) 1796-98
(c) 1794-96 (d) 1792-94

Ans. (a) : The Third Anglo-Mysore War (1790-92) was a conflict in South India between the Kingdom of Mysore and the East India Company and its allies, including the Nairs of Travancore, the Maratha Empire and the Nizam of Hyderabad. The Third Anglo-Mysore war began when Tipu Sultan, the ruler of Mysore, attacked Travancore, an ally of the English and the only source of pepper for the East India Company. The war ended with the Treaty of Srirangapatnam in 1792, according to which Tipu had to surrender half of his kingdom to the British East India Company and its allies. Other than this, the Anglo-Mysore wars between the British and the rulers of Mysore are :–
First Anglo-Mysore War – 1767-69
Second Anglo-Mysore War – 1780-84
Fourth Anglo-Mysore War – 1799

35. How many years will it take for an amount of ₹400 to yield ₹450 as interest at 5% per annum on Simple Interest?
(a) 23 years (b) 21.5 years
(c) 22.5 years (d) 22 years

Ans. (c) : Given that,
Simple Interest = ₹450, Amount = ₹400
Rate = 5 %, Time = ?
$\text{Time} = \frac{\text{Interest}\times100}{\text{Amount}\times\text{Rate Interest}}$
$\text{Time} = \frac{450\times100}{400\times5} = \frac{90}{4} = \frac{45}{2}$
Time = 22.5 years

36. What is the sum of the following two series?
(8 + 27 + 64 + ... +1000) + (2 + 4 + 6 + ... + 20)
(a) 3136 (b) 3134
(c) 3135 (d) 3133

Ans. (b) :

$(8 + 27 + 64 + ... + 1000) + (2 + 4 + 6 + ... + 20)$

$= [(2)^3+(3)^3+(4)^3+ ..... +(10)^3] + 2(1+2+3+ ..... +10)$

$= [\{(1)^3 + (2)^3 + (3)^3 + (4)^3+.....+ (10)^3\} – (1)^3] +2$ $(1+2+3+ ..... + 10)$

$\because$ The sum of cubes of first 'n' natural numbers $= \left[\frac{n(n+1)}{2}\right]^2$

And, sum of first 'n' natural numbers $= \frac{n(n+1)}{2}$

$= \left[\frac{10(10+1)}{2}\right]^2 – 1 + 10(10+1)$

$= (5 \times 11)^2 – 1 + 10 \times 11$

$= (55)^2 – 1 + 110$

$= 3025 – 1 + 110$

$= 3024 + 110$

$= 3134$

37. Height of seven girls A, B, C, D, E, F and G are compared. Height of D is more than atleast four girls but she is not the tallest. Height of A is more than B and F and height of F is less than E. Height of A is less than D. Height of G is more than C and D both.
Which of the following statement is NOT correct?

(a) G can be second tallest
(b) G can be fifth tallest
(c) A can be fifth tallest
(d) C can be fourth tallest

Ans. (b) : It is clear from the question that the height of D is more than the at least four girls but he is not the tallest. So D can be the second or third longest according to the length. The height of G is greater than that of D so G can be the first or second longest.

38. In human beings, excretory products in the form of soluble nitrogen compounds are removed by the _____ in the kidneys.

(a) Mitochondria (b) Nutrition
(c) Nephrons (d) Nucleus

Ans. (c) : In human beings, excretory products in the form of soluble nitrogen compounds are removed by the nephrons in the kidneys. Each of our kidney is made up of about a million filtering units called nephrons. Each nephron includes a filter, called the glomerulus and a renal tubule. The nephrons work through a two-step process : the glomerulus filters blood, and the tubule returns needed substances to our blood and removes wastes.

39. The LCM of two numbers is 721, and the numbers are in the ratio of 1 : 7. What is the sum of the numbers?

(a) 825 (b) 728
(c) 721 (d) 824

Ans. (d) : Let the numbers are 1x and 7x respectively.
The L.C.M of numbers = 7x
According to the question,
$\therefore$ 7x = 721
x = 103
Hence, Sum of Numbers = 1x +7x
= 103 + 7 × 103
= 103 +721
= 824

40. Which of the following is NOT a part of the human eye?

(a) Iris (b) Ciliary muscles
(c) Cornea (d) Cochlea

Ans. (d) : Cornea, Retina, Iris, Pupil, Aqueous humour, Crystalline lens, Ciliary muscles, Optic nerve, Vitreous humour are the parts of the human eye; whereas Cochlea (the coiled portion of the labyrinth), Pinna, Temporal bone, Malleus, Incus, Stapes in oval window, Cochlear nerve, Eustachian tube, Tympanic membrane are the parts of the human ear.

41. Which Indian state was the first to establish the institution of Panchayati Raj?

(a) Rajasthan (b) Uttar Pradesh
(c) Punjab (d) Andhra Pradesh

Ans. (a) : Panchayati Raj System was first adopted by the state of Rajasthan in Nagaur district on 2 October 1959 but first started by Andhra Pradesh. Panchayati Raj Institution was constitutionalized through the 73rd Constitutional Amendment Act, 1992 to build democracy at the grass root level and was entrusted with the task of rural development in the country. Balwant Rai Mehta Committee was made for Panchayati Raj System in India, which submitted its report in 1957. Article 243 of the Indian Constitution is related to Panchayati Raj.

42. If a train runs at an average speed of 42 km/h, then it covers a certain distance in 45 min. What is the speed at which the train must run to reduce the time of the same journey to 35 min?

(a) 52.5 km/h
(b) 49 km/h
(c) 52 km/h
(d) 54 km/h

Ans. (d) : The average speed of train = 42km/h

Time = $\frac{45}{60} = \frac{3}{4}$ h

Distance = Speed × Time

$= 42 \times \frac{3}{4} = \frac{21 \times 3}{2}$

To cover the same distance in 35 minutes,

Speed of Train $= \frac{63 \times 60}{2 \times 35}$

$= 9 \times 6$

= 54 km/h

43. Let a set S = {1, 2, 2, 3, 3, 3, 4, 4, 4, 4}. Then the value of 4 × mean + 2 × mode – 8 × median is :

(a) –4 (b) 14
(c) 10 (d) 4

Ans. (a) : Set = {1, 2, 2, 3, 3, 3, 4, 4, 4, 4, }

Mode = 4

$$\text{Mean} = \frac{1+2+2+3+3+3+4+4+4+4}{10}$$

$$= \frac{30}{10} = 3$$

In case the data is even (n = 10)

$$\text{Median} = \frac{1}{2}\left[\left(\frac{n}{2}\right)^{th}\text{ term} + \left(\frac{n}{2}+1\right)^{th}\text{ term}\right]$$

$$= \frac{1}{2}\left[\frac{10^{th}}{2}\text{ term} + \left(\frac{10}{2}+1\right)^{th}\text{ term}\right]$$

$$= \frac{1}{2}(5^{th}\text{ term} + 6^{th}\text{ term})$$

$$= \frac{1}{2}(3+3) = \frac{1}{2}\times 6$$

$$= 3$$

Hence, 4 × mean + 2 × mode – 8 × median

= 4 × 3 + 2 × 4 – 8 × 3
= 12 + 8 – 24
= 20 – 24
= – 4

44. India's first biofuel-powered flight landed at IGI Airport in New Delhi from _____ in 2018.

(a) Dehradun (b) Mumbai
(c) Hyderabad (d) Patna

Ans. (a) : In 27 August 2018, India's first partially biofuel powered aircraft took off from Dehradun's Jolly Grant Airport and landed at Delhi's Indira Gandhi International (IGI) Airport Terminal-2. Spicejet's 72 seater Q 400 turboprop was flagged off by then Uttarakhand Chief Minister Trivendra Singh Rawat. The flight was powered with a blend of 75 percent Air Turbine Fuel (ATF) and 25 percent biojet fuel.

45. What is the number of all positive solutions of the equation $|x \times 1| = 0$?

(a) 1 (b) 0
(c) 2 (d) 3

Ans. (b) : $|x \times 1| = 0$

x × 1 = 0 (Positive solution)

x = 0

46. The value of $\frac{32 \div 4 - 5 \times 8 \div 3}{5 \times 3 - \{6+3\}}$ is:

(a) $\frac{4}{9}$ (b) $-\frac{8}{9}$
(c) $\frac{8}{9}$ (d) $\frac{1}{9}$

Ans. (b) :

$$\frac{32 \div 4 - 5 \times 8 \div 3}{5 \times 3 - \{6+3\}}$$

$$= \frac{8 - 5 \times 8 \div 3}{15 - 9}$$

$$= \frac{8 - \frac{40}{3}}{6} = \frac{-\frac{16}{3}}{6}$$

$$= -\frac{16}{18} = -\frac{8}{9}$$

47. Which one among the following languages is one of the six official languages of the United Nations?

(a) Hindi (b) Japanese
(c) Chinese (d) Urdu

Ans. (c) : There are six official languages of the UN. These are Arabic, Chinese, English, French, Russian and Spanish. The United Nations Secretariat uses two working languages : English and French.

48. Who was the first UN Secretary–General?

(a) Kofi A Annan (b) U Thant
(c) Trygve Lie (d) Dag Hammarskjold

Ans. (c) : On 1st February 1946, Trygve Halvdan Lie was elected the first Secretary-General of the United Nations. He was formally installed by the General Assembly at its 22nd meeting on 2 February 1946. The General Assembly on 1 November 1950, continued Mr. Lie in office for a further three years from 1 February 1951. He resigned as Secretary-General of the United Nations in November 1952. Currently, Antonio Guterres, the ninth Secretary-General of the United Nations, took office on 1st January 2017.

49. Vikas took a loan of ₹1,200 on Simple Interest that is equal to as many years as the rate of interest. If he paid ₹768 as interest at the end of the loan period, then what was the rate of interest?

(a) 8.5% (b) 73.8%
(c) 8.0% (d) 7.5%

Ans. (c) : Given that,

Principal = ₹1200

Simple Interest = ₹768

Time = Rate

t = r

$$SI = \frac{P \times r \times t}{100}$$

$$768 = \frac{1200 \times r^2}{100}$$

$$\Rightarrow r^2 = \frac{768}{12} = 64$$

$$r = \sqrt{64}$$

r = 8%

50. The process of seeping of water into the ground is known as _____.

(a) aquifer (b) infiltration
(c) well (d) bawris

Ans. (b) : The process of seeping of water into the ground is called infiltration. The groundwater gets recharged by this process. At places the groundwater is stored between layers of hard rocks below the water table. This is known as an Aquifer.

51. What is the LCM of $\sqrt[2]{169}, \sqrt[3]{27}, \sqrt[3]{64}$ and $\sqrt[2]{144}$

(a) 156 (b) 312
(c) 182 (d) 468

Ans. (a) : From question,

$\sqrt[2]{169} = 13, \sqrt[3]{27} = 3, \sqrt[3]{64} = 4, \sqrt[2]{144} = 12$

2	13,	3,	4,	12
2	13,	3,	2,	6
3	13,	3,	1,	3
13	13,	1,	1,	1
	1,	1,	1,	1

Hence, L.C.M = $2 \times 2 \times 3 \times 13$
$= 156$

52. Which of the following satellites launched by the Indian Space Research Organization (ISRO) is a navigation satellite?

(a) SCATSAT-1
(b) IRNSS-1I
(c) SARAL
(d) RESOURCESAT-2A

Ans. (b) : The Indian Space Research Organization (ISRO) launched the IRNSS-1I (Indian Regional Navigation Satellite System-1I) satellite on April 12, 2018 from the first launch pad at the Satish Dhawan Space Centre, Sriharikota, through its Polar Satellite Launch Vehicle-C41 (PSLV-C41). This satellite is for transmiting signals for the accurate determination of position, navigation and time.

53. A sector of a circle has a radius of 18 cm and a central angle of 125º. What will be its approximate perimeter?

$\left(\text{Use } \pi = \frac{22}{7}\right)$

(a) 75.3 cm (b) 73.85 cm
(c) 74 cm (d) 73 cm

Ans. (a) : According to question,

Given that,
r = 18cm

Perimeter of sector of a circle = $\frac{\theta}{360^\circ} \times 2\pi r + 2r$

$= \frac{125^\circ}{360^\circ} \times 2 \times \frac{22}{7} \times 18 + 2 \times 18$

$= \frac{275}{7} + 36$

$= \frac{527}{7} = 75.28$

$\approx 75.3\text{cm}$

54. A sum of money amounts to ₹12000 after 6 years and ₹15000 after 9 years at the same rate of Simple Interest. What is the rate of interest per annum?

(a) $16\frac{2}{3}\%$ (b) $18\frac{2}{3}\%$
(c) $16\frac{1}{3}\%$ (d) 16%

Ans. (a) : Simple Interest of (9–6) years = ₹ (15000–12000)

Simple Interest of 3 years = ₹ 3000
Simple Interest of 6 years = ₹ 6000
Principal = ₹ 12000 – ₹ 6000 = ₹ 6000
Let, Rate = r % yearly

$SI = \frac{P \times r \times t}{100}$

$6000 = \frac{6000 \times r \times 6}{100}$

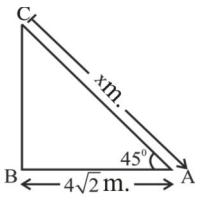
$\Rightarrow 100 = 6r$

$\Rightarrow r = \frac{100}{6} = 16\frac{2}{3}\%$

55. The angle of elevation of a ladder leaning against a wall is 45º. The foot of the ladder is $4\sqrt{2}$ metres away from wall. The length of the ladder is:

(a) 7 m (b) 8 m
(c) 5 m (d) 6 m

Ans. (b) :



Let, the length of ladder = x m.
The distance of the foot of the ladder from the wall

AB = $4\sqrt{2}$ m.

and $\angle BAC = 45^\circ$

In ΔABC,

$\tan 45^\circ = \frac{BC}{AB} = \frac{BC}{4\sqrt{2}}$

$1 = \frac{BC}{4\sqrt{2}}$

$\Rightarrow BC = 4\sqrt{2}$

By Pythagoras Theorem,

$AC^2 = BC^2 + AB^2$

$x^2 = (4\sqrt{2})^2 + (4\sqrt{2})^2$

$x^2 = 32 + 32$

$x^2 = 64$

$x = \sqrt{64}$

$x = 8$ m.

Hence, the length of ladder is 8 m.

56. There are 40 persons in a palace. If every person shakes hands with every other person, what will be the total number of handshakes?

(a) 750 (b) 780

(c) 800 (d) 790

Ans. (b) : Total number of handshakes $= \frac{n(n-1)}{2}$

$= \frac{40(40-1)}{2}$

$= \frac{40 \times 39}{2}$

$= 20 \times 39$

$= 780$

57. Select the number from among the given options that can replace the question mark (?) in the following series.

40, 36, 33, 31, ?

(a) 30 (b) 29

(c) 31 (d) 32

Ans. (a) : The series is as follows–

40 36 33 31 30

-4 -3 -2 -1

Hence ? = 30

58. Rabindranath Tagore won the Nobel Prize for Literature for which book?

(a) Gora (b) Gitanjali

(c) Gitabitan (d) Sanchayita

Ans. (b) : Renowned poet Rabindranath Tagore won the Nobel Prize for Literature in 1913 for his collection 'Gitanjali' published in London in 1912. The prize gained even more significance by being given to an Indian for the first time. The original version of the Gitanjali was published on 14 August 1910 in Bengali language by Indian Publishing House Calcutta. The English version of Gitanjali was first published in November 1912 by the Indian Society of London.

59. If 0.75 : x :: 25 : 8, then what is the value of x?

(a) $\frac{6}{25}$ (b) 24

(c) 2.34375 (d) $\frac{25}{6}$

Ans. (a) : Given that–

$0.75 : x :: 25 : 8$

$\Rightarrow x \times 25 = 0.75 \times 8$

$\therefore 25x = 6$

$x = \frac{6}{25}$

60. Among the four numbers listed, three are alike in some manner and one is different. Select the number that is different from the rest.

(a) 225 (b) 512

(c) 216 (d) 343

Ans. (a) : From option,

(a) 225 $\Rightarrow$ $(15)^2$ $\rightarrow$ (Different)

(b) 512 $\Rightarrow$ $(8)^3$ $\rightarrow$ (Alike)

(c) 216 $\Rightarrow$ $(6)^3$ $\rightarrow$ (Alike)

(d) 343 $\Rightarrow$ $(7)^3$ $\rightarrow$ (Alike)

Hence, it is clear that option (a) is different from the rest.

61. Read the given statement and conclusions carefully and decide which of the conclusions logically follow(s) from the statement.

Statement:

Company ABC has the highest number of customers as compared to its competitors.

Conclusions:

1. Company ABC has 58% of the total customers.

2. Company ABC's products are the cheapest in the market.

(a) Only conclusion 1 follows.

(b) Only conclusion 2 follows.

(c) Both conclusions 1 and 2 follow.

(d) Neither conclusion 1 nor 2 follows.

Ans. (d) : According to the statement, neither conclusion 1 nor 2 follows.

62. Which among the following is the largest gland in the human body?

(a) Esophageal glands (b) Mammary gland

(c) Liver (d) Sweat glands

Ans. (c) : The liver is the largest gland in the body and is an accessory organ of the digestive system. It is situated on the right side of the abdomen. The liver is split into the left and the right lobe separated by the falciform ligament. The hepatocytes, cells of the liver have a unique potential to reproduce in response to any liver injury.

63. When is National Pollution Prevention Day observed in India?

(a) April 2nd (b) December 2nd

(c) January 2nd (d) March 2nd

Ans. (b) :

December 2 – National Pollution Prevention Day (in the memory of people who lost their lives in Bhopal Gas Disaster, 1984)

April 2 – World Autism Awareness Day

64. In a triangle, if angle A= 30º and angle B= 45º then what is the angle of C?

(a) 75º (b) 180º

(c) 105º (d) 150º

Ans. (c) : $\because$ Sum of angles of a triangle is equal to 180º

$\angle A + \angle B + \angle C = 180°$

$30° + 45° + \angle C = 180°$

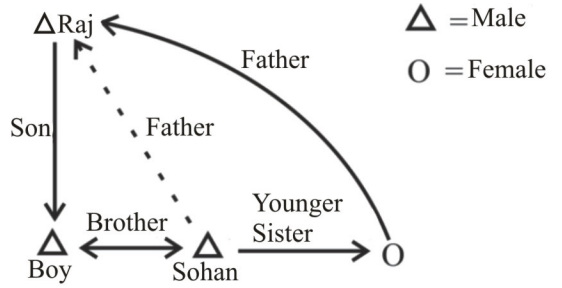
$\angle C = 180° - 75°$

$\angle C = 105°$

65. Pointing to a boy, Sohan said, "He is the son of Raj, who is my younger sister's father." How is Raj related to Sohan?

(a) Maternal uncle (b) Brother
(c) Father (d) Son

Ans. (c) : On drawing figure according to the question,



Hence, it is clear from figure that Raj is father of Sohan.

66. A computer program that converts an entire program into machine language is called a(n):

(a) Converter (b) Interpreter
(c) Simulator (d) Compiler

Ans. (d) : A computer program that converts an entire program into machine language at one time is called compiler. A compiler is a computer program that translates code written in a high level language to a lower level language, object/machine code.

67. Select the industry in which goods are produced in the home of the producer.

(a) Secondary industry
(b) Quaternary industry
(c) Cottage industry
(d) Large-Scale Industry

Ans. (c) : A small business in which the work is done by people in their homes called cottage industry. Cottage industries are more or less household industries. They depend on local resources. They enter only to a limited local market. Example of cottage industries are hand oven textiles, pottery, toy-working, rope-making, wood-work etc. The principal cottage industries of India are; Hand-loom weaving (cotton, silk, jute, etc.), Pottery, Washing soap making, Conch shell industry, Handmade paper industry, Horn button industry, Mother-of-pearl button industry, Cutlery industry and Lock and Key making.

68. How many languages are enlisted in the eighth schedule of the Indian Constitution?

(a) 25 (b) 21
(c) 22 (d) 23

Ans. (c) : The 22 languages in the eighth schedule are Assamese, Bengali, Bodo, Dogri, Gujarati, Hindi, Kannada, Kashmiri, Konkani, Maithili, Malayalam, Manipuri, Marathi, Nepali, Odia, Punjabi, Sanskrit, Santhali, Sindhi, Tamil, Telugu, and Urdu. The constitutional provisions relating to the 8^{th} schedule occur form Article 343 (1) to 351 of the Indian Constitution.

69. What is the value of the following expression?

$$\frac{81}{7}\times\frac{21}{3}-4\frac{2}{3}\div\frac{7}{9}\times\frac{121}{6}$$

(a) –40 (b) 40
(c) –45 (d) 45

Ans. (a) :

$$\frac{81}{7}\times\frac{21}{3}-4\frac{2}{3}\div\frac{7}{9}\times\frac{121}{6}$$
$$= 81-\frac{14}{3}\times\frac{9}{7}\times\frac{121}{6}$$
$$= 81 - 121$$
$$= -40$$

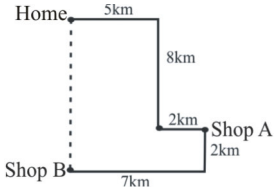
70. Read the given paragraph carefully and answer the question.

Ram walks 5 km straight from his home. After taking a right turn he walks for another 8 km. He then takes a left turn and reaches shop A after 2 km. From there he takes a right turn and walks 2 km. He covers another 7 km to the right to reach shop B.

What is the distance covered by Ram to reach shop A from his home?

(a) 7 km (b) 13 km
(c) 22 km (d) 15 km

Ans. (d) : Ram's travel path is as follows–



The distance covered by Ram to reach shop A form his home = 5 + 8 + 2
= 15km

71. Which one of the following provision was a part of the Indian Independence Act of 1947?

(a) India will become a part of Britain
(b) India will be divided into two parts
(c) India will become a monarchy
(d) All princely states will remain dependent on British

Ans. (b) : Major provisions of the Indian Independence Act 1947, which was drafted based on the Mountbatten Plan, are:

- The Act divided India into two new dominions– the Dominion of India and the Dominion of Pakistan.
- Partition of the Bengal Provision and the Punjab Province into two new countries.
- An office of the Governor–General was made in each of the two countries which represented the Crown.
- Termination of the British Crown control over the Princely states.
- Legislative authority upon the respective Constituent Assemblies of India and Pakistan.

72. If A, B and C can complete a task alone in 15 days, 20 days and 25 days respectively, then in how many days can they complete the same task if they work together?

(a) $\frac{150}{47}$ days (b) $\frac{225}{47}$ days

(c) $\frac{300}{47}$ days (d) $\frac{75}{47}$ days

Ans. (c) : According to question,

Work done by A in 1 day = $\frac{1}{15}$ part

Work done by B in 1 day = $\frac{1}{20}$ part

Work done by C in 1 day = $\frac{1}{25}$ part

Work done by (A +B + C) in 1 day = $\left(\frac{1}{15}+\frac{1}{20}+\frac{1}{25}\right)$ part

$= \left(\frac{20+15+12}{300}\right)$ part

$= \frac{47}{300}$ part

Hence, they can complete the work in $\frac{300}{47}$ days.

73. Which among the following Indian states does NOT share its boundaries with Nepal?

(a) West Bengal (b) Bihar

(c) Uttar Pradesh (d) Jharkhand

Ans. (d) : Jharkhand does not share its boundary with Nepal. Five Indian states viz. Uttar Pradesh (551 km), Uttarakhand (275 km), West Bengal (100 km), Sikkim (99 km), and Bihar (726 km), share their borders with Nepal. India and Nepal border is a unique international border because both the country can cross each other's borders at any point without a passport or visa. The current border shape was set up after the Sugauli Treaty of 1816 between Nepal and British India

74. A alone can complete 2/5 of a task in 12 days, while B alone can complete 3/4 of the same task in 25 days. In how many days can they complete the task if they work together?

(a) $\frac{150}{19}$ (b) $\frac{300}{19}$

(c) $\frac{75}{19}$ (d) $\frac{1}{19}$

Ans. (b) : Time taken by A to complete the whole work = $12\times\frac{5}{2}=30$ days

Time taken by B to complete the whole work = $25\times\frac{4}{3}=\frac{100}{3}$ days

One day work of A and B = $\left(\frac{1}{30}+\frac{3}{100}\right)$ part

$=\frac{10+9}{300}=\frac{19}{300}$ part

Hence, Both can complete the work in $\frac{300}{19}$ days.

75. Select the option that is related to the third number in the same way as the second number is related to the first number.

2 : 32 :: 4 : ?

(a) 728 (b) 128

(c) 1536 (d) 1024

Ans. (d) :

As like,	Same as,
2 : 32	4 : ?
$(2)^5 = 32$	$(4)^5 =$ 1024

76. What will be the amount of Simple Interest on ₹75,000 at the rate of $2\frac{5}{3}\%$ per annum for a period of 5 years?

(a) ₹13005 (b) ₹13000

(c) ₹13750 (d) ₹13050

Ans. (c) : Principal = ₹ 75000

Rate = $2\frac{5}{3}\% = \frac{11}{3}\%$

Time = 5 years

Simple Interest = $\frac{P\times R\times T}{100}$

$SI=\frac{75000\times11\times5}{100\times3}$

SI = 250 × 55

SI = ₹ 13,750

77. If tan A = $\frac{3}{4}$, then the value of $\frac{\cos A-\sin A}{\cos A+\sin A}$ is:

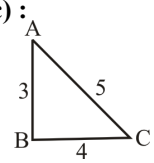
(a) 1/8

(b) 1/4

(c) 1/7

(d) 1/3

Ans. (c) :



Given that, tan A = $\frac{3}{4}$

Perpendicular = 3, Base = 4, Hypotenuse = ?

Then,

In right angled ΔABC,

Hypotenuse = $\sqrt{(\text{Base})^2+(\text{Perpendicular})^2}$

$=\sqrt{(4)^2+(3)^2}$

$=\sqrt{25}$

$=5$

$\Rightarrow \frac{\cos A-\sin A}{\cos A+\sin A}$

$=\frac{\frac{4}{5}-\frac{3}{5}}{\frac{4}{5}+\frac{3}{5}}=\frac{\frac{1}{5}}{\frac{7}{5}}$

$=\frac{1}{5}\times\frac{5}{7}=\frac{1}{7}$

78. Where is the NSE (National Stock Exchange of India) headquartered?

(a) Chennai (b) Mumbai
(c) New Delhi (d) Pune

Ans. (b) : National Stock Exchange of India Limited (NSE) is the leading stock exchange of India, located in the Mumbai city of Maharashtra state. It is under the ownership of some leading financial institutions, Banks, and Insurance companies. The NSE was established in 1992 as the first dematerialized electronic exchange in the country. Present Chairman & Public Interest Director of NSE is Mr. Girish Chandra Chaturvedi and MD and CEO is Mr. Vikram Limaye.

79. In which year was the International Bank for Reconstruction and Development (IBRD), better known as the World Bank, established to help Europe recover from the devastation of World War II?

(a) 1944 (b) 1947
(c) 1946 (d) 1945

Ans. (a) : The International Bank for Reconstruction and Development (IBRD) was founded in anticipation of the end of World War II, during the Bretton Woods Conference of 1944, a gathering of the 44 Allied Nations of the Second World War meant to establish the post-war global financial order. Along with establishing a new global monetary policy regime, the Bretton Woods Conference was also where the International Monetary Fund and the IBRD were formed.

80. Name the Viceroy of India who was associated with the controversial Ilbert Bill during the Indian freedom struggle.

(a) Lord Mayo (b) Lord Ripon
(c) Lord Lansdowne (d) Lord Dufferin

Ans. (b) : The Ilbert Bill Controversy (1883-84), Repeal of the Vernacular Press Act (1882), the first Factory Act (1881), Government resolution on local self-government (1882) and Hunter Commission on Education (1882) are associated with Lord Ripon (1880-1884). Point to be noted is that, the Ilbert Bill provided for the trial of British or European persons by Indians, and sought equality between British and Indian judges in the country. But when white opposition forced the government to withdraw the bill Indian were enraged. The event highlighted the racial attitudes of the British in India.

81. Who predicted 'nuclear technology is going to be very essential and not just in the power sector but for other societal uses intended for betterment of life?

(a) JC Bose (b) Homi J Bhabha
(c) Sir CV Raman (d) APJ Abdul Kalam

Ans. (b) : The founder of Indian Nuclear Programme, Homi J. Bhabha had envisaged that nuclear technology is going to be very essential and not just in the power sector but for the other societal uses intended for betterment of life.

82. If $\frac{A}{4}=\frac{B}{5}=\frac{C}{6}$, then A : B : C is:

(a) 4 : 5 : 6 (b) 5 : 6 : 4
(c) 4 : 6 : 5 (d) 4 : 8 : 9

Ans. (a) : Given that,

$$\frac{A}{4}=\frac{B}{5}=\frac{C}{6}$$

Suppose,

$$\frac{A}{4}=\frac{B}{5}=\frac{C}{6}=k$$

Then, A = 4k, B = 5k and C = 6k

$\therefore$ A : B : C = 4k : 5k : 6k

= 4 : 5 : 6

83. Which one of the following is the second highest peak in Himalayas?

(a) Mount Everest (b) Dhaulagiri
(c) Makalu (d) K2

Ans. (d) : Top five highest peaks in the Himalays:–

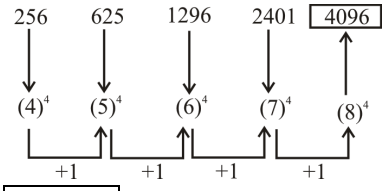
Peak Name	Elevation (m)
Mount Everest	8,848.86
K2	8,611
Kanchenjunga	8,586
Lhotse	8,516
Makalu	8,485

84. Select the number from among the given options that can replace the question mark (?) in the following series

256, 625, 1296, 2401, ?

(a) 4142 (b) 4096
(c) 4128 (d) 4102

Ans. (b) : The series is as follows:–



Hence ? = 4096

85. In which one of the following types of economy are the factors of production owned individually?

(a) Communist (b) Socialist
(c) Capitalist (d) Mixed

Ans. (c) : There are four factors of production: land, labor, capital, and entrepreneurship. In a capitalist economy, the factors are owned by an individual. In a socialist economy, these are owned by everyone while in a mixed economy these are owned by both.

Direction Question (86-89).
Observe the given table and answer the question.
India's Natural Gas Production: A Turnaround.

Financial year	Total Gas Production	Change (%)	Offshore Production	Onshore Production
2011-12	47.55	(8.92)	38.47	9
2012-13	40.67	(14.46)	31.80	8.87
2013-14	35.40	(13)	26.39	9.01
2014-15	33.65	(5)	24.86	8.79
2015-16	32.24	(4.19)	23.01	9.23
2016-17	31.89	(1.08)	22.03	9.85
2017-18	32.64	(2.35)	22.01	10.63

All Figures in Billion Cubic Meter (BCM)
Source: Ministry of Petroleum and Natural Gas (MoPNG)

86. In which year did the production fall the most as compared to the previous year, in offshore production?
(a) 2013-14 (b) 2014-15
(c) 2012-13 (d) 2015-16

Ans. (c) : In the year 2012 –2013 = 38.47 – 31.80
= 6.67
Hence, in the financial year 2012-13, the production fall the most as compared to the previous year, in offshore production. It is the highest recorded falls.

87. What is the approximate percentage decline in offshore production in the year 2013-14?
(a) 17% (b) 15%
(c) 19% (d) 20%

Ans. (a) : Decline in offshore production in the year 2013-2014 is
$= 31.80 - 26.39$
$= 5.41$
$\text{Decline\%} = \frac{5.41}{31.80} \times 100$
$= \frac{5410}{318}$
$= 17.01 = 17\%$ (approximately)

88. What is the total onshore production during all the years (in BCM)?
(a) 67.38 (b) 64.38
(c) 65.38 (d) 68.38

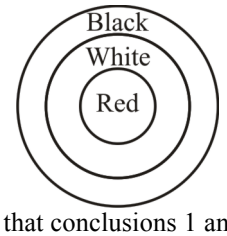
Ans. (c) : Total onshore production in all years
= 9 + 8.87 + 9.01 + 8.79 + 9.23 + 9.85 + 10.63
= 65.38

89. Which of the following years showed the highest growth rate in onshore production?
(a) 2012-13 (b) 2013-14
(c) 2016-17 (d) 2015-16

Ans. (c) : Year showing the highest growth rate in onshore production,
Growth in 2013-14 = 9.01 – 8.87
= 0.14
$\text{Growth rate} = \frac{0.14}{8.87} \times 100 = 1.57\%$
Growth in 2015-16 = 9.23 – 8.79
= 0.44
$\text{Growth rate} = \frac{0.44}{8.79} \times 100$
$= 5.005\%$
Growth in 2016-17 = 9.85 –9.23
= 0.62
$\text{Growth rate} = \frac{0.62}{9.23} \times 100 = 6.7\%$
Hence, 2016-17 showed the highest growth in onshore production.

90. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow from the statements.
Statements:
1. All red are white.
2. All white are black.
Conclusions:
1. Some white are red.
2. Some black are red
3. Some red are not black.
4. All black are white.
(a) Only conclusions 1 and 4 follow
(b) Only conclusions 1 and 3 follow
(c) Only conclusions 2 and 4 follow
(d) Only conclusions 1 and 2 follow

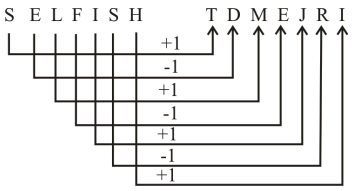
Ans. (d) : As per question, Venn diagram relation will be:



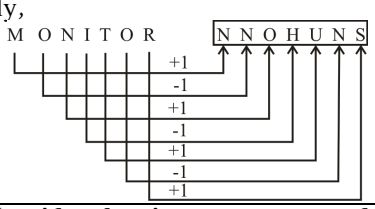
Hence, it is clear that conclusions 1 and 2 are follow the statement logically.

91. In a certain code language, SELFISH is written as TDMEJRI. How will MONITOR be written as in that language?
(a) NNOHUNQ (b) NNOHHNS
(c) NOOHUNS (d) NNOHUNS

Ans. (d) :
As like,



Similarly,



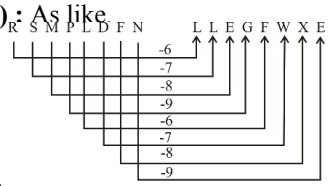
92. Consider the given statement and decide which of the given assumptions is/are implicit in the statement.
Statement:
Examinations must be conducted without any favours to evaluate the true performance of the students.
Assumptions:

1. No unfair means or help shall be provided to the students.
2. Teachers should help their favourite students perform better.
(a) Only assumption 1 is implicit
(b) Both assumptions 1 and 2 are implicit
(c) Either assumption 1 or 2 is implicit
(d) Only assumption 2 is implicit

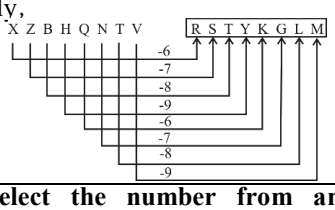
Ans. (a) : As per the statement only assumption 1 is implicit.

93. In a certain code language, "RSMPLDFN" is written as 'LLEGFWXE'. What is the code for 'XZBHQNTV' in that code language?
(a) RSTWKGLN (b) RSTYKGLM
(c) RSTYLGKN (d) RSTXKGKN

Ans. (b) : As like

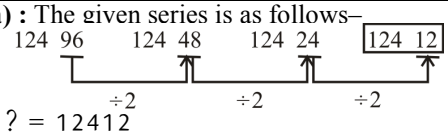


Similarly,



94. Select the number from among the given options that can replace the question mark (?) in the following series.
12496, 12448, 12424, ?
(a) 12412 (b) 6212
(c) 12464 (d) 12400

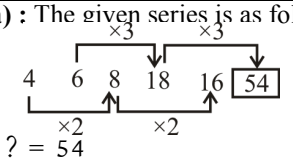
Ans. (a) : The given series is as follows–



Hence ? = 12412

95. Select the number from among the given options that can replace the question mark (?) in the following series.
4, 6, 8, 18, 16, ?
(a) 54 (b) 32
(c) 36 (d) 20

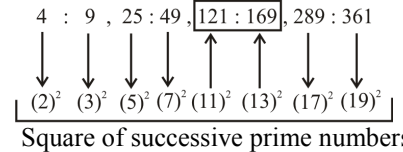
Ans. (a) : The given series is as follows–



Hence ? = 54

96. Select the number set from among the given options that can replace the question mark (?) in the following series.
4 : 9, 25 : 49, ?, 289 : 361
(a) 49 : 216 (b) 729 : 64
(c) 225 : 245 (d) 121 : 169

Ans. (d) : The given series is as follows–



Hence ? = 121:169

97. A team is to be selected from 9 players A, B, C, D, E, F, G, H and M. There will be six players in the team. A cannot be selected with B. G cannot be selected with H. H and A should be in the same team. E cannot be selected with F. C cannot be selected with H but always must be selected with D.
Which of the following is a correct selection of the team?
(a) B, C, D, E, G and M (b)A, D, G, E, C and H
(c) A, C, D, E, G and M (d)B, C, D, E, H and M

Ans. (a) : (i) A H F
(ii) B G E C D M
Since M is not mentioned in the question, So he will have to sit in second condition to complete the team.
Hence, as per selection of the team option (a) is proper sequence, which is in accordance with all conditions of question.

98. Read the given paragraph and answer the question.
There are five persons A, G, M, J and D. Every person has to select one item each from a box containing items numbered from 1 to 5. A and J selected items 5 and 2 respectively. G cannot select item 3, while M cannot select item 3 or 5.
Which item can G select?
(a) Item 2 or 3 (b) Item 2
(c) Item 1 or 4 (d) Item 3 or 4

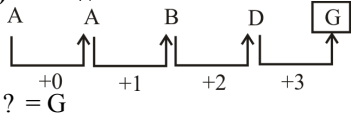
Ans. (c) : According to question,

Person		Selected items
A	→	5
J	→	2
G	→	1/4
M	→	4/1
D	→	3

Hence, the item selected by G will be either '1' or '4'

99. Select the letter from among the given options that can replace the question mark (?) in the following series.
A, A, B, D, ?
(a) E (b) H
(c) J (d) G

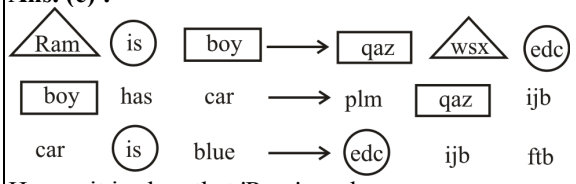
Ans. (d) : The given series is as follows–



Hence ? = G

100. In a certain code language 'Ram is boy' is written as 'qaz wsx edc', 'boy has car' is written as 'plm qaz ijb' and 'car is blue' is written as 'edc ijb ftb'. How will 'Ram' be written as in that language?
(a) ftb (b) edc
(c) wsx (d) qaz

Ans. (c) :



Hence, it is clear that 'Ram's code = wsx

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 29.01.2021] **[Time : 10:30 am-12:00 pm**

1. Dear money refers to money that is hard to obtain due to:
(a) High rate of interest (b) Inflation
(c) Depression (d) Low rate of interest

Ans. (a) : The term "Dear currency" refers to the currency which is hard to obtain due to its high interest rates. It is mainly issued by countries having stable economic and political units, and it is accepted by most of the countries of the world. This currency has great demand in market, due to which its interest rate is high.

2. Who was also known as Rabia-ud-Daurani?
(a) Nur Jahan
(b) Dilras Banu Begum
(c) Jagat Gosain
(d) Asmat Begum

Ans. (b) : The original name of Rabia Durrani (Rabia-ud-Daurani) was Dilras Banu Begum. She was the first wife of Aurangzeb. Aurangzeb commissioned the tomb of Rabia-ud-Daurari in 1660 in Aurangabad, which is called the second Taj Mahal. It is also known as 'Bibi Ka Maqbara'. It was actually built by his eldest son Prince Azam Shah in memory of his mother. It was built between 1668 and 1669 CE.

3. If ₹5000 becomes ₹5900 in one year, what will ₹8000 become at the end of 5 years at the same rate of simple interest?
(a) ₹15,200 (b) ₹15,000
(c) ₹16,000 (d) ₹16,200

Ans. (a) : Simple interest received in one year,
$= 5900 - 5000$
$= ₹\ 900$
According to the first condition –

$$SI = \frac{P \times R \times T}{100}$$

$$900 = \frac{5000 \times R \times 1}{100} \Rightarrow R = 18\%$$

According to the second condition –

$$SI = \frac{8000 \times 5 \times 18}{100} = ₹\ 7200$$

Amount = 8000 + 7200 = ₹ 15200

4. In which year the Article 35A was added to the Indian Constitution?
(a) 1949 (b) 1954
(c) 1956 (d) 1950

Ans. (b) : The Article 35 A of Indian constitution was added in 1954, which is just an extension of Article 370. It gives the power to the legislature of Jammu and Kashmir to define provisions related to its original residents. After the enactment of Jammu and Kashmir Re-organisation Act the articles 370 & 35A got eliminated.

5. Which is the biggest coffee producing country in the world?
(a) India (b) Peru
(c) Argentina (d) Brazil

Ans. (d) : The 5 highest coffee producing countries are Brazil, Vietnam, Columbia, Indonesia, Ethiopia.

6. Mechi river is a tributary of which river?
(a) Hooghly (b) Brahmaputra
(c) Ganga (d) Mahananda

Ans. (d) : Mechi river is a tributary of Mahananda river. Its total length is 80 km. It flows between India and Nepal. It originates from Mahabharat ranges in Nepal and meets Mahananda River in Kishanganj (Bihar).

7. How many different values can be stored by a 32 bit register?
(a) $\frac{32}{2}$ (b) 32^2
(c) 2^{32} (d) 2×32

Ans. (c) : 2^{32} different values can be stored by a 32 bit register.

8. Gadadhar Chattopadhyaya was the name of ____.
(a) Sri Aurobindo
(b) Swami Prabhupada
(c) Swami Vivekananda
(d) Ram Krishna Paramhansa

Ans. (d) : The original name of Ramakrishna Paramahansa was Gadadhar Chattopadhyaya. He was the teacher of Swami Vivekananda. He was a great philosopher, sage and a thinker. Taking him as an ideal, Vivekananda established Ramakrishna Mission in 1897.

9. The HCF of two numbers is 5 and their LCM is 750. If one of the number is 125, find the other number.
(a) 34 (b) 38
(c) 32 (d) 30

Ans. (d) : First number × Second number = H.C.F. × L.C.M.
125 × Second number = 5 ×750
Second number = 30

10. In the periodic table, as one goes down the group, which property doesn't change?

(a) Atomic size (b) Valency
(c) Metallic character (d) Number of shells

Ans. (b) : As per the Mendeleev's periodic table, on moving from top to bottom the valency of elements doesn't affected. While the number of shells, metallic character and atomic size of the elements increases while moving from top to bottom in Periodic Table.

11. The process of browning of paper in old books is known as:

(a) Leaching (b) Foxing
(c) Ageing (d) Browning

Ans. (b) : The process of browning of paper in old book is known as Foxing. The pages of older books become brown due to oxidation of cellulose and Lignin molecules.

12. Rythu Bandhu Scheme is the scheme of which of the following states?

(a) Kerala (b) Andhra Pradesh
(c) Telangana (d) Tamil Nadu

Ans. (c) : Rythu Bandhu Scheme was started in Telangana on 10th May 2018. The scheme provides ₹5000 per acre as an investment support to farmers before every cropping season. The main objective of the scheme is to support farmers for fertilizers, compost and other preparations for the upcoming cropping season.

13. The Poona Pact was related to:

(a) Reserving electoral seats for Depressed classes
(b) Reserving electoral seats for Hindus
(c) Reserving electoral seats for Muslims
(d) Reserving electoral seats for Sikhs

Ans. (a) : On 24th Sept, 1932 along with the efforts of Dr. Ambedkar and other Prominent Congress leaders the Poona Pact was signed in between upper castes and Dalits. In accordance with this agreement the separate electorate for the dalits was ended and 171 seats were reserved for them in provincial legislatures. In central legislature total 18% seats were reserved for them.

14. Select the option that is related to the third term in the same way as the second term is related to the first term.

Ganga : Gangotri : : Godavari : ?

(a) Trimbakeshwar (b) Talakaveri
(c) Amarkantak (d) Guru Shikhar

Ans. (a) : As the Ganga river originates from Gangotri. Similarly Godavari originates from Trimbakeshwar.

15. Read the given statements and conclusions carefully and decide which conclusion(s) is/are implicit from the statements.

Statements:

1. These days there is transparency in administrative works.

2. The rate of corruption among new employees is very low due to the transparent work culture.

Conclusion:

1. Most of the new employees have been recruited through a fair and neutral process.

2. A lot of job aspirants are not happy with this move.

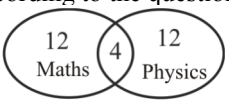
(a) Only conclusion 1 is implicit
(b) Only conclusion 2 is implicit
(c) Neither conclusion 1 nor conclusion 2 is implicit
(d) Both the conclusions are implicit

Ans. (a) : It is clear from conclusion-1 that most of the new employees have been recruited through a fair and neutral process.
Hence, conclusion-1 is true.

16. In a school, there are 20 teachers who teach mathematics or physics. Of these, 12 teachers teach only mathematics and 4 teachers teach both physics and mathematics. How many teachers teach only physics?

(a) 12 (b) 14
(c) 16 (d) 10

Ans. (a) : According to the question –



Number of teachers teaching only physics = 20–12+4
= 12

17. "Give me a place to stand and I will move the world." Which famous scientist said this Statement?

(a) Isaac Newton (b) Archimedes
(c) Galileo Galilei (d) Albert Einstein

Ans. (b) : The mentioned statement "Give me a place to stand and I will move the world" was given by Archimedes. He is considered as one of the prominent personalities of physics who gave the famous "Law of Buoyancy".

18. Find the area of a triangle formed by (1, 0), (–1, 0), (0, 1).

(a) 1.5 sq. units (b) 0 sq. units
(c) 1 sq. units (d) 2 sq. units

Ans. (c) : Point $(1,0)$, $(-1,0)$ and $(0,1)$

$x_1=1$ $x_2=-1$ $x_3=0$

$y_1=0$ $y_2=0$ $y_3=1$

$$\text{Area of } \Delta = \frac{1}{2}\left[x_1(y_2-y_3)+x_2(y_3-y_1)+x_3(y_1-y_2)\right]$$

$$= \frac{1}{2}\left[1(0-1)-1(1-0)+0(0-0)\right]$$

$$= \frac{1}{2}(-1-1) = -\frac{2}{2}$$

$= 1$ square unit

Note– Area will not in negative.

19. The HCF of two numbers is 11 and their LCM is 330. If one of the numbers is 55, then find the other number.

(a) 77 (b) 88
(c) 66 (d) 99

Ans. (c) : First number × Second number = H.C.F. × L.C.M.

55 × Second Number = 11 × 330

Second Number = 66

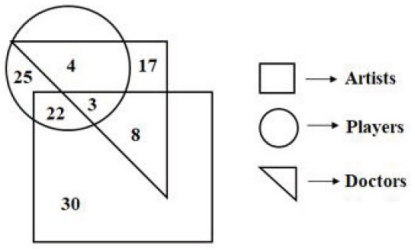
20. Which of the following dance forms is correctly matched with the state to which it is associated?

(a) Lavani-Kerala
(b) Dandiya– Uttar Pradesh
(c) Gaur– Chhattisgarh
(d) Ghoomar– Gujarat

Ans. (c) :

State	Dances
Kerala	Kathakali, Mohiniattam
UP	Charkula, Kathak, Nautanki
Chhattisgarh	Gaur Maria, Danda
Gujarat	Garba, Dandiya Ras, Tippani
Rajasthan	Ghoomar, Kalbelia, Chari
Maharashtra	Lavani

21. Study the following figure and answer the question that follows.



How many doctors are both, players and artists?

(a) 18 (b) 13
(c) 3 (d) 6

Ans. (c) : According to the figure there are 3 doctors who is both players and artists too.

22. Find the LCM of 6, 72 and 120.

(a) 360 (b) 320
(c) 140 (d) 280

Ans. (a) :

2	6, 72, 120
2	3, 36, 60
2	3, 18, 30
3	3, 9, 15
3	1, 3, 5
5	1, 1, 5
	1, 1, 1

L.C.M. of 6, 72 and 120 = 2×2×2×3×3×5=360

23. Who among the following was the founder of Dharma Sabha?

(a) Debendranath Tagore
(b) Raja Ram Mohan Roy
(c) Tulsi Ram
(d) Radhakanta Deb

Ans. (d) :

Organisation	Founder
Dharma Sabha	Radhakanta Deb
Brahma Samaj	Raja Ram Mohan Ray
Tattvabodhini Sabha	Debendranath Tagore
Radha Soami Satsang	Shiva Dayal Sahab

24. Jnanpith Award contains a cash prize along with a bronze replica of Goddess_____.

(a) Durga (b) Sita
(c) Sarswati (d) Lakshmi

Ans. (c) : The Jnanpith Award is given to prominent personality cult of literature in 22 constitutionally adopted languages. It is distributed every year. It consists of:

→ ₹11 lakh cash prize,

→ Bronze replica of Goddess Saraswati

Note–The first Jnanpith Award was given to G. Shankar Kurup (1965).

25. A train passes two bridges of lengths 600 m and 200 m in 80 s and 40 s respectively. The length of the train is:

(a) 200 m (b) 250 m
(c) 220 m (d) 180 m

Ans. (a) : Suppose the length of the train = x m

According to the question,

$$\frac{x+600}{80}=\frac{x+200}{40}$$

x + 600 = 2x + 400

x = 200 m

26. The cost of a pair of roller skates was ₹ 450. A sales tax of 5% was imposed on it. Find the amount of the bill.

(a) ₹472.50 (b) ₹460
(c) ₹480.50 (d) ₹470.50

Ans. (a) : Bill amount including sales tax

$$= 450\times\frac{105}{100} = ₹\ 472.5$$

27. Who observed the Pratyaksh Karyawahi Diwas on 16 August 1946?

(a) Christian League (b) Muslim League
(c) Hindu League (d) Sikh League

Ans. (b) : The Muslim League Council proclaimed 16th August 1946 as 'Direct Action Day' (Pratyaksh Karyawahi Diwas) in order to accentuate their demand for a separate Muslim homeland after the British left the Indian subcontinent. It was a day of a nationwide massacre of Hindus by Muslims motivated by Muhammad Ali Jinnah's hate speeches. Their main aim was to attain a different country with a Muslim majority.

28. The principal value of $\cot^{-1}\left(\frac{-1}{\sqrt{3}}\right)$ is:

(a) $\frac{\pi}{3}$ (b) $\frac{2\pi}{3}$

(c) $\frac{3\pi}{2}$ (d) $\frac{\pi}{6}$

Ans. (b) : Let,

$\cot^{-1}\left(\frac{-1}{\sqrt{3}}\right) = x$

$\cot^{-1}.\cot 120^0 = x \quad \left(\because \cot 120^0 = -\frac{1}{\sqrt{3}}\right)$

$x = 120^0 \quad \left(\pi = 180^0\right)$

$x = 2\pi/3$

29. Who was the chairman of ISRO when Chandrayaan-1 was launched?

(a) Suresh Pathak

(b) Dr. A.P.J. Abdul Kalam

(c) G. Madhavan Nair

(d) R Umamaheswaran

Ans. (c) : Chandrayaan-1 was launched on 22nd Oct. 2008 using PSLV launcher. At that time, the Chairman of ISRO was G. Madhavan Nair. India's mission Chandrayaan-2 was launched on 22nd July 2019 and the contemporary Chairman was K. Sivan, who also currently holds the same post.

30. The correct order of the four states of lifecycle of mosquitoes is:

(a) egg, larva, imago, pupa

(b) imago, egg, larva, pupa

(c) egg, larva, pupa, imago

(d) egg, pupa, imago, larva

Ans. (c) : The life cycle of a mosquito is of 21 days. Within 24 hours the developed egg became larva and then after 4-5 days it gets converted into pupa. Hence correct order will be.

Egg → Larva → Pupa → Imago

31. Hotmail was launched in:

(a) 1993 (b) 1995

(c) 1996 (d) 1994

Ans. (c) : Sabeer Bhatia is an Indian Origin US industrialist and is also the co-founder of Hotmail. In 1996 Sabeer Bhatia and Jack Smith launched "Hotmail". In 1997 it was bought by the tech giant Microsoft Corporation.

32. A is 6 years older than B. 10 years ago, B's age was three quarters of A's age. Find the present age (in years) of A.

(a) 34 (b) 28

(c) 38 (d) 24

Ans. (a) : Let B's age = x years

And age of A = (x+6) years

Before 10 years,

Age of B = (x–10) years

Age of A = [(x+6)–10] years

According to the question,

$(x-10) = [(x+6)-10] \times \frac{3}{4}$

$x-10 = (x-4) \times \frac{3}{4}$

$x-10 = \frac{3}{4}x - 3$

$x - \frac{3}{4}x = 7$

x = 28 years

So, the age of A = 28 + 6 = 34 years

33. The Border Roads Organization (BRO) comes under the:

(a) Ministry of Defence

(b) Ministry of Consumer Affairs, Food and public Distribution

(c) Ministry of Commerce and Industry

(d) Ministry of Communications

Ans. (a) : The Border Roads Organization comes under the Ministry of Defence. It has an objective to regulate and make roads near borders. It was established in 1960 and it present Director General is Rajeev Chaudhary.

34. Read the information and answer the question given below:

Five friends are working in a company. Kapil, Shiva and Hari are intelligent.

Kapil, Ravi and Jitin are hard working.

Ravi, Hari and Jitin are honest.

Which of the following person is neither honest nor hardworking but is intelligent?

(a) Shiva (b) Kapil

(c) Hari (d) Jitin

Ans. (a) : Kapil → Intelligent & Hard working

Shiva → Intelligent

Hari → Intelligent & honest

Ravi → Honest & hard working

Jitin → Honest & hard working

Shiva is neither honest nor hard working but he is intelligent.

35. What ingredient is put in bread to make it rise?

(a) Wheat (b) Yeast

(c) Tomato ketchup (d) Cheese

Ans. (b) : Yeast is used in bread to make it rise. Yeast is added to flour in order to make spongy bread. It is also used in making of Beer.

36. In a certain language CUP is coded as 295 and CAKE is coded as 2476. How will PACK be coded in that language?

(a) 5742 (b) 5472
(c) 5274 (d) 5427

Ans. (d) : Words will formed as follows,

C U P and C A K E
↓ ↓ ↓ ↓ ↓ ↓ ↓
2 9 5 2 4 7 6

The code of words formed from coded words,

P A C K
↓ ↓ ↓ ↓
5 4 2 7

37. In a building, there are 24 cylindrical pillar. The radius of each pillar is 28 cm and height is 4 m. Find the total cost of painting the curved surface area of all pillars at the rate of ₹8 per m^2

(a) ₹1, 350.45 (b) ₹1,351.68
(c) ₹1,352.98 (d) ₹1,354.78

Ans. (b) : Curved surface of cylindrical pillars $= 2\pi rh$

Curved surface of n cylindrical pillars $= n \times 2\pi rh$

Curved surface of 24 cylindrical pillars

$$= 24 \times 2 \times \frac{22}{7} \times 0.28 \times 4$$

$$= 168.96 \text{ m}^2$$

Required painting cost $= 168.96 \times 8$

$$= ₹\ 1351.68$$

38. Vijay is taller than Raju but shorter than Arun. James is taller than Arun. Sam is taller than Vijay but shorter than Arun. Raju is shorter than Sam. Who is shortest of all in the group.

(a) Sam (b) Arun
(c) Raju (d) Vijay

Ans. (c) : The descending order of length is follows as –
James > Arun > Sam > Vijay > Raju
So, it is clear that Raju is the shortest.

39. Which of the following gas is not related to acid rain?

(a) NO (b) NH_3
(c) SO_2 (d) NO_2

Ans. (b) : Sulphur dioxide (SO_2); Nitrogen Oxide (NO), Nitrogen dioxide (NO_2) is related to acid rain while Ammonia (NH_3) is not related to acid rain. It is significant that, Ammonia is a key component of the nitrogen cycle. Chlorine and Flourine etc in the atmosphere leads to formation of HCl, H_2SO_4, HNO_3 etc which make the rain water acidic. When such precipitation occurs it is known as acid rain. It is harmful to vegetation and architectures.

40. The Department of Posts has lauched as scheme called _____ to ensure universal coverage of flagship postal schemes in rural areas of the country in September, 2020.

(a) Towards Villages
(b) Star Villages
(c) Five Star Villages
(d) Grameen Dak Seva

Ans. (c) : The Department of Posts has launched as scheme called "Five star Villages" to ensure universal coverage of flagship postal schemes in rural areas of country in Sept 2020. Its main objective is to raise awareness about Posts, its products and services in the countryside.

41. Select the option that can replace the question. mark (?) in the given series.
P3L, N5N, L7P, J11R, H13T, ?

(a) G19V (b) F15T
(c) F17V (d) I17T

Ans. (c) : The given series is follows as –

P $\xrightarrow{-2}$ N $\xrightarrow{-2}$ L $\xrightarrow{-2}$ J $\xrightarrow{-2}$ H $\xrightarrow{-2}$ F
3 $\xrightarrow{+2}$ 5 $\xrightarrow{+2}$ 7 $\xrightarrow{+4}$ 11 $\xrightarrow{+2}$ 13 $\xrightarrow{+4}$ 17
L $\xrightarrow{+2}$ N $\xrightarrow{+2}$ P $\xrightarrow{+2}$ R $\xrightarrow{+2}$ T $\xrightarrow{+2}$ V

42. In 1861, Archaeological Survey of India was founded by:

(a) Alexander Cunninggham
(b) Girish Kumar
(c) Jayanti Patnaik
(d) Saurabh Kumar

Ans. (a) : The Archaeological Survey of India was founded by Alexender Cunniggham in 1861 who was also the first Director General of it. It is nodal body for research and studies of archaeological places and architecture. The present Director General of the institution is V. Vidyavathi.

43. Find the value of $\frac{7^{\frac{1}{5}}}{7^{\frac{1}{3}}}$:

(a) $7^{\frac{-2}{15}}$ (b) $7^{\frac{3}{5}}$
(c) $7^{\frac{4}{5}}$ (d) $7^{\frac{5}{3}}$

Ans. (a) : $\frac{7^{\frac{1}{5}}}{7^{\frac{1}{3}}} = 7^{\frac{1}{5}-\frac{1}{3}} = 7^{\frac{3-5}{15}} = 7^{\frac{-2}{15}}$

44. Select the option that can replace the question mark (?) in the given series.
E, F, H, K, ?

(a) M (b) O
(c) L (d) N

Ans. (b) : The given series is :

E $\xrightarrow{+1}$ F $\xrightarrow{+2}$ H $\xrightarrow{+3}$ K $\xrightarrow{+4}$ O

45. Solve the following
(0.032 × 0.0032) + 0.00032 = ?
(a) 0.004224 (b) 0.0004221
(c) 0.0004224 (d) 0.00004224

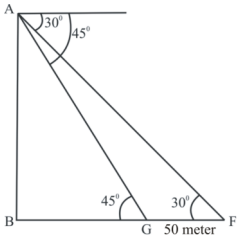
Ans. (c) : $(0.032 \times 0.0032) + 0.00032 = ?$
$\Rightarrow 0.0001024 + 0.00032 = ?$
$\Rightarrow 0.0004224 = ?$

46. A car completes a journey in 18 h covering the first half of the journey at a speed of 40 km/h and the second half of the journey at a speed of 50 km/h. Find the distance of the Journey.
(a) 700 km (b) 810 km
(c) 800 km (d) 850 km

Ans. (c) : Let, the total distance = 2d km
According to the questions,
$\frac{d}{40} + \frac{d}{50} = 18$
$\frac{5d + 4d}{200} = 18$
$9d = 18 \times 200$
$d = 400$
Total distance = $2d = 2 \times 400 = 800$ km

47. The angles of depression of two houses of the same height from the top of a building are 45° and 30° towards the east. If the two houses are 50 m apart, what will be the height of the building in metres?
(a) $50\left(\sqrt{3}+1\right)$ (b) $45\left(\sqrt{3}-1\right)$
(c) $35\left(\sqrt{3}-1\right)$ (d) $25\left(\sqrt{3}+1\right)$

Ans. (d) :



In ΔABG
$\tan 45^0 = \frac{AB}{BG}$
$1 = \frac{AB}{BG}$
$BG = AB$
In ΔABF
$\tan 30^0 = \frac{AB}{BG + GF}$
$\frac{1}{\sqrt{3}} = \frac{AB}{AB + 50}$
$AB + 50 = \sqrt{3}AB$
$AB = \frac{50}{\sqrt{3}-1}$ meter
or $\frac{50}{\sqrt{3}-1} \times \frac{\sqrt{3}+1}{\sqrt{3}+1} = \frac{50(\sqrt{3}+1)}{(\sqrt{3})^2 - (1)^2} = \frac{50(\sqrt{3}+1)}{2}$
$= 25\left(\sqrt{3}+1\right)$

48. Who has been appointed as the Executive Director of the Reserve Bank of India in December 2020?
(a) N S Vishwanathan (b) Preet Sinha
(c) Rohit Jain (d) Usha Sharma

Ans. (c) : As per 2020 Rohit Jain was appointed as Executive Director of RBI. The current Executive Director of RBI is Ajay kumar. The present Governor of RBI is Mr. Shaktikant Das.

49. A room is 750 cm long and 525 cm wide. Its floor is to be paved with square tiles. What is the least number of tiles.
(a) 62 (b) 53
(c) 42 (d) 50

Ans. (*) : Minimum number of tiles required
$= \frac{\text{Area of the room}}{\text{Area of big square tiles}}$
$= \frac{750 \times 525}{75 \times 75} = 70$
Note : This question has been cancelled by the Railway Recruitment Board.

50. If $x + \frac{1}{x} = 5$, Then the value of $\frac{3x}{2x^2 + 2 - 5x}$ will be:
(a) $\frac{5}{3}$ (b) $\frac{2}{3}$
(c) $\frac{3}{5}$ (d) $\frac{2}{5}$

Ans. (c) : $x + \frac{1}{x} = 5$
$x^2 + 1 = 5x$
Multiplying both sides by 2,
$2x^2 + 2 = 10x$
According to the question –
$\frac{3x}{2x^2 + 2 - 5x} = \frac{3x}{10x - 5x} = \frac{3x}{5x} = \frac{3}{5}$

51. In certain language SMILE is coded as HNROV, how will TEACH be coded in that language?
(a) GVZXS (b) GSZVX
(c) GXVSZ (d) GZVXS

Ans. (a) : Just as –
S M I L E
↓ ↓ ↓ ↓ ↓
H N R O V
Similarly,

T E A C H
↓ ↓ ↓ ↓ ↓
G V Z X S

52. The hydrotherapy treatment centre (water clinic) for elephants suffering from arthritis, Joint pain and foot ailments is situated at:

(a) Cochin (b) Mathura
(c) Dehradun (d) Raipur

Ans. (b) : The hydrotherapy Treatment Centre (Water Clinic) for elephants suffering from arthritis, Joint pain and foot ailments is situated in Mathura. It was established by the co-operation of UP forest Department and SOS NGO. It is India's "First Elephant Hospital".

53. Bari Doab is the area between:

(a) Ravi and Ganga (b) Beas and Ravi
(c) Sutlej and Ravi (d) Beas and Sutlej

Ans. (b) :

Doab	**Lies Between**
Bari Doab	Beas & Ravi
Sindh Sagar Doab	Indus & Jhelum
Jech Doab	Jhelum & Chenab
Rechna Doab	Chenab & Ravi
Bist Doab	Beas & Sutlej

Note:– Doabs are region lying between two rivers.

54. A sum of money amount to 3 time the original sum in 15 years. In how many years will the original sum amount to 5 times of itself at the same rate of simple interest.

(a) 35 (b) 30
(c) 25 (d) 20

Ans. (b) : Let Principal = ₹ P,
T = 15 years, Amount = 3P
Simple Interest = A – P
Interest = 3P – P = 2P
According to the question,

$$SI = \frac{P \times R \times T}{100}$$

$$2P = \frac{P \times R \times 15}{100}$$

$$R = \frac{40}{3}\%$$

Again, $$SI = \frac{P \times R \times T}{100}$$

$$4P = P \times \frac{40}{3} \times \frac{T}{100}$$

$$T = 30 \text{ Years}$$

55. Which Indian scheme is funded by a 0.5% cess levied on all taxable products since Nov. 2015?

(a) Swachh Bharat Abhiyan
(b) Kisan Vikas Patra
(c) Make in India
(d) Stand Up India Scheme

Ans. (a) : The Swachh Bharat Abhiyan was launched on 2nd Oct. 2014. On 6th Nov 2015, a 0.5% cess was introduced for this so that a boost in development of infrastructure, streets and roads may be brought. In the year 2017 cess got ended.

56. Rahul bought a sweater at a discount of 25% and saved Rs. 200. What was the cost of the sweater before the discount was given.

(a) ₹650 (b) ₹400
(c) ₹800 (d) ₹600

Ans. (c) : Let the cost of the sweater before the discount is given = ₹ x
According to the question,

$$x \times \frac{25}{100} = 200$$

x = ₹ 800

57. Potali is the bridal dress worn by the brides belonging to which state?

(a) Odisha (b) Rajasthan
(c) Kerala (d) Manipur

Ans. (d) : Potali is dress worn by the brides of Manipur. It is also worn during the time of dance. It is a cylindrical skirt made up of thick fabric that is ornamented with sequins and mirrors.

58. Which country has been declared by the United States of America as a 'currency manipulator' in December 2020?

(a) Sri Lanka (b) Vietnam
(c) Pakistan (d) Russia

Ans. (b) : As per Dec. 2020, USA included Vietnam & Switzerland in the list of "Currency Manipulators". Apart from that India, China, S. Korea, Germany, Italy. Singapore already exist in the list. It is a kind of tag given by US to the economic which are mostly involved in currency devaluation in order to earn trade surplus by treaching the exchange rate system.

59. A train Crosses a man on a platform in 10s and crosses the platform of 260 m in length in 20s. What is the length of the train?

(a) 280 m (b) 260 m
(c) 220 m (d) 240 m

Ans. (b) : Let the length of the train is = x meters
According to the question –

$$\frac{260 + x}{20} = \frac{x}{10}$$

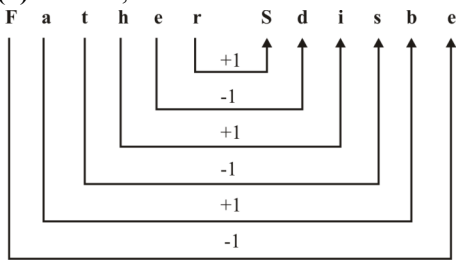
$$2x = x + 260$$

$$x = 260 \text{ meters}$$

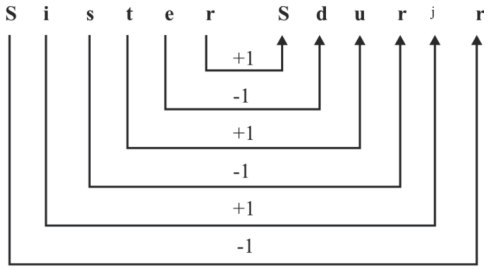
60. If Father = Sdisbe, then Sister = ?

(a) Sdjrur (b) Sdurjr
(c) Sdurrj (d) Sdrujr

Ans. (b) : Just as,



Similarly,



Hence, Sister = Sdurjr

61. A number lies between the cubes of 11 and 12. If the number is divisible by twice of 80 and 6 both, what will be the number?

(a) 1350 (b) 1680
(c) 1440 (d) 1560

Ans. (c) : According to the question –
L.C.M. of 160 and 12 = 480
Cubes of the number
$(11)^3 = 1331$
And $(12)^3 = 1728$
Required number between 11 and 12
Required number = 480 k (k = 3 on putting 3)
= 480 × 3 = 1440

62. In which of the following states the Electronic Voting Machines (EVMs) were used for the first time in India?

(a) West Bengal (b) Kerala
(c) Karnataka (d) Tamil Nadu

Ans. (b) : Electronic Voting Machines (EVMs) were used for the first time in India in the year 1982 in the state of Kerala. The EVMs have been designed by two PSUs Bharat Electronics Limited, Bangalore and Electronic Corporation of India Limited, Hyderabad. The first Indian EVM was invented in 1980 by M.B. Hanifa.

63. The compound interest on ₹20000 at 8% per annum is ₹3328. The period in years is:

(a) 2 (b) 3
(c) 5 (d) 4

Ans. (a) : Given that,
Principal (P) = ₹ 20,000
Compound Interest (CI) = ₹ 3328
Rate (R) = 8%
Time (t) = ?

$$CI = P\left[\left(1+\frac{R}{100}\right)^t - 1\right]$$

$$3328 = 20000\left[\left(1+\frac{8}{100}\right)^t - 1\right]$$

$$\frac{3328}{20000} = \left(1+\frac{8}{100}\right)^t - 1$$

$$\frac{3328}{20000} + 1 = \left(1+\frac{8}{100}\right)^t$$

$$\frac{23328}{20000} = \left(1+\frac{8}{100}\right)^t$$

$$\frac{11664}{10000} = \left(\frac{108}{100}\right)^t$$

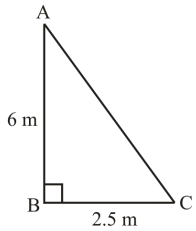
$$\left(\frac{108}{100}\right)^2 = \left(\frac{108}{100}\right)^t$$

t = 2 years

64. A ladder is placed against a wall such that its foot is at a distance of 2.5 m from the wall and its top reaches the base of a window 6 m above the ground. Find the length of the ladder.

(a) 7.8 m (b) 6.3 m
(c) 6.5 m (d) 7.5 m

Ans. (c) :



Let, AB = Wall
AC = Ladder
According to the question,
The length of the ladder

$$AC = \sqrt{(6)^2 + (2.5)^2}$$
$$= \sqrt{36 + 6.25}$$
$$= \sqrt{42.25}$$
$$= 6.5 \text{ m}$$

65. If '×' stands for '+', '+' stands for '÷', '–' stands for '×' and '÷' stands for '–', then find the value of $100 \div 5 - 6 + 1 \times 6$.

(a) 576 (b) 86
(c) 76 (d) 90

Ans. (c) : $100 \div 5 - 6 + 1 \times 6$
According to the question, on changing the sign
$= 100 - 5 \times 6 \div 1 + 6$
$= 100 - 30 + 6$
$= 76$

66. Which of the following is the first state of India to pass a law to curb Lynching cases?

(a) Kerala (b) Manipur

(c) Rajasthan (d) Odisha

Ans. (b) : Manipur is the first state in India which passed an act against "Mob Lynching". In 2018, the state legislature passed the bill. After that Rajasthan and West Bengal became the next states to have such a law.

67. By selling an article at 90% of the marked price, there is a loss of 7%. If the article is sold at the marked price, the percentage profit will be:

(a) 3.33% (b) 3.5%

(c) 3.43% (d) 3.15%

Ans. (a) : Let marked price of article = ₹ 100

Selling price = $100 \times \frac{90}{100} =$ ₹ 90

Cost price = $90 \times \frac{100}{93} =$ ₹ 96.77

Profit percentage on selling at marked price

= 100 – 96.77

= 3.23%

= 3.33% (approx)

68. The standard deviation of 12 values is 3. If each value is increased by 4, then find the variance of the new set of values.

(a) 25 (b) 16

(c) 7 (d) 9

Ans. (d) : Standard deviation of 12 values = 3

$(\because \sigma$ = Standard deviation)

Variance $= \sigma^2 = (3)^2 = 9$

69. The 10th term, of the Arithmetic Progression 2, 7, 12, ... is:

(a) 27 (b) 37

(c) 47 (d) 57

Ans. (c) : Given that,

Arithmetic progression 2, 7, 12 ..... n

First term (a) = 2

Number of terms (n) = 10

Common difference (d) = $T_2 - T_1 = 7 - 2 = 5$

By the formula we know,

$T_n = a + (n-1)\,d$

$T_{10} = 2 + (10 - 1)\,5$

$= 2 + 45$

$= 47$

70. Which of the following was the first official international step to protect the environment?

(a) Nairobi Declaration

(b) Earth Summit

(c) Stockholm Conference

(d) Vienna Convention

Ans. (c) : The Stockholm Conference was the first stage on which most of the countries of world took part due to concern of environmental problems. It was convened on 5th June 1972, as a result of "Environmentalist movements". Nearly, 113 nations of the world took part in it.

71. Which option correctly describes the taungya system?

(a) It is the system of growing agricultural crops between rows of planted trees

(b) It is setting up a fire to a piece of land to increase fertility of soil

(c) It is the system of growing trees or shrubs around or among crops or pastureland

(d) It is the management and protection of forests and achieving of forestation on barren lands

Ans. (a) : Taungya is a system of growing agricultural crops between the rows of planted trees. It is very famous in Myanmar. It is a kind of Jhoom agriculture. It was firstly introduced in 19th century.

72. Which country has sent its former Vice President Ahmed Adeeb to detention center in August 2019?

(a) Myanmar (b) Maldives

(c) Afghanistan (d) Thailand

Ans. (b) : In Aug, 2019 Maldives Vice-President Ahmad Adeeb was sent to detention center. The current president of Maldives is Ibrahim Mohammed Solih.

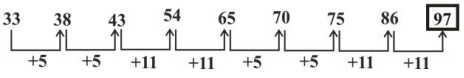
73. Select the option that can replace the question mark (?) in the given series.

33, 38, 43, 54, 65, 70, 75, 86, ?

(a) 99 (b) 91

(c) 108 (d) 97

Ans. (d) : The given series is as follows –



74. In which year was the United Nations Organization (UNO) awarded with the Nobel Peace Prize?

(a) 2001 (b) 2003

(c) 2002 (d) 2000

Ans. (a) : In 2001, the Nobel Peace Prize was given to United Nations along with Kofi Annan. In 2020, the same was given to World Food Programme. In 2021, Nobel Peace Prize has been given to

Maria Ressa → Phillippines

Dmitry Muratov → Russia

75. How many cubes of side 3 cm can be formed by melting a cuboid of length 9 cm, breadth 6 cm and height 6 cm?

(a) 14 (b) 12

(c) 13 (d) 11

Ans. (b) : Required number of cubes

$$= \frac{\text{Volume of cuboid}}{\text{Volume of cube}} = \frac{lbh}{a^3}$$

$$= \frac{9 \times 6 \times 6}{3 \times 3 \times 3} = 12$$

76. Select the option that can replace the question mark (?) in the given series.

T, P, L, H, ?

(a) B (b) A

(c) D (d) C

Ans. (c) : The given series is as follows –

So, ? = D

77. The process of forming a thick layer of aluminium oxide on the surface of aluminium so as to protect it from corrosion is called:

(a) Roasting (b) Anodising

(c) Calcination (d) Galvanising

Ans. (b) : The process of forming a thick layer of aluminium oxide on the surface of aluminium so as to protect it from corrosion is called anodising, while galvanisation includes forming of thick layer zinc over the iron.

78. If the difference between the exterior and the interior angles of a regular polygon is 60º, with an interior angle being greater than the corresponding exterior angle, then find the number of sides of the polygon.

(a) 6 (b) 5

(c) 7 (d) 8

Ans. (a) :

Therefore,

Interior angle + Exterior angle = 180^0 ...(i)

Given, Interior angle– Exterior angle = 60^0 ...(ii)

From equation (i) and equation (ii)

2 Interior angle = 240^0

Interior angle = 120^0

Exterior angle = 60^0 [From equation (i)]

$$\text{Number of sides of polygon} = \frac{360^0}{\text{Exterior angle}}$$

$$= \frac{360^0}{60^0} = 6$$

79. A number when divided by 7 leaves a remainder 4. What will be the remainder when the square of the same number is divided by 7?

(a) 2 (b) 4

(c) 1 (d) 3

Ans. (a) : Let,

Quotient = n

Number = Divisor × Quotient + Remainder

Number = 7× n + 4

On putting n = 1

Number = 7×1+ 4 = 11

On dividing the number by 7

Remainder = 4

Hence, on dividing the square of no. by 7

$$\text{Remainder} = \frac{(11)^2}{7} = \frac{121}{7} = 2$$

80. Madhu ranks eleventh in a class of 29 students. What is her rank from the last?

(a) 19 (b) 17

(c) 20 (d) 15

Ans. (a) : Madhu rank from last = 29 + 1 – 11

$= 19^{th}$

81. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

1. All remotes are infrared.

2. All infrared are gamma.

Conclusions:

1. All gamma are remote.

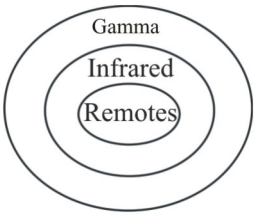
2. Some gamma are remote.

3. No remote are gamma.

4. Some remote are not infrared.

(a) Only conclusion 2 follows
(b) Only conclusion 1 follows
(c) Only conclusion 4 follows
(d) Only conclusion 3 follows

Ans. (a) : On making Venn diagram,



Hence, it is clear from the Venn diagram that only conclusion-2 follows.

82. A sum of ₹10000 is borrowed at a rate of simple interest 15% per annum. Find the interest to be paid at the end of two years.

(a) ₹2,000 (b) ₹2,500
(c) ₹3,500 (d) ₹3,000

Ans. (d) : Principal (P) = ₹ 10000

R= 15%, T= 2 Years

$$\text{Simple Interest (SI)} = \frac{P \times R \times T}{100}$$

$$SI = \frac{10,000 \times 15 \times 2}{100} = ₹3000$$

83. IIT Gandhinagar students made the world's thinnest material with the use of :

(a) Calcium Diboride
(b) Sodium Diboride
(c) Magnesium Diboride
(d) Lithium Diboride

Ans. (c) : IIT Gandhinagar students made world's thinnest material with the use of Magnesium Diboride.

84. Ring worm is a type of disease.

(a) Bacterial (b) Fungal
(c) Prion (d) Viral

Ans. (b) :

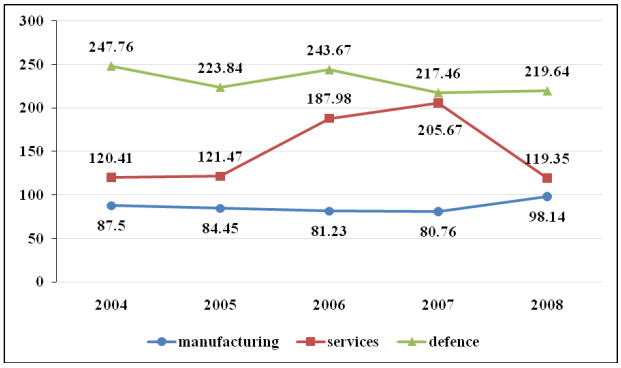
Agent		Diseases
Fungus	–	Ring worm, Asthma, Scabies, Baldness, Athlete's foot
Bacteria	–	Typhoid, Plague, Diptheria, Tetanus, Whooping Cough
Virus	–	Dengue, Chickenpox, Polio, Swine flu, Corona, AIDS
Protozoa	–	Maleria, Sleeping disorder.

85. Which type of soil is mostly found in eastern coast of India?

(a) Red Rocky (b) Alluvial
(c) Black Soil (d) Laterite

Ans. (b) : Alluvial soil is mostly found in eastern coast of India. It's mainly present in river plains of Indus, Ganga and Brahmaputra. It is also known as coastal soil. Black soil is known as "Regur soil" and is much useful for cotton production. Black soil is mainly found in the regions of Gujarat, Maharashtra, Madhya Pradesh & Andhra Pradesh.

Direction (86–89) : This Chart shows the investment in 3 sectors - manufacturing, services and defence– in five different years. All Values are in lakhs Rupees.



86. Which year has highest investment in all three sectors together?

(a) 2006 (b) 2005
(c) 2004 (d) 2007

Ans. (a) : Investment in all sectors in the year 2004
= 87.5 + 120.41 + 247.76 = ₹ 455.67 lakhs
Investment in all sectors in the year 2005
= 84.45 + 121.47 + 223.84 = ₹ 429.76 lakhs
Investment in all sectors in the year 2006
= 81.23 + 187.98 + 243.67 = ₹ 512.88 lakhs
Investment in all sectors in the year 2007
= 80.76 + 205.67 + 217.46 = ₹ 503.89 lakhs
So, in the year 2006 saw the highest investment.

87. Find the difference in lakhs between the investment in the defence and manufacturing sectors in all years together.

(a) ₹721.28 (b) ₹620.29
(c) ₹720.29 (d) ₹820.27

Ans. (c) : Investment in Defence sector in all the years
=247.76+223.84+243.67+217.46+219.64
= ₹1152.37 lakh
Investment in manufacturing in all the years
= 87.5+84.45+81.23+80.76+98.14
= ₹ 432.08 lakh
Required difference = 1152.37 – 432.08 = ₹ 720.29 lakh

88. In which year the investment in services sector is closed to the average investment in services sector over a period of 5 years.

(a) 2007 (b) 2004
(c) 2008 (d) 2006

Ans. (d) : Average of five years service

$$= \frac{120.41 + 121.47 + 187.98 + 205.67 + 119.35}{5}$$

$$= \frac{754.88}{5} = ₹150.97 \text{ lakh}$$

Investment in service sector in 2006 = ₹ 187.98 lakh

It is clear from the above graph that the investment in the services sector in the year 2006 is approximating the average investment in the services sector during the period of 5 years.

89. In which years was the percentage share of investment in the defence sector the lowest as compared to all three sectors for that years.

(a) 2006 (b) 2007
(c) 2008 (d) 2005

Ans. (b) : From option (a).

Required share percentage of investment in defence sector in 2006.

$$= \frac{243.67}{512.88} \times 100 = 47.51\%$$

From option (b)

Required share percentage of investment in defence sector in 2007.

$$= \frac{217.47}{503.89} \times 100 = 43.15\%$$

From option (c)

Required share percentage of investment in defence sector in 2008.

$$= \frac{219.64}{437.13} \times 100 = 50.24\%$$

From option (d)

Required share % of investment in defence sector in 2005

$$= \frac{223.84}{(84.45 + 121.47 + 223.84)} \times 100$$

$$= \frac{2238400}{42976} = 52.08\%$$

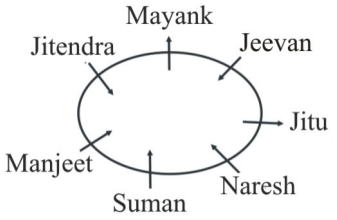
Hence, the percentage share of investment is lowest in 2007.

90. 7 persons Mayank, Manjeet, Naresh, Jitender, Suman, Jitu and Jeevan are sitting around a circular table, some are facing inward and some are facing outwards. Suman facing inward and sitting 4th to the right of Mayank. Mayank is sitting 2nd to the left of Jitu. Jitu is facing outward and is sitting next to the left of Jeevan. Jeevan is sitting 3rd to the right of Suman. Manjeet is not the immediate neighbour of Mayank and Jitu. Manjeet is sitting 2nd to the left of Mayank. Naresh is not sitting 3rd to the right of Jitu.

Who among the following is an immediate neighbour of Mayank?

(a) Suman (b) Jitu
(c) Manjeet (d) Jeevan

Ans. (d) : When the people set around the round table.



An immediate neighbour of Manjeet is Jeevan.

91. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if its appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

1. Some players are fit.

2. All fit are healthy.

Conclusion:

1. No healthy are players.

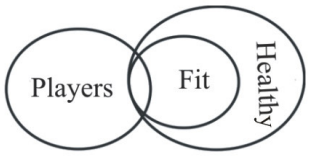
2. All fit are players.

3. Some healthy are fit.

4. All healthy are fit.

(a) Only conclusion 4 follows
(b) Only conclusion 1 follows
(c) Only conclusion 3 follows
(d) Only conclusion 1 and 3 follows

Ans. (c) : On making Venn diagram,

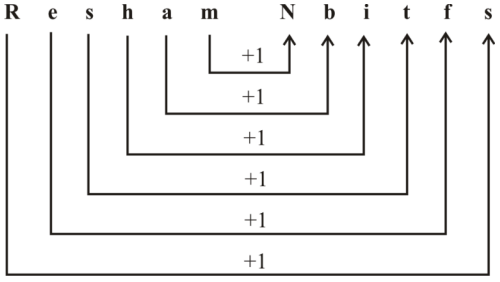


So, it is clear that only conclusion 3 follows.

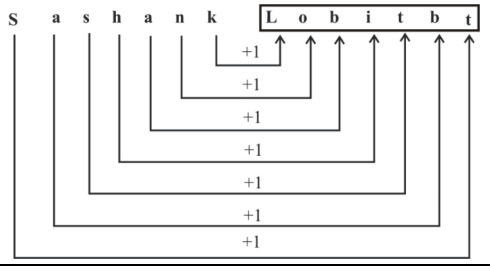
92. In a code language, if Resham is written as Nbitfs, then Sashank will be written as?

(a) Lobittb (b) Tbtibol
(c) Lobitbt (d) Lobtibt

Ans. (c) : Just as,



Similarly,



93. Three of the given four terms share a certain relationship whereas one is different. Select the one that is different.

Mike, Loudspeaker, Projector, Amplifier

(a) Loudspeaker (b) Amplifier
(c) Mike (d) Projector

Ans. (d) : Mike, Loudspeaker and Amplifier used for recording sounds or for making voice louder while, Projector is a piece of equipment for projecting photographs, movies or computer slides onto a screen.

94. Select the combination of letters that sequentially placed in the blanks will create a repetitive pattern.

jj__ __ k__j__ __kkk

(a) kjjjk (b) jkkjj
(c) jkjkk (d) jjkkj

Ans. (b) : The given series is follows as.

jj j k k k j j j kkk

Hence, the blank space in the above series will be jkkjj.

95. Select the option that is related to the third term in the same way as the second term is related to the first term.

Doctor : Patient : : Lawyer: ?

(a) Client (b) Judge
(c) Court (d) Law

Ans. (a) : Just as Doctor is related to the Patient. Similarly, the Lawyer is related to the Clients.

96. How many such 4's are there in the following sequence which is neither immediately preceded by 6 nor immediately followed by 9?

9466495947891649649

(a) Five (b) Four
(c) Three (d) Two

Ans. (d) : 946 6495 947 891649649

So, the required number is = 2

97. Select the option that can replace the question mark (?) in the given series.

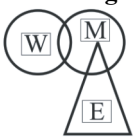
AD, DH, GL, JP, ?

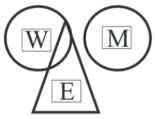
(a) LQ (b) MT
(c) NS (d) LT

Ans. (b) : The given words series is follows as –

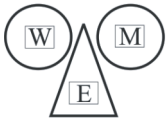
A $\xrightarrow{+3}$ D $\xrightarrow{+3}$ G $\xrightarrow{+3}$ J $\xrightarrow{+3}$ M
D $\xrightarrow{+4}$ H $\xrightarrow{+4}$ L $\xrightarrow{+4}$ P $\xrightarrow{+4}$ T

98. Which of the given diagrams shows the best relation between men, women, energetic, if W represents women, M represents men and E represents energetic?

(a) 

(b) 

(c) 

(d) 

Ans. (c) : The best relationship between men, women, and energetic will be –

99. Read the given statements and conclusions carefully and decide which conclusion (s) is/ are implicit from the statement.

Statement:

Human beings and Apes have some common characteristics.

Conclusions:

1. Apes are smarter than human beings.

2. Human beings are smarter than Apes.

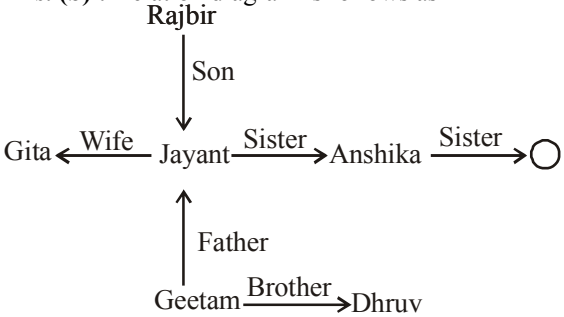
(a) Only conclusion 1 is implicit
(b) Neither conclusion 1 nor conclusion 2 is implicit
(c) Only conclusion 2 is implicit
(d) Both conclusion are implicit

Ans. (b) : From given statement it is clear that neither conclusion 1 nor conclusion 2 is implicit.

100. Pointing to Jayant, Gita said 'He is the only son of Rajbir, who has two sisters and one of them is Anshika'. Dhruv is the brother of Geetam. Rajbir is the paternal grandfather of Geetam, who is the daughter of Gita. Then how Jayant is related to Gita?

(a) Brother (b) Husband
(c) Sister's Husband (d) Father

Ans. (b) : Relation diagram is follows as –



Hence, Jayant is related to Gita as her husband.

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 30.01.2021] **[Time : 10:30 am-12:00 pm**

1. Which of the following is not a wind musical?
(a) Khol (b) Shehnai
(c) Saxophone (d) Trumpet

Ans. (a) : The Khol is a barrel shaped asymmetrical drum. Its two faces are of different sizes and it seems to resemble to the ancient Gopuchha shape of drums. It is also known as "Mridanga" a musial instrument of South India.While, Shehnai, Saxophone and Trumpet are the wind musical instruments.

2. Select the option that is related to the third term in the same way as the second term is related to the first term.
Daman and Diu : Daman :: Andaman and Nicobar : ?
(a) Nicobar (b) Indira Point
(c) Garacharma (d) Port Blair

Ans. (d) : Just as Daman is the Capital of Daman and Diu, Similarly the capital of Andman and Nicobar is Port Blair.

3. 5% more is gained by selling a cow for ₹1010 than what is gained by selling it for ₹1000 find the cost price of the cow?
(a) 200 (b) 280
(c) 400 (d) 300

Ans. (a) : Let the cost price of the Cow = ₹ x
According to the question –
$\because$ Profit = Selling price – Cost price

$$1000 - x = 1010 - x \times \frac{105}{100}$$

$$1000 - x = 1010 - x \times \frac{21}{20}$$

$$20{,}000 - 20x = 20200 - 21x$$

$$x = ₹\ 200$$

4. Most of the chromite deposits in India are found in:
(a) Odisha (b) Karnataka
(c) Bihar (d) Kerala

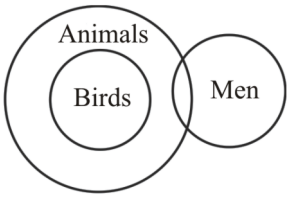
Ans. (a) : According to Indian Minerals Yearbook 2019; More than 96% resources of chromite are located in Odisha, mostly in Jajpur, Kendujhar and Dhenkanal districts. Minor deposits are scattered over Manipur, Nagaland, Karnataka, Jharkhand, Maharashtra, Tamil Nadu Telangana and Andhra Pradesh. Chromite is an oxide of iron and chromium, which is found in igneous rocks. It is used in the manufacture of stainless steel, bricks, salt etc.

5. Find the greatest possible length that can be used to measure exactly the lengths 7 m, 3 m, 85cm and 12 m 95 cm.
(a) 35 cm (b) 65 cm
(c) 45 cm (d) 85 cm

Ans. (a) : 7 m $\rightarrow$ 700 cm
3 m 85 cm $\rightarrow$ 385 cm
12 m 95 cm $\rightarrow$ 1295 cm
$\because$ HCF of 700, 385 and 1295 = 35 cm
(Greatest possible length)

6. Read the given statements and conclusions carefully and decide which of the conclusions logically follow from the statement.
Statements:
1. All birds are animals.
2. Some animals are men.
Conclusion:
1. No men is animal.
2. All animals are birds.
3. Some men are animals.
4. Some men are birds.
(a) Only conclusion 1 follows
(b) Only conclusion 3 follows
(c) Only conclusion 2 follows
(d) Only conclusion 4 follows

Ans. (b) : According to the statements



It is clear from the Venn diagram that only Conclusion 3 logically follows from the statements.

7. Chandrayaan-I was launched using.
(a) PSLV-C46 (b) GSLV Mk-III
(c) PSLV-C42 (d) PSLV-C11

Ans. (d) : Chandrayaan–I, India's first mission to moon, was launched successfully on October 22, 2008 by using the launch vehicle PSLV-C11 rocket from Satish Dhawan Space Centre, Sriharikota, Andhra Pradesh. Chandrayan - II is the India's second lunar mission launched on July 22, 2019 by using launch vehicle GSLV Mark-III.

8. Mahatma Gandhi came to Champaran in:

(a) 1916 (b) 1922

(c) 1917 (d) 1919

Ans. (c) : On 10th April 1917 Mahatma Gandhi arrived Champaran with Raj Kumar Shukla. It was marked as India's first Civil Disobedience Movement launched by Mahatma Gandhi to protest against the injustice meted out to tenant farmers in Champaran district of Bihar.

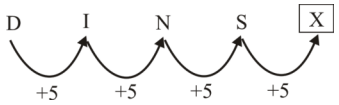
9. Select the letter from among the given options that can replace the question mark (?) in the following series:

D, I, N, S, ?

(a) A (b) X

(c) Z (d) Y

Ans. (b) : The given letter series is follows as –



Hence, ? = X

10. The Indian Parliament had passed the State Banks (Repeal and Amendment) Bill 2017 to merge subsidiary banks with the State Bank of India.

(a) Six (b) Eight

(c) Four (d) Two

Ans. (a) : The Parliament has passed State Banks (Repeal and Amendment) Bill, 2017 to merge six subsidiary banks with State Bank of India after it was approved by Rajya Sabha. The Bill already has been passed in Lok Sabha in 2017.

11. An integrated circuit is commonly known as :

(a) chip (b) resistor

(c) transistor (d) plate

Ans. (a) : An Integrated Circuit (IC) is also known as a chip or microchip. It is a small semiconductor based electronic device consisting of transistors, resistors and capacitors etc. ICs are now used in all electronic devices and have revolutionized the world of electronics.

12. Which is the oldest of the four Vedas?

(a) Samaveda (b) Atharvaveda

(c) Yajurveda (d) Rigveda

Ans. (d) : Out of the four Vedas, Rigveda, Samaveda, Yajurveda and Atharavaveda, the Rigveda is the oldest and therefore is also known as the first testament of Mankind. The Rigveda contains 1028 hymns, divided into 10 mandalas. The 10th mandal contains the Purushasukta. The famous Gayatri Mantra is originated from the third mandala of the Rigveda. The hymns of Rigveda were recited by "Hotri".

13. IBRD and IDA are the part of :

(a) United Nations

(b) International Monetary Fund

(c) International Labour Organization

(d) World Bank

Ans. (d) : The International Bank for Reconstruction and Development (IBRD) and International Development Association (IDA), together form the World Bank which provides financing, policy advice and technical assistance to the governments of developing countries. The IBRD has 189 member countries while the IDA has 173 member countries.

The headquarters of the World Bank is situated at Washington, D.C., U.S.

14. The forms of oaths of office for a Minister for the Union of India is contained in the:

(a) Second Schedule (b) Fifth Schedule

(c) Third Schedule (d) First Schedule

Ans. (c) : The forms of oaths of office for a minister for the Union of India is enshrined in the third Schedule of the Constitution.

The first schedule contains the name of States and Union Territories.

The second schedule lists the salaries of officials holding public office for example Presidents, Judges, Comptroller and Auditor General of India etc.

In the fifth schedule provisions as to the administration and control of scheduled areas and scheduled tribes are listed.

15. Which of the following states does not share border with Bangladesh?

(a) Manipur (b) Mizoram

(c) Tripura (d) Meghalaya

Ans. (a) : Manipur does not share its border with Bangladesh. India shares 4096 km long border with Bangladesh which touches Assam, Tripura, Mizoram,Meghalaya and West Bengal.

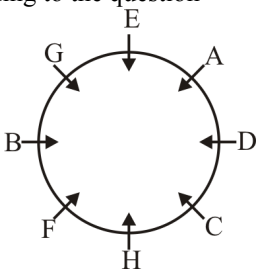
16. Eight persons A,B,C,D,E,F,G and H are sitting an around a circular table facing towards the centre (not necessarily in the same order). B sits third to the right of A. A is second to the right of C. Only two persons sits between C and E. H sits second to the left of D. F is not the neighbour of C or E.

Who is sitting third to the left of G?

(a) E (b) D

(c) B (d) H

Ans. (b) : According to the question –



It is clear from the diagram that D is sitting third to the left of G.

17. The highest point of the Aravalli Range is:

(a) Kamet (b) Angle Peak

(c) Guru Shikhar (d) Om Parvat

Ans. (c) : Guru Shikhar, located at a height of 1722 metres, is the highest peak of Aravalli mountains range. Guru Shikhar is located at 15 kilometres from Mount Abu. The famous Dattatreya Temple is located here. Aravalli range is a mountain range in Northwestern India, running approximately 670 km in a south-west direction, starting near Delhi, passing through southern Haryana and Rajasthan and ending in Gujarat.

18. Who lead the Santhal Revolt of 1855-56 held in India ?

(a) Sidhu and Kanhu

(b) Gora and Badal

(c) Nilamber and Pitamber

(d) Alha and Udal

Ans. (a) : The Santhal Revolt in India in 1855– 56 was led by four Murmu brothers – Sidhu, Kanhu, Chand and Bhairav. It was a rebellion in Jharkhand, Eastern India against both the East India Company (EIC) and Zamindari System by the Santhal.

19. According to the Public Enterprises Survey 2018-19 how many Central Public Sector Enterprises were in operational in India as on 31st March 2019?

(a) 280 (b) 398

(c) 249 (d) 339

Ans. (c) : As per Public Enterprises Survey 2018–19 as on 31st March 2019 there were total 348 CPSEs out of which 249 were in operation and remaining 86 CPSE's were under construction and other 13 were inclosure or in the state of liquidation. CPSEs are divided into three categories, Maharatna Navratna and Miniratna. As of October, 2021, there are 11 Maharatnas, 13 Navratnas and 73 Miniratnas.

20. Muscovite, Pegmatite and Biotite are ores of:

(a) Copper (b) Zinc

(c) Mica (d) Iron

Ans. (c) : India is the world's largest producer of Mica. Muscovite, Pegmatite and Biotite are the ores of Mica. Mica is found in the states of Andhra Pradesh, Maharashtra, Jharkhand, Odisha, Rajasthan etc.

Metal	Ore
Copper	Cuprite (Cu_2O)
	Copper glance (Cu_2S)
	Copper pyrites ($CuFeS_2$)
Zinc	Zinc blende (ZnS)
	Zincite (ZnO)
	Calamine ($ZnCO_3$)
Iron	Magnetite (Fe_3O_4)
	Haemetite (Fe_2O_3)

21. Find the greatest possible length that can be used to measure exactly the lengths $3\frac{1}{2}$m and $8\frac{3}{4}$m.

(a) $\frac{11}{4}$m (b) $\frac{7}{4}$m

(c) $\frac{3}{4}$m (d) $\frac{9}{4}$m

Ans. (b) :

HCF of $3\frac{1}{2}$ and $8\frac{3}{4} = \frac{\text{HCF of numerator}}{\text{LCM of denominator}}$

HCF of $\frac{7}{2}$ and $\frac{35}{4} = \frac{\text{HCF of } 7, 35}{\text{LCM of } 2,4} = \frac{7}{4}$

Hence, greatest possible length $= \frac{7}{4}$m

22. Read the given statement and conclusion carefully and decide which of the conclusion logically follow from the statement.

Statement:

1. In the modern era, lack of water availability is a major problem especially in summer times.

Conclusions:

1. Shortage of water is the major cause for many animals deaths in summer.

2. There is no shortage of water in winters.

(a) Only conclusion 1 follows

(b) both the conclusion follow

(c) Only conclusion 2 follows

(d) Neither conclusion 1 nor conclusion 2 follows

Ans. (d) : According to the statement neither conclusion 1 nor conclusion 2 logically follows from the statement.

23. Find the value of D if 1216 - 32D = DDD is divisible by 8.

(a) 6 (b) 2

(c) 8 (d) 4

Ans. (c) : 1216 – 32D = DDD

From option,

On putting D = 8

1216 – 328 = 888

$\frac{888}{8} = 111$

Divisibility rule of 8, if the last three digits of a given number are divisible by 8, then the number is completely divisible by 8.

Hence, the value of D will be 8.

24. The numerator of a fraction is 5 less than its denominator. If 2 is subtracted from the numerator and 2 is added to the denominator, the fraction becomes 2/5 find the original fraction.

(a) $\frac{9}{11}$ (b) $\frac{11}{13}$

(c) $\frac{5}{7}$ (d) $\frac{8}{13}$

Ans. (d): Let the numerator = a

Denominator = a + 5

According to the question

$$\frac{a-2}{a+5+2}=\frac{2}{5}$$

$5a - 10 = 2a + 14$

$3a = 24 \Rightarrow a = 8$

$\therefore$ Original fraction $= \frac{a}{a+5}=\frac{8}{13}$

25. Construction of the Hawa Mahal at Jaipur was inspired by the.

(a) Jal Mahal at Jaipur

(b) City Palace at Jaipur

(c) Khetri Mahal at Jhunjhunu

(d) Lake Palace at Udaipur

Ans. (c) : Hawa Mahal (The Palace of Winds) was built in 1799 by Maharaja Sawai Pratap Singh of Kachwaha Rajput dynasty, who was the founder of Jaipur. He was so impressed with the 'Khetri Mahal' built by Maharaja Bhopal Singh in the town of Jhunjhun, Rajasthan.

26. In 2019, who was selected as the President of the World Bank for a five-year term ?

(a) Jim Yong Kim (b) David Malpass

(c) Raghuram Rajan (d) Fahmeeda Amin

Ans. (b) : David Malpass was selected as 13th President of the World Bank Group by its Board of Executive Directors on April 2019.

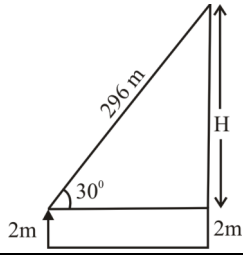
The World Bank is a specialized Organization of the United Nations is headquatered in Washington D.C., US. It was established as IBRD in 1944. The World Bank is an international financial institution that provides loans to developing and under-developed countries. Its first President was Eugene Meyer.

27. A Kite is flying with a thread of length 296m making an angle of elevation measuring 30^0 at a point of hand of a person of height 2m from the ground. Find the height of the kite from the ground.

(a) 200 m (b) 300 m

(c) 250 m (d) 150 m

Ans. (d) :



From the figure –

$$\sin 30^0 = \frac{H}{296}$$

$$\frac{1}{2}=\frac{H}{296} \Rightarrow H = 148 \text{ m}$$

So, the height of the kite from the ground = (H + 2) m = 148 + 2 = 150m

28. Which of the following state governments launched the plantation drive through 'Green Mahanadi Mission'?

(a) Odisha (b) Karnataka

(c) Andhra Pradesh (d) Telangana

Ans. (a) : The Odisha government has launched a plantation drive 'Green Mahanadi Mission' to stop soil erosion and recharge groundwater reserve of Mahanadi river. Under the mission, more than 5 crore saplings will be planted over an area of 41,000 hectares. The plantation will be done on either side of major rivers of Odisha as well along roadside length of about 5,000 km over a period of five years at an expenditure of around Rs. 5,000 crore.

29. How many nuclear explosions were conducted by India at Pokhran in May 1998?

(a) One (b) Four

(c) Five (d) Two

Ans. (c) : The Pokhran tests were a series of five nuclear bomb tests explosions conducted by India at the Indian Army's Pokhran Test Range, Rajasthan.

The tests were initiated on 11 May 1998, under the assigned code name 'Operation Shakti'.

30. What type of forests are found in the Sunderbans Delta in India ?

(a) Tropical (b) Thorny bushes

(c) Alpine (d) Mangrove

Ans. (d) Mangrove forests are found in the Sundarbans Delta of India. The Sunderbans mangrove forest, one of the largest forest in the world, lies on the delta of the Ganges, Brahmaputra and Meghna rivers in the Bay of Bengal. Mangrove forest comprises of small shrubs or trees that grow in coastal saline or brackish water.

31. If Charger = 60 , then Topper = ?

(a) 40 (b) 90

(c) 26 (d) 52

Ans. (b) : Just as,

Charger $\rightarrow$ 3 + 8 + 1 + 18 + 7 + 5 + 18 = 60

Similarly,

Topper $\rightarrow$ 20 + 15 + 16 + 16 + 5 + 18 = 90

32. Simplify the given expression using BODMAS:

$$\frac{4}{11}\times\frac{121}{16}\times 24(75^2 - 55^2)\times\frac{1}{100}$$

(a) 1736 (b) 1726

(c) 1746 (d) 1716

Ans. (d) : $\frac{4}{11}\times\frac{121}{16}\times 24\left(75^2-55^2\right)\frac{1}{100}$

From the BODMAS rule,

$=\frac{11}{4}\times 24\left[(75+55)(75-55)\right]\times\frac{1}{100}$

$\left[\because a^2-b^2=(a+b)(a-b)\right]$

$=66\times(130\times 20)\times\frac{1}{100}$

$=66\times 2600\times\frac{1}{100}$

$=1716$

33. When was the Muslim League founded?

(a) 1914 (b) 1917

(c) 1906 (d) 1902

Ans. (c) : The Muslim League was established in 1906, in Dhaka, Bangladesh by Aga Khan and Salim Ulla Khan during the tenure of Lord Minto-II.

34. If a + b + c = 10 and ab + bc + ca = 31 find the value of $a^2 + b^2 + c^2$

(a) 38 (b) 35

(c) 36 (d) 34

Ans. (a) : $a + b + c = 10$ .....(i)

$ab + bc + ca = 31$ .....(ii)

On squaring both sides of equation (i).

$a^2 + b^2 + c^2 + 2(ab + bc + ca) = 100$

$a^2 + b^2 + c^2 = 100 - 2(ab + bc + ca)$

$= 100 - 2 \times 31$ [From equation (ii)]

$= 100 - 62$

$= 38$

35. Which Article of the Indian Constitution empowers joint sitting of Lok Sabha and Rajya Sabha under certain circumstances?

(a) Article 108 (b) Article 75

(c) Article 100 (d) Article 156

Ans. (a) : Article 108 of the Indian Constitution envisazed for joint sitting of both the houses. The joint sitting of the Parliament is called by the President and is presided over by the Speaker or in his absence, by the Deputy speaker of the Lok Sabha or in his absence, the Deputy Chairman of the Rajya Sabha.

36. A team of 5 member is to be selected from 5 men M1, M2, M3, M4 and M5 and 6 women W1, W2, W3, W4, W5 and W6. M5 cannot be selected with W4 or M4. M2 must be selected with M5. M1 cannot be selected with M3. W6 cannot be selected with M2, or W1 or W2. W5 cannot be selected with W6 or W2 or M2.

If there are atleast three women in the team. Then which of the following is a correct selection of the team?

(a) M2, W2, W4, M5, W6

(b) M2, W3, M5, M3, W2

(c) M1, W5, W4, M4, W3

(d) M1, W2, W4, W6, M3

Ans. (c) : The team mentioned in option (c) follows all the conditions. Therefore option (c) team is correct.

From other option –

Option A team has selected W6 with W2 which is against the condition.

Option B team has 2 women which is against the condition.

Option D team has selected W6 with W2 which is against the condition.

37. The given data is arranged in ascending order and its median is 17. Find the value of x.

8, 10, 12, 15, x, x+2, 20, 25, 30, 32

(a) 16 (b) 18

(c) 19 (d) 17

Ans. (a) : 8, 10, 12, 15, *x*, *x*+2, 20, 25, 30, 32

n = 10 (Even)

Median for even terms $= \frac{\left(\frac{n}{2}\right)^{th}\text{ term}+\left(\frac{n}{2}+1\right)^{th}\text{ term}}{2}$

$\therefore$ Median $= \frac{\frac{10}{2}^{th}\text{ term}+\left(\frac{10}{2}+1\right)^{th}\text{ term}}{2} = \frac{x+(x+2)}{2}$

$\therefore \quad 17 = \frac{(2x+2)}{2}$

$17 = x + 1$

$x = 16$

38. Which system has been adopted by the Reserve Bank of India for note issue?

(a) Gold Reserve System

(b) Proportional Reserve System

(c) Fixed Fiduciary System

(d) Minimum Reserve System

Ans. (d) : The Reserve Bank of India has adopted the 'Minimum Reserve System' for the note issue. Since 1957, it maintains gold and foreign exchange reserves of 200 crore, of which at least 115 crore should be in gold.

RBI was established in 1 April, 1935. The Present Governor of RBI is Shaktikant Das.

39. The World Largest reef system the 'Great Barrier reef' is situated in which sea?

(a) Celtic Sea (b) Beaufort Sea

(c) Caspian Sea (d) Coral Sea

Ans. (d) : The world largest reef system the 'Great Barrier Reef ' is situated in the Coral Sea, off the coast of Queensland, Australia.

Coral reefs are made up of calcium carbonate released by coral living in the Ocean.

The coral sea is a marginal sea of the South Pacific Ocean, located in northeast of the York Intercontinental Peninsula on the northern coast of Australia.

40. Which political party was in power in England when the Cabinet Mission came to India?

(a) Conservative Party (b) Democratic Party
(c) Liberal Party (d) Labour Party

Ans. (d) : When Cabinet Mission came to India the Labour Party was the political party in power in England. At that time (1946) the Prime Minister of the Labour Party was Clement Attlee. Labour Party was founded in 1900 AD. Prime Minister Attlee on 15 February 1946 announced the establishment of the Constituent Assembly of India and sending the Cabinet Mission to India to discuss the burning problems of the Indians at that time. The Cabinet Mission reached Delhi on 24 March 1946.

41. If the height and the radius of a solid right circular cylinder are doubled, find the percentage increase in its volume.

(a) 300% (b) 700%
(c) 600% (d) 400%

Ans. (b) : Let radius of solid right circular cylinder = r
Height = h
Volume of the initial cylinder = $\pi r^2 h$
After doubling the radius and height
Volume of the new cylinder = $\pi(2r)^2 \times (2h)$
$= 8\pi r^2 h$
Increase = $8\pi r^2 h - \pi r^2 h = 7\pi r^2 h$
Percentage increase = $\frac{7\pi r^2 h}{\pi r^2 h} \times 100 = 700\%$

42. Simplify the given expression.

$$\mathbf{9 \times 0.9 \times 0.09 \times 0.009 \times \frac{1}{0.3} \times \frac{1}{0.03} \times \frac{1}{0.003}}$$

(a) 0.243 (b) 2.43
(c) 243 (d) 24.3

Ans. (c) : $9 \times 0.9 \times 0.09 \times 0.009 \times \frac{1}{0.3} \times \frac{1}{0.03} \times \frac{1}{0.003}$

$= 9 \times \frac{9}{10} \times \frac{9}{100} \times \frac{9}{1000} \times \frac{10}{3} \times \frac{100}{3} \times \frac{1000}{3}$

$= 9 \times 9 \times 9 \times 9 \times \frac{1}{3} \times \frac{1}{3} \times \frac{1}{3}$

$= 243$

43. Saikhom Mirabai Chanu, who has been conferred with the Rajiv Gandhi Khel Ratna Award in 2018.

(a) Weight lifter (b) Boxer
(c) Archer (d) Wrestler

Ans. (a) : Indian weight lifter Mirabai Chanu won Rajiv Gandhi Khel Ratna Award in 2018. She has been nominated for the Arjun Award by the Indian Weightlifting Federation (IWLF) for 2020/21.
Rajiv Gandhi Khel Ratna Award renamed after Hockey legend Dhyan Chand called the "Major Dhyan Chand Khel Ratna Award".
* The first Rajiv Gandhi Khel Ratna Award was given to Vishwanathan Anand.

44. Zinc Sulfate heptahydrate ($ZnSO_4.7H_2O$) is commonly known as:

(a) White vitriol (b) Gypsum
(c) Epsom salt (d) Blue vitriol

Ans. (a) : Zinc Sulfate heptahydrate ($ZnSO_4.7H_2O$) is commonly known as white vitriol.

Trade Name	Chemical Name	Formula
Gypsum	Calcium Sulphate	$CaSO_4.2H_2O$
Epsom Salt	Magnesium Sulphate heptahydrate	$MgSO_4.7H_2O$
Blue vitriol	Copper Sulphate	$CuSO_4.5H_2O$
Marble	Calcium Carbonate	$CaCO_3$
Vermilion	Mercuric Sulphite	HgS
Sand	Silicon Oxide	SiO_2

45. A seven digit number 67843A2 is divisible by 11 where A is a single digit whole number. Find the value of A.

(a) 0 (b) 8
(c) 6 (d) 7

Ans. (b) : Divisibility rule of 11 if the difference of the sum of alternative digits of a number is divisible by 11, then that number is completely divisible by 11.
67843A2 $\Rightarrow$ (2 + 3 + 8 + 6) ~ (A + 4 + 7) = 0/11
19 ~ (A + 11) = 0/11
19 = 0 + (A + 11)
A = 19 – 11
A = 8

46. Simplify the given expression.

$$\mathbf{\frac{5+5\times5}{5\times5+5} \times \frac{\frac{1}{5} \div \left(\frac{1}{5} \times \frac{1}{5}\right)}{\left(\frac{1}{5} \times \frac{1}{5}\right) \div \frac{1}{5}} - \left(5 - \frac{1}{5}\right) \times \frac{10}{2}}$$

(a) 3 (b) 1
(c) 0 (d) 2

Ans. (b) : Given that,

$$\frac{5+5\times5}{5\times5+5} \times \frac{\frac{1}{5} \div \left(\frac{1}{5} \times \frac{1}{5}\right)}{\left(\frac{1}{5} \times \frac{1}{5}\right) \div \frac{1}{5}} - \left(5 - \frac{1}{5}\right) \times \frac{10}{2}$$

$$= \frac{30}{30} \times \frac{25/5}{5/25} - \frac{24}{5} \times \frac{10}{2}$$

$$= 1 \times 25 - 24$$

$$= 25 - 24 = 1$$

47. if $\frac{2\sqrt{2}+\sqrt{7}}{2\sqrt{2}-\sqrt{7}} = x + y\sqrt{14}$, find the value of Y.

(a) 15 (b) 0
(c) 19 (d) 4

Ans. (d) : $\frac{2\sqrt{2}+\sqrt{7}}{2\sqrt{2}-\sqrt{7}} = x + y\sqrt{14}$

$\frac{2\sqrt{2}+\sqrt{7}}{2\sqrt{2}-\sqrt{7}} \times \frac{2\sqrt{2}+\sqrt{7}}{2\sqrt{2}+\sqrt{7}} = x + y\sqrt{14}$

$\frac{\left(2\sqrt{2}+\sqrt{7}\right)^2}{\left(2\sqrt{2}\right)^2-\left(\sqrt{7}\right)^2} = x + y\sqrt{14}$

$\frac{8+7+4\sqrt{14}}{8-7} = x + y\sqrt{14}$

$15 + 4\sqrt{14} = x + y\sqrt{14}$

On comparing both sides

$x = 15$

$y = 4$

48. The lens which is thin in the middle and thick at its periphery is called as ?

(a) Concave lens (b) Parallel lens

(c) Convex lens (d) Cylindrical lens

Ans. (a) : A lens which is thinner at the middle and thicker at the edges is called a concave lens.
It is a type diverging lens. The concave lens is used in cameras, in flashlights, in telescopes etc.

49. Find the value of tan 1º. tan 2º. tan 3º ..... tan 89º

(a) $\sqrt{3}$ (b) 0

(c) 1 (d) $\frac{1}{\sqrt{3}}$

Ans. (c) : Given that,

$\therefore$ $\tan 1^0 \tan 2^0 \tan 3^0 \cdots\cdots \tan 87^0 \tan 88^0 \tan 89^0$

($\because \tan(90° - \theta) = \cot\theta$)

$\tan 1^0 \tan 2^0 \tan 3^0 \cdots\cdots \cot 3^0 \cot 2^0 \cot 1^0$

$= 1$ $\because \tan\theta.\cot\theta = 1$

50. If a + b + c = 0 then find the value of $\frac{(a^2+b^2+c^2)^2}{a^2b^2+b^2c^2+c^2a^2}$

(a) 1 (b) 4

(c) 2 (d) 0

Ans. (b) : $a + b + c = 0$ Let $a = -1$, $b = 1$, $c = 0$

$\therefore$ $a + b + c = -1 + 1 + 0 = 0$

$$\frac{\left(a^2+b^2+c^2\right)^2}{a^2b^2+b^2c^2+c^2a^2} = \frac{\left(-1^2+1^2+0\right)^2}{1+0+0} = \frac{(1+1)^2}{1} = 4$$

51. Which was the following team won the 86th Ranji Trophy Title in March 2020?

(a) Mumbai (b) Saurashtra

(c) Vidarbha (d) Baroda

Ans. (b) : Team Saurashtra won the 86th Ranji Trophy title in March 2020. Saurashtra wins Ranji Trophy title for the first time in 70 years. Saurashtra defeated Bengal in the final match. The Ranji Trophy is named after one of India's first test cricketers, Ranjit Singh ji.

52. Where was Mahatma Gandhi on the day India got Independence?

(a) Rawalpindi (b) New Delhi

(c) Calcutta (d) Pune

Ans. (c) : In days of August 1947 away from the celebration of Independence, Gandhi choose to be in Kolkata with some of his followers to calm the rioters down. Tryst with Destiny was an English language speed delievered by Jawaharlal Nehru, the first PM of India, to the Indian Constituent Assembly in the Parliament, on the evening of India's Independence, towards midnight on 14 August 1947.

53. Read the given statements and conclusions carefully and decide which of the conclusions logically follow from the statements.

Statements:

1. Some flats are expensive.

2. Some expensive are villas.

Conclusions:

1. Some villas are expensive

2. No flat is villa.

3. Some villa are flat.

4. All villas are expensive.

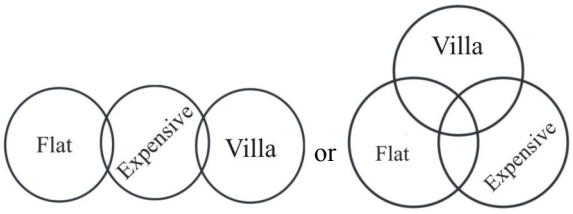
(a) Only conclusion 1 follows

(b) Only conclusion 4 follows

(c) Only conclusion 1 and 3 follows

(d) Only conclusion 3 follows

Ans. (a) : According to the statements –



It is clear from the Venn diagram that only conclusion I follows.

54. Where is one of the lead centers of Indian Space Research Organization, Satish Dhawan Space Centre located?

(a) Andhra Pradesh (b) Rajasthan

(c) Karnataka (d) Maharastra

Ans. (a) : Indian Space Research Organization (ISRO) was founded in 1969. It was founded under the chairmanship of renowned space scientist Dr. Vikram Sarabhai. The Satish Dhawan Space Center is the launch center of the Indian Space Research Organization. It is located in Sriharikota of Andhra Pradesh. It was established in 1 October 1971.

55. The headquarters of the World Bank is situated at:

(a) The Hague, Netherland

(b) Washington DC, USA

(c) London, UK

(d) Paris, France

Ans. (b) : World Bank is an international financial institution that provides loans to the government of low and middle income countries for the purpose of pursuing capital projects.
It is formed in 1944 and its headquarter is situated in Washington DC, USA.

56. How many numbers are there between 1000 and 3000 that are completely divisible by 7 ?

(a) 281 (b) 284
(c) 286 (d) 283

Ans. (c) :
Numbers divisible by 7 between 1000 and 3000
1001, 1008 2996
$\because\ l = a + (n-1)\,d$
where, l = Last term
a = First term
d = Common difference
n = Number of terms
$\therefore\ 2996 = 1001 + (n-1) \times d$
$1995 = (n-1) \times 7$
$(n-1) = 285$
$n = 286$

57. A certain sum of money amounts to ₹ 2613 in 6 years at 5% simple interest per annum. In how many years will it amount to ₹ 3015 at the same rate?

(a) 10 years (b) 15 years
(c) 18 years (d) 12 years

Ans. (a) : Let the principal (P) = ₹ 100

$$\text{Amount} = \text{Principal} + \frac{\text{Principal} \times \text{Rate} \times \text{Time}}{100}$$

$$A = P\left(1 + \frac{rt}{100}\right)$$

$$2613 = P\left(1 + \frac{5 \times 6}{100}\right)$$

$$2613 = P \times \frac{130}{100}$$

$$P = \frac{2613 \times 100}{130}$$

$$P = ₹\ 2010$$

Let time for simple interest = r years

$$\therefore\ \text{Simple interest} = \frac{\text{Principal} \times \text{Rate} \times \text{Time}}{100}$$

$(3015 - 2010) \times 100 = 2010 \times 5 \times t$
$1005 \times 10 = 201 \times 5 \times t$

$$t = \frac{1005 \times 10}{1005} = 10\ \text{Years}$$

58. What percentage of seats in the Lok Sabha is required to be won by a political party from at least three different states, to be eligible to be recognized as a national party?

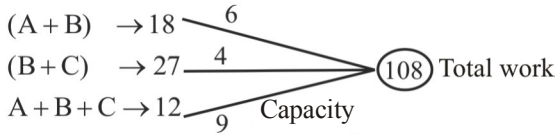
(a) 10 (b) 2
(c) 6 (d) 5

Ans. (b) : In order to be recognized as a National Party, it is necessary for a political party to get at least 2% of the total seats in the Lok Sabha from three different states or it is mandatory to get at least 6 % of votes in Lok Sabha elections in four different states and it is also mandatory to secure at least 4 seats in Lok Sabha or that Party recognized as a State Party in at least four or more states.

59. A and B can finish a task in 18 days. B and C can finish the same task in 27 days. A, B and C together can finish it in 12 days. How much time A and C will take to finish it ?

(a) $14\frac{1}{2}$ days (b) $15\frac{1}{2}$ days
(c) $13\frac{1}{2}$ days (d) $12\frac{1}{2}$ days

Ans. (c) :



Capacity of (A+B+C) of 1 day = 9
Capacity of C of 1 day = Capacity of (A + B + C) of 1 day – Capacity of (A + B) of 1 day = 9 – 6 = 3
Capacity of A of 1 day = [(A + B + C) – (B + C)]
Capacity of 1 day = 9 – 4 = 5

$$\text{Time taken by (A+C) to finish the work} = \frac{108}{(5+3)}$$

$$= \frac{108}{8} = 13\frac{1}{2}\ \text{days}$$

60. A certain sum of money is divided among A, B and C. A gets one-third of the amount. B gets thrice as much as what C gets and C gets ₹1200 less than what A gets find the share of A (in ₹).

(a) 1,200 (b) 3,600
(c) 4,800 (d) 2,400

Ans. (d) : Let total amount = ₹ x

$$\text{Amount received by A} = ₹\ \frac{x}{3}$$

$$\text{Amount received by C} = ₹\left(\frac{x}{3} - 1200\right)$$

$$\text{Amount received by B} = 3\left(\frac{x}{3} - 1200\right) = ₹\ (x - 3600)$$

$$\therefore\ \text{Total amount} = \frac{x}{3} + \frac{x}{3} - 1200 + x - 3600 = x$$

$$\frac{5x}{3} - 4800 = x$$

$\frac{2x}{3} = 4800$

$x = 2400 \times 3$

$x = ₹\ 7200$

$\therefore$ Share of A $= 7200 \times \frac{1}{3} = ₹\ 2400$

61. In a class of 130 students. 15 students like maths and history. 25 students like only Hindi. 30 students like only English, 20 students like English and Hindi both, 15 students like only history and 15 students like only maths. Some students like all 4 subjects. If the total number of students who like English is 60, Hindi is 55, maths and history is 40 then how many students like all 4 subjects?

(a) 25 (b) 35

(c) 10 (d) 15

Ans. (c) : As per question –

Students who like only Mathematics and History = 15

Students who like only English and Hindi = 20

Students who like only Hindi = 25

Students who like only English = 30

Students who like only Mathematics = 15

Total students who like English = 60

Total students who like Hindi = 55

Students who like Mathematics and History = 40

From the above,

Students who like all three subjects with English

= 60 – (30 + 20) = 10

Students who like all three subject with Hindi

= 55 – (20 + 25) = 10

Number of students who like two more subjects with Maths and History = 40 – (15 + 15) = 10

Hence number of students who like all four subjects = 10

62. Find the time taken by a 450 m long train travelling at the speed of 80 km/h to cross a platform of length 150 m.

(a) 27 s (b) 28 s

(c) 25 s (d) 24 s

Ans. (a) : $\because$ Speed of train

$= \frac{\text{Length of train + Length of platform}}{\text{Time taken to cross the platform}}$

$80\text{km/h} = \frac{450\text{m} + 150\text{m}}{\text{t}}$

$80 \times \frac{5}{18} = \frac{600}{\text{t}}$

$\text{t} = \frac{600 \times 18}{400} = 27$ Seconds

63. Valmiki National Park is located in :

(a) Uttarakhand (b) Madhya Pradesh

(c) Arunachal Pradesh (d) Bihar

Ans. (d) : Valmiki National Park is a tiger reserve in the West Champaran district of Bihar, India. It is situated on the India - Nepal Border on the banks of River Gandak.

The Park is divided in two sections –

* The Wild Life Sanctuary covering an area of 545 km^2.
* The National Park covering an area around 335 km^2.

64. What least number should be added to 3500 to make it exactly divisible by 42, 49, 56 and 63?

(a) 24 (b) 22

(c) 26 (d) 28

Ans. (d) : LCM of 42, 49, 56, and 63 $= 7^2 \times 2^3 \times 3^2$

$= 3528$

Required number = 3528 – 3500 = 28

65. Out of the four letter-clusters listed three are alike in some manner and one is different select the odd one:

CF, OR, VX, AD

(a) AD (b) CF

(c) OR (d) VX

Ans. (d) :

$C \xrightarrow{+3} F, O \xrightarrow{+3} R, V \xrightarrow{+2} X, A \xrightarrow{+3} D$

It is clear that the letter - clusters VX is different from all others.

66. In Africa Kilimanjaro is:

(a) The longest river

(b) The biggest grassland

(c) The dense forest

(d) Volcanic mountain

Ans. (d) : Mount Kilimanjara is a volcano in Tanzania. It is the highest mountain in Africa and the highest single free standing mountain in the world. It is about 5,895 metres high above sea level.

It has three volcanic cones

$\rightarrow$ Kibo

$\rightarrow$ Mawenzi

$\rightarrow$ Shira

67. Mona was residing at a place X from 17 February 2012 to 27 April 2012. If both days are included, then for how many days was she residing at place X?

(a) 68 (b) 69

(c) 71 (d) 70

Ans. (c) : 2012 is a leap year. Hence, the month of February will have 29 days.

Required number of days

= 13 days (February) + 31 days (March) + 27 days (April)

= 71 days

68. Find the sum of mean, median and mode of the given data.

9, 35, 20, 25, 25, 15, 25

(a) 75 (b) 72

(c) 47 (d) 50

Ans. (b) :

$\text{Mean} = \frac{9+35+20+25+25+15+25}{7}$

$= \frac{154}{7} = 22$

On writing the data in ascending order

9, 15, 20, 25, 25, 25, 35

N = 7 terms (odd)

$\text{Median} = \left(\frac{N+1}{2}\right)^{th} \text{term}$

$= \left(\frac{7+1}{2}\right)\text{term} = 4 \text{ term}$

Median = 25

Mode = The number that occurs the highest number of times

= 25

Sum of mean, median and mode = 22 + 25 + 25

= 72

69. If WIRE is coded as SENA, then REPORT will be coded as?

(a) TROPER (b) NALKNP

(c) NAKLNP (d) MAKLNP

Ans. (b) : Just as,

W	I	R	E
–4↓	–4↓	–4↓	–4↓
S	E	N	A

Similarly

R	E	P	O	R	T
–4↓	–4↓	–4↓	–4↓	–4↓	–4↓
N	A	L	K	N	P

70. There is square park of size 18m in length. A road of width 3m is constructed outside the square around it. Find the area of the road.

(a) 352 m^2 (b) 350 m^2

(c) 252 m^2 (d) 250 m^2

Ans. (c) :

Length of park including road = 18 + 3 + 3 = 24 m

Length of park excluding road = 18 m

Area of road = Area of outer square park – Area of inner square park

$= (24)^2 - (18)^2$

$= (24 + 18) \times (24 - 18)$

$= 42 \times 6 = 252 \text{ m}^2$

71. Which Indian Prime Minister translated the epic Telugu novel in to Hindi which is named as Sahasra Phan'

(a) P.V. Narasimha Rao (b) Manmohan Singh

(c) V.P. Singh (d) I.K. Gujral

Ans. (a) : Vishwanath Satyanarayana was the author of the book Veyi Padagalu, a Telugu novel. It was translated into Hindi by India's 9th Prime Minister PV Narsimha Rao, with the name 'Sahasara Phan' (A Thousand Hoods).

72. GUI in the context of computers stands for.

(a) Group User Interface

(b) Gigabyte Used in Internet

(c) Gopher Used Investigation

(d) Graphical User Interface

Ans. (d) : GUI stands for Graphical User Interface. A Graphical User Interface allows users to interact with a device through graphical elements. GUIs are widely used in both personal and business computing.

73. Which one among the following is NOT listed under 'Maharatna' companies?

(a) Coal India Limited

(b) National Thermal Power Corporation

(c) Indian Oil Corporation

(d) Shipping Corporation of India

Ans. (d) : Shipping Corporation of India is a Navratna Company. Coal India Limited, National Thermal Power Corporation and Indian Oil Corporation are listed in Maharatna Companies.

As of October, 2021, there are 11 Maharatnas, 13 Navratnas and 73 Miniratnas.

74. Select the number from among the given options that can replace the question mark (?) in the following series.

8, 24, 48, 120, 168, ?

(a) 287 (b) 248

(c) 288 (d) 189

Ans. (c) : The given number series is as follows –

8	24	48	120	168	288
-1↑	-1↑	-1↑	-1↑	-1↑	-1↑
$(3)^2$	$(5)^2$	$(7)^2$	$(11)^2$	$(13)^2$	$(17)^2$

Note : The series has been made by reducing 1 from the squares of the consecutive prime numbers.

75. Find the interest (in ₹) on ₹ 8000 at 10% per annum compounded half yearly for $1\frac{1}{2}$ years.

(a) 1,263 (b) 1,264

(c) 1,261 (d) 1,260

Ans. (c) :

Principal = ₹ 8000, Rate of interest =10%, Time (t) $= 1\frac{1}{2}$ years

Interest is calculated half yearly

∴ R= 5%, t = 3 half yearly

$\therefore A = P\left(1+\frac{R}{100}\right)^{t} = 8000\left(1+\frac{5}{100}\right)^{3} = 8000\times\frac{9261}{8000}$

$\therefore$ A = ₹ 9261

$\therefore$ Compound interest = A –P = 9261–8000 = ₹ 1261

76. A dealer sells a table for ₹ 400 making a profit of 25%. He sells another table at a loss of 10% and on the whole he makes neither profit nor loss. How much (in ₹) did the second table cost for him?

(a) 750 (b) 700

(c) 800 (d) 850

Ans. (c) : Let the cost price of the second table (CP_2) = ₹ x

According to the question –

$400-400\times\frac{100}{125} = x - x\times\frac{90}{100}$

$\therefore\ 400 + x\times\frac{90}{100} = 400\times\frac{100}{125} + x$

$400+\frac{9x}{10} = 320 + x$

$80 = \frac{x}{10} \Rightarrow\ \therefore\ x$ = ₹ 800

77. Which of the following is NOT a colour created from a combination of two primary colours ?

(a) Orange (b) Green

(c) Violet (d) Blue

Ans. (d) : Red, Green and Blue are called the primary or main colours. Secondary colours are obtained by mixing primary colours. Blue colour is not obtained by combining two primary colours.

78. In a triangle the ratio of angles is 2:3:4 find the difference between the greatest and the smallest angle.

(a) 60º (b) 40º

(c) 0º (d) 20º

Ans. (b) : Let the angles of the triangle be 2x, 3x and 4x respectively.

Sum of all three angles of a triangle = 180°

2x + 3x + 4x = 180

9x = 180

x = 20

$\therefore\ 2x = 2\times 20 = 40^0$

$3x = 3\times 20 = 60^0$

$4x = 4\times 20 = 80^0$

$\therefore$ Difference between the greatest and the smallest angle = 80 – 40 = 40^0

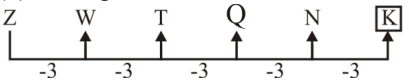
79. Select the letter from among the given options that can replace the question mark (?) in the following series.

Z, W, T, Q, N, ?

(a) K (b) J

(c) L (d) M

Ans. (a) : The given letter series is as follows –



Hence, there will be K in place of the question mark.

80. 1024 megabytes is equal to:

(a) 1 gigabyte (b) 1 bite

(c) 1 decabite (d) 1 kilobyte

Ans. (a) : 1024 Megabytes is equal to 1 Gigabyte.

1 Kilobyte = 1024 Byte

1 Megabyte = 1024 Kilobytes

1 Gigabyte = 1024 Megabytes

81. Read the given statements and conclusions carefully and decide which of the conclusions logically follow from the statement.

Statements :

1. Some dogs are cats

2. No cat is rat

3. All rats are mosquitoes.

conclusions:

1. All cats are dogs

2. Some rats are dogs.

3. All mosquitoes are dogs.

4. No mosquitoes is a dog.

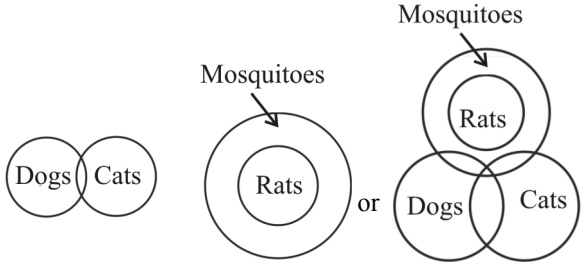
(a) Only conclusion 2 follows

(b) Only conclusion 1 follows

(c) Only conclusion 4 follows

(d) Only conclusion 3 follows

Ans. (*) : According to the statement –



It is clear from the Venn diagram No conclusion logically follows from the statements.

Note – Option (c) has been considered as the answer to this question by the Railway Recruitment Board (RRB).

82. In India, which of the following organisations is NOT exempted from RTI Act ?

(a) Aviation Research Centre

(b) Research and Analysis Wing

(c) Competition Commission of India

(d) Intelligence Bureau

Ans. (c) : Competition Commission of India (CCI) is not exempted from RTI Act while Aviation Research Centre, Research and Analysis Wing and Intelligence Bureau are exempted organization.

The Right to Information (RTI) Act was enacted by the Government of India in 2005.

83. If the cost price of 15 Notebooks is equal to the selling price of 12 Notebooks, then the percentage gain or loss is-

(a) 25% loss
(b) 20% gain
(c) 25% gain
(d) 20% loss

Ans. (c) : According to the question –

$15 \times CP = 12 \times SP$

$CP : SP = 4 : 5$

where,

CP – Cost price of the article

SP – Selling price of the article

$P = SP - CP = 5 - 4 = 1$

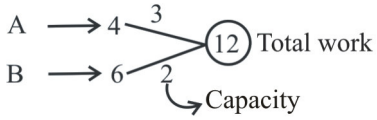
$\therefore P\% = \frac{1}{4} \times 100 = 25\%$ profit

84. An inlet pipe can fill a tank in 4h and an outlet pipe can empty the tank in 6h. By mistake, both the pipe are kept open. Find the number of hours in which the tank will be half-full.

(a) 12 h (b) 10 h
(c) 6 h (d) 8 h

Ans. (c) : Let inlet pipe = A

Outlet pipe = B

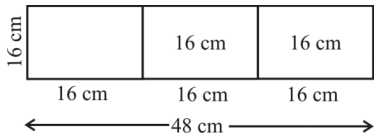


$\because$ Time taken by both the pipes to fill the tank half-full. $= \frac{(12/2)}{3-2} = 6$ hour

85. 3 Cubes each with side 16 cm are joined side by side in a line. Find the surface area of the cuboid so formed.

(a) 3584 cm^2
(b) 3588 cm^2
(c) 3600 cm^2
(d) 3564 cm^2

Ans. (a) :



$\therefore$ Surface area of cuboid $= 2(lb + bh + hl)$

$= 2(48 \times 16 + 16 \times 16 + 16 \times 48)$

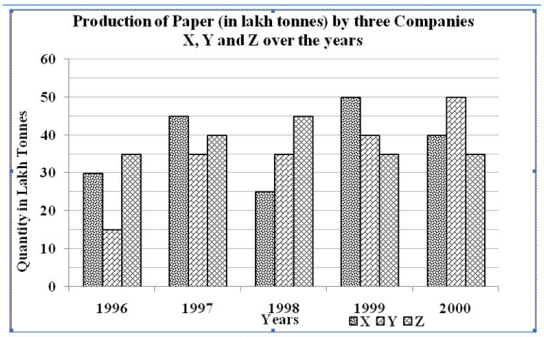
$= 2(48 \times 16 + 48 \times 16 + 256)$

$= 2(1536 + 256)$

$= 2 \times 1792$

$= 3584\ cm^2$

Direction (86 – 89) : In the given graph, data is given for paper production in different years by 3 companies X, Y and Z.



86. Find total production by company X in all the years (in Lakh tonnes)

(a) 190 (b) 180
(c) 195 (d) 185

Ans. (a) : Total production by company X

$= 30 + 45 + 25 + 50 + 40 = 190$

87. Which company has recorded lowest range in production figures between 1996 and 2000?

(a) Y (b) X
(c) Z (d) X and Y

Ans. (c) :

$\because$ Range of production figures in companies 1996 and 2000.

$\because$ Range = Highest value – Lowest value

Range of X = 40 – 30 = 10

Range of Y = 50 – 25 = 25

Range of Z= 35 – 35 = 0

Hence the range of Z is the lowest.

88. Which company's total production is less than the average production of all the three companies put together for the given period?

(a) Company Z (b) Company Y
(c) Company X and Y (d) Company X

Ans. (b) : In the given graph

Total production of company X = 190

Total production of company Y =185

Total production of company Z =190

Average production of all the three companies

$= \frac{190+185+190}{3}$

$= \frac{565}{3} = 188.33$

It is clear that the total production of company Y is less than the average production of all the three companies.

89. If in the year 2000, the production increased by 5% in company X and company Y, then what would be the % increase in total production as compared to the production reported in the graph above for the same year?

(a) 4.60% (b) 3.60%
(c) 4.00% (d) 3.40%

Ans. (b) : Total production of the company in the year 2000 = 40 + 50 + 35 = 125
If the production of company X and company Y increased by 5% then the total production
= 42 + 52.5 + 35 = 129.5
Increase = 129.5 – 125 = 4.5
Percentage increase = $\frac{4.5}{125} \times 100 = 3.60\%$

90. In a class 25 students like math and history, 25 students like only Hindi, 30 students like only English, 20 students like English and Hindi both, 15 students like only history and 15 students like only math. 15 students like all 4 subjects. How many total students are there in the class?
(a) 130 (b) 145
(c) 125 (d) 140

Ans. (b) : Number of total students
= 25 + 25 + 30 + 20 + 15 + 15 + 15 = 145

91. Select the option that is related to the third term in the same way as the second term is related to the first term ?
Darkness : Light :: Thirst : ?
(a) Water (b) Bread
(c) Food (d) Well

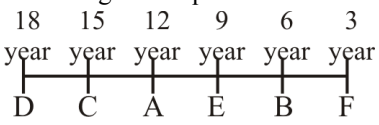
Ans. (a) : Just as Darkness is related to Light in the same way Thirst is related to Water.

92. Select the option that is related to the third term in the same way as the second term is related to the first term.
Saudi Arabia : Monarchy :: India : ?
(a) Democracy (b) Monarchy
(c) Autocracy (d) Aristocracy

Ans. (a) : Just as there is a system of monarchy in Saudi Arabia, Similarly there is a system of democracy in India.

93. Six persons A, B, C, D, E and F are sitting in a row facing towards north (not necessarily in the same order). Their ages are in successive multiple of 3 from left to right end. B is second to the right of A. A is to the immediate left of E. Only three persons sit between C and F. The age of D is 18 years and the maximum. C sits to the left of E. What is the total age of A and B?
(a) 18 years (b) 15 years
(c) 24 years (d) 12 years

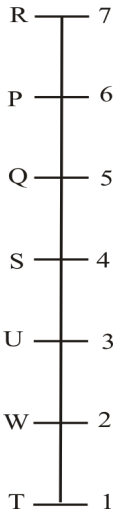
Ans. (a) : According to the question –



∴ Total age of A and B = 12 + 6 = 18 years

94. Seven Persons P, Q, R, S, T, U and W live on different floors in a building having seven floors (first floor is the lowermost floor, then second floor is above it and then so on). Only one person lives on one floor. P lives on one of the immediately above S and S did not lives odd number floor. Only two person lives between S and T. U lives on one of the immediately above W. Only four persons live between T and P. Who are the neighbours of P?
(a) S and U (b) Q and R
(c) S and Q (d) S and R

Ans. (b) : According to the question



It is clear that both R and Q are the neighbours of P.

95. Select the combination of letters that when sequentially placed in the blanks will create a repetitive pattern.
abb- a-b--bbb
(a) bbbb (b) abbb
(c) babb (d) bbba

Ans. (d) : From option (d) –
abbb/abbb/abbb

96. Read the given statements and conclusions carefully and decide which of the conclusions logically follow from the statement.
Statement:
In these times water pollution is a major cause of diseases.
Conclusions:

1. Water borne diseases are very deadly.

2. Generally water shortage is reported in pre-monsoon time.

(a) Only conclusions 1 follows

(b) Only conclusions 2 follows

(c) Both the conclusions follows

(d) Neither conclusion 1 nor conclusion 2 follows

Ans. (d) : According to the statement neither conclusion 1 nor conclusion 2 logically follows from the statement.

97. Nisha is the daughter of Ramkishan who is the husband of Urmila. Manisha is the sister of Urmila and the mother of Suman. Jitender is the father of Jatin who is the son of Suman. Jatin is related to Urmila as:

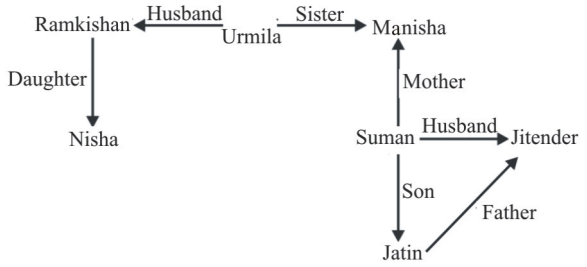
(a) daughter's husband

(b) daughter's son

(c) sister's husband

(d) sister's daughter's son

Ans. (d) :



It is clear from the diagram that Jatin is the son of Urmila's sister's daughter.

98. Read the given statement and conclusions carefully and decide which of the conclusions logically follow from the statements:

Statements:

1. Some dogs are cats.

2. No cat is rat.

3. All rats are mosquitoes.

Conclusions:

1. Some cats are mosquitoes.

2. No rat are dog.

3. Some mosquitoes are dogs.

4. Some cats are dogs.

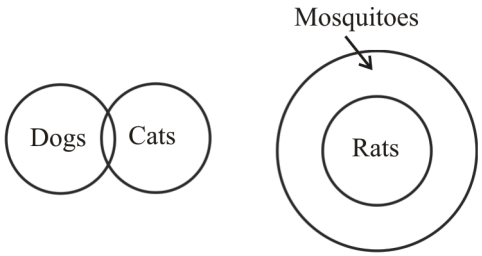
(a) Only conclusion 4 follows

(b) Only conclusion 3 and 4 follows

(c) Only conclusion 1 follows

(d) Only conclusion 1 and 3 follows

Ans. (a) :



It is clear from the Venn diagram that only conclusion 4 logically follows from the statements.

99. Select the number from among the given options that can replace the question mark (?) in the following series.

0, 24, 120, 336, ?

(a) 820 (b) 729

(c) 744 (d) 720

Ans. (d) : The given number series is follows as –

$0 = 24 \times (0 + 0^2)$

$24 = 24 \times (0 + 1^2)$

$120 = 24 \times (1 + 2^2)$

$336 = 24 \times (5 + 3^2)$

$720 = 24 \times (14 + 4^2)$

100. Each of the six person A, B, C, D, E and F like one of six different colours, viz, red, green blue, black, orange and white but not necessarily in that order, Each of them also own a home in one of six different cities, viz, Delhi, Mumbai, Hyderabad, Chennai, Bangalore and Kolkata, but not necessarily in the same order. A has a home in Delhi but he does not like orange and white colours. B does not like blue and black colours and does not live in Mumbai. F has a home in Bangalore and like red colour. D has a home in Hyderabad and likes either blue or black colour. C like green colour and lives in Chennai E like orange colour.

Who lives in Kolkata and likes white colour?

(a) A (b) B

(c) D (d) E

Ans. (b) :

Person	Favourite Colour	Home
A	Black/Blue	Delhi
B	White	Kolkata
C	Green	Chennai
D	Blue/Black	Hyderabad
E	Orange	Mumbai
F	Red	Bangalore

Hence B is the one who likes white colour and lives in Kolkata.

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 31.01.2021] **[Time : 10.30 am-12.00 pm]**

1. What is the ultimate source of energy in plants?

(a) Glucose (b) Chlorophyll
(c) Protein (d) Sun light

Ans. (d) : The ultimate source of energy for all living organisms on earth is the Sun. Plants convert light energy (obtained from sun) into chemical energy and prepare their food by the process of photosynthesis.

2. In which of the following Vedas the knowledge related to music is stored ?

(a) Rigveda (b) Atharvaveda
(c) Samaveda (d) Yajurveda

Ans. (c) : Samaveda mentions about music. It is also called the book of melodies. It is a part of four Vedas namely Rigveda, Samaveda, Yajurveda, Atharvaveda. One of the four upavedas, Gandharva Veda deals with music, dance, poetry etc and is associated with Samaveda.

3. Which of the following statements about Coriolis force is incorrect ?

(a) It arises due to difference in atmospheric pressure
(b) It is direclty proportional to the angle of latitude
(c) It is maximum at the poles
(d) It is not at the equator

Ans. (a) : The imaginary force that appears to deflect the wind is the Coriolis force. The Coriolis force applies to movement on rotating objects. It is determined by the mass of the object and the object's rate of rotation. It is zero at the equator.

4. Express 32 : 20 in its lowest form.

(a) 8 : 5 (b) 8 :10
(c) 16 : 10 (d) 24 : 15

Ans. (a) : $32 : 20 = \frac{32}{4} : \frac{20}{4} = 8 : 5$

5. When will the Halley's Comet be visible now?

(a) 2061 (b) 2055
(c) 2075 (d) 2070

Ans. (a) : Halley's Comet will appear in the night sky in the year 2061. It is visible from earth every 75-76 years. Halley's Comet periodic returns to the solar system have been recorded by the astronomer Edmond Halley. It was last seen in 1986.

6. Before the present premises, where was the Supreme Court of India operated ?

(a) from Parliament Huse
(b) from Red Fort
(c) from the High Court of Delhi
(d) from President House

Ans. (a) : The Supreme Court of India functioned from the Parliament House till it moved to the present building. It has a 27.6 metre high dome and a spacious colonnaded verandah. The Supreme Court of India came into existence on 26 January 1950. On the 28th of January 1950, two days after the country became a Sovereign Democratic Republic, the Supreme Court came into being. It replaced both the Federal Court of India and the Judicial Committee of the Privy Council which were then at the apex of the Indian Court System.

7. How many ministers can be included in the Union Council of Ministers?

(a) 15% of the total members of Lok Sabha
(b) 50% of the total members of Lok Sabha
(c) 10% to 15% of the total members of Lok Sabha
(d) As desired by the Prime Minister of India

Ans. (a) : As per Indian Constitution, article 75(I)(a) states the limit on minister. According to this article the total number of ministers including Prime Minister, in the Council of Ministers shall not exceed fifteen percent ,of the total number of members of the House of the People. This article was added by constitution 91st amendment in Act, 2003.

8. Which of the following countries has more than one standard meridian ?

(a) U.S.A (b) India
(c) Japan (d) Afghanistan

Ans. (a) : Standard Meridian is the longitude which is used to describe time of a country. The United States is divided into six time zones: Hawaii-Aleutian time, Alaska time, Pacific time, Mountain time, Central time and Eastern time.

9. Rockets work on the principle of _____ conservation.

(a) momentum (b) mass
(c) energy (d) velocity

Ans. (a) : Rocket works on the principle of conservation of momentum. Rocket emits gases in backward direction which creates momentum of the gases backwards and thus by conservation of momentum ,the rocket gets motion in the forward direction making it to move forward.

10. Select the option which has the same relation with the third word as the second word with the first word.

Rabbit : Burrow :: Sparrow : ?

(a) Feather (b) Tree

(c) Beak (d) Nest

Ans. (d) : Just as habitat of Rabbit is Burrow, in the same way the habitat of Sparrow is Nest.

11. Which of the following metals exists in liquid state?

(a) sodium (b) potassium

(c) mercury (d) calcium

Ans. (c) : Mercury is the only metal which is liquid at standard conditions for temperature and pressure. The only other element which is liquid under these conditions is bromine.

12. As of October 2020, Dutee Chand, the Indian National record holder of the women's 100 metre sprint competition completed the race in _____seconds.

(a) 11.22 (b) 12.50

(c) 10.34 (d) 13.52

Ans. (a) : Dutee Chand, the Indian National record holder of the women's 100 metre sprint, competition completed the race in 11.22 seconds.

13. Six girls are sitting in a circle facing each other. Hina is sitting to the right of Mehak. Ela is on the right of Hina. Seema is on the left of Mehak. Rani is sitting between Priya and Seema. Where is Priya sitting ?

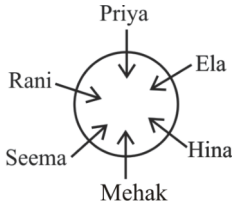
(a) between Ela and Rani

(b) between Seema and Ela

(c) between Hina and Mehak

(d) between Rani and Seema

Ans. (a) : The sitting arrangement according to the question is as follows–



It is clear from the diagram that Priya is sitting between Ela and Rani.

14. What is the full form of FTP?

(a) File Transfer Program

(b) Fast Transfer Program

(c) Fast Transfer Protocol

(d) File Transfer Protocol

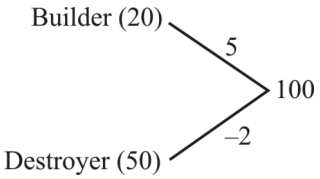
Ans. (d) : The full form of FTP is File Transfer Protocol. The FTP refers to a process work when one party allows another to send or receive files over the internet.

15. In a computer game, a builder can build a wall in 20 hours, while a destroyer can completely demolish the wall in 50 hours. Both builder and destroyer were initially set to work on level ground. But after 30 hours the destroyer was taken out. How long did it take to build the wall?

(a) 32 hours 40 minute (b) 33 hours 20 minute

(c) 32 hours 20 minute (d) 32 hours

Ans. (d) :



Work done by Builder and Destroyer in 1 hour = 5–2 = 3.

Work done by Builder and Detroyer in 30 hours = 3 × 30 = 90

Remaining work = 100–90 =10

Time taken by the Builder to complete the remaining work $= \frac{10}{5} = 2\text{hours}$

Total time = 30 + 2 = 32 hours

16. Solve the following?

54 + [19 – {15 – (6 – 16 ÷ 4 × 8}] = ?

(a) 62 (b) 32

(c) 40 (d) 58

Ans. (b) : 54 + [19 – {15 – (6 – 16 ÷ 4 × 8}]

According to the BODMAS rule.

$= 54 + \left[19 - \left\{15 - \left(6 - 4 \times 8\right)\right\}\right]$

$= 54 + \left[19 - \left\{15 - \left(6 - 32\right)\right\}\right]$

$= 54 + \left[19 - \left\{15 + 26\right\}\right]$

$= 54 + \left[19 - 41\right]$

$= 54 - 22$

$= 32$

17. Study the pattern carefully and select the number that will come in place of the question mark (?)

18	25	31
17	18	7
16	20	12
19	?	26

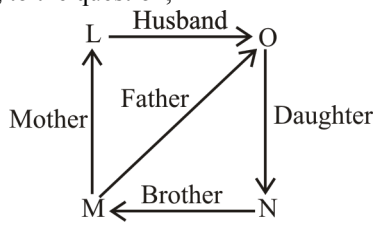
(a) 25 (b) 23
(c) 24 (d) 21

Ans. (b) :
Just as,
From Column I,
18 + 17 = 16 + 19
35 = 35
From Column III,
31 + 7 = 12 + 26
38 = 38
Similarly,
From Column II,
25 + 18 = 20 + ?
43 – 20 = ?
? = 23

18. If A × B = A is the brother of B, A/B = A is the mother of B and A + B = A is the daughter of B, then in L/M × N + O, who is the father?

(a) L (b) N
(c) M (d) O

Ans. (d) : Given − L/M × N + O
According to the question,



Hence it is clear that 'O' is the father of M and N.

19. The largest international border of India is connected with _____

(a) Pakistan (b) Bangladesh
(c) China (d) Bhutan

Ans. (b) : India shares its international border with seven countries. The total length of India's international boundary is 15,200 km. It is bounded by Pakistan and Afghanistan to the northwest, China, Nepal and Bhutan to the north, Bangladesh and Myanmar to the east. India shares a 4096 km long border with Bangladesh which is longest of all.

20. How many valence electrons are there in a graphite atom?

(a) Four (b) Five
(c) Two (d) Three

Ans. (a) : Since graphite is an allotrope of carbon and has 4 valence electron in its outermost shell so, Graphite also have 4 valence electrons.

21. The value of square root of 90 will lie between.....

(a) 9 and 10 (b) 10 and 11
(c) 8 and 9 (d) 7 and 8

Ans. (a) : Square of 9 = 81
Square of 10 = 100
It is clear that the square root of 90 will lie between 9 and 10.
$\sqrt{90} = 9.487$

22. Dhalo is a popular religious folk dance of ____.

(a) Arunachal Pradesh (b) Goa
(c) Manipur (d) Chhatisgarh

Ans. (b) :

State	**–**	**Dance**
Arunachal Pradesh	–	Chalo
Goa	–	Dhalo
Manipur	–	Nupa Dance
Chhattisgarh	–	Gaur Maria

23. How many hours before sun rises in eastern most Arunachal Pradesh, as compared to in western most Gujarat?

(a) one and a half hour
(b) two and a half hour
(c) one hour
(d) two hours

Ans. (d) : The sun rises two hour earlier in Arunachal Pradesh in east as compared to Gujarat in the west. This causes a time lag of two hours from Gujarat to Arunachal Pradesh. To avoid confusion India has adopted its standard time zone, known as Indian Standard Time (IST) which is passes through Mirzapur, near Allahabad based on longitude 82.5º.

24. As per the information received till November 2020, who is the chairman of National Green Tribunal (NGT) of India?

(a) Justice L.S. Pant
(b) Justice Adarsh Kumar Goel
(c) Justice S.K. Singh
(d) Justice Swatantra Kumar

Ans. (b) : Justice Adarsh Kumar Goel is the present chairman of National Green Tribunal (NGT) of India. He is the former Judge of the Supreme Court of India.

25. Which one of the following is micronutrients used for crop plants?

(a) Potassium (b) Calcium

(c) Magnesium (d) Iron

Ans. (d) : Micronutrients are essential for plant growth and play an important role in balanced crop nutrition. They include Boron (B), Copper (Cu), Iron (Fe), Manganese (Mn), Molybdenum (Mo), Zinc (Zn), Nickel (Ni), and Chlorine (Cl).

26. Where will the 2021 Maha Kumbha be held?

(a) Prayag (b) Nasik

(c) Ujjain (d) Haridwar

Ans. (d) : 2021 Mahakhumb was organized in Haridwar.

Maha Kumbh	Places	Rivers
Prayag Mahakumbh	Prayagraj (U.P)	Confluence of Ganga, Yamuna and Saraswati.
Nasik Mahakumbh	Nasik (Maharastra)	Godavari
Ujjain Mahakumbh	Ujjain (Madhya Pradesh)	Shipra
Haridwar Mahakumbh	Haridwar (Uttrakhand)	Ganga

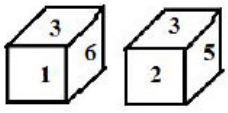
27. What is the length of railway route of Indian Railways as per information received till March 2017?

(a) 66,368 km (b) 69,368 km

(c) 63,768 km (d) 67, 368 km

Ans. (d) : The Indian Railway's track is spread across a massive 115,000 km, making it the largest rail network operated under a single management. The entire track covers a route length of 67,368 km.

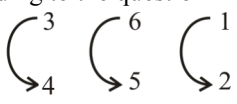
28. Two different positions of the same dice are shown. Which number will be on the face opposite to the 6.



(a) 3 (b) 4

(c) 2 (d) 5

Ans. (d) : According to the question–



It is clear that the number 5 will be on the opposite face of 6.

29. Solve the following 15 % of 22 ?

(a) 3.2 (b) 3.4

(c) 3.3 (d) 3.5

Ans. (c) : $15\%\text{ of }22 = 22\times\frac{15}{100}$

$$=\frac{11\times3}{10}$$

$$=\frac{33}{10}=3.3$$

30. If UNSCRAMBLE is coded as GPXYTFNDZV then what will be the code for MARBLES ?

(a) GPTDVZX (b) SXYZVNP

(c) YNTVFXR (d) NFTDZVX

Ans. (d) : According to the question,

U = G
N = P
S = X
C = Y
R = T
A = F
M = N
B = D
L = Z
E = V

Using the above code,

M	=	N
A	=	F
R	=	T
B	=	D
L	=	Z
E	=	V
S	=	X

31. The sum of the present ages of Aditi, Aditya and Aadya is 120 years. What was the sum of their ages 3 years ago?

(a) 111 (b) 114

(c) 112 (d) 118

Ans. (a) : According to the question–

Sum of present ages of Aditi, Aditya and Aadya =120 years

3 years ago sum of their ages $= 120 - 3 \times 3$

$= 120 - 9$

$= 111$ years

32. Of the residents of a housing society, $\frac{13}{18}$ own a cars and 48/65 of the car owners have purchased covered parking space. If 136 of the residents parked the car in the open, how many residents were there in the society.

(a) 900 (b) 720
(c) 630 (d) 650

Ans. (b) : Let the total number of residents in the society = x

Number of people who have a car = $x \times \frac{13}{18}$

Number of people who purchased covered parking space = $\frac{13x}{18} \times \frac{48}{65} = \frac{8x}{15}$

According to the question,

$$\frac{13x}{18} - \frac{8x}{15} = 136$$

$$\frac{130x - 96x}{180} = 136$$

$34x = 136 \times 180$

$x = 4 \times 180$

$x = 720$

33. India's first lunar mission, Chandrayaan-I was terminated …….. due to loss of communication with the spacecraft.

(a) 28 July 2009 (b) 15 August 2009
(c) 29 August 2009 (d) 5 September 2009

Ans. (c) : Chandrayan-I, India's first mission to moon, was launched successfully on October 22, 2008 from Satish Dhawan Space Centre, Sriharikota, Andhra Pradesh. Radio contact with Chandrayaan-I spacecraft was abruptly lost on August 29, 2009.

34. Humpi was the capital of _____.

(a) Vijaynagar (b) Parmar
(c) Rashtrakoot (d) Chol

Ans. (a) : Humpi was the capital of Vijaynagar Kingdom. Vijaynagar Empire was founded by Harihar and Bukka in 1336. It failed to regain Northern India in 1565 after the Battle of Talikota and subsequently lapsed into decline.

35. Point A, B and C lie on a circle with centre O. If ∠ACB = 46.5º then find the measure of the ∠AOB on the minor $\overset{\frown}{AB}$.

(a) 90º (b) 93º
(c) 94º (d) 92º

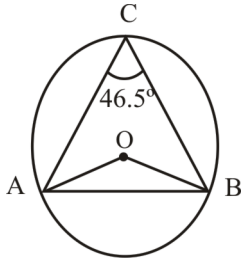
Ans. (b) : According to the question–

∠AOB = 2×∠ACB

∵ The angle at the centre is twice the angle at the circumference.

∴ ∠AOB = 2 × 46.5

∠AOB = 93º



36. All the six surfaces of a cube are colored with different colors-violet, indigo, blue, green, yellow and orange.
The green face is opposite to the violet face.
The blue face is between the green and violet faces.
The orange face is adjacent to the yellow face.
The Indigo face is adjacent to the orange face
The green face is in the bottom.
What is the colour of the upper face?

(a) Indigo (b) green
(c) Violet (d) blue

Ans. (c) : It is clear that violet is on the upper face of the cube.

37. Find the value of $\frac{\cos 41^\circ}{\sin 49^\circ} + \frac{\sin 51^\circ}{\cos 39^\circ}$

(a) 0 (b) 4
(c) 1 (d) 2

Ans. (d) : $\frac{\cos 41^\circ}{\sin 49^\circ} + \frac{\sin 51^\circ}{\cos 39^\circ}$

$= \frac{\cos(90 - 49^\circ)}{\sin 49^\circ} + \frac{\sin 51^\circ}{\cos(90 - 51^\circ)}$

$= \frac{\sin 49^\circ}{\sin 49^\circ} + \frac{\sin 51^\circ}{\sin 51^\circ}$

= 1 + 1

= 2

38. The perimeter of the rectangle is 96 m and its length is 27 m. Find its width.

(a) 21 m (b) 48 m
(c) 42 m (d) 69 m

Ans. (a) : In the given question

Length of Rectangle = 27 m

Width of Rectangle = x m

∵ Perimeter of rectangle = 2 (l +b)

96 = 2 (27 + x)

48 = 27 + x

or x = 21 m

39. There are three positive integers a, b and c such that their average is 35 and a ≤ b ≤ c. If the median is (a + 18), find the least possible value of c.

(a) 41 (b) 42
(c) 39 (d) 40

Ans. (a) : According to the question,

$$\frac{a + b + c}{3} = 35$$

a + b + c = 105

The median of a, b and c will be, b = a + 18

$\because$ b = a+18

$\therefore$ a + a + 18 + c = 105

2a + c = 87

on putting a = 22,

b = 40

c = 87 – 44 = 43

on putting a = 23

b = 41

c = 87 – 46 = 41

It is clear that minimum possible value of c = 41

40. Out of the four words listed below, three are alike and one is different. Select the different one.

Jio, Vodafone, Airtel, Amazon

(a) Airtel (b) Amazon

(c) Jio (d) Vodafone

Ans. (b) : Amazon is an online shopping portal while Airtel, Jio and Vodafone are telecom companies. Hence option (b) is odd.

41. Read the statement carefully and state which of the following conclusions are true with respect to the statements.

Statements :

I. Last Sunday, 15th of the month, There was a rush of tourist at Taj Mahal.

II. The authorities have decided to keep the Taj Mahal closed for repairs from the 17th of the month.

(a) statement I and statement II are effects of a common cause.

(b) statement I and statement II are different reasons

(c) statement II is the cause and statement I is its effect

(d) statement I is the cause and statement II is its effect

Ans. (c) : It is clear from the statement that the authorities have decided to close down the Taj Mahal to repair from 17th of the month. For this cause there was a rush of tourists at Taj Mahal last Sunday the 15th of the month. Hence the statement II is the cause and statement I is its effect.

42. If simple interest is offered per annum on an amount invested for five years, the amount of money payable on maturity after elapse of five years is ₹2340. However, if the amount had been invested only for two years, the amount payable on maturity would have been Rs. 2016 what was the original amount invested?

(a) ₹2000/- (b) ₹1800/-

(c) ₹1600/- (d) ₹1750/-

Ans. (b) : Let principal = ₹P

$$2340 - P = \frac{P \times r \times 5}{100} \quad \text{..... (i)}$$

$$2016 - P = \frac{P \times r \times 2}{100} \quad \text{..... (ii)}$$

equation (i) ÷ (ii)

$$\frac{2340 - P}{2016 - P} = \frac{\frac{P \times r \times 5}{100}}{\frac{P \times r \times 2}{100}}$$

$$\frac{2340 - P}{2016 - P} = \frac{5}{2}$$

4680 – 2P = 10080 – 5 P

3P = 5400

P= ₹ 1800

43. A sum of money invested for 4 years at 5% simple interest becomes ₹150/- on maturity. Find the amount invested?

(a) ₹180/- (b) ₹125/-

(c) ₹120/- (d) ₹175/-

Ans. (b) : Let principal = ₹ P

According to the question,

Simple interest = 150 – P

$$\therefore \quad 150 - P = \frac{P \times 5 \times 4}{100}$$

750 – 5P = P

6P = 750

P = ₹ 125

44. Who won the title of "ICC Men's Test Cricketer of the Decade" in December 2020?

(a) Kane Williamson (b) David Warner

(c) Steve Smith (d) Virat Kohli

Ans. (c) :

ICC Awards of the Decade, 2020

Category	Winners
ICC Men's Test Cricketer of the Decade	Steve Smith (Australia)
ICC Men's ODI Cricketer of the Decade	Virat Kohli (India)
ICC Men's T20 Cricketer of the Decade	Rashid Khan (Afghanistan)
ICC Sprit of Cricket Award of the Decade	M.S. Dhoni (India)

45. Who is the author of Harshacharita?

(a) Kalidas (b) Panini

(c) Kalhana (d) Banabhatta

Ans. (d) :

Authors		Books
Kalidas	–	Abhigyanshakuntalam, Meghdutam, Raghuvansham, Kumarsambhavam, Malavikagnimitram.
Panini	–	Astadhyayi
Kalhan	–	Rajatarangini
Banabhatta	–	Harshacharita, Kadambari

46. Parvez leaves his office every day at 6 pm and reaches home at 7.30 pm. One day he left his office at 6 pm but he covered one fourth the distance at 4/5 of his usual speed if Parvez was able to reach home on time then at what time did he cover the remaining part of the journey at his usual speed?

(a) $\frac{16}{15}$ (b) $\frac{10}{9}$

(c) $\frac{12}{11}$ (d) $\frac{6}{5}$

Ans. (c) : Let distance between office and Parvez's home is d km and his usual speed be v km/h.

According to the question,

$$\frac{d}{v} = 1\frac{1}{2} \text{ hours}$$

$$\frac{d}{v} = \frac{3}{2} \text{ hours}$$

Again, let Parvez covers the remaining part of the journey at x times of usual speed.

$$\frac{(d/4)}{(4v/5)} + \frac{(3d/4)}{x.v} = 3/2 \quad \text{_____(ii)}$$

From eq^{n} (i) & (ii).

$$\frac{(d/4)}{(4v/5)} + \frac{(3d/4)}{x.v} = \frac{d}{v}$$

$$\Rightarrow \frac{5}{16} + \frac{3}{4x} = 1$$

$$\Rightarrow \frac{3}{4x} = 1 - \frac{5}{16} \text{ or } \frac{3}{4x} = \frac{11}{16}$$

$$\frac{3}{x} = \frac{11}{4}$$

$$\frac{1}{x} = \frac{11}{12}$$

$$x = \frac{12}{11}$$

47. Find the sum of prime no. between 50 and 60.

(a) 118 (b) 114

(c) 110 (d) 112

Ans. (d) : Prime numbers between 50 and 60 are 53 and 59

Required sum = 53 + 59 = 112

48. Which of the following numbers is not a perfect square?

(a) 41,616 (b) 16,384

(c) 23,102 (d) 97,344

Ans. (c) : The unit digit of any perfect square number can be 0, 1, 4, 5, 6 and 9, while 2, 3 and 7 cannot.

The unit digit of the number given in option (c) is 2.

So it is not a perfect square.

49. A rectangle of sides 34 cm and 18 cm is reconstructed to form a rhombus whose perimeter is equal to that of the rectangle and one of its angle is 120°. Find the area of the rhombus in cm^2.

(a) $\frac{169\sqrt{3}}{3}$ (b) $169\sqrt{3}$

(c) $338\sqrt{3}$ (d) $\frac{338\sqrt{3}}{3}$

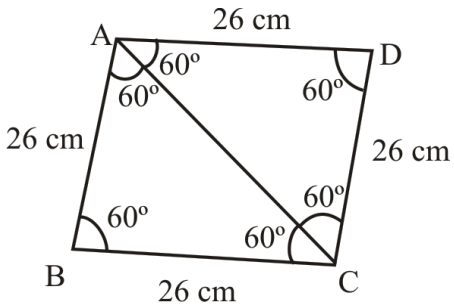
Ans. (c) : Let the side of rhombus be a.

According to the question,

Perimeter of Rhombus = Perimeter of Rectangle

4a = 2 (34 +18)

a = 26



Area of Rhombus ABCD = 2 × Area of Equilateral triangle ABC

$$\text{Area} = 2 \times \frac{\sqrt{3}}{4} \times \text{side}^2$$

$$= 2 \times \frac{\sqrt{3}}{4} \times 26 \times 26 \text{ cm}^2$$

$$= 26 \times 13 \times \sqrt{3} \text{ cm}^2$$

$$= 338\sqrt{3} \text{ cm}^2$$

50. Dhupgarh is the highest peak of the ..... range.

(a) Satpura (b) Aravalli
(c) Ajanta (d) Vindhya

Ans. (a) :

Mountain Range		Highest Peak
Satpura	–	Dhupgarh
Aravalli	–	Guru Shikhar
Nilgiri	–	Dodabetta
Vindhya	–	Sad-Bhawana Shikhar

51. Which of the following actor has been appointed as the brand ambassador of RBI's public awareness campaign?

(a) Amitabh Bacchan (b) Amir Khan
(c) Shahrukh Khan (d) Akshay Kumar

Ans. (a) : Reserve Bank of India (RBI) appointed its brand ambassador to superstar Amitabh Bacchan for public awareness campaign. The present Governor of RBI is Shaktikant Das.

52. A narrow zone where land, water and air interact is called.

(a) Atmosphere (b) Environment
(c) Biosphere (d) Hydrosphere

Ans. (c) : A narrow zone where land, water and air interact is called biosphere. The biosphere is made up of the parts of Earth where life exists. The biosphere extends from the deepest root system of trees, to the dark environment of ocean trenches, to lush rain forests and high mountain tops.

53. How many factors of $2^7 \times 3^3 \times 5^4 \times 7$ are even?

(a) 40 (b) 280
(c) 84 (d) 320

Ans. (b) : $7 \times (3+1)\times(4+1)\times(1+1)$
$= 7 \times 4 \times 5 \times 2$
$= 280$

54. In which of the following that CANNOT be the L.C.M. of 3, 4 and x.

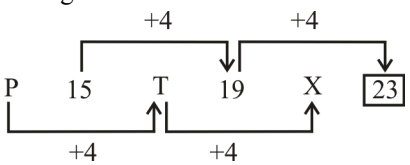
(a) 60 (b) 24
(c) 18 (d) 36

Ans. (c) : 18 cannot be the LCM of 3,4 and x because 18 is not perfectly divisible by 4.

55. Select the number, from the gives alternatives which can come in place of the question mark (?) in the series given below?
P, 15, T, 19, X, ?

(a) 21 (b) 22
(c) 23 (d) 24

Ans. (c) : The given series is as follows–



56. According to the information received till November 2020, who is the chairman of Central Pollution Control Board (CPCB) ?

(a) TK Joshi (b) Shiv Das Meena
(c) Anil Kumar Gupta (d) Ashok Agrawal

Ans. (b) : Till November 2020, the chairman of the Central Polloution Control Board (CPCB) was Shiv Das Meena. At present the Chairman of CPCB is Tanmay Kumar.

57. In a certain code language, 15789 is written as XTZAL and 2346 as NPSU. How will 98216 be written in that language?

(a) LAXUN (b) LANUX
(c) LAXNU (d) LANXU

Ans. (d) : According to the question,

1 = X	and	2 = N
5 = T		3 = P
7 = Z		4 = S
8 = A		6 = U
9 = L		

Using the given code,

9 =	L
8 =	A
2 =	N
1 =	X
6 =	U

58. Find the minimum value of x, which makes $\frac{136}{x-4}$ an integer.

(a) –132 (b) 72
(c) 140 (d) –268

Ans. (a) : The given expression $= \frac{136}{x-4}$

For the minimum number of x
From option (a)
On putting x = –132

$$\frac{136}{-132-4} = \frac{136}{-136} = -1 \text{ (Integer)}$$

Minimum value of x = –132

59. When did Lord Clive finally return to England from India?

(a) 1766 (b) 1765
(c) 1767 (d) 1764

Ans. (c) : Robert Clive was the first British Governor of the Bengal Presidency. He is credited along with Warren Hastings for laying the foundation of British Rule in India. Robert Clive finally left India in 1767.

60. The grand temple of Khajuraho was built by the_____ rulers.

(a) Parmar (b) Chandela
(c) Chouhan (d) Solanki

Ans. (b) : The grand temple of Khajuraho was built by the Chandela dynasty. Most of the temples were built between 885 AD and 1050 AD. Khajuraho is an ancient city known for magnificent temples and its intricate sculptures located in the Chhatarpur district of Madhya Pradesh.

61. What is the location of RAM in computers?

(a) Input device
(b) Output device
(c) External memory
(d) Motherboard

Ans. (d) : RAM stands for Random Access Memory. It is physically small and microchip type device and usually stored outside the CPU in separate chips. RAM memory modules are installed into slots on the computer motherboard.

62. Find the sum of $\frac{5}{2}$ and $\frac{2}{5}$.

(a) $\frac{10}{7}$ (b) $\frac{29}{10}$
(c) $\frac{20}{7}$ (d) $\frac{7}{7}$

Ans. (b) : $\frac{5}{2}+\frac{2}{5}=\frac{25+4}{10}$

$=\frac{29}{10}$

63. The difference between the selling prices of an article at a profit of 14% and a loss of 10% is ₹60. Find the cost price of the article.

(a) ₹235/- (b) ₹240/-
(c) ₹225/- (d) ₹250/-

Ans. (d) : Let cost price of the article = ₹ x

According to the question,

$$x\times\frac{114}{100}-x\times\frac{90}{100}=60$$

$$24\,x = 60\times 100$$

$$x = ₹\,250$$

64. If $x+\frac{1}{x}=3$, then find the value of $x^3+\frac{1}{x^3}$ = ?

(a) 18 (b) 27
(c) 9 (d) 36

Ans. (a) : $x+\frac{1}{x}=3$

On cubing both sides,

$$\left(x+\frac{1}{x}\right)^3=(3)^3$$

$$x^3+\frac{1}{x^3}+3\times x\times\frac{1}{x}\left(x+\frac{1}{x}\right)=27$$

$$x^3+\frac{1}{x^3}+3\left(x+\frac{1}{x}\right)=27$$

$$x^3+\frac{1}{x^3}+3\times 3=27$$

$$x^3+\frac{1}{x^3}=27-9=18$$

65. Name the largest milk-producing country in the world.

(a) U.S.A. (b) China
(c) India (d) England

Ans. (c) : India is the world's largest milk producer with 22 percent of global production, followed by the United States of America, China, Pakistan and Brazil. World Milk Day is celebrated every year on June 1 all over the world.

66. Which of the following equipment is primarily used in military submarines?

(a) Telescope (b) Microscope
(c) Endoscope (d) Periscope

Ans. (d) : A periscope's basic purpose is to allow a person to see objects above the water while the ship remains submerged in water. It is primarily used in military submarines. The periscope works on the Law of Reflection.

67. Who was the first Muslim President of Indian National Congress?

(a) Dada Bhai Naoroji
(b) Nawab Syed Muhammad Bahadur
(c) Abul Kalam Ajad
(d) Badruddin Tyabji

Ans. (d) :

Congress' Sessions year	Place	President
1885	Mumbai	Wyomesh Chandra Bannerjee – First President .
1886	Calcutta	Dada Bhai Naroji – First Parsi President
1887	Madras	Badruddin Tyabji – First Muslim Prsident
1888	Allahabad	George Yule – First British President

68. Rani Padmavati is associated with the city of:

(a) Pushkar (b) Jodhpur
(c) Chittorgarh (d) Udaipur

Ans. (c) : Rani Padmavati, also known as Padmini, is associated with the Chittorgarh, Rajasthan. She was the wife of King Ratan Singh. Several 16^{th} century texts mentioned about her, of which the earliest source is Padmavat, a poem written by Malik Muhammad Jayasi in 1540 CE.

69. When did the Government of India launch the Digital India Programme for connecting rural areas with high-speed Internet networks and improving digital literacy?

(a) 25 September 2014 (b) 15 July 2017
(c) 25 June 2016 (d) 1 July 2015

Ans. (d) : Digital India, a flagship initiative, was launched with a vision to transform India into a digitally empowered society and knowledge economy. It has completed six years of its journey since its launch on 01 July 2015.

70. ……. gas, released from chlorofluorocarbons, is harmful to the ozone layer.

(a) Hydrogen (b) Chlorine
(c) Hydrogen sulphide (d) Nitrogen dioxide

Ans. (b) : Chlorine gas is released from chlorofluorocarbons which is harmful to the ozone layer. One chlorine atom can destroy over 100,000 ozone molecules before it is removed from the stratosphere.

71. If the pH value of river water is ……., then its water is considered polluted with acidic waste.

(a) exactly 7 (b) zero
(c) above 7 (d) below 7

Ans. (d) : The pH value is a measure of the acidity and basicity of a solution. It is defined as the negative-logarithm of the liquefied hydrogen ions (H^+). If the pH value of river water is less than 7 then it is considered to be polluted with acidic waste. If the pH is more than 7 then the solution is considered to be alkaline in nature.

72. 14 Men can build a wall in 12 days. Another group of 7 Men, each only one-fourth as efficient as those in the first group, will be able to complete such a wall in :

(a) 84 days (b) 120 days
(c) 108 days (d) 96 days

Ans. (d) : From $M_1 \times D_1 = M_2 \times D_2$

$14 \times 12 = \frac{7}{4} \times D_2$

$D_2 = 2 \times 12 \times 4$

$D_2 = 96$ days

73. Solve the following ?
176 + 17.6 + 1.76 + 0.176 + 0.0176 = ?

(a) 195.5536
(b) 195.5556
(c) 195.5356
(d) 195.5336

Ans. (a) : 176 + 17.6 + 1.76 + 0.176 + 0.0176

176.0000
17.6000
1.7600
0.1760
0.0176
= 195.5536

74. If $\sin x - 3\cos x = \sqrt{3}\cos x$, then find the value of cot x.

(a) $3-\sqrt{3}$ (b) $3+\sqrt{3}$
(c) $\sqrt{3}$ (d) $\frac{3-\sqrt{3}}{6}$

Ans. (d) : $\sin x - 3\cos x = \sqrt{3}\cos x$

On multiplying by $\frac{1}{\cos x}$ to both sides,

or $\frac{\sin x}{\cos x} - 3\frac{\cos x}{\cos x} = \sqrt{3}$

$\tan x - 3 = \sqrt{3}$

$\tan x = 3 + \sqrt{3}$

$\cot x = \frac{1}{3+\sqrt{3}} \times \frac{3-\sqrt{3}}{3-\sqrt{3}}$

$= \frac{3-\sqrt{3}}{(3)^2 - (\sqrt{3})^2}$

$= \frac{3-\sqrt{3}}{9-3}$

$\cot x = \frac{3-\sqrt{3}}{6}$

75. If the volume of sphere is given as 4851 cm^3, then find its diameter?

$\left[\textbf{Use } \pi = \frac{22}{7}\right]$

(a) 42 cm (b) 21 cm
(c) 28 cm (d) 10.5 cm

Ans. (b) : $\because$ Volume of sphere $= \frac{4}{3}\pi r^3$

$\frac{4}{3} \times \frac{22}{7} \times r^3 = 4851$

$r^3 = \frac{441 \times 21}{4 \times 2}$

$r^3 = \frac{21 \times 21 \times 21}{2 \times 2 \times 2}$

$r = \frac{21}{2}$

Diameter $(2r) = \frac{21}{2} \times 2 = 21$ cm

76. Which of the following is NOT a part of Indian Parliament ?

(a) President
(b) House of the People
(c) Legislative Council
(d) The Council of States

Ans. (c) : Legislative Council is not a part of Indian Parliament. Vidhan Parishad or Legislative Council is the upper house in those states of our country that have a bicameral state legislature. It is a permanent body. Its establishment is defined in Article 169 of the Constitution of India. As of 2021, 6 out of 28 states have a State Legislative Council.

77. Sonam was given some money for her travel expenses during a 15 day sales campaign. However, she had to increase her stay by another 9 days and as a result her average daily travel allowance went down by Rs. 75. What was the amount that was sanctioned to her in the beginning ?

(a) ₹2,700 (b) ₹2,750
(c) ₹3,000 (d) ₹2,850

Ans. (c) : According to the question–

	Day	Average Expenditure	Total Amount
Initially ⟶	15	₹x (Let)	₹15x
Later ⟶	(15+9)=24	₹(x–75)	₹24(x–75)

$\because$ $15x = 24(x-75)$

$15x = 24x - 24\times75$

or $9x = 24\times75$

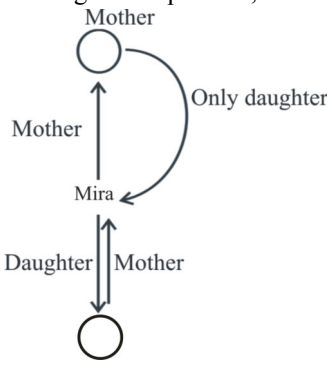
$x = 200$

So, initially the amount $= 15 \times 200 =$ ₹ 3000

78. Pointing to the photograph of a girl, Mira said, "She is the daughter of the only daughter of my mother". How is Mira related to the girl ?

(a) Mother (b) Sister's daughter
(c) Mother's sister (d) Sister

Ans. (a) : According to the question,



Hence it is clear from the diagram Mira is mother of that girl.

79. The full form of EDD in banking field is :

(a) Extended Due Diligence
(b) Enhanced Deposit Diligence
(c) Extended Deposit Diligence
(d) Enhanced Due Diligence

Ans. (d) : The full form of EDD in banking sector is Enhanced Due Diligence. EDD is the KYC process of gathering data and information to verify the identity of customer, but with additional information required to mitigate the risk associated with the client.

80. An amount of ₹100 was invested for two years at the rate of 10% compound interest per annum. If the rate of interest is increased to 20% for the same period, how much more money would the investor get as interest.

(a) ₹23/- (b) ₹20/-
(c) ₹22/- (d) ₹24/-

Ans. (a) : According to the question,

$$100\left[\left(1+\frac{20}{100}\right)^2-1\right]-100\left[\left(1+\frac{10}{100}\right)^2-1\right]$$

$$=100\left[\frac{6}{5}\times\frac{6}{5}-1\right]-100\left[\frac{11}{10}\times\frac{11}{10}-1\right]$$

$$=100\left[\frac{36-25}{25}\right]-100\left[\frac{121-100}{100}\right]$$

$= 4 \times 11 - 21$

$= 44 - 21$

$=$ ₹ 23

81. Rahul had to appear for a test in four subjects. In the first three subjects the maximum marks were 50 each, in which Rahul secured 60% on an average. In the fourth subject Rahul scored 54 marks and his overall percentage is 64%. What were the maximum marks in the fourth subject ?

(a) 75 (b) 80
(c) 84 (d) 60

Ans. (a) : Let the total marks obtained by Rahul in the first three subjects $= x$

According to the question,

$$\frac{x}{150}\times100 = 60$$

$x = 90$

Let the maximum marks of the fourth subject $= y$

$$\therefore \frac{(90+54)}{(150+y)}\times100 = 64$$

$14400 = 9600 + 64\,y$

$$y = \frac{4800}{64} = 75$$

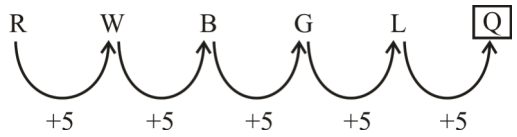
82. Select the letter which can replace the question mark (?) in the series given below.

R, W, B, G, L, ?

(a) C (b) U

(c) S (d) Q

Ans. (d) : The given series is as follows–



83. Among the four words listed, three are alike in some manner and one is different. Select the odd one.

Black Pepper, Cardamom, Onion, Clove

(a) Black Pepper (b) Clove

(c) Cardamom (d) Onion

Ans. (d) : Onion is a type of vegetable whereas Black Pepper, Clove and Cardamom come under spices.

84. National Waterway-3 of India exists in the state of …….

(a) Karnataka (b) Tamil Nadu

(c) Kerala (d) Andhra Pradesh

Ans. (c) :

National Waterway	**Related States**
National Waterway-1	Uttar Pradesh , Bihar & West Bengal
National Waterway-2	Assam (Sadiya to Dhubri)
National Waterway-3	Kerala (Kottapuram to Kollam)
National Waterway-4	Andhra Pradesh (Kakinada to Puducherry)

85. If $\frac{288}{x}$ and $\frac{108}{x}$ are natural numbers then what is the maximum value of x ?

(a) 54 (b) 48

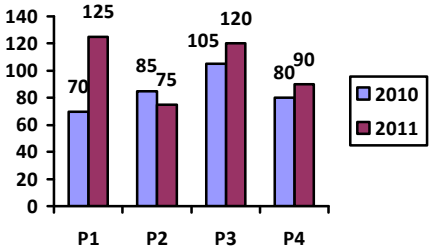
(c) 42 (d) 36

Ans. (d) : Maximum value of x = H.C.F of 108 and 288

$108\overline{)288}(2$
$\underline{216}$
$72\overline{)108}(1$
$\underline{72}$
$36\overline{)72}(2$
$\underline{72}$
$\times\times$

So the maximum value of x = 36

86. The graph given below shows the sales of books (in thousands) from four branches of ABC Publishing House during two consecutive years. What is the ratio of total sales of branch P2 for that of P4 for both years?



(a) 61 : 71 (b) 16 : 17

(c) 71 : 61 (d) 17 : 16

Ans. (b) : From the given graph,

Total sales of branch P_2 for both the years = 85 + 75 = 160

Total sales of branch P_4 for both the years = 80 + 90 = 170

Required ratio = 160 : 170

= 16 : 17

87. A son-in-law remembers that his mother-in-law's birthday is definitely before the twentieth of August, whereas his wife remembers that He celebrated his mother's birthday definitely after the eighteenth, but before twenty-second of August. Assuming both of them are correct, on which date would the man's mother-in-laws birthday falls ?

(a) Nineteenth August

(b) Twentieth August

(c) Eighteenth August

(d) Twenty First August

Ans. (a) : According to son-in-law, the possible birthday date of his mother-in-law–

18, 19 ——(i)

According to his wife, possible birthday date of her mother–

19, 20, 21 ——(ii)

Equation (i) and (ii) have 19^{th} in common.

Hence the birthday of the person's mother-in-law is on the 19^{th} August.

88. Study the table given below which shows the expenditure of company SRT under various heads from the year 1998 to 2002, and answer the following question?

Year	Procurement	Production	Marketing	Interest on Loan	Tax
1998	185	78	45	23.9	56.3
1999	274	89	56	34.6	62.2
2000	163	95	53	44.8	51.7
2001	252	104	67	37.6	76.9
2002	241	123	49	29.4	84.3

The total expenditure of company SRT towards Marketing was approximately what percentage of the total expenditure towards Procurement for the given period ?

(a) 413% (b) 24%
(c) 313% (d) 32%

Ans. (b) : Total expenditure on Marketing =45+56+53+67+49 = ₹270

Total expenditure on Procurement
= 185+274+163+252+241 = ₹ 1115

Required percentage $= \frac{270}{1115} \times 100\%$

$= 24.21\% \simeq 24\%$

89. Study the graph and answer the question that follows.

The graph provides the details regarding the number of men and women in three districts.

Based on the numbers given above, If the men were equally distributed from District 1 to District 2 and 3 in a way that the male is to female ratio in District 1 becomes 1 : 1, what will be the revised male to female ratio for Districts 2 and 3 together ?

(a) 62 : 79 (b) 27 : 20
(c) 20 : 27 (d) 79 : 62

Ans. (d) : Number of male and females in all three districts–

District-1	**District–2**	**District–3**
Male -430	Male-250	Male-350
Female-240	Female-440	Female-180

On distributing Men equally from District 1 to District 2 and 3 in a way that the male is to female ratio in District 1 becomes 1 : 1.

Number of males in District 2 $= 250 + \frac{190}{2}$

$= 250 + 95 = 345$

Number of males in District 3 $= 350 + \frac{190}{2}$

$= 350 + 95 = 445$

Required ratio = (345 + 445) : (440 + 180)
= 790 : 620
= 79 : 62

90. Consider the statement given below and state which of the following assumption(s) is/are implicit in the statement.

Statement –

The tickets for business class are exceeding high priced at ₹50,000.

Assumptions :

1. The price of tickets for other classes are has been kept reasonable

2. ₹50,000 is a huge amount to pay for the ticket for business class.

(a) Only assumption 1 is implicit
(b) Both 1 and 2 are implicit
(c) Either 1 or 2 is implicit
(d) Only assumption 2 is implicit

Ans. (d) : Only assumption 2 is implicit whereas the price of ticket for other classes is not mentioned in the statement.

91. Two bus tickets from city P to Q and three tickets from city P to R cost ₹99, but three tickets from city P to Q and two tickets from city P to R cost ₹91. What are the respective fares from city P to Q and from city P to R.

(a) ₹23, ₹15 (b) ₹51, ₹32
(c) ₹15, ₹23 (d) ₹32, ₹51

Ans. (c) : Let the fares from city P to Q = ₹x
and the fares from city P to R = ₹y
According to the question,

$2x + 3y = 99$ ...(i)
$3x + 2y = 91$ ...(ii)

On multiplying by 3 in eqn (i) and 2 in eqn (ii)

$6x + 9y = 297$ ...(iii)
$6x + 4y = 182$ ...(iv)

From equation (iii) & (iv) we have –

$5y = 115$

$\boxed{y = ₹23}$

On putting the value of y in equation (i),

$2x + 3 \times 23 = 99$
$2x + 69 = 99$
$2x = 99 - 69$
$x = \frac{30}{2}$

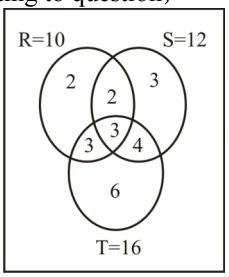
$\boxed{x = ₹15}$

Hence the fares from city P to Q and the fares from city P to R ₹15, ₹23 respectively.

92. R, S and T represent people who like roses, sunflowers and tulips respectively. The number of people is R = 10, S = 12 and T = 16. Three people are such that they like roses, sunflowers and tulip. Two of them like roses and sunflower. Three people like roses and tulips and 4 people like sunflowers and tulip. Then what is the number of people who like only rose?

(a) 6 (b) 2
(c) 12 (d) 14

Ans. (b) : According to question,



It is clear from the diagram that the number of people who like only Rose=2

93. Study the pattern given below carefully and select the number from the given options that can replace question mark (?).

4	6	7	46
6	8	8	70
3	5	6	?

(a) 21 (b) 94
(c) 23 (d) 33

Ans. (d) : Just as,

$$4+(6\times 7)=4+42=46$$

and, $6+(8\times 8)=6+64=70$

Similarly,

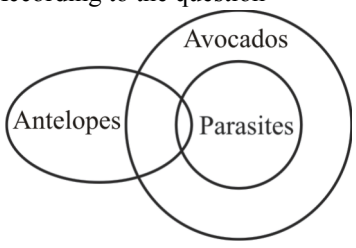
$$3+(5\times 6)=3+30=33$$

94. Among the four words listed, three are alike in some manner and one is different. Select the odd one.
Gratitude, Patience, Honesty, Greed.
(a) Patience (b) Greed
(c) Gratitude (d) Honesty

Ans. (b) : Greed is a negative sentiment word while Patience, Gratitude and Honesty all express positive sentiment.

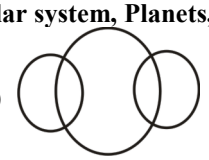
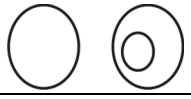
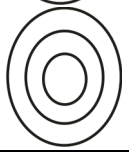
95. Read the following statements carefully and state which of the conclusions logically follows from the statements.
Statements :
1. Some antelopes are parasites.
2. All the parasites are avocados.
(a) All antelopes are parasites.
(b) All the avocados are parasites.
(c) No parasite is an avocado.
(d) Some antelopes are avocados.

Ans. (d) : According to the question–

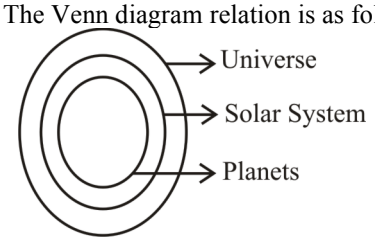


It is clear from the diagram that some Antelopes are Avocados. So option (d) logically follows from the statements.

96. Select the Venn diagram that best represents the relationship between the given set of classes.
Solar system, Planets, Universe

(a) 
(b) 
(c) 
(d) 

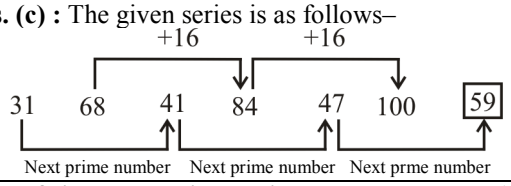
Ans. (d) : The Venn diagram relation is as follows–



Planets are the part of solar system and all Solar System from a part of universe. Hence option (d) is correct.

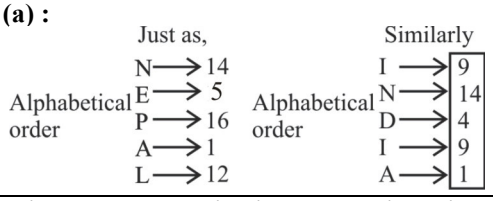
97. Out of the given option choose the number which can replace question mark (?)
31, 68, 41, 84, 47, 100, ?
(a) 61 (b) 79
(c) 59 (d) 67

Ans. (c) : The given series is as follows–



98. If in a certain coding language NEPAL is written as 14516112, then how INDIA will be written in same language.
(a) 914491 (b) 994411
(c) 149149 (d) 114499

Ans. (a) :



99. Find the word which is related with third word, as the first word is related with the second.
Doctor : Disease :: Police : ?
(a) Crime (b) Law
(c) Force (d) Discipline

Ans. (a) : Just as Doctor is related to Disease, similarly Police is related to Crime.

100. In the given options choose the option which may replace (?) in the given series.
113, 127, 131, 137, 139, 149, ?
(a) 175 (b) 163
(c) 151 (d) 159

Ans. (c) : The given series is –
113, 127, 131, 137, 139, 149,[151]

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 04.02.2021] **[Time : 3:00 pm-4:30 pm**

1. A man's working hours per day were increased by 35% and his wages per hour were decreased by 25%. By what percentage were his daily earnings increased?

(a) 1.25 (b) 1.2
(c) 1.35 (d) 1.3

Ans. (a) : Percentage change $= \pm x \pm y \pm \frac{xy}{100}$

Percentage increase in Daily earning

$= 35 - 25 - \frac{35 \times 25}{100}$

$= 10 - 8.75$

$= 1.25$

2. Who among the following can introduce a Government Bill?

(a) Minister in the Lok Sabha
(b) Member of the Parliament who is not a Minister
(c) Member of the Treasury bench in the Lok Sabha
(d) To be a minister in any house of the parliament

Ans. (d) : Bill introduced by ministers are referred to as government bills. A government bill can be introduced by a minister in either house of parliament. The government bills have the backing of the government and reflect its legislative agenda. However a member of parliament (MP) who is not a minister is a private member. The bills introduced by private members are referred to as private member's bills.

3. Where is Devi Ahilya Bai Holkar Airport situated?

(a) Bengaluru (b) Chennai
(c) Indore (d) Nagpur

Ans. (c) : Devi Ahilya Bai Holkar Airport is situated in Indore in the Indian state of Madhya Pradesh. It is an International Airport. The airport is named after Maharani Ahilya Bai Holkar of Indore, belonging to the Holkar dynasty of the Maratha Empire. She builts hundred of temples, more than 30 dharmashalas and numerous ghats and wells, all for the welfare of people. Her's 28-year-reign, during the 18th century, is still cited as a model of benevolent and effective government

4. Archaeology-related work was started in India on 1784 AD by Europeans, and Asiatic Society of Bengal was formed. Who was its founder.

(a) Alexander Cunningham
(b) George Turnour
(c) James Prinsep
(d) William Jones

Ans. (d) : Sir William Jones who was a British lawyer and orientalist founded the Asiatic Society of Bengal on Jan15,1784. It was visualized as a center for asian studies including everything concerning man and nature within the geographical limits of the continent. It's aim was to rediscover India's glorious past.

5. _____ is the oldest Trade Union Organization in India.

(a) INTUC (b) AITUC
(c) BMS (d) CITU

Ans. (b) : The All India Trade Union Congress (AITUC) is the oldest trade union federation in India. It is associated with the communist party of India . It was founded on 31 October 1920 with Lala Lajpat Rai as its first president. Among other answer choice's INTUC stands for Indian National Trade Union Congress which was founded by Vallabhbhai Patel on 3 May 1947. BMS is the acronym of Bhartiya Mazdoor Sangh, it was founded by Dattopant Thengadi on 23 July 1955. CITU means Centre of Indian Trade Unions and it was founded in 1970.

6. Find the missing number.

48	24	8
55	20	11
63	?	9

(a) 28 (b) 18
(c) 20 (d) 24

Ans. (a) :

48	24	8
55	20	11
63	?	9

In first row– $\frac{48}{8} = 6 \Rightarrow 6 \times 4 = 24$

In second row– $\frac{55}{11} = 5 \Rightarrow 5 \times 4 = 20$

In third row– $\frac{63}{9} = 7 \Rightarrow 7 \times 4 = \boxed{28}$

7. _____ is one of the recipients of the Ramon Magsaysay award

(a) Arvind Kejriwal (b) Suprabha Seshan
(c) CNR Rao (d) Nirmala Deshpande

Ans. (a) : Arvind Kejriwal is one of the recipients of the Ramon Magsaysay Award. In 2006, he received the award for emergent leadership in recognition of his involvement in the grassroots level movement Parivartan using right to information legislation in a campaign against government corruption.

8. Which National Highway connects Delhi and Mumbai?

(a) NH10 (b) NH8
(c) NH1 (d) NH12

Ans. (b) : National Highway 8 (NH8) connects the Indian capital city of New Delhi with the Indian Financial capital city of Mumbai. The highway passes through the state capitals of Gandhinagar and Jaipur, as well as important cities like Ahmedabad, Surat and Vadodara.

9. ____ is a location-based F2S (farm to Shop) trading platform that helps Indian farmers sell their produce directly to the consumer thus eliminating the middleman.

(a) Kiran (b) Mandi Trades
(c) Safal (d) Fasal

Ans. (b) : Mandi Trades is a location-based F2S (Farm to Shop) trading Platform/App for Agricultural Products on the smart phone. The App not only helps farmers sell their product directly to the consumer and eliminates middlemen and local traders but also provides technological data and solution to farmers to boost their harvest. It is created by Edwin Varghese, founder & CEO of appface technologies and it is a combination of Inked in and OLX.

10. Who among the following was awarded the Bharat Ratna Award before becoming the President of India?

(a) Rajendra Prasad (b) S Radhakrishanan
(c) VV Giri (d) Pranab Mukherjee

Ans. (b) : Among the given President, S.Radhakrishanan was awarded the Bharat Ratna Award before becoming the President of India.He was awarded Bharat Ratna in 1954 and he became the second President of India in 1962. Others who got Bharat Ratna before becoming the President of India, were Zakir Hussain and APJ Abdul Kalam.

11. When was GSAT-6A launched and from where?

(a) 29 March 2018, Satish Dhawan Space Centre (Sriharikota)
(b) 12 January 2018, Satish Dhawan Space Centre (sriharikota)
(c) 6 October 2016, Guiana space Centre (Kourou)
(d) 29 June 2017, Guiana space Centre (Kourou)

Ans. (a) : GSAT-6A was a communication satellite launched by the Indian Space Research Organisation (ISRO). It was launched by GSLV-F08 on march 29,2018 from Satish Dhawan Space Centre, Sriharikota, Andhra Pradesh. So option (a) is the correct answer among the given options.

12. Find the compound interest on the amount of ₹ 1200 at the rate of 12% p.a. for 6 months compounded quarterly.

(a) ₹71.08 (b) ₹74.08
(c) ₹72.08 (d) ₹73.08

Ans. (d) : Given - P = ₹1200

r = 12% yearly = 3% Quarterly

t = 6 months = 2 Quarterly

Calculation of interest compounded quarterly

$$A = P\left(1+\frac{r}{100}\right)^t$$

$$A = 1200\left(1+\frac{3}{100}\right)^2$$

$$A = 1200\left(\frac{103}{100}\right)\left(\frac{103}{100}\right)$$

A = 1273.08

So, C.I = A – P

= 1273.08–1200

= ₹73.08

13. If the largest 4–digit number is subtracted from the smallest 6-digit number, then the remainder will be:

(a) 90000 (b) 99991
(c) 80001 (d) 90001

Ans. (d) : Smallest 6-digit number = 100000

Largest 4 digit number = − 9999

90001

14. Five men A, B, C D and E are married to five women P, Q, R, S and T (not necessarily in the same order). These men like one shirt among five different colours: red, green, black, yellow and pink (not necessarily in the same order). One man is married to only one woman and likes only one shirt. No two men are married to the same women and does not like the same shirt. C is married to P and does not like black shirt. D likes pink shirt. R is married to E. E does not like green and black shirt. A likes green shirt but he is not married to Q or T. B is not married to T.

Which of the following combination of man, woman and Shirt's colour is correct?

(a) C - P–Yellow (b) E - R–Yellow
(c) B - Q–Black (d) D - Q–Pink

Ans. (c) :

Pairs (Husband/wife)	Like colour
C = P	Yellow or Red
E = R	Red or yellow
A = S	Green
B = Q	Black
D = T	Pink

Hence it is clear from above combination that option (c) will be the right combination.

15. Which freedom fighter shot General Michael O'Dwyer?

(a) Udham Singh
(b) Bhagat Singh
(c) Sukhdev Singh
(d) Chandra Shekhar Azad

Ans. (a) : Udham Singh was an Indian freedom fighter belonging to the Ghadar Party. He shot General Michael O'Dwyer on 13 March, 1940 in England. The assassination was done in revenge for the Jallianwala Bagh Massacre in Amritsar in 1919, for which O'Dwyer was responsible. Singh was subsequently tried and convicted of murder and hanged in July 1940. while Bhagat Singh, Sukhdev, and Rajguru were associated with the lahore conspiracy case. Chandrashekhar Azad also participated in several revolutionary activities including the Kakori train robbery (1925) and the revenge killing of a British Police officer (1928).

16. In a polygon, the sum of the interior angles is triple the sum of the exterior angles. The number of sides is:

(a) 6 (b) 9
(c) 7 (d) 8

Ans. (d) : Sum of interior angles of n sitespolygon $=(n-2)\times180^\circ$

Sum of exterior angles of polygon $=360^\circ$

According to question, $(n-2)\times180^\circ = 3\times360^\circ$

$n-2=6 \Rightarrow n=8$

17. When was Pradhan Mantri Sansad Adarsh Gram Yojana launched?

(a) 11 October 2014 (b) 28 August 2014
(c) 23 July 2010 (d) 9 May 2015

Ans. (a) : Pradhan Mantri Sansad Adarsh Gram Yojana was launched on 11th October 2014 with aim to translate the comprehensive vision of Mahatma Gandhi about an Ideal Indian Village into reality, keeping in view the present context. Under the Yojna (SAGY) each member of Parliament adopts a Gram Panchayat and guides its holistic progress giving importance for social development at per with infrastructure. The ' Adarsh Grams' are to become schools of local development and governance , inspiring other Gram Panchayats.

18. In which years was the Jawahar Gram Samridhi Yojana launched?

(a) 2016 (b) 2001
(c) 1999 (d) 1998

Ans. (c) : The Jawahar Gram Samridhi Yojana (JGSY) was launched on 1st April 1999. The primary objective of JGSY was the creation of demand driven village infrastructure including durable asset at the village level to enable the rural poor to increase the opportunities for sustained employment

19. If $a^2+b^2+c^2+d^2=1$, what will be the maximum value of the product abcd?

(a) 16 (b) 64
(c) $\frac{1}{64}$ (d) $\frac{1}{16}$

Ans. (d) : $a^2+b^2+c^2+d^2=1$

For maximum value $a=b=c=d$

Then, $4a^2=1 \Rightarrow a^2=\frac{1}{4}$ or $a=\frac{1}{2}$

$\therefore \quad (abcd)_{max}=\frac{1}{2}\times\frac{1}{2}\times\frac{1}{2}\times\frac{1}{2}=\frac{1}{16}$

20. 'Cricket' is related to 'Bat', in the same way as 'Tennis' is related to '____'

(a) Glove (b) Stick
(c) Wicket (d) Racquet

Ans. (d) : Just as, Bat is used to play cricket same as Racquet is used to play tennis.

21. The Sikkimese are known for their amazing mask dance. What is this dance form called in Sikkim?

(a) Purulia Chhau (b) Mukha Bhaona
(c) Chaam (d) Padayani

Ans. (c) : The Sikkimese are known for their amazing mask dance called Chham or Lama dances. It is the most famous dance of Sikkim and Performed by Buddhist lamas(monks) during special occasions like the Pang Lhabsol festival. During the Pang Lhabsol festival the Sikkimese remind mount Khangchendzonga of the promise made to the 8th century Saint Guru Padmasambhava to protect Sikkim forever.

22. Which of the following states shares its border with a maximum number of other States/Union territories?

(a) Rajasthan (b) Chhatisgarh
(c) Uttar Pradesh (d) Madhya Pradesh

Ans. (c) : Uttar Pradesh state shares its border with a maximum number of other States/Union Territories. The state shares its borders with 9 States/Union territories, apart from sharing an International border with Nepal. In the north, Uttar Pradesh shares its border with Uttarakhand and Himachal Pradesh, in the west with the states Haryana, Delhi and Rajasthan, in south with Madhya Pradesh and Chhattisgarh, and in the east

with Jharkhand and Bihar. Assam comes in the second position with sharing its boundaries with as many as seven states, apart from sharing international boundaries with Bhutan & Bangladesh. Each of the states of Chhattisgarh, Maharashtra, and Karnataka share their borders with six neighbouring states.

23. In October 2018, Indian scientists developed a gel called _____ to protect farmers from toxic pesticides.

(a) Hydroxyethyl Cellulose
(b) Sodium polyacrylate
(c) Poly-Oxime
(d) Zinc - Oxide

Ans. (c) : In October 2018, Indian scientists developed a gel , named Poly-Oxime to protect farmers from toxic pesticides. The gel has been prepared by researchers at the Institute for Stem Cell Science and Regenerative Medicine (Instem), Bengaluru, from a nucleophilic polymer.

24. A man completes a journey in 11h. He travels first half of the journey at the speed of 25 km/h and the second half at the speed of 30 km/h. Find the total distance of the journey.

(a) 285 km (b) 300 km
(c) 250 km (d) 265 km

Ans. (b) : Let total distance of Journey $=$ 2x km.
Time = Distance/speed
According to question,

$$11 = \frac{x}{25} + \frac{x}{30}$$

$$11 = \frac{6x + 5x}{150} \Rightarrow x = 150$$

So total distance of journey $=$ $2x = 2 \times 150 = 300$ km

25. An imaginary line or a line on a map or chart that connects all points having the same depth below a water surface such as sea water is called:

(a) Isogloss (b) Isobath
(c) Isohaline (d) Isobar

Ans. (b) : An imaginary line that connects all points having the same depth below a water surface called Isobath. It is a line representing points of equal depth under water. An Isogloss is a line on a map that marks the boundary between areas where language features are different. Isobar is a line representing points of equal atmospheric pressure and Isohaline represents connecting points having the same duration of sunshine.

26. _____ is NOT a carnivorous plant.

(a) Corkscrew (b) Sundew
(c) Tiger Lily (d) Monkey

Ans. (c) : There are currently around 630 species of carnivorous plant known to science. These plants are meat-eating plants consume insects, reptiles and small mamals to absorb nutrients. Monkey cup , Corkscrew, Sundew, Venus flytrap, Pitcher plant and Cobra lily are some of the carnivorous plants, names. So out of given plants tiger lily is not a carnivorous plants.

27. Which one of the following is a form of renewable energy?

(a) Solar energy (b) Electrical energy
(c) Potential energy (d) Chemical energy

Ans. (a) : The most popular renewable energy sources currently are : Solar energy, Wind energy, Hydro energy, Tidal energy, Geothermal energy and Bomass energy. On the contrary non-renewable can be described as conventional energy sources for example coal, petroleum and natural gas. Renewable energy are also often referred to as " green energy " or "clean energy".

28. Find the degree measure of an angle subtended at the centre of a circle of radius 28 cm by an arc of length 22 cm.

(a) 55º (b) 40º
(c) 45º (d) 50º

Ans. (c) : $\ell = 2\pi r \times \frac{\theta}{360^\circ}$

$$22 = 2 \times \frac{22}{7} \times 28 \times \frac{\theta}{360^\circ}$$

$$\theta = \frac{360^\circ}{8} = 45^\circ$$

29. The area of a square is 289 cm^2. Find the length of its diagonal.

(a) $13\sqrt{2}$ cm (b) $15\sqrt{2}$ cm
(c) $17\sqrt{2}$ cm (d) $19\sqrt{2}$ cm

Ans. (c) : Let side of square = a cm.
According to question,
Area of square $= (\text{side})^2$
$a^2 = 289$
$a = 17$ cm.
Hence the Diagonal of square = $a\sqrt{2} = 17\sqrt{2}$ cm.

30. The HCF of two numbers is 19 and the other two factors of their LCM are 11 and 13. The larger number of the two numbers is:

(a) 243 (b) 241
(c) 249 (d) 247

Ans. (d) : Let Ha and Hb are large and small numbers consecutively.
HCF = 19
Then numbers -Ha = 19 × 11 = 209
Hb = 19 × 13 = 247
So large number (Hb) = 247

31. 35% of a number is the same as 30% of another number. find the ratio of the first number to the second number.

(a) 5 : 7 (b) 6 : 7
(c) 7 : 9 (d) 8 : 9

Ans. (b) : Let first number is A and second number is B. According to question,

$$A \times 35\% = B \times 30\%$$

$$A \times \frac{35}{100} = B \times \frac{30}{100}$$

$$A \times 35 = B \times 30$$

$$A \times 7 = B \times 6$$

$$A : B = 6 : 7$$

32. Which British Prime Minister sent Cripps Mission to India?

(a) Margaret Thatcher (b) Winston Churchill
(c) Benjamin Disraeli (d) Robert Walpole

Ans. (b) : Winston Churchill who was British Prime Minister from 1940 to 1945, he sent Cripps mission to India to secure Full Indian cooperation and support for their efforts in World War II in March 1942.The mission was headed by sir Stafford Cripps, a member of the war cabinet, was dispatched to India to discuss the British Government's Draft declaration on the constitution of India with representative of Indian Leaders from all parties. The Cripps Mission Failed and the issue of India's constitution was postponed untill the end of the war.

33. Two quantities are in the ratio 3 : 5. If each quantity is decreased by 9 then the ratio becomes 5 : 9. Find the smaller quantity?

(a) 51 (b) 54
(c) 52 (d) 53

Ans. (b) : Let the two quantities are 3x and 5x.

According to question,

$$\frac{3x-9}{5x-9} = \frac{5}{9}$$

$$27x - 81 = 25x - 45$$

$$2x = 81 - 45 = 36$$

$$x = 18$$

Hence the smallest quantity $= 3x = 3 \times 18 = 54$

34. The soccer legend, Johan Cruyff belonged to:

(a) England (b) Argentina
(c) Brazil (d) Netherlands

Ans. (d) : Johan Cruyff was born on 25 April 1947 in Amsterdam, Netherlands. He led the Netherlands to the final of the 1974 FIFA World Cup and received the Golden Ball as player of the tournament. He was included in the world team of the 20th century in 1998, the FIFA world cup Dream Team in 2002, and in 2004 was named in the FIFA 100 list of the world's greatest living players.

35. Which colour deviates the least when light passes through a prism?

(a) Violet (b) Blue
(c) Red (d) Green

Ans. (c) : The red colour is deviated the least when light passes through a prism. A prism is a solid with five faces, there rectangular and two triangular faces. When a narrow beam of sunlight falls on one face of a prism, a band of colours resembling those of a rainbow are observed on the other side of the prism . The Order of colours from the base of the prism is violet indigo, blue green, yellow, orange and red and is abbreviated as VIBGYOR. This phenomenon of splitting of light into its components colour is called a spectrum.

36. In the context of computing, a 'spider' is a/an:

(a) Program that catalogues websites
(b) Search engine
(c) Hacker who breaks into a corporate computer system.
(d) Application for viewing websites

Ans. (a) : In the context of computing , a 'spider' is program that catalogues websites. It is also known as a web crawler which is a program or script written to browse the world wide web in a systematic manner for the purpose of indexing websites.
Spiders are often used to gather keywords from web pages that are then sorted so users can locate web pages through an internet search engine.

37. What is the sum of the squares of the numbers from 1 to 12?

(a) 655 (b) 660
(c) 650 (d) 665

Ans. (c) : $1^2 + 2^2 + 3^2 + \ldots\ldots\ldots + 12^2$

Sum of square of n natural numbers

$$= \frac{n(n+1)(2n+1)}{6}$$

$$= \frac{12 \times 13 \times 25}{6} = 650$$

38. Find the value of the following.

$$\frac{\cos 15^\circ - \sin 75^\circ}{\cos 15^\circ + \sin 75^\circ}$$

(a) ∞ (b) 1
(c) $2\cos 15^\circ$ (d) 0

Ans. (d) : $\frac{\text{Cos}15^\circ - \text{Sin}\,75^\circ}{\text{Cos}15^\circ + \text{Sin}\,75^\circ}$

$$= \frac{\text{Cos}(90-75^\circ) - \text{Sin}\,75^\circ}{\text{Cos}15^\circ + \text{Sin}\,75^\circ}$$

$$= \frac{\text{Sin}75^\circ - \text{Sin}\,75^\circ}{\text{Cos}15^\circ + \text{Sin}\,75^\circ} \quad \{\because \text{Cos}(90-\theta) = \text{Sin}\theta\}$$

$$= \frac{0}{\cos 15^\circ + \sin 75^\circ}$$

$$= 0$$

39. The four districts listed, three are alike in some manner and one is different. Select the odd one. Panaji, Surat, Patna, Mumbai.

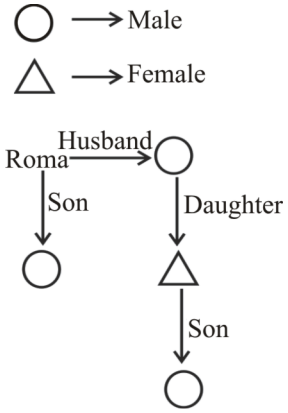
(a) Panaji (b) Surat
(c) Patna (d) Mumbai

Ans. (b) : Panaji, Patna and Mumbai are Districts as well as the capital of states where as Surat is an industrial district.

40. Introducing a boy, Roma said, 'He is the son of my son's father's daughter. How is that boy related to Roma ?

(a) Brother (b) Son
(c) Daughter's son (d) Brother's son

Ans. (c) : According to question, blood relation diagram is as follows–



It is clear by Blood relation diagram that boy is Roma's daughter's Son.

41. According to Living Planet Report 2020, largest wildlife population loss has been found in _____.

(a) Europe (b) Latin America
(c) Asia (d) North America

Ans. (b) : According to living planet report 2020. Largest wildlife population loss a 94% decline in the tropical subregions of the America observed in any part of the world. The tropical subregions of the America are also known as Latin America. In general Latin America includes countries whose heritage is predominantly Spanish, Portuguese, or French. Note that Living Planet report 2020 released by the World Wide Fund for Nature (WWF). WWF is the world's leading conservation organization and works in more than 100 countries.It was established in 1961 and is headquartered at Gland, Switzerland.

42. In July 2017, India's first solar powered train was launched at a railway station in_____.

(a) Delhi (b) Bengaluru
(c) Mumbai (d) Pune

Ans. (a) : In July 2017, India's first solar powered DEMU (diesel electrical multiple unit) Train was launched from the Safdargunj railway station in Delhi. The train runs from Sari Rohilla in Delhi to Farukh Nagar in Haryana.

43. Find the missing number?

4	5	6
5	4	4
6	4	5
14	16	?

(a) 14 (b) 19
(c) 18 (d) 24

Ans. (b) :

4	5	6
5	4	4
6	4	5
14	16	?

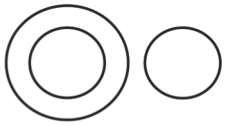
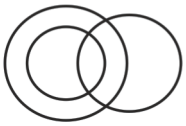
In first column–$4 \times 5 - 6 = 14$
In second column–$5 \times 4 - 4 = 16$
In third column–$6 \times 4 - 5 = \boxed{19}$

44. Cupcake, Donut, Eclair, Froyo and gingerbread are codenames for different ____ versions.

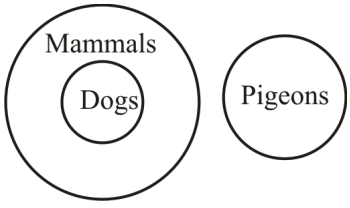
(a) Piano (b) Ca
(c) Computer (d) Android

Ans. (d) : Cupcake, Donut, Eclair, Froyo and Gingerbread are codenames for different android versions. They are all related to food items and desserts.Google's Android divison has named all their versions codenames after desserts (Just as Intel Name all its CPUs after revers).

45. Select the Venn diagram that best represents the relationship between the following classes.
Mammals, Pigeons, Dogs.

(a) 
(b) 
(c) 
(d) 

Ans. (b) : Mammals, Pigeons and Dogs represents following Venn diagram–



Hence option (b) will be appropriate answer.

46. A daily wage labourer was engaged for a certain number of days for ₹5850, but being absent on some of those days he was paid only ₹5200. What was his maximum possible daily wage?

(a) ₹600 (b) ₹650
(c) ₹700 (d) ₹750

Ans. (b) : The Maximum possible daily wage of labour = H.C.F of 5850 and 5200
= ₹650

47. Richa purchased a car for ₹650000 and sold it for ₹780000. What is the percentage profit she made on the car?

(a) 25% (b) 15%
(c) 10% (d) 20%

Ans. (d) : Cost price of car = ₹6,50,000
Selling price of car = ₹7,80,000
Profit = Selling price – Cost price
= 7,80,000 – 6,50,000
= ₹1,30,000

$$\text{Profit percentage} = \frac{130000}{650000} \times 100 = 20\%$$

48. Bamboo flowering causes:

(a) Land to becomes infertile
(b) An increase in pests and insects
(c) A decrease in rainfall
(d) An increase in the population of rats

Ans. (d) : Bamboo flowering caused an increase in the population of rats. Bamboo is known to attract rats, providing both a nesting place and desirable food source.

49. $0.5\overline{32}$ _____ is equivalent to the fraction:

(a) $\frac{572}{990}$ (b) $\frac{527}{990}$
(c) $\frac{537}{990}$ (d) $\frac{32}{99}$

Ans. (b) : Let $x = 0.5\overline{32}$ _____(i)
Multiplying by 10 in equation (i)
$10x = 5.323232 \ldots$ ___(ii)
Again, multiplying by 100 in equation (i)
$1000\,x = 532.3232 \ldots$ (iii)
Substracting equation (ii) from equation (iii)
$990\,x = 527$

$$\boxed{x = \frac{527}{990}}$$

50. Which of the following monuments belongs to UNESCO's List of World heritage Sites in India?

(a) Vaishno Devi
(b) Khajuraho
(c) Krimchi Temple
(d) Akshardham Temple

Ans. (b) : Among the given monuments, Khajuraho belongs to UNESCO's list of World Heritage Sites in India. It was recognised as world heritage site for its "human creativity" in the year 1986. It is famous the world over for its temples which were built between 950-1050 CE by the Chandela dynasty.

51. A scooterist is travelling at the speed of 50 km/h. How much distance will he cover in $2\frac{1}{2}$ h ?

(a) 125 km (b) 120 km
(c) 130 km (d) 135 km

Ans. (a) : Given, speed = 50 km/h

$$\text{Time} = 2\frac{1}{2} = \frac{5}{2}\text{h}$$

Distance = Speed × Time

$$\text{Distance} = 50 \times \frac{5}{2} = 125 \text{ km.}$$

52. Who among the following nationalist leaders founded and edited the Marathi newspaper 'Kesari'?

(a) Bal Gangadhar Tilak
(b) Vinayak Damodar Savarkar
(c) Vishnushastri Chiplunkar
(d) Bhimrao Ambedkar

Ans. (a) : The Marathi newspaper 'Kesari' was founded and edited in 4 January 1881 by Lokmanya Bal Gangadhar Tilak, a prominent person of India. He also used to run his another news paper called Maratha in English language, while Vinayak Damodar Savarkar was the author of the book 'Indian War of Independence".

53. If '÷' stands for 'subtraction', '×' stands for 'division', '+' stands for 'multiplication' and '–' stands for 'addition', then which of the following equation is correct?

(a) $8 \div 4 + 2 - 6 \times 2 = 4$
(b) $12 \times 4 - 7 \div 2 + 3 = 4$
(c) $12 \div 4 - 7 \times 2 + 3 = 4$
(d) $8 \div 4 + 2 - 6 \times 2 = 5$

Ans. (b) : Changing the signs in option (b) according to question,

$$12 \div 4 + 7 - 2 \times 3 = 4$$
$$= 3 + 7 - 6 = 4$$
$$4 = 4$$

L.H.S = R.H.S.
Hence option (b) will be appropriate answer.

54. The area of an isosceles right angle triangle is 81 cm^2. Find the length of its hypotenuse.

(a) 18 cm (b) 22 cm
(c) 16 cm (d) 14 cm

Ans. (a) : Let the length of sides of an isosceles triangle is x cm.

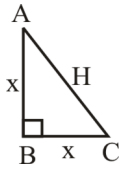
According to question–

Area of triangle $= \frac{1}{2} \times$ Base $\times$ Height

$$81 = \frac{1}{2} \times x \times x$$

$$x^2 = 81 \times 2$$

$$x = 9\sqrt{2}$$



then, $H = x\sqrt{2}$

$= 9\sqrt{2} \times \sqrt{2} = 18$ cm.

55. What is the driving force and executive body of the European Union (EU)?

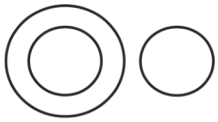
(a) Court of Auditors
(b) European Parliament
(c) European Commission
(d) Council of the European Union

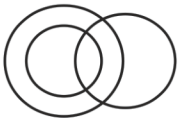
Ans. (c) : The European Commission is the driving force and executive body of the European Union (EU). It is alone responsible for drawing up proposals for new European legislation, and it's implementation. This EU institution operates as a cabinet government, with 27 members of the Commission (Informally known as " commissioners")

56. Select the Venn diagram that best represents the relationship between the following classes.

Mothers, Doctors, Women

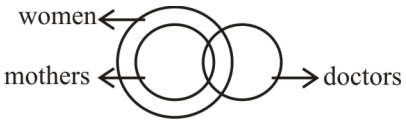
(a) 

(b) 

(c) 

(d) 

Ans. (c) : All mothers are women and some doctors may be mothers and Womens also.



From above it is clear that option (c) gives the best relationship between Women, Mothers and Doctors.

57. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if appears to be at variance with commonly known facts, decide which of the given conclusions logically follows from the statement.

Statements

Only students who work hard get good grades.

Conclusions:

I. hard work is necessary for success.

II. Success is not important for those who do not work hard.

(a) Neither conclusion I nor II follows
(b) Both conclusions I and II follow
(c) Only conclusion I follows
(d) Only conclusion II follows

Ans. (c) : When student works hard then he/she will get good marks and good marks will give success to the student. Hence only conclusion I follows.

58. In which of the following plant group seeds are present inside the fruit?

(a) Angiosperms (b) Pteridophyta
(c) Gymnosperms (d) Bryophytes

Ans. (a) : Angiosperms are plant groups that their seeds present inside the fruit. They also comprise the vast majority of all plant foods we eat, including grains, beans, fruits, vegetables and most nuts, flower. Learn more about flowers one of the defining characteristics of angiosperms.

59. _____ was the only Indian dance form present in Michael Jackson's 1991 music video for the hit single 'Black or White'

(a) Kathakali
(b) Kathak
(c) Bharatanatyam
(d) Odissi

Ans. (d) : Odissi was the only Indian dance form present in Michael Jackson's 1991 music video for the hit single 'black or White'.
The song was one of Jackson's most controversial songs against racism.

60. Name the first speaker of the Indian parliament.

(a) GV Mavalankar (b) Rajendra Prasad
(c) KM Munshi (d) BR Ambedkar

Ans. (a) : G.V. Mavalankar was the first speaker of the Indian Parliament. On 15 May 1952, after the first general elections in independent India, Mavalankar who was representing Ahmedabad for congress, was elected the Speaker of the first Lok Sabha. While Rajendra Prasad was the first President of India. And B.R. Ambedkar was India's first minister of law & justice, and considered the chief architect of the Constitution of India.

61. Rakesh donates blood twice in 3 years each time 330ml. How many litres of blood will he donate in 6 years.

(a) 1.36 L (b) 1.30 L
(c) 1.32 L (d) 1.34 L

Ans. (c) : Blood donates twice in 3 years.
Then the blood donates in 6 years $(2 \times 2) = 4$ times.
Total blood donates in 6 years = 4× 330 = 1320 ml

$$= \frac{1320}{1000} \text{ L} = 1.32 \text{ L}$$

62. Which of the following was discovered by Henri Becquerel?

(a) Infrared radiation
(b) Radioactivity
(c) Ultraviolet light
(d) X–Ray

Ans. (b) : Radioactivity was discovered by Henri Becquerel in 1896. He was a French physicist and he was awarded the Nobel Prize in physics in 1903 for his discovery of spontaneous radioactivity. Note that he was studying the properties of X-Rays when he discovered radioactivity.

63. The diameter of a wheel is 88 cm. Find the number of revolutions in which it will cover a distance of 8712m.

$\left(\textbf{Use}\ \pi = \frac{22}{7}\right)$

(a) 3450 (b) 3250
(c) 3350 (d) 3150

Ans. (d) : Let the number of revolutions = N
Distance = Circumference of wheel × Number of Rotations

$$\Rightarrow 100 \times 8712 \text{ cm} = 2 \times \frac{22}{7} \times 44 \times \text{N} \{\text{Circumference of circle} = 2\pi r\}$$

$$\text{N} = \frac{7 \times 8712 \times 100}{44 \times 44} = 3150$$

$$\boxed{\text{N} = 3150}$$

64. Select the option that is related to the third term in the same way as the second term is related to the first term.
Rabbit : Hop :: Snake: ?

(a) Jump (b) Fly
(c) Crawl (d) Run

Ans. (c) : Just as–Rabbit hops (a way of walking)
Same as–Snake walks crawling
Hence option (c) will be appropriate answer.

65. Who is known as the 'Father of Civil Services' in India?

(a) Charles Cornwallis (b) Mahatma Gandhi
(c) Warren Hastings (d) Robert Clive

Ans. (a) : Charles Cornwallis is known as 'The Father of Civil Service' in India. He reformed and modernized Indian Civil Services and introduced covenanted and uncovenanted civil service in India. But it is worth mentioning that Warren Hastings laid the foundation of civil service in India.

66. Which was the last country to join BRICS?

(a) China (b) Bharat
(c) Russia (d) South Africa

Ans. (d) : BRICS is an acronym for the grouping of the world's leading emerging economies namely Brazil, Russia, India, China and South Africa. Originally the first four were grouped as BRIC and South Africa was invited to join BRIC in December 2010, after which the group adopted the acronym BRICS. Hence South Africa was the last country to join BRICS. During the sixth BRICS Summit in Fortaleza (2014) the leaders signed the Agreement Establishing the New development Bank (NDB) as BRICS bank. It is headquartered in Shanghai and the present president of the NDB is Marcos Prado Troyjo from Brazil.

67. If the sum of two numbers is 84 and their HCF and LCM are 3 and 124 respectively, the sum of the reciprocals of the two numbers will be:

(a) $\frac{11}{31}$ (b) $\frac{9}{31}$
(c) $\frac{8}{31}$ (d) $\frac{7}{31}$

Ans. (d) : Let the first and second numbers are Ha and Hb respectively.

$$\text{L} = \text{Hab} \Rightarrow 124 = 3\text{ab}$$

$$\text{ab} = \frac{124}{3}$$

and $\text{H}(a + b) = 84 \Rightarrow (a + b) = 28$

then, $\frac{1}{\text{Ha}} + \frac{1}{\text{Hb}} = \frac{\text{Ha} + \text{Hb}}{\text{Ha} \times \text{Hb}}$

$$= \frac{\text{H}(a+b)}{\text{H}^2\text{ab}}$$

$$= \frac{(a+b)}{\text{Hab}} = \frac{28}{124} = \frac{7}{31}$$

68. 'Hangul' (Kashmiri reindeer) is found in which wildlife Sanctuary/National park ?

(a) Dachigam Sanctuary
(b) Kanha National Park
(c) Mudumalai Sanctuary
(d) Dudhwa National Park

Ans. (a) : The Hangul also known as the Kashmiri stag is found in the Dachigam National Park in Jammu & Kashmir. Note that Dachigam was initially established to ensure the supply of clean drinking water to Srinagar city. A protected area since 1910, it was declared as a national park in 1981. The park is best known as the home of the hangul, or Kashmir stag.

69. The sum of two numbers is 80 and their difference is 8. The ratio of the first number to the second number will be:

(a) 13 : 9 (b) 12 : 11

(c) 13 : 11 (d) 11 : 9

Ans. (d) : Let the numbers are a and b.

According to question,

$a + b = 80$ ...(i)

$a - b = 8$ ...(ii)

From equation (i) and (ii),

$2a = 88$

$a = 44$

and,

$b = 36$

then $a : b = 44 : 36 = 11 : 9$

70. The Selling Price of 40 items is equal to the Cost Price of 35 items. What is the percentage profit or loss?

(a) $13\frac{1}{2}\%$ loss (b) $13\frac{1}{2}\%$ profit

(c) $12\frac{1}{2}\%$ loss (d) $12\frac{1}{2}\%$ profit

Ans. (c) : According to question, 40SP = 35CP

8 SP = 7 CP

SP : CP = 7 : 8

($\because$ CP > SP $\because$ there will be loss)

$$\text{Percentage loss} = \frac{8-7}{8}\times 100 = \frac{1}{8}\times 100 = 12\frac{1}{2}\%$$

71. A dog saw a cat at a distance of 280 m. The cat at once ran with the speed of 10 km/h and the dog also ran to catch it with the speed of 24 km/h. How much time will the dog take to catch the cat?

(a) 1.3 min (b) 1.2 min

(c) 1.5 min (d) 1.4 min

Ans. (b) : Relative speed = (24 –10) km/h = 14 km/h

$$\text{Required Time} = \frac{280\times 10^{-3}\,\text{km}}{14\ \text{km/h}}$$

$= 20\times 10^{-3}$

$= 20\times 10^{-3} \times 60$ minutes

= 1.2 minutes

72. The LCM of $\frac{1}{3},\frac{7}{6},\frac{5}{9},\frac{4}{27},\frac{8}{15}$ is:

(a) $\frac{280}{15}$ (b) $\frac{280}{3}$

(c) $\frac{15}{280}$ (d) $\frac{3}{280}$

Ans. (b) : LCM of fraction = $\frac{\text{L.C.M of Numerator}}{\text{H.C.F of Denominator}}$

$\therefore$ L.C.M of $\frac{1}{3},\frac{7}{6},\frac{5}{9},\frac{4}{27},\frac{8}{15} =$

$$\frac{\text{L.C.M. of } 1, 7, 5, 4 \text{ and } 8}{\text{H.C.F. of } 3, 6, 9, 27 \text{ and } 15} = \frac{8\times 5\times 7}{3} = \frac{280}{3}$$

73. Where and when was SAARC (South Asian Association for Regional Cooperation) formed?

(a) Pakistan, 1981

(b) Bangaladesh, 1985

(c) Sri Lanka, 1988

(d) India, 1987

Ans. (b) : The South Asian Association for Regional Cooperation (SAARC) was established with the signing of the SAARC charter in Dhaka, Bangladesh on 8 December 1985. SAARC comprises of eight Member States: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. The Secretariat of the Association was setup in Kathmandu on 17 January 1987.

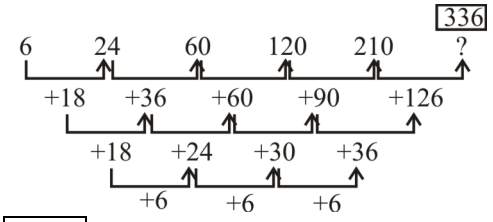
74. Select the number from the given options that can replace the question mark (?) in the following series.

6, 24, 60, 120, 210, ?

(a) 368 (b) 336

(c) 402 (d) 274

Ans. (b) : The Given series is as follows:–



So, ? = 336

75. Find the area of an equilateral triangle with side 12 cm.

(a) $30\sqrt{3}\,\text{cm}^2$ (b) $32\sqrt{3}\,\text{cm}^2$

(c) $34\sqrt{3}\,\text{cm}^2$ (d) $36\sqrt{3}\,\text{cm}^2$

Ans. (d) : If side of equilateral triangle is 'a' then area of equilateral triangle = $\frac{\sqrt{3}}{4}a^2$

$\therefore$ Area of triangle of sides 12 cm $= \frac{\sqrt{3}}{4}\times 12\times 12$

$= 36\sqrt{3}\ \text{cm}^2$

76. Which of the following endemic species is NOT found in the Western Ghats?

(a) Nilgiri Langur
(b) Brown Palm Civet
(c) Hispid Hare
(d) Nilgiri Tahr

Ans. (c) : Out of given species, the Hispid Hare, also called Assam rabbit and bristly rabbit is a leporid native to South Asia, whose historic range extended along the southern foothills of the Himalayas.
Whereas others are endemic to the western ghats of India.

77. Flooring of a room 12 m long and 8 m wide is to be designed by squares of maximum possible area. Find the number of square designs required.

(a) 6 (b) 4
(c) 5 (d) 8

Ans. (a) : Side of one Square design = HCF of 12 and 8 = 4

$$\text{Required number} = \frac{\text{Area of floor of room}}{\text{Area of one square design}}$$

$$= \frac{12\times 8}{4\times 4} = 6$$

78. Rohan and Kundan are good in History and Sanskrit. Shyam and Rohan are good in Mathematics and History. Gopal and Kundan are good in Science and Sanskrit. Shyam, Gopal and Mohan are Good in Mathematics and Arts. On the basis of above information answer the question. Who is good in History, Science and Sanskrit?

(a) Kundan (b) Gopal
(c) Rohan (d) Shyam

Ans. (a) : According to the given information

	Subjects				
Name	History	Math	Sanskrit	Science	Art
Rohan	✓	✓	✓	×	×
Kundan	✓	×	✓	✓	×
Shyam	✓	✓	×	×	✓
Gopal	×	✓	✓	✓	✓
Mohan	×	✓	×	×	✓

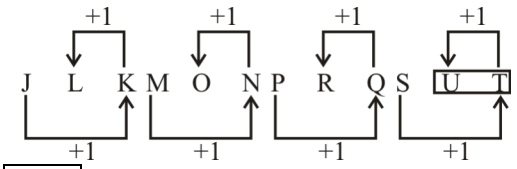
It is clear from the above diagram that Kundan is good in History, Science and Sanskrit.

79. Select the letters from the given options that can replace the question mark (?) in the following series.

J L K M O N P R Q S ? ?

(a) T U (b) R S
(c) U T (d) U V

Ans. (c) : Given series follows as–



So ? = UT

80. The Dhauladhar range in the Himalayas is a part of:

(a) Shiwalik
(b) Trans–Himalayas
(c) Central Himalayas
(d) Lesser Himalayas

Ans. (d) : The Dhauladhar range is a part of a lesser Himalyan chian of mountains. It rises from the Shivalik hills, to the north of Kangra and Mandi. The three major parallel ranges of the Himalayan mountains are–
(1) Great Himalaya or Himadri
(2) Middle Himalaya or Himachal
(3) Shivalik

81. Find the ratio of the measure of an angles of a regular pentagon to that of a regular octagon.

(a) 5 : 6 (b) 6 : 7
(c) 4 : 5 (d) 7 : 8

Ans. (c) : Measure of Interior angle of regular pentagon

$$= \frac{(5-2)}{5}\times 180^\circ = \frac{3}{5}\times 180^\circ$$

Measure of interior angle of regular octagon

$$= \frac{(8-2)}{8}\times 180^\circ = \frac{6}{8}\times 180^\circ$$

$$\text{Required Ratio} = \frac{3}{5}:\frac{6}{8} = 24:30 = 4:5$$

82. Angle 54° is equivalent to (in radians):

(a) $\frac{9\pi}{10}$ (b) $\frac{7\pi}{10}$
(c) $\frac{\pi}{10}$ (d) $\frac{3\pi}{10}$

Ans. (d) :

$$\pi \text{ radian} = 180^\circ$$

$$1^\circ = \frac{\pi}{180}\text{radian}$$

$$54^\circ = 54^\circ\frac{\pi}{180^\circ} = \frac{3\pi}{10}$$

83. Which of the following keyboard shortcuts will you use to a previously opened program?

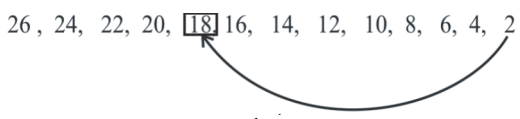
(a) Alt + Tab (b) Ctrl + Home
(c) Ctrl + N (d) Alt + Shift + Tab

Ans. (d) : Alt+Tab is a shortcut key often used to regain the access to the previously used programme. It can be used to switch between open apps. Ctrl + Home is a shortcut key that moves the cursor to the end of a document. Ctrl + N shortcut key is referred to create a new document, window, workbook or another type of file.

84. If the numbers from 1 to 26 that are divisible by 2 are arranged in descending order, which number will be at the 9th place from the bottom?

(a) 14 (b) 20
(c) 16 (d) 18

Ans. (d) : Arranging the numbers according to question



Hence, 18 will be the 9th place from bottom.

85. Four words have been given, out of which three are alike in some manner and one is different. Select the odd one. Hard disk, RAM, Mouse, Motherboard.

(a) RAM (b) Mouse
(c) Hard Disk (d) Motherboard

Ans. (b) : Among the given words RAM, Hard Disk and Motherboard are the examples of output devices while Mouse is an input device. Hence mouse is different from others.

86. Study the given table and answer the question that follows. The table gives marks scored by 5 students in 5 subjects in an exam.

	Name of Students				
Subject	Jeeva	Justin	Hetal	Kuber	Alia
English	76	88	54	72	90
Maths	82	85	78	64	60
Science	69	80	82	80	75
History	70	72	76	83	80
Geography	86	90	85	80	73

Find the average marks scored in science by the students.

(a) 77.2 (b) 71.8
(c) 74.5 (d) 80.4

Ans. (a) : Average marks gained by students in science subject.

$$= \frac{69+80+82+80+75}{5}$$

$$= \frac{386}{5} = 77.2$$

87. Study the given table and answer the question that follows. The table gives marks scored by 5 students in 5 subjects in an exam.

	Name of Students				
Subject	Jeeva	Justin	Hetal	Kuber	Alia
English	76	88	54	72	90
Maths	82	85	78	64	60
Science	69	80	82	80	75
History	70	72	76	83	80
Geography	86	90	85	80	73

Which students has scored highest marks in at least 2 subjects?

(a) Alia (b) Justin
(c) Jeeva (d) Hetal

Ans. (b) : Justin has scored highest marks in two subjects 90 marks in geography and 88 marks in English.

88. Study the given table and answer the question that follows. The table gives marks scored by 5 students in 5 subjects in an exam.

	Name of Students				
Subject	Jeeva	Justin	Hetal	Kuber	Alia
English	76	88	54	72	90
Maths	82	85	78	64	60
Science	69	80	82	80	75
History	70	72	76	83	80
Geography	86	90	85	80	73

Which student has scored the second highest overall percentage?

(a) Jeeva (b) Justin
(c) Hetal (d) Kuber

Ans. (a) : Total Marks of Jeeva = 76 + 82 + 69 + 70 +86 = 383
Total marks of Justin = 88 + 85+ 80+72+90 = 415
Total marks of Hetal = 54 + 78 + 82 + 76 + 85 = 375
Total marks of Kuber = 72 + 64 + 80 + 83 + 80 = 379
Total marks of Alia = 90 + 60 + 75 + 80 + 73 = 378
Hence Jeeva has scored second highest overall percentage.

89. Study the given table and answer the question that follows. The table gives marks scored by 5 students in 5 subjects in an exam.

	Name of Students				
Subject	Jeeva	Justin	Hetal	Kuber	Alia
English	76	88	54	72	90
Maths	82	85	78	64	60
Science	69	80	82	80	75
History	70	72	76	83	80
Geography	86	90	85	80	73

What is the difference in total marks between the first and the fifth ranked students?

(a) 67 (b) 74
(c) 91 (d) 82

Ans. (*) : Justin's total marks on first place = 415
Hetal's total marks on fifth place = 375
Required Difference = 415 – 375 = 40

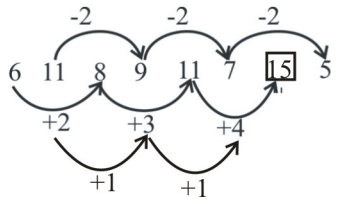
Note–This question is assumed wrong by the commission because right answer is 40 whereas there is no any option of 40.

90. Select the number from the given options that can replace the question mark (?) in the following series.

6, 11, 8, 9, 11, 7, ?, 5

(a) 13 (b) 17
(c) 15 (d) 14

Ans. (c) : Given series follows as–



? = 11 + 4

? = 15

91. In a certain code language, HOUSE is written as ESUOH. How will CLOCK be written as in that language?

(a) KCOLC (b) KOCCL
(c) KCLOC (d) CKLCO

Ans. (a) : Just as,

H O U S E ⟶ E S U O H
1 2 3 4 5 5 4 3 2 1

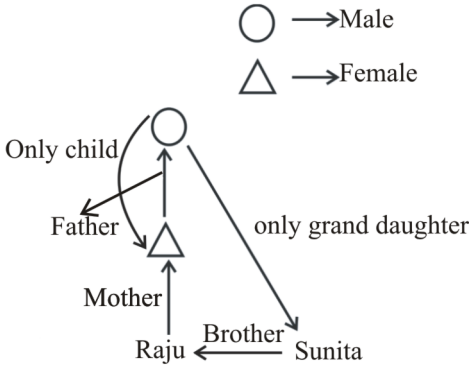
same as,

C L O C K ⟶ K C O L C
1 2 3 4 5 5 4 3 2 1

92. Sohan told Raju, "Yesterday I met your mother's father's only grand daughter Sunita." Raju said that his mother was the only child to her parents. How is Raju related to Sunita?

(a) Brother (b) Father
(c) Sister (d) Nephew

Ans. (a) : Blood relation diagram follows as–



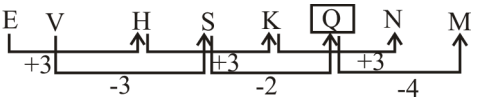
Hence it is clear that Raju is brother of Sunita.

93. Identify the letter that does NOT belong to the following series.

E, V, H, S, K, Q, N, M

(a) Q (b) K
(c) M (d) N

Ans. (a) : Given series follows as–



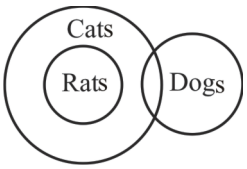
Q is not related to series. P will be at the place of Q.

94. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statement.

Statements:
All rats are cats.
Some cats are dogs.
Conclusions:
I. Some rats are dogs
II. No rat is dog.
III. Some cats are rats.

(a) Only conclusion I follows
(b) Only conclusion III follows
(c) Both conclusions I and III follow
(d) Only conclusion II follows

Ans. (b) : According to statement venn diagram follows as–



Hence it is clear that only conclusion (iii) follows.

95. Four words have been given, out of which three are alike in some manner and one is different. Select the odd one.

(a) Newspaper (b) Magazine
(c) Bulletin (d) Workbook

Ans. (d) : Bulletin, Magazine and Newspaper is a medium in which information of incidence got whereas workbook is a notes in which work is represents. So workbook is odd one.

96. Seven persons A, B, C, D, E, F and G work as clerk, PO, IT officer, economist, doctor, lawyer and driver (not necessarily in the same order). No two persons have the same business. C works as a Clerk. A does not work as an economist or a doctor. E is not an economist or a doctor. B does not work as a driver or economist or doctor or PO. F works as an IT officer. D is not a doctor or PO.

Who among the following could be working as a PO?

(a) B (b) A

(c) G (d) D

Ans. (b) : Making the probable table according to question and options–

Name		Occupation					
	Clerk	PO	It officer	Economist	Doctor	lawyer	Driver
C	✔	✘	✘	✘	✘	✘	✘
A	✘	✔	✘	✘	✘	✘	✘
E	✘	✘	✘	✘	✘	✘	✔
B	✘	✘	✘	✘	✘	✔	✘
F	✘	✘	✔	✘	✘	✘	✘
D	✘	✘	✘	✔	✘	✘	✘
G	✘	✘	✘	✘	✔	✘	✘

Since according to question A and E can work in PO but E is not in options so A will work as a P.O. Then E will work as a driver.

97. Consider the given statements and decide which of the given assumptions is/are implicit in the statements.

Statement:

If you want good education for kids admit them to private schools.

Assumptions:

1. Only private schools provide good teachers.

2. Paying hefty fees is worth the tutoring offered at private schools.

(a) Both assumption 1 and 2 are implicit.

(b) Only assumption 2 is implicit.

(c) Neither assumption 1 nor 2 is implicit.

(d) Only assumption 1 is implicit.

Ans. (c) : From the above statement it is clear that neither assumption 1 nor 2 is implicit.

98. In a certain code language, TEACHER is written as TFCFLJX. How will TABLE be written as in that language?

(a) TBCMF

(b) UBCMF

(c) TBDOI

(d) UCEPJ

Ans. (c) : Just as,

T E A C H E R
+0 +1 +2 +3 +4 +5 +6
T F C F L J X

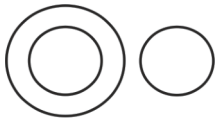
Same as,

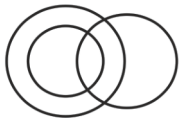
T A B L E
+0 +1 +2 +3 +4
T B D O I

99. Select the Venn diagram that best represents the relationship between the following classes.

Rose, Flower, Lotus

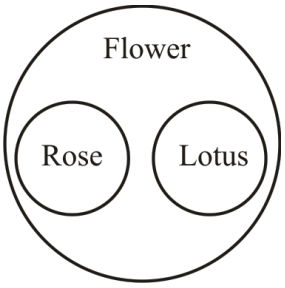
(a) 

(b) 

(c) 

(d) 

Ans. (a) : Rose and Lotus both are flower.



Hence it is clear that option (a) represents the best relation in the given classes.

100. If '+' means '×', '–' means '÷', '×' means '–' and '÷' means '+', then which of the following equations is correct?

(a) $8 \div 2 \times 6 + 8 - 4 = 2$

(b) $8 + 6 \div 12 \times 4 - 2 = 58$

(c) $12 - 4 \times 2 \div 5 + 4 = 25$

(d) $7 \times 9 \div 6 - 3 + 2 = 6$

Ans. (b) : From option (b)

$8 + 6 \div 12 \times 4 - 2 = 58$

According to question, On changing the signs–

L.H.S $= 8 \times 6 + 12 - 4 \div 2$

$= 48 + 12 - 2$

$= 60 - 2$

$= 58$

$=$ R.H.S

Hence, option (b) will be appropriate answer.

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 05.02.2021] **[Time : 10:30 am-12.00 pm]**

1. Find the value of $18-\left[6-\left\{4-\left(8-(6+3)\right)\right\}\right]$

(a) 11 (b) 3
(c) 17 (d) 6

Ans. (c) From question,

$18-\left[6-\left\{4-\left(8-(6+3)\right)\right\}\right]$

$=18-\left[6-\left\{4+1\right\}\right]$

$=18-1=17$

2. Find the L.C.M. and H.C.F. of 12, 15 and 21?

(a) 420, 3 (b) 240, 21
(c) 420, 6 (d) 140, 3

Ans. (a) : According to question,
L.C.M of 12, 15 and 21 = 4×3×5×7=420
H.C.F of 12, 15 and 21 = 3

3. Which of the following is NOT a hot water stream?

(a) Humboldt Current (b) Kuroshio Current
(c) Tsushima Current (d) Alaskan Current

Ans. (a) :

Ocean current	Ocean	Warm/Cold
Kuroshio	Pacific Ocean	Warm
Alaskan	Pacific Ocean	Warm
Gulf Stream	Atlantic Ocean	Warm

Humboldt Ocean Current is also known as Peru Current as it runs parallel to Peru coasts. It runs in southern pacific ocean from south to north direction. It is a cold ocean current.

4. Which model was the First five Year Plan based on?

(a) PC Mahalanobis Model
(b) Harrod-Domar
(c) John W Miller
(d) Gadgil Yojana

Ans. (b) :

Five year (Fy) plans	–	Based Models
1st Fy Plan	–	Harrod Domar Model
2nd Fy Plan	–	P.C. Mahanalobis Model
3rd Fy Plan	–	Gadgil Yojana
8th Fy Plan	–	John W Miller Model

5. The Jallianwala Bagh tragedy was a direct result of the protest against _____.

(a) Defence of India Act
(b) The Rowlatt Act
(c) The Montague-Chemsford Reforms
(d) The Marley-Minto Reforms

Ans. (b) : The Jallianwala Bagh Massacre took place on 13th April 1919. It was a mass protest against the famous Rowlatt Act and also the detention of Saifuddin Kitchlew and Dr. Satya Pal. Hence, people gathered on the day of Vaishakhi in Jallianwala Bagh in Amritsar, Punjab and General R. Dyer ordered for open fire upon public.

6. A sum of money becomes 8 times of itself in 3 years at compound interest compounded annually. The rate of interest is:

(a) 8% (b) 100%
(c) 5% (d) Data inadequate

Ans. (b) :

Let Principal = P
Time = 3 years
Rate = R%

Now, According to question–

$$8P = P\left(1+\frac{R}{100}\right)^3$$

$$\Rightarrow 2^3 = \left(1+\frac{R}{100}\right)^3$$

$$\Rightarrow 2 = 1+\frac{R}{100} \quad \Rightarrow \frac{R}{100} = 1$$

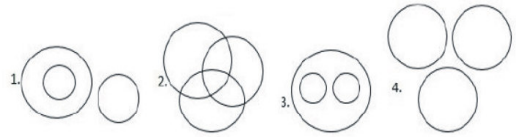
$\therefore$ R =100%

7. Which active volcano is known as the Light House of the Mediterranean?

(a) Mt Etna (b) Stromboli
(c) Cotopaxi (d) Mount Vesuvius

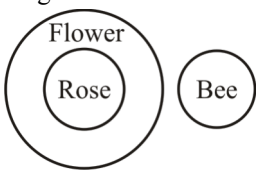
Ans. (b) : The volcanoes which are currently erupting from time to time are termed as active volcanoes. Stromboli is an active volcano of Italy on the Lipari islands. It is also known as the Light House of Mediterranean Sea.
Note: Barren island is the only active volcano in India.

8. Select the Venn diagram that best represents the relationship between the following classes.
Flower, Rose, Bee



(a) 4 (b) 1
(c) 3 (d) 2

Ans. (b) : Venn diagram is as follows–



9. In a certain code language, TEACHER is written as TFCFLJX. How will CATCHER be written as in that language?

(a) BCVFLXJ (b) CBVFLJX
(c) CBVFJLX (d) BCVFLJY

Ans. (b) : Just as,

T	E	A	C	H	E	R
+0	+1	+2	+3	+4	+5	+6
↓	↓	↓	↓	↓	↓	↓
T	F	C	F	L	J	X

Same as,

C	A	T	C	H	E	R
+0	+1	+2	+3	+4	+5	+6
↓	↓	↓	↓	↓	↓	↓
C	B	V	F	L	J	X

10. A, B and C can do a piece of work in 20, 30 and 60 days respectively. A works every day. B assists A on all odd numbered days, while C assists A on all even-numbered days. In how many days will the work be completed?

(a) $13\frac{1}{4}$ (b) $13\frac{1}{3}$
(c) $13\frac{1}{5}$ (d) $13\frac{1}{2}$

Ans. (a) : According to the question,

A = 20 — 3
B = 30 — 2 — 60 units
C = 60 — 1

Total work done by A together with B and C respectively in 2 days
(A+B) + (A+C) = (3+2) + (3+1) = 9 units

∵ Time taken to complete the total work

$$= 2\times\frac{54}{9}+1+\frac{1}{4}\text{ days}$$

$$= 6\times2+1+\frac{1}{4}$$

$$= 13\frac{1}{4}\text{ days}$$

11. The reason for the Constitution of India to be republican is that it:

(a) Contains a bill of right
(b) Has no hereditary elements
(c) Provides for adult franchise
(d) Provides for an elected parliament

Ans. (d) : The foremost criteria to be deemed as republic is to let the people choose their chief executive or their highest representative. As the nominal executive (President) and real executive (PM) in India are elected Hence, the constitution is of "Republican Nature".

12. The financial powers of the chiefs of which Indian defence segments have been extended by the Home Ministry?

(a) Paramilitary
(b) Indian Navy
(c) Air Force
(d) Central Armed Police Forces

Ans. (d) : In the year 2018, the Ministry of Home Affairs extended the financial powers of the Chief of Central Armed Police forces.

13. Select the correctly matched pair (organization with their headquarters) from the following pairs.

(a) ILO : Washington
(b) IMF : Paris
(c) UNIDO : Vienna
(d) UNESCO : Geneva

Ans. (c) :

Organizations	HQ
International Labour Organization	Geneva, Switzerland
International Monetary Fund	Washington D.C., US
United Nations Industrial Development Organization	Vienna, Austria
United Nations Educational Scientific and Cultural Organization	Paris, France

14. _____ is a device by which two different photographs of the same object can be viewed together.

(a) Stereoscope (b) Spectroscope
(c) Stroboscope (d) Stethoscope

Ans. (a) : Stereoscope is a scientific device by which two different photographs of same object can be viewed together. There are two basic types of stereoscopes for viewing of photographs, namely the lens stereoscope and the mirror stereoscope.

15. Where is INS Sardar Patel Naval Base located?

(a) Chennai (b) Mumbai
(c) Porbandar (d) Vishakhapatnam

Ans. (c) : INS Sardar Patel is a Forward Operating Base of Indian Navy in Porbandar (Gujarat). Also it acts as Headquarter of Naval Officer-in-charge. It has been proved of much significance for providing help and support to units of Indian Navy operating in Northern Arabian Sea.

16. Which one of the following is the main source of power generation in India?

(a) Nuclear Power (b) Thermal Power
(c) Solar Power (d) Hydro Power

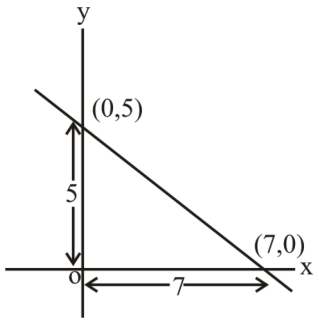
Ans. (b) : Despite the other causes the thermal energy proves to be of most significance as it accounts for 63% of total energy sector of India. Main sources of Thermal energy are coal, diesel, Natural gas. Madhya Pradesh is India's most thermal energy producing state.

17. The area in square units of a triangle formed by the coordinate axis and the straight line 5x + 7y = 35 is:

(a) 35 (b) $\frac{35}{2}$
(c) $\frac{2}{35}$ (d) $\frac{25}{2}$

Ans. (b) : Given, $5x + 7y = 35$

$\frac{x}{7}+\frac{y}{5}=1$



Area of triangle $= \frac{1}{2}\times 7\times 5 = \frac{35}{2}\text{cm}^2$

18. In which years did the Indian National Congress split into two groups on the banks of River Tapti at the Surat Session?

(a) 1916 (b) 1909
(c) 1919 (d) 1907

Ans. (d) : The Surat Session of Indian National Congress in 1907 was held on the banks of Tapti (Tapi) river. Here on the issue of post of president and passing of resolutions INC divided into two groups as → Moderates & Extremist. Its president was Rasbihari Ghosh.

19. Study the following digit-letter-symbol series carefully and answer the question that follows.
Np4@8cQ9%6TkF3 = 5g4&RwJX
How many such numbers are there in the sequence, each of which is immediately preceded by a letter and immediately followed by a symbol?

(a) 7 (b) 6
(c) 5 (d) 4

Ans. (d) : From the given digit letter symbol series–
N p 4 @ 8 c Q 9 % 6 T k F 3 = 5 g 4 & R w J X
Such numbers = 4

20. Find the mode, if mean and median are 4 and 5 respectively.

(a) 11 (b) 7
(c) 5 (d) 9

Ans. (b) : We know that–
Mode = 3 Median – 2 Mean
$= 3 \times 5 - 2 \times 4 \quad \left\{\begin{matrix}\because \text{Median} = 5 \\ \text{Mean} = 4\end{matrix}\right\}$
$= 15 - 8 = 7$

21. In triangle ABC, what will be the value of a(b cos C – c cos B)?

(a) c^2
(b) b^2-c^2
(c) b^2
(d) b^2+c^2

Ans. (b) : From question,
a(b cos C – c cos B)

$= a\left[b\left(\frac{a^2+b^2-c^2}{(2ab)}\right)-c\left(\frac{a^2+c^2-b^2}{(2ac)}\right)\right]$

$=\left\{\because \cos C=\frac{a^2+b^2-c^2}{2ab},\ \cos B=\frac{a^2+c^2-b^2}{2ac}\right\}$

$=\left(\frac{a^2+b^2-c^2}{2}\right)-\left(\frac{a^2+c^2-b^2}{2}\right)$

$=\frac{1}{2}\left(a^2+b^2-c^2-a^2-c^2+b^2\right)$

$=b^2-c^2$

22. Which of the following is different from the rest?
Writer, Reader, Publisher, Printer

(a) Writer (b) Publisher
(c) Printer (d) Reader

Ans. (d) : Writer, Publisher and Printer are all in same category but Reader is different from all.

23. A _____ satellite GSAT-12 was launched by PSLV-C17 from Sriharikota.

(a) Meteorological (b) Pico
(c) Communication (d) Nano

Ans. (c) : On 15 July 2011 from Sriharikota the Indian Space Research Organisation (ISRO) launched GSAT–12 a communication Satellite via its Polar Satellite Launch Vehicle (PSLV) C-17.

24. Mahindra and Mahindra collaborated with _____ to explore deployment of its electric vehicles in 2019

(a) Uber (b) Meru
(c) Ola (d) Savaari

Ans. (a) : In order to explore the deployment its electric vehicles in 2019, Mahindra and Mahindra decided to make a partnership with "Uber".

25. Lectures A, B, C, D, E and F are to be organized in a span of seven days from Monday to Sunday, only one lecture on each day. One lecture have to be organized only once. One day there will be no lecture. C should be organized immediately before D. E should be before D and there should be gap of two days between E and D. D should be organized before Friday. No lecture should be organized immediately after E. A should be organized on Saturday. F should not be organized on last day.

How many lectures are organized between F and E?

(a) Four (b) Two

(c) One (d) Three

Ans. (b) : According to question–

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
E	–	C	D	F	A	B

So, there are 2 lectures are organized between F and E.

26. If $\frac{4}{5}+\left(-\frac{3}{10}\right)=x+1\frac{1}{2}$, then what will be the value of x?

(a) 2 (b) 1

(c) -2 (d) -1

Ans. (d) : From question,

$$\frac{4}{5}+\left(\frac{-3}{10}\right)=x+\frac{3}{2}$$

$$\frac{8-3}{10}=x+\frac{3}{2}$$

$$\frac{5}{10}=x+\frac{3}{2}$$

$$x+\frac{3}{2}=\frac{1}{2}$$

$$x=\frac{1}{2}-\frac{3}{2}$$

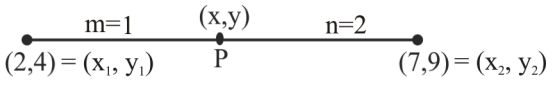
$$x=\frac{1-3}{2}=-1$$

27. Find the coordinates of the point which will divide the line joining the point (2, 4) and (7, 9) internally in the ratio 1 : 2?

(a) $\left(\frac{3}{8},\frac{3}{11}\right)$ (b) $\left(\frac{5}{3},\frac{1}{3}\right)$

(c) $\left(\frac{11}{3},\frac{17}{3}\right)$ (d) $\left(\frac{8}{3},\frac{11}{3}\right)$

Ans. (c) :



We know that

$$x=\frac{nx_1+mx_2}{m+n},\quad y=\frac{ny_1+my_2}{m+n}$$

$$x=\frac{2\times2+1\times7}{1+2}=\frac{4+7}{3}=\frac{11}{3}$$

$$y=\frac{2\times4+1\times9}{1+2}=\frac{8+9}{3}=\frac{17}{3}$$

So, the point $=\left(\frac{11}{3},\frac{17}{3}\right)$

28. Read the given statements and conclusions carefully and decide which of the conclusions logically follow(s) from the statements.

Statements:

All kites are birds.

No bird is a bats.

Conclusions:

I. No kites is a bats.

II. Some kites are bats.

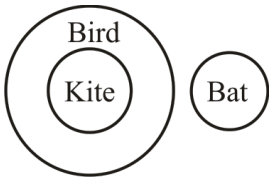
(a) Neither conclusion I nor II follows

(b) Both conclusion I and II follow

(c) Only conclusion I follows.

(d) Only conclusion II follows.

Ans. (c) : From question,



It is clear from Venn diagram that 'no kite is a bats' is follows.

So, only conclusion I follows.

29. Under whose administration is the Department of Atomic Energy works?

(a) Ministry of Science and Technology

(b) Ministry of Power

(c) Prime Minister's Office

(d) Cabinet Secretariat

Ans. (c) : On 3rd August, 1954, the Department of Atomic Energy was established in the charge of Prime Minister by the order of President.

30. Which out of these is the Harappan site discovered in Gujarat?

(a) Balathal (b) Khandia

(c) Dholaveera (d) Manda

Ans. (c) : Recently the Harappan site Dholavira has been included in UNESCO's World Heritage site in Aug 2021. It is situated in Rann of Kutch in Gujarat. It's the 4th site in Gujarat and 40th from India to appear in such a list. It was discovered in 1968 by an archaeologist Jagat Pati Joshi.

31. If A's salary is 20% less than B's then by what percentage is B's salary more than A's ?

(a) 20% (b) 25%

(c) $33\frac{1}{3}\%$ (d) $16\frac{2}{3}\%$

Ans. (b) : Form question,

$$B\times\frac{80}{100}=A \Rightarrow \quad A=\frac{4B}{5}$$

A : B = 4 : 5

B's salary will be more than A's (in percentage)

$$=\frac{5-4}{4}\times 100$$

Required percentage $=\frac{1}{4}\times 100=25\%$

32. Who among the following is considered as the 'Father of the World Wide Web'?

(a) Robert Cailliau

(b) James H. Clark

(c) Sir Timothy John Berners-Lee

(d) Pei-Yuan Wei

Ans. (c) : Sir Timothy John Berners Lee is known as the Father of World Wide Web. It was founded on 12th March 1989.

33. _____ was started in 2002, for ensuring drinking water supply to all villages.

(a) Sampoorna Grameen Rozgar Yojana

(b) Antyodaya Anna Yojana

(c) Swajaldhara Yojana

(d) Annapurna Yojana

Ans. (c) : Swajaldhara Scheme is centrally sponsored scheme where the ratio between central government and state government that is 90:10. Its main objective is to make the potable water available to villages of India. Under this a new tubewell pipeline or water scheme is established in the villages when availability of water is less than 40 litres/person everyday.

34. Four words have been given, out of which three are alike in some manner and one is different. Select the odd one.

Pupil, Cochlea, Cornea, Iris

(a) Cochlea (b) Cornea

(c) Iris (d) Pupil

Ans. (a) : Pupil, Cornea and Iris are related to eye but Cochlea is related to ear. So, Cochlea is different from rest.

35. If a - b = 5 and $a^2 + b^2 = 41$, then what is the value of ab?

(a) 16 (b) 7

(c) 8 (d) 5

Ans. (c) : Given, a–b = 5, $a^2+b^2 = 41$

We know that

$(a-b)^2 = a^2 + b^2 - 2ab$ _____(i)

Substituting the value of the above in equation (i),

$5^2 = 41 - 2ab$

$25 = 41 - 2ab$

$2ab = 41 - 25 = 16$

$ab = 8$

36. A rectangle has 15 cm as its length and 150 cm^2 as its area. If the area is increased to $1\frac{1}{3}$ times the original area by increasing its length only, then the new perimeter is:

(a) 60 cm (b) 70 cm

(c) 80 cm (d) 50 cm

Ans. (a) : Area of rectangle = Length × Breadth

150 = 15 × Breadth

Breadth = 10 cm

Now, if length is increased by x cm .

Again, $(15 + x)\times 10 = 150\times\frac{4}{3}$

$(15+x) \times 10 = 200$

$15 + x = 20$

$x = 5$

Now, new perimeter of rectangle = 2 (20+10) = 60 cm

37. A tank can be filled by 5 pipes in 80 minutes. How long will it take to fill the tank by 8 pipes of same dimensions?

(a) 30 minutes (b) 78 minutes

(c) 128 minutes (d) 50 minutes

Ans. (d) : ∵ Time taken to fill a tank by 5 pipes = 80 minutes

The full tank = 80× 5

∴ Time taken of fill the tank by 8 pipes $=\frac{80\times 5}{8}=$ 50 minutes

38. In which state is the Mudumalai National Park located?

(a) Tamil Nadu (b) Gujarat

(c) Maharashtra (d) Andhra Pradesh

Ans. (a) : Mudumalai National Park is situated in Tamil Nadu. Its also a wildlife sanctuary and a tiger reserve. It also shares border with Kerala and Karnataka.

39. The original price of a TV set is ₹9000. The price is discounted by 20% and then raised by 10%. What is its new price?

(a) ₹9,000 (b) ₹9,920

(c) ₹7,920 (d) ₹7,900

Ans. (c) : Original price of T.V. = ₹9000

After 20% discount, price of T.V. $= 9000\times\frac{80}{100}=$ ₹7200

After raised by 10%, price of T.V. $=\frac{7200\times 110}{100}=$ ₹7920

Hence, New price of T.V. = ₹7920

40. Find the value of x If $\frac{x}{\sqrt{128}} = \frac{\sqrt{162}}{x}$

(a) 196 (b) 14
(c) 144 (d) 12

Ans. (d) : From question,

$$\frac{x}{\sqrt{128}} = \frac{\sqrt{162}}{x}$$

$$x^2 = \sqrt{162 \times 128}$$

$$x^2 = \sqrt{9 \times 9 \times 2 \times 2^7}$$

$$x^2 = 9 \times 2^4$$

$$x = 12$$

41. Which is the official bird of Andaman Nicobar island?

(a) Great Hornbill (b) Wood Pigeon
(c) Indian Roller (d) Sooty Tern

Ans. (b) : Andaman and Nicobar island situated in Bay of Bengal and also a Union Territory of India.

Capital	→	Port Blair
Establishment	→	1956
High Court	→	Calcutta High Court
Official bird	→	Wood pigeon
Official animal	→	Dugong

42. FORTRAN is the _____.

(a) Language of the fifth generation computers.
(b) First high level programming language.
(c) First electronic digital computer of the world.
(d) Link to connect all the universities.

Ans. (b) : Fortran is the world's first high level programming language. It was developed by I.B.M. in 1957 designed by John Backus. Some of the special characters may be used in FORTRAN in an extensive manner, which may be prove impactful while solving algebraic formula.

43. _____ broke the world record for 300 m at the Ostrava Golden spike in June 2019.

(a) Shaunae Miller-Uibo
(b) Usain Bolt
(c) Carl Lewis
(d) Eliud Kipchoge

Ans. (a) : Shaunae Miller-Uibo broke the World Record for 300m at the Ostrava Golden spike in June 2019. She is a Bahamian Athlete sprinter, who competes in the 200 to 400 meters.

44. Find the square root of 42.25.

(a) 7.5 (b) 4.5
(c) 6.5 (d) 5.5

Ans. (c) : From question,

$$x = 42.25$$

$$\sqrt{x} = \sqrt{\frac{4225}{100}} = \frac{65}{10} = \frac{13}{2} = 6.5$$

45. Who described Mahatma Gandhi as "The great soul in Beggar's grab"?

(a) Winston Churchill
(b) Rabindranath Tagore
(c) Pherozeshah Mehta
(d) Surendranath Banerjee

Ans. (b) : Rabindranath Tagore defined Gandhiji as "The Great Soul in Beggar's grab". The statement was delivered by him on Gandhi's return to India.

46. An interface between the human user and the computer hardware is known as: _____.

(a) Operating System (b) Operating Unit
(c) Software (d) Modem

Ans. (a) : An interface between the human user and the computer hardware is known as Operating System. It is also a medium of understanding between software and hardware. It gives directives to computer accessories in order to follow successful processing.

47. Which of the following is a factor of the polynomial $x^2 - x - 20$?

(a) x - 4
(b) x - 5
(c) x + 2
(d) x + 5

Ans. (b) : From question,

$$\Rightarrow x^2 - x - 20$$

$$= x^2 - 5x + 4x - 20$$

$$= x(x - 5) + 4(x - 5)$$

$$= (x - 5)(x + 4)$$

So, $(x - 5)$ is the factor from the given option.

48. A man travelled a distance of 61 km in 9 h. He travelled partly on foot at the speed of 4 km/h and partly on bicycle at the speed of 9 km/h. What was the distance travelled on Foot?

(a) 12 km (b) 16 km
(c) 18 km (d) 14 km

Ans. (b) : Let he travelled x km on foot.

According to the question, $9 = \frac{x}{4} + \frac{61 - x}{9}$

$$9 = \frac{9x + 4(61 - x)}{36}$$

$$9 \times 36 = 9x + 244 - 4x$$

$$324 = 5x + 244$$

$$5x = 80 \Rightarrow x = 16 \text{ km}$$

49. The decimal representation of $\frac{5}{100} + \frac{2}{5} - \frac{6}{25}$ is:

(a) 0.21 (b) 0.35
(c) 0.51 (d) 0.45

Ans. (a) : From question,

$$\frac{5}{100} + \frac{2}{5} - \frac{6}{25}$$

$$= \frac{1}{20} + \frac{2}{5} - \frac{6}{25}$$

$$= \frac{5+40-24}{100}$$

$$= \frac{21}{100} = 0.21$$

50. In a box containing one rupee, 50 paise and 25 paise coins in the ratio 1 : 2 : 3 The number of 50 paise coins was eighty. How much money was there in the box.

(a) 100 (b) 105
(c) 108 (d) 110

Ans. (d) : Ratio of coins = x : 2x : 3x
According to the question,

$2x = 80$

$x = 40$

$\therefore$ Total number of coins 40, 80, 120

Values (in Rs.) $= 40\times1+\frac{40}{2}\times2+\frac{40\times3}{4}$

40 + 40 + 30 = ₹ 110

51. The Indian League was established in 1875 in Calcutta (now Kolkata) by _____.

(a) Anand Mohan Bose
(b) Sisir Kumar Ghosh
(c) Debendranath Tagore
(d) Dwarkanath Tagore

Ans. (b) : In the year 1875, Indian League was established by Sisir Kumar Ghosh. He was a freedom fighter and a nationalist Journalist. He founded and edited Amrit Bajar Magzine.

52. Select the option that is related to third term in the same way as the second term is related to the first term.
Length:Meter :: Mass:?

(a) Weight machine (b) Heaviness
(c) Kilogram (d) Weight

Ans. (c) : As, Meter is unit of Length same as Kilogram is unit of Mass.

53. Four word have been given, out of which three are alike in some manner and one is different. Select the odd one.

(a) Bengaluru (b) Itanagar
(c) Patna (d) Chandigarh

Ans. (d) : Patna, Bengaluru and Itanagar are the capitals of Bihar, Karanataka and Arunachal Pradesh respectively but Chandigarh is a Union Territory.
So, Chandigarh is different from rest.

54. Who composed 'The Dashakumaracharita' or 'Tales of Ten Princess'?

(a) Rahas Bihari Dwivedi
(b) Dandin
(c) Bhartrhari
(d) Budhasvamin

Ans. (b) : Dashkumarcharitra is a great Sanskrit prose written by Dandin. It depicts story of character of Ten Princes. Dandin is considered to be one of the eminent personality of Sanskrit literature.

55. In the Eleventh Five Year Plan, artisans related to _____ were supported by the 'Marketing Support and Services Scheme'

(a) Handicrafts (b) Handloom
(c) leather goods (d) Gems and Jewellery

Ans. (a) : In the Eleventh Five Year Plan, artisans related to handicrafts, were supported by the 'Marketing Support and Services Scheme. The theme of 11th Five Year Plan was "Towards Faster and Inclusive growth its tenure was from 2007-2012.

56. Name the first Indian female Bharatanatyam dancer to be awarded with the Padma Vibhushan.

(a) Hema Malini
(b) Yamini Krishnamurthy
(c) Vyjanthimala
(d) Sonal Mansingh

Ans. (d) : Sonal Mansingh, is dancer of Odissi dance. She has been also associated with Bharatanatyam, Kuchipudi and Chau dance. She got many awards.
Sangeet Natak Akademi Award – 1987
Padma Bhushan Award – 1993
Padma Vibhushan Award – 2003
She was also the first Bharatanatyam dancer to hold Padma Vibhushan Awards.

57. The fourth proportional to 4, 9, 12 is: _____

(a) 48 (b) 36
(c) 27 (d) 72

Ans. (c) : Let the fourth proportional be x.
Let, 4 : 9 : : 12 : x
$4x = 9\times12$
$x = 9\times3 = 27$
$x = 27$

58. Which of the following exponents does Not play the Sitar?

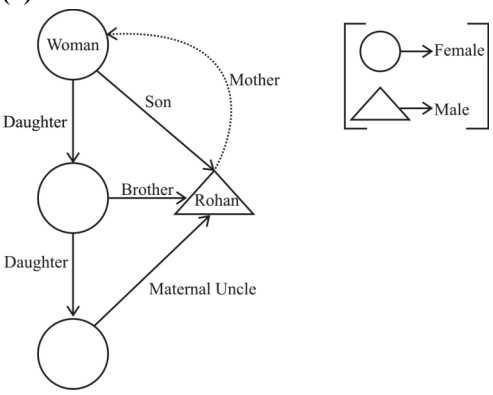
(a) Anoushka Shankar
(b) Pt Shiv Kumar Sharma
(c) Ustad Vilayat Khan
(d) Pt. Ravi Shankar

Ans. (b) :
Sitar – Pt. Ravi Shankar, Anoushka Shankar, Nikhil Banerjee, Ustad Vilayat Khan.
Santoor – Pt. Shivkumar Sharma, Bhajan Sapori
Tabla – Alla Rakkha Khan, Latif Khan, Gudai Maharaj
Flute – Hari Prasad Chaurasia, Pannalal Ghosh, Rajendra Prasanna.

59. Introducing a woman, Rohan tells Shyam, "She has a son and a daughter. I am the maternal uncle of her daughter's daughter." How is the woman related to Rohan?

(a) Mother (b) Mother's mother
(c) Sister (d) Mother's Sister

Ans. (a) :



Hence, it is clear from the above blood relation diagram that the woman is Rohan's mother.

60. Who was elected as the chairperson of the Press Trust of India (PTI) in September 2020?
(a) Aveek Sarkar
(b) MP Virendra Kumar
(c) Mahendra Sharma
(d) Hormusji N Cama

Ans. (a) : In September 2020, Aveek Sarkar has been elected as the Chairperson of Press Trust of India (PTI).

61. The sum of two numbers is 27 and the difference of their squares is 243. What is the difference between the numbers?
(a) 42 (b) 9
(c) 72 (d) 3

Ans. (b) :
$x + y = 27$ ———(i)
$x^2 - y^2 = 243$
According to the question,
$(x-y)(x+y) = 243$ _____(ii)
Putting value of $(x + y)$ from eq^n (i) to eq (ii),
$(x-y) \times 27 = 243$
$(x-y) = \frac{243}{27} = 9$
So, difference between the numbers = $x-y = 9$

62. Which of the following can be used for purification of water?
(a) Nitrogen (b) Alum
(c) Sodium (d) Carbon

Ans. (b) : When Alum is poured into the water, the impurities of water settle down and hence upper water (clean water) may be put into another container. This kind of purification of water is known as sedimentation.

63. _____ is NOT a notified Biosphere reserve in India.
(a) Nallamala (b) Agasthyamala
(c) Nilgiri (d) Panchmarh

Ans. (a) India has total 18 notified biosphere reserve Nallamala is not a biosphere reserve. Nallamala is a hill and an undistributed stretch of forest in Andhra Pradesh and Telangana.

64. Solve the following equation-
$$\frac{\tan A}{1+\sec A} + \frac{1+\sec A}{\tan A} = ?$$
(a) 2 sec A (b) 2 cos A
(c) 2 sin A (d) 2 cosec A

Ans. (d) : According to question,
$$\frac{\tan A}{1+\sec A} + \frac{1+\sec A}{\tan A} = ?$$
$$= \frac{\sin A/\cos A}{1+\frac{1}{\cos A}} + \frac{1+\frac{1}{\cos A}}{\sin A/\cos A}$$
$$= \frac{\sin A}{1+\cos A} + \frac{\cos A+1}{\sin A}$$
$$= \frac{\sin^2 A + 1 + \cos^2 A + 2\cos A}{\sin A(1+\cos A)} \quad [\because \sin^2 A + \cos^2 A = 1]$$
$$= \frac{2(1+\cos A)}{\sin A(1+\cos A)} = \frac{2}{\sin A}$$
$$= 2 \text{ cosec } A$$

65. A boy told his sister, "I have sisters twice the number of brothers." The sister commented, "I have the same number of brothers and sister." What is the number of girls in the family?
(a) 4 (b) 2
(c) 3 (d) 6

Ans. (a) : Suppose the number of girls in family = x.
And numbers of boys = y
According to the question, $x = 2(y-1)$ ____(i)
And $y = (x-1)$ ____(ii)
From equation (i) & (ii),
We have
$x = 2(x-1-1)$
$x = 2(x-2)$
$x = 2x - 4$
$x = 4$
Hence, Number of girls = 4

66. Which organizations have launched Blue dot hubs to boost protection for children and families on the move across Europe?
(a) UNDP and UNHCR
(b) UNICEF and UNHCR
(c) UNDP and UNICEF
(d) WHO and UNDP

Ans. (b) : In 2016, in order to provide security to refugee homeless childs and their families. UNICEF and UNHCR launched Blue Dot Hubs.

67. _____ is India's first indigenously built warship.

(a) INS Shivalik (b) INS Arihant
(c) INS Godavari (d) INS Talwar

Ans. (c) : INS Godavari was commissioned in Navy on 10th December 1983. It was India's first indigenously built warship. During its three decade services it made several impacts like it played a significant role in "Operation Cactus" 1988. On 23rd December 2015, it was retired from the services of Indian Navy.

68. Name the first Indian to Join viceroy's executive council.

(a) Bhupendra Nath Mitra
(b) Satyendra Prasad Sinha
(c) Satish Ranjan Das
(d) Tej Bahadur Sapru

Ans. (b) : According to a provision of Indian Council Act of 1909 (Morley Minto Reforms) made a provision of nominating an Indian member to viceroy's executive council. As a result Satyendra Prasad Sinha was nominated as a law maker.

69. A person buys an article for ₹650 and gains 6% on selling it. Find the selling price (in ₹)

(a) 986 (b) 689
(c) 789 (d) 656

Ans. (b) : According to the question,

$$\text{Selling Price (SP)} = 650 \times \frac{106}{100}$$

$= 13 \times 53 = ₹689$

70. If $X = 3^2 \times 2$, $Y = 2^3 \times 3$ and $Z = 3^2 \times 2^2$ then the LCM of XY, YZ, ZX is:

(a) 2482 (b) 2582
(c) 2492 (d) 2592

Ans. (d) : Given,

$X = 3^2 \times 2$, $Y = 2^3 \times 3$, $Z = 3^2 \times 2^2$

According to the question,

$XY = 2^4 \times 3^3$

$YZ = 2^5 \times 3^3$

$ZX = 2^3 \times 3^4$

L.C.M. of XY, YZ, ZX $= 2^5 \times 3^4$

$= 32 \times 81 = 2592$

71. An artificial leaf to create fuel from sunlight was developed by which Indian organization?

(a) DRDO (b) BITS Pilani
(c) CSIR (d) IIT Mumbai

Ans. (c) : In year 2017, the Council of Scientific and Industrial Research developed a special artificial leaf. The speciality of leaf is that it absorbs sunlight to produce Hydrogen fuel.

72. Arrange the following in a meaningful sequence:

A. Disease B. treatment C. Infection D. Recovery E. Diagnosis

(a) C→A→E→B→D
(b) A→C→B→D→E
(c) D→B→E→B→D
(d) C→E→A→B→D

Ans. (a) : The meaningful requence is–

Infection→Disease→Diagnosis→Treatment→Recovery
C A E B D

73. The position of the point (3, 4) with respect to the circle $x^2 + y^2 - 3x - 4y + 1 = 0$

(a) Lies on it
(b) Lies outside of it
(c) Lies inside it
(d) Cannot be decided

Ans. (b) : Given,

$S = x^2 + y^2 - 3x - 4y + 1 = 0$ _____ (i)

We know that for any point (x,y),

$S > 0$ then the point (x, y) will be outside the circle.

$S < 0$, then the point (x, y) will be inside the circle.

$S = 0$ then the point (x, y) will lie of the circle.

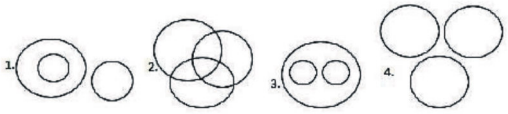
Putting (x, y) = (3, 4) in eq^n (i),

$S = 9+16-9-16+1 = 1$

$\Rightarrow S > 0$, Hence (3, 4) will be outside the circle.

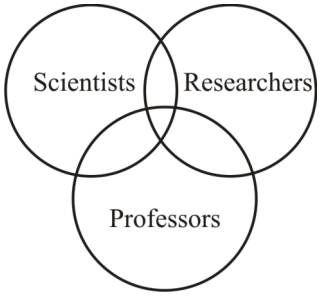
74. Select the Venn diagram that best represents the relationship between the following classes.

Scientists, Researchers, Professors



(a) 1 (b) 4
(c) 3 (d) 2

Ans. (d) : Best representation of relationship between Scientists, Researchers and Professors is–



75. John, Sarah, Tom and Joane bought 3 pizzas of the same size in all. John eat 2/4 of a pizza. Sarah, Tom and Joane eat 3/4 of a pizza each. How much pizza was left?

(a) $\frac{1}{4}$ of a pizza (b) $\frac{1}{2}$ of a pizza
(c) 1 pizza (d) $\frac{3}{4}$ of a pizza

Ans. (a) : Suppose a pizza has 4 parts.

Total parts of 3 pizzas = 4×3 = 12

John	Sarah	Tom	Joane	[Eaten Parts]
2 parts	3 parts	3 parts	3 parts	

Remaining parts = 12– (2 + 3 + 3 + 3) = 1

Remaining parts of 3 pizzas $= \frac{1}{12}\times 3 = \frac{1}{4}$ Part

76. Read the given statements and conclusions carefully and decide which of the conclusions logically follows(s) from the statements.

Statements:

Some dogs are white.

All white things are beautiful.

Conclusions:

I. All beautiful white things are dogs.

II. Some dogs are beautiful.

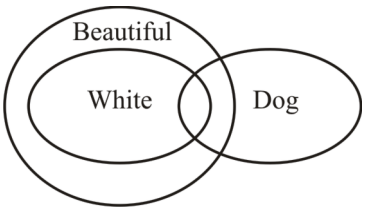
(a) Both conclusion I and II follow

(b) Neither conclusion I nor II follows

(c) Only conclusion I follows

(d) Only conclusion II follows

Ans. (d) : According to the question,



So, only conclusion II follows.

77. _____ Taxes are levied by the State government in India

(a) Excise duty on Liquor

(b) Capital gain

(c) Customs

(d) Corporation

Ans. (a) : The excise duty on liquor in India is levied by state government. Its has also been kept outside the purview of GST.

78. If 2/5 of the number of girl students attending a school function is equal to 3/5 of the number of boys attending the function. What fraction of the total students attending the function will be 2/5 of the number of girl students attending the function?

(a) $\frac{5}{6}$ (b) $\frac{2}{3}$

(c) $\frac{1}{5}$ (d) $\frac{6}{25}$

Ans. (d) : Let, number of boys in function = x

and number of girls in function = y

According to the question, $y\times\frac{2}{5} = x\times\frac{3}{5} \Rightarrow x : y = 2 : 3$

Required fraction $= \frac{y\times 2/5}{(x+y)} = \frac{3\times 2/5}{5} = \frac{6}{25}$

79. If the base and height of a triangle are 6 cm and 8 cm respectively, then the area of the triangle is.

(a) 48 cm^2 (b) 36 cm^2

(c) 28 cm^2 (d) 24 cm^2

Ans. (d) : We known as,

Area of triangle $= \frac{1}{2}\times$ base $\times$ height

$= \frac{1}{2}\times 6\times 8$

$= 3\times 8 = 24\ cm^2$

80. What does World Trade Organization (WTO) promote?

(a) Unilateral trade

(b) Financial support

(c) Global peace

(d) Multi-lateral trade

Ans. (d) : World Trade Organization (WTO) is an international body having an objective of free and smooth trade flows along with ensuring multi-lateral trade. It was founded on 1 January 1995, headquartered in Geneva (Switzerland). It has 164 members as of now.

81. The height of Mt Godwin Austen (K-2) is _____m.

(a) 8848 (b) 8126

(c) 8586 (d) 8611

Ans. (d) : K–2 (Godwin Austin) is the second highest mountain peak in the world. It's a part of "Trans Himalaya". The highest peak of Himalaya in India is Kangchenjunga. K–2 is situated in Pak occupied Kashmir (POK) regions.

82. A and B together can complete a piece of work in 35 days. A alone can complete the same work in 60 days. B alone will be able to complete same work in:

(a) 96 days (b) 72 days

(c) 42 days (d) 84 days

Ans. (d) : According to question,

Work done by A and B in one day $= \frac{1}{35}$

∵ Work done by B in one day = Work done by A and B in one day – Work done by A in one day

$= \frac{1}{35} - \frac{1}{60} = \frac{12-7}{420} = \frac{5}{420} = \frac{1}{84}$

∴ Time taken by B alone to do the total work = 84 days

83. Consider the given statement and decide which of the given assumptions is/are implicit in the statement.

Statement:

A child should be put in school at the age of 5 years or so.

Assumptions:

I. The schools do not admit children after 6 years of age.

II. Below the age of 5 a child does not attain appropriate level of development and ability to learn.

(a) Neither I nor II is implicit.
(b) Both I and II are implicit.
(c) Only I is implicit.
(d) Only II is implicit.

Ans. (d) : A child should be put in school at the age of 5 years or so because below the age of 5, a child does not attain appropriate level of development and ability to learn.
So, only Assumptions II is implicit.

84. Select the legislation that does NOT deal with the protection of environment.

(a) The Port laws Amendment Act, 1997
(b) The Water (Cess) Act, 1977
(c) The forest (conservation) Act, 1980
(d) The Public Liability Insurance Act, 1991

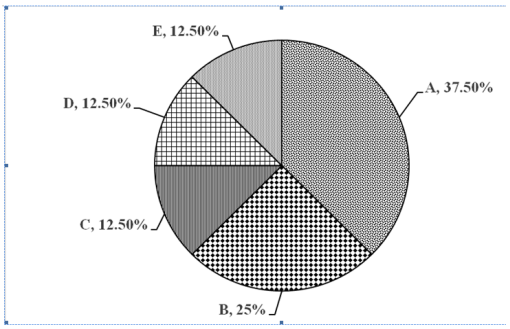
Ans. (a) : Legislations related to environment are.
♦Wildlife protection Act, 1972.
♦The Water (Prevention and Control of pollution) Act, 1974
♦Forest (Conservation) Act, 1980
♦Biological Diversity Act, 2002.
In the given options "The Port laws Amendment Act, 1977" is not an environment legislation.

85. Which gas is also known as the laughing gas?

(a) Helium (b) Carbon dioxide
(c) Nitrous Oxide (d) Methane

Ans. (c) : Smell of small amount of nitrous oxide gas causes laughter. Due to this property it is known as laughing gas. It was discovered by Joseph Priestley in 1772.

86. The following pie graph shows the percentage sale of 5 brands of cars A, B, C, D and E during current year.

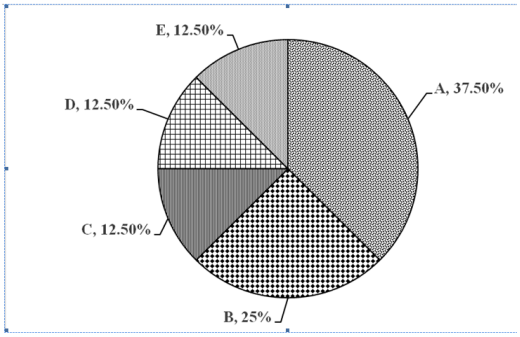


Which of the following conclusions is not correct as per the data represented in the graph?

(a) Sale of A is greater than the sale of C and D taken together
(b) Sale of C is less than 50% of the sale of A
(c) Sale of E is 50% of the sale of B.
(d) Sale of E is double the sale of B.

Ans. (d) : Given
(a) $37.50\% > 12.50\% + 12.50\%$
$37.50\% > 25\%$ (true)
(b) $C < A \times 50\%$
$12.50\% < 37.50\% \times \frac{1}{2}$
$12.50\% < 18.75\%$ (true)
(c) $E = B \times 50\%$
$12.50\% = 25\% \times \frac{1}{2}$
$12.50\% = 12.50\%$ (true)
(d) $E = B \times 2$
$12.50\% = 25\% \times 2$
$12.50\% \neq 50\%$ (false)

87. The following pie graph shows the percentage sale of 5 brands of cars A, B, C, D and E during current year.

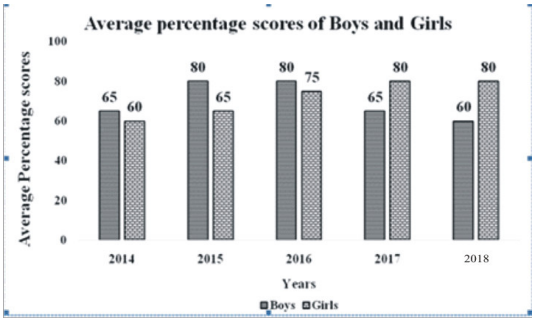


What is the combined sale of C, D and E as a percentage of sales of A?

(a) 75% (b) 50%
(c) 100% (d) 125%

Ans. (c) : From pie graph,
$(C+D+E) = (12.50+12.50+12.50)\% = 37.50\%$
$A = 37.50\%$
Hence, the combined sales of (C + D + E) is the percentage of sales of A.
$= \left(\frac{37.50}{37.50} \times 100\right)\% = 100\%$

88. The given histogram shows average percentage score of boys and girls in an examination during the years 2014–2018.



What is the absolute difference between the overall average score of boys and that of girls during the five years?

(a) 3 (b) 2
(c) 5 (d) 4

Ans. (b) :

Average % score of boys

$$= \frac{65+80+80+65+60}{5} = \frac{350}{5}$$

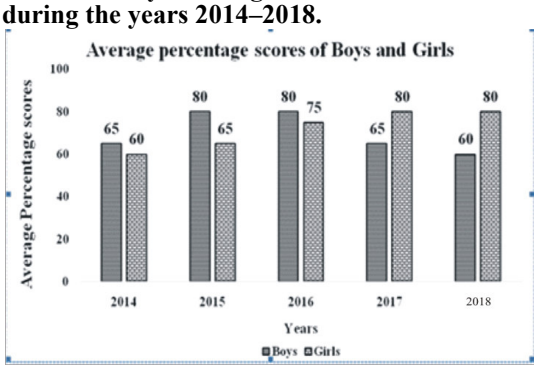
Average % score of girls

$$= \frac{60+65+75+80+80}{5} = \frac{360}{5}$$

Absolute difference $= \frac{360-350}{5}$

$$= \frac{10}{5} = 2$$

89. The given histogram shows average percentage score of boys and girls in an examination during the years 2014–2018.



What is the ratio of the absolute difference in percentage scores of boys and girls in 2014 as compared to the absolute difference in their percentage scores in 2018?

(a) 1:3 (b) 3:4
(c) 1:4 (d) 4:1

Ans. (c) : From the histogram,
The absolute difference in the percentile scores of boys and girls in 2014 = 65 ~ 60 = 5%
The absolute difference in the percentile scores of boys and girls in 2018 = 60 ~80 = 20%
Required ratio = 5 : 20 = 1 : 4

90. In a line of students, Rohan is 7th from the left and 20th from the right. How many students are there in the row?

(a) 26 (b) 27
(c) 13 (d) 14

Ans. (a) : According to question,
Total student in the row = 7 + 20 –1 =26

91. On interchanging signs + and ÷, and numbers 7 and 9, which of the following equations would be correct?

(a) 7 - 3 × 4 ÷ 9 + 3 = 12
(b) 7 × 3 + 3 ÷ 9 – 5 = 12
(c) 7 + 3 – 4 ÷ 9 × 5 = 40
(d) 7 + 3 × 4 ÷9 – 5 = 14

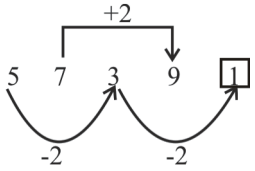
Ans. (d) : From option (d),
7 + 3 × 4 ÷9 – 5 = 14
Interchange the given numbers and symbols,
L.H.S = 9÷ 3×4+7–5
= 3×4+2
= 14 = R.H.S

92. Select the number that will come next in the following series.

5, 7, 3, 9, ?

(a) 13 (b) 3
(c) 5 (d) 1

Ans. (d) : The given series is as follows–



Hence, 1 will be in place of '?'.

93. Five persons Abhi, Raj, Brij, Ritz and Das are sitting on a ladder one above the other (not necessarily in the same order). Raj sits immediately above Ritz. Ritz is immediately above Abhi. Only two persons sits between Ritz and Das. If Das sits below Abhi, then how many persons will sits between Das and Raj?

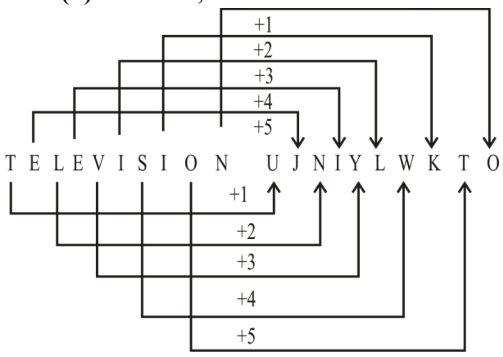
(a) Three (b) Zero
(c) One (d) Two

Ans. (a) : The order of sitting on the ladder from bottom to top–
Das →Brij → Abhi → Ritz → Raj
Hence, 3 persons sit between Das and Raj.

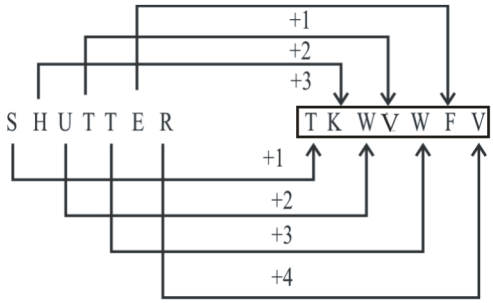
94. In a certain code language, TELEVISION is written as UJNIYLWKTO. How will SHUTTER be written as in that language?

(a) TIWUWFV (b) TKWVWFV
(c) THWTWEN (d) SKUVTFE

Ans. (b) : Such as,



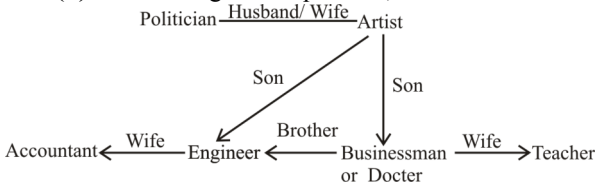
Same as,



95. A family consists of 7 people with three couples. The artist is married to the politician and they have three children. The teacher is the sister-in-law of the accountant, who is the wife of the engineer. The doctor and businessman are brothers. Who among the following could be the husband of the teacher?

(a) Engineer (b) Doctor
(c) Politician (d) Accountant

Ans. (b) : According to the question,



So, Doctor may be the husband of Teacher because Artist is married to Politician and Accountant is married to Engineer and it is said that there are only three married couples and Business man is not in option.

96. If '+' means '÷', '–' means '×', '×' means '+', and '÷' means '–', then which of the following equations is correct.

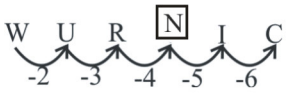
(a) $7 \times 2 \div 6 + 3 - 4 = 13$
(b) $7 \div 2 + 6 \times 3 - 4 = 13$
(c) $7 \div 2 \times 6 + 3 - 4 = 13$
(d) $7 \times 2 + 6 \div 3 - 4 = 13$

Ans. (c) : From option (c),
Interchange the sign in eq^{n},
$7 \div 2 \times 6 + 3 - 4 = 13$
L.H.S $= 7 - 2 + 6 \div 3 \times 4$
$= 5 + 2 \times 4$
$= 5 + 8 = 13 =$ R.H.S

97. Select the letter that can replace the question mark (?) in the following series.
W, U, R, ?, I, C

(a) V (b) O
(c) M (d) N

Ans. (d) : The following series is–

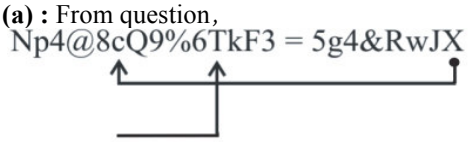


Hence, N will be in place of '?'.

98. Study the following digit-letter-symbol series carefully and answer the question that follows.
Np4@8cQ9%6TkF3 = 5g4&RwJX
Which character is 5th to the right of the 18th character from the right end?

(a) T (b) 6
(c) k (d) F

Ans. (a) : From question,



Hence, Character 'T' is the 5th to the right of the 18th character from the right end.

99. Read the given statement and conclusions carefully. Assuming that the information given in the statement is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statement.
Statement:
The government has recently announced many concessions and has offered attractive schemes for foreign tourists.
Conclusions:
I. The Government seems to be serious in attracting foreign tourists.
II. Now, more number of foreign tourists are likely to visit the country.

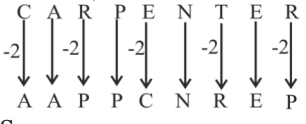
(a) Only conclusion II follows
(b) Only conclusion I follows
(c) Both conclusions I and II follow
(d) Neither I nor II follows

Ans. (c) : According to the statement, since the government has recently announced many concessions and has offered attractive schemes for foreign tourists it seems that government is to serious in attracting foreign countries.
So, more number of foreign tourists are likely to visit the country. Hence, Both conclusions I and II follow.

100. In a certain code language, CARPENTER is written as AAPPCNREP. How will KITCHEN be written as in that language?

(a) KGTAHCN (b) IIVCFEL
(c) KKTEHGN (d) IIRCFEL

Ans. (d) : Just as,



Same as,

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 10.02.2021] **[Time : 3.00 pm-4.30 pm]**

1. Which of the following missions was announced by NASA for the study of the deep interior of the Planet Mars?

(a) Mission Duster (b) Mission Mars
(c) InSight Mission (d) Mission Contact

Ans. (c) : Nasa's "Insight Mission" (Interior Exploration using seismic Investigations, Geodesy and Heat transport) lander, landed down on Mars at the end of 2018.

- It is a two year mission that will study the deep interior of Mars to learn how all celestial bodies with rocky surfaces, including Earth and the moon, formed.
- Insight is the first mission dedicated to looking deep beneath the Martian surface.
- Insight mission is part of NASA's Discovery program (1992).

2. Who was the founding director of BARC Mumbai?

(a) Raja Ramanna
(b) Homi Jehangir Bhabha
(c) Satish Dhawan
(d) Vikram Sarabhai

Ans. (b) : BARC better known as Bhabha Atomic Research centre is a nodal body of multidisciplinary research program of India's Nuclear program.

It was formerly known as Atomic Energy Establishment Trombay in 1954.

It is headquartered in Trombay, Maharashtra and works under the Department of Atomic Energy.

3. If '×' means '–', '÷' means '+', '–' means '÷' and '+' means '×', then what is value of 40 × 5 + 10 – 2÷ 8 ?

(a) 23 (b) 7
(c) –28 (d) 57

Ans. (a) : $40 \times 5 + 10 - 2 \div 8 = ?$

According to question,

On changing the sign

$40 - 5 \times 10 \div 2 + 8 = ?$

$40 - 25 + 8 = ?$

$\boxed{23 = ?}$

4. The Constitution of India came into force in:

(a) 1948 (b) 1947
(c) 1950 (d) 1949

Ans. (c) : The Constitution of India which was adopted by the Constituent Assembly on 26th November, 1949 and came into force on 26th January 1950. Constitution Day also known as National Law Day, is celebrated in India on 26 November every year to commemorate the adoption of the Constitution of India.

5. Which among the following countries has the largest land area?

(a) Brazil (b) China
(c) Australia (d) Canada

Ans. (d) : Largest countries in the world by land area-

(i) Russia (ii) Canada
(iii) China (iv) U.S.A
(v) Brazil (vi) Australia
(vii) India

Countries with the largest population are:

(i) China (ii) India
(iii) USA (iv) Indonesia
(v) Pakistan

6. Select a word from the following four options that is related to the word 'Butcher' in the same way as the word 'Shoe' is related to the word 'Cobbler'.

(a) Plastic (b) Meat
(c) Vegetables (d) Wood

Ans. (b) : As like Cobbler is related to Shoe same as Butcher is related to Meat.

7. Which of the following is not correctly matched?

(a) Bhakra Dam– Himachal Pradesh
(b) Sardar Sarovar Dam– Gujarat
(c) Tihri Dam– Maharashtra
(d) Hirakund Dam– Odisha

Ans. (c) :

Dam	States	River
Tihri Dam	Uttarakhand	Bhagirathi
Bhakra Dam	Punjab, Haryana Himachal Pradesh	Sutlej
Sardar Sarovar Dam	Gujarat, Rajasthan M.P, Maharshtra	Narmada
Hirakund Dam	Odisha	Mahanadi

8. If the side of a square is $\frac{1}{10}$ m, then how many such squares will get accommodated in a bigger square of side 4 m?

(a) 1500 (b) 1600
(c) 1200 (d) 1650

Ans. (b) : Side of small square (a) $= \frac{1}{10}$ m

Side of a bigger square (a) $= 4$m

Number of square in a big square

$$= \frac{(\text{Big side})^2}{(\text{One side of small square})^2}$$

$$= \frac{(4)^2}{(1/10)^2} = \frac{16}{1/100}$$

$= 1600$

9. What are the four tax rates in India under GST ?

(a) 6%, 9%, 18% and 28%
(b) 5%, 12%, 18% and 28%
(c) 3%, 6%, 18% and 28%
(d) 6%, 12%, 17% and 28%

Ans. (b) : The government has proposed a 4 - tier tax structure for all goods and services under the slabs 5%, 12%, 18% and 28%.
The Good and Service Tax system was implemented in India on July 1, 2017. Assam became first state to ratify GST.

10. Which state produced the highest cotton in India in the year 2019-20?

(a) Maharashtra (b) Haryana
(c) Madhya Pradesh (d) Gujarat

Ans. (d) : Gujarat produced the highest cotton in India in the year 2019-20.
The state produced 89 lakh bales of cotton and perceived a growth of 1.7% over the previous year.
Maharashtra and Telangana ranked second and third respectively.

11. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.
Statements :
Nurses marry only tall men
Ankit is very tall.
Conclusion:
I. Ankit was married to a nurse
II. Ankit was not married to a nurse.

(a) Either I or II follows.
(b) Only conclusion I follows
(c) Both, I and II follow
(d) Only conclusion II follows

Ans. (a) : Either conclusion I or conclusion II follows because in conclusion I Ankit is married to a nurse it is given in the statement that Ankit is very tall and nurses marry only tall men. Hence it is true. But in conclusion II a negative fact is given thus either conclusion I or II will be true.

12. In a swimming pool measuring 90 m × 40 m, 150 men take a dip. If the average displacement of water by a man is 8 m^3, then what will be the rise in the water level of the pool?

(a) 20 cm (b) 25 cm
(c) 33.33 cm (d) 30 cm

Ans. (c) : Side of small cuboid $= 8\ m^3$

Side of a bigger cuboid $= 150 \times 8\ m^3$

Number of cuboids in a big cuboid $= lbh$

$150 \times 8\ m^3 = 90\ m \times 40\ m \times h$

$h = \frac{1}{3}$m

$h = \frac{100}{3}$cm

$\boxed{h = 33.33\ \text{cm}}$

13. What is the difference between the compound interest on a sum of ₹5000 for $1\frac{1}{2}$ per annum compounded yearly and half- yearly ?

(a) ₹ 2.90 (b) ₹ 2.04
(c) ₹ 3.40 (d) ₹ 3.61

Ans. (b) : Principal (P) = ₹ 5000

Rate (r) = 4%

Time (t) = $1\frac{1}{2}$ years

Yearly Compound Interest = A – P

$$= P\left(1+\frac{r}{100}\right)^t - P$$

$$= 5000\left(1+\frac{4}{100}\right)\left(1+\frac{4}{100}\times\frac{1}{2}\right) - 5000$$

$= 5304 - 5000$

$=$ ₹ 304

Half yearly Compound Interest $\rightarrow$

r = 4% = 2% Half- yearly

t = $1\frac{1}{2}$ years = 3 Half-yearly

CI = A – P

$$= 5000\left(1+\frac{2}{100}\right)^3 - 5000$$

$$= 5000 \times \frac{102}{100} \times \frac{102}{100} \times \frac{102}{100} - 5000$$

$$= 5306.04 - 5000 = ₹\ 306.04$$

Difference of Compound Interest

$$= 306.04 - 304 = ₹\ 2.04$$

14. Consider the given statement and decide which of the given assumptions is/are implicit in the statement.

Statement:

A signboard in a park states: Please use the dustbin, do not litter and help keep your community clean.

Assumptions:

I. Throwing litter around makes a community dirty.

II. People are likely to pay attention to this notice.

(a) Either I or II is implicit.
(b) Only assumption II implicit
(c) Only assumption I implicit
(d) Both, I and II are implicit.

Ans. (d) : Both I and II are implicit. Because on throwing litter around makes a community dirty. By writing on the notice board it means that people are likely to pay attention to this notice.

15. If $\frac{a}{2} = \frac{b}{3} = \frac{c}{5}$ then find the value of $\frac{a+b+c}{c}$

(a) 2 (b) 10
(c) 12 (d) 5

Ans. (a) : $\frac{a}{2} = \frac{b}{3} = \frac{c}{5} = k$ (assumed that)

$a = 2k$

$b = 3k$

$c = 5k$

$\because \quad \frac{a+b+c}{c} = ?$

$\frac{2k+3k+5k}{5k} = ?$

$\boxed{2 = ?}$

16. Which of the following is equal to 3.14×10^6 ?

(a) 31.40000 (b) 3140000
(c) 314000 (d) 3140

Ans. (b) : $3.14 \times 10^6 = ?$

$3.14 \times 10^6 = 3140000$

17. Which of the following chemical/gases is/ are responsible for causing the greenhouse effect?

(a) Water vapour, O_2 and CFCs
(b) NO_2, O_2 and SO_2
(c) NO_2, CO_2 and SO_2
(d) Water vapour, CO_2 and CFCs

Ans. (d) : The Green House effect is a natural process that warms the earth's surface.

Green house gases include water vapour, Carbon dioxide (CO_2), Methane (CH_4), Nitrous oxide (N_2O), Ozone and some artificial chemicals such as Chlorofluoro carbons (CFCs).

The absorbed energy warms the atmosphere and the surface of Earth. This process maintains the Earth's temperature at around 33 degree Celsius warmer than it would. Allowing life on Earth to exist.

18. Consider the given statement and decide which of the given assumptions is/are implicit in the statement.

Statement :

Though our mother is very strict about our meals and prepares healthy food for us, she lets us have doughnuts once in a while.

Assumptions :

I. Doughnuts are healthy.

II. Healthy food is prepared by our mother.

(a) Only assumption I is implicit
(b) Only assumption II is implicit
(c) Neither I nor II is implicit
(d) Either I or II is implicit

Ans. (b) : From the given statement it is clear that only assumption II is true.

19. Construction work has begun in Lincolnshire on the world's longest subsea power cable, which will run between Britain and _____ to share renewable energy between the two countries.

(a) Denmark (b) Belgium
(c) France (d) Austria

Ans. (a) : The UK's National Grid and Denmark's Energinet has began work on the world's longest subsea power cable. A 475 mile long (765 km) cable, is being built in Lincolnshire.

20. Who was the British Prime Minister during the first round table conference in London?

(a) Stanley Baldwin (b) Winston Churchill
(c) N. Chamberlain (d) Ramsay MacDonald

Ans. (d) : The first Round Table Conference was convened by Labour party Government Prime Minister Ramsay Mac Donald from 12 November 1930 to 19 January 1931 in London. While the congress and most famous leaders boycotted it, the Muslim league, the Hindu Mahasabha, the Liberals and princes attended it. Dr Bhimrao Ambedkar participated in all three Round Table conferences.

21. Select a word from the following four options that is related to the word 'South Africa' in the same way as the word 'Persian' is related to the word 'Iran'.

(a) Country (b) Portuguese
(c) Africa (d) English

Ans. (d) : As like Persian language is spoken in Iran, similarly English is spoken in South Africa.

22. The ratio of two numbers is 3 : 4 and their H.C.F is 4. Their L.C.M is:

(a) 42 (b) 34
(c) 84 (d) 48

Ans. (d) : Ratio of two numbers = 3 : 4

Let two number are 3x and 4x respectively

L.C.M of 3x, 4x = 12x

H.C.F = 4

First Number × Second Number = L.C.M × H.C.F

$3x \times 4x = 12x \times 4$

$\boxed{x = 4}$

Hence, L.C.M of 3x and 4x = 12x

$= 12 \times 4$

$= 48$

23. Which of the following Articles of Indian Constitution provides Right against Exploitation ?

(a) Article 21 (b) Article 14
(c) Article 23 (d) Article 19

Ans. (c): The Right Against Exploitation is enshrined in Article 23 and 24 of the Indian constitution.

Article 23 of the Indian Constitution prohibits human trafficking and beggar (forced labour without payment) to protect the millions of underprivileged and deprived people of the country.

Article 24 of Indian Constitution forbids employment of children below the age of 14 years in dangerous jobs like factories and Mines.

24. The trial test of a computer or software before the commercial launch is called :

(a) Beta test (b) e-test
(c) Delta test (d) Alpha test

Ans. (a) : The Beta testing may be referred as the releasing of amateur version of software in order to clear its shortcomings and bugs at various level usage. It's a second phase of software testing and is also known as User Acceptance Testing (UAT).

25. Which section of the Criminal Procedure Code (CrPC) empowers an executive magistrate to prohibit an assembly of more than four persons in an area?

(a) Section 144 (b) Section 231
(c) Section 357 (d) Section 111

Ans. (a) : Under the section 144 of the code of criminal procedure (CrPC), the Executive Magistrate of any state or union territory in India has the power to prohibit the assembly of four or more people in a specified Area.

26. Who among the following was one of the conceivers of the Kakori robbery ?

(a) Udham Singh (b) Ashfaqullah Khan
(c) Bhagat Singh (d) Sukhdev

Ans. (b) : Kakori train robbery was an armed robbery which took place on August 9, 1925 on a train in central UP.

This Robbery occurred at the town of Kakori, about 16 km from Lucknow.

The robbery was organized by the members of Hindustan Republican Association (HRA).

The robbery was planned by Ram Prasad Bismil and Ashfaqullah khan. It was executed by Bismil, Ashfaqullah Khan, Chandrashekhar Azad, Rajendra lahiri, Sachindra Bakshi, Keshab Chakravarty, Murari Lal, Banwari Lal, Mukundi Lal and Manmathnath Gupta.

27. Where is 'Paithan Hydroelectric Project' located in India?

(a) Rajasthan (b) Uttar Pradesh
(c) West Bengal (d) Maharashtra

Ans. (d) : The Paithan (Jayakwadi) Hydro-electric project was completed with the help of Japan, is on the Godavari river, located in Aurangabad district of Maharashtra.

• Projects	• Place
• Ratle Hydroelectric Power Plant	• Jammu & Kashmir
• Periyar Hydroelectric power project	• Kerala
• Mahi Bajaj Sagar Dam	• Rajasthan
• Matatila Project	• Uttar Pradesh

28. Where was the 21st commonwealth games organised ?

(a) Melbourne (b) Gold Coast

(c) New Delhi (d) London

Ans. (b) : The 21st edition of Common Wealth Games were held in Gold Coast, Australia between 4 to 15 April 2018. It is the second largest multi-sport event after the Olympic Games. It is noteworthy that Australia hosted the Commonwealth Games for the fifth time.

29. Which of the following statements is not true regarding to national highway?

(a) NH-44 is the longest national highway of India.

(b) NH-47A is the shortest national highway of India.

(c) NH-8 is the shortest national highway of India

(d) NHAI has the authority for the development, maintenance and management of national highways.

Ans. (c) : NH-44 - It is the longest National Highway in India, which connects "Srinagar" to "Kanya kumari" Previously NH - 44 was known as NH-7.

•NH-47A - It is the shortest national Highway in India whose length is 5.92 km.

NH-8 is a national Highway in India running from Karimganj, in Assam to Sabroom in Tripura.

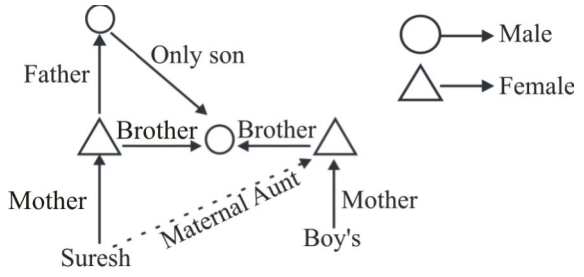
The full name of NHAI is 'National Highways Authority of India'. it was established in the year 1988 and is responsible for the development, maintenance and management of National Highways.

30. Pointing to a boy, Suresh Said, " His mother's brother is the only son of my Mother's father". How is the boy's mother related to Suresh?

(a) Maternal Aunt (b) Sister

(c) Grandmother (d) Mother

Ans. (a) : According to question blood relation diagram is as follows.



Hence, It is clear from diagram that mother of boy is Maternal Aunt of Suresh.

31. If a triangle and a parallelogram are on the same base and between the same parallels, then the area of the triangle is equal to :

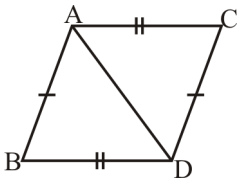
(a) One- Third of the area of the parallelogram

(b) Half the area of the parallelogram

(c) Three-fourth of the area of the parallelogram

(d) The area of the parallelogram

Ans. (b) :



From figure,

Area of $\Delta ABD = \frac{1}{2} \times$ area of parallelogram ABCD

Hence, it is clear from the above that a parallelogram and a triangle are created on same base and same parallel lines. Hence the area of triangle will be half of the area of parallelogram.

32. The sum of half, one-third and one-fifth of a number exceeds the number by 12. What is the number?

(a) 144 (b) 360

(c) 444 (d) 122

Ans. (b) : Let Number = x

According to question,

$$x\left(\frac{1}{2}+\frac{1}{3}+\frac{1}{5}\right)-x=12$$

$$\frac{31x}{30}-x=12$$

$$\frac{x}{30}=12$$

$$\boxed{x=360}$$

33. The variance of 20 observations is 5. If each observation is multiplied by 2, then the variance of the resulting observations will be

(a) 2×5 (b) 2×5^2

(c) 5 (d) $2^2 \times 5$

Ans. (d) : Number of observations $= 20$

$$\text{Variance} = \frac{1}{n}\Sigma\left(x_i-\bar{x}\right)^2$$

$$5=\frac{1}{20}\Sigma\left(x_i-\bar{x}\right)^2$$

$$\Sigma\left(x_i-\bar{x}\right)^2=100 \ldots\ldots.(i)$$

If each observation is multiplied by 2 then new variance will be

$$= \frac{1}{n}\sum\left(2x_i - 2\bar{x}\right)^2$$

$$= \frac{1}{20}\sum\left(x_i - \bar{x}\right)^2 \times 4$$

$$= \frac{1}{20} \times 100 \times 4$$

Variance $= 20 = 2^2 \times 5$

34. A solution of a weak acid and its conjugate base salt is called :

(a) Basic solution
(b) Neutral solution
(c) Buffer solution
(d) Highly acidic solution

Ans. (c) : A mixture of a weak acid and its conjugate base (or a mixture of a weak base and its conjugate acid) is called a "Buffer solution".

A solution of Acetic Acid (CH_3COOH) and sodium acetate (CH_3COONa) is an example of weak acid and its salt.

Solution of Ammonia ($NH_3(aq)$) and Ammonium chloride ($NH_4Cl(aq)$) is an example of weak base and its salt.

35. Who is the author of the novels Rangbhoomi, Godan, Gaban & Vardan ?

(a) Maithili Sharan Gupt
(b) Munshi Prem Chand
(c) Ramdhari Singh Dinkar
(d) Sumitra Nandan Pant

Ans. (b) : Munshi Premchand was the Prolific writer of Hindi literature. His original name was Dhanpat Rai Srivastava. In field of Hindi literature, he was known as King of Novels (UPANYAAS SAMRAT). His important literary works are : Sewa Sadan, Premashram, Rangbhoomi, Nirmala, Gaban, Karmabhoomi, Godan, Vardan etc. He wrote some stories also Kafan, Poos Ki Raat, Panch Parmeshwar, Bade Ghar ki beti etc.

36. Who was last Nizam (ruler) of Hyderabad?

(a) Afzal-ud-daula
(b) Mir Mahbub Ali Khan
(c) Mir Osman Ali Khan
(d) Nasir-Ud-Daula

Ans. (c) : It is known that the Nizam was the ruler of the Princely state of Hyderabad from 1719 and belonged to the Asaf Jahi dynasty. This dynasty was founded by Mir Qamar Ud-din Siddiqi (Asof Jah I). Osama Ali khan' (1911-1948AD) who surrendered when the Indian Army annexed Hyderabad to the Indian Union under 'Operation Polo'.

37. A man deposits ₹5000 in his bank account for 5 years to earn a simple interest of 12% per annum. What amount will he get after 5 years?

(a) ₹ 7,500 (b) ₹ 8,000
(c) ₹ 3,500 (d) ₹ 2,500

Ans. (b) : Principal (P) = ₹ 5000
Rate (r) = 12 %
Time (t) = 5 years
Amount = Principal + Simple Interest

$$A = P + \frac{Prt}{100}$$

$$= 5000 + \frac{5000 \times 12 \times 5}{100}$$

$$= 5000 + 3000$$

$$= ₹8000$$

38. Which architect designed the Gateway of India located at Mumbai?

(a) George Wittet (b) Laurie Baker
(c) Edwin Lutyens (d) Albert Speer

Ans. (a) : The Gateway of India is an arch monument built during the 20th century in Bombay. The Monument was exacted to commemorate the landing of king George V and Queen Mary at Apollo Bunder on their visit to India in 1911. The final design of the monument was prepared by architect "George Wittet". The structure is a triumphal arch made of Basalt.

39. By which of the following options, using the given symbols in the same order balance the given equation ?
65, 5, 25 = 190

(a) +, × (b) ×, –
(c) ×, + (d) ÷, ×

Ans. (a) : 65, 5, 25 = 190
from option (a),
Putting the symbol in equation
65 + 5 ×25 = 190
65 + 125 = 190
190 = 190
L.H.S. = R.H.S.

40. If MOANA is written as 132 in a particular code language, how will CROOD be written as in that language?

(a) 165 (b) 173
(c) 158 (d) 55

Ans. (a) : Just as –

M	O	A	N	A = 132
↓	↓	↓	↓	↓
13 +	15 +	1 +	14 +	1 = 44 $\xrightarrow{\times 3}$ 132

Similarly –

C R O O D

↓ ↓ ↓ ↓ ↓

$3 + 18 + 15 + 15 + 4 = 55 \xrightarrow{\times 3} 165$

41. Name the pigment that gives plants their green color.

(a) Carotenoid (b) Chlorophyll

(c) Thiamin (d) Actin

Ans. (b) : Chlorophyll is a pigment that gives plant their green color, and it helps plants in creating their own food through photosynthesis. Chlorophyll absorbs sunlight and uses it to synthesized carbohydrates with the help of carbon dioxide and water.

42. Which of the following states of India does not share its boundary with Nepal?

(a) Uttar Pradesh (b) Uttarakhand

(c) Bihar (d) Tripura

Ans. (d) : Indian states that share border with Nepal are–Uttarakhand, Uttar Pradesh, Bihar, West Bengal and Sikkim. While Tripura does not share its border with Nepal. There are two territorial disputes between India and Nepal.

(i) Kalapani territory

(ii) Susta

43. Where is Dehing Patkai Wildlife Sanctuary located ?

(a) Nagaland

(b) Meghalaya

(c) Arunachal Pradesh

(d) Assam

Ans. (d) : Dehing Patkai wildlife Sanctuary is located within the larger Dehing Pakai Elephant Reserve, which spreads across the coal-and oil rich districts of Upper Assam (Dibrugarh and Tinsukia districts)

The Dehing Patkai wildlife sanctuary is also known as the Jeypore Rainforest.

Ramgarh Vishdhari wildlife sanctuary becomes the India's 52nd and newest Tiger reserve.

44. Which of the following is a malaria parasite?

(a) Salmonella

(b) Mycobacterium

(c) Plasmodium

(d) E. coli

Ans. (c) : Malaria Infection begins when an infected female Anopheles mosquito bites a person, injecting Plasmodium Parasites in the form of sporozoites into the bloodstream. Fever with chills is the main symptom of this disease and the spleen and RBC are affected organs in this disease.

45. If 5% more is gained by selling an article for ₹350 than by selling the article for ₹ 340, then what is the cost price of the article?

(a) ₹ 160 (b) ₹ 200

(c) ₹ 250 (d) ₹ 100

Ans. (b) : According to question,

Let cost price of article is ₹ x

$$350 - 340 = \frac{5x}{100}$$

$$x = ₹\ 200$$

46. In a certain code language SPECTROSCOPY is written as ESPRCTCOSYOP, how will EXTRAVAGANZA be written in that code language?

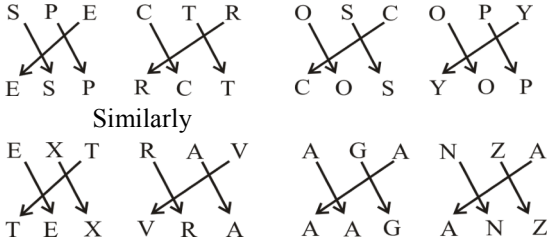
(a) REXTGAVAANZA

(b) TXEVARAGAAZN

(c) TEXVRAAAGANZ

(d) TEXVRAAGAANZ

Ans. (c) : Just as–



47. A number x, when divided by 7, leaves a remainder of 1 and another number y, when divided by 7 leaves a remainder of 2. What will be the remainder when x +y is divided by 7?

(a) 2 (b) 4

(c) 3 (d) 1

Ans. (c) : Let $x = 7k + 1$

and $y = 7n + 2$

According to the question,

$$\frac{7k}{7} + \frac{1}{7} \Rightarrow \text{Remainder} = 1$$

$$\frac{7n}{7} + \frac{2}{7} \Rightarrow \text{Remainder} = 2$$

$k = 1$ and $n = 1$ [Putting on]

$x + y = 7 \times 1 + 1 + 7 \times 1 + 2$

$= 8 + 9$

$= 17$

$$\frac{17}{7} \Rightarrow \text{Remainder} = 3$$

48. A can do a piece of work alone in 32 days, while together with B she can do the work in 24 days. If C alone can do the work in 64 days, in how many days can B and C together do the work.

(a) $38\frac{4}{5}$ days (b) $38\frac{3}{5}$ days

(c) $38\frac{4}{5}$ days (d) $38\frac{2}{5}$ days

Ans. (d) : Work done by A in one day $= \frac{1}{32}$ Part

Work done by A and B both in one day $= \frac{1}{24}$ Part

Work done by B in one day $= \frac{1}{24} - \frac{1}{32}$

$= \frac{4-3}{96} = \frac{1}{96}$

Work done by C in one day $= \frac{1}{64}$ Part

Work done by B and C both in 1 day

$= \frac{1}{96} + \frac{1}{64}$

$= \frac{2+3}{192} = \frac{5}{192}$ part

Work completed by B and C both $= \frac{192}{5} = 38\frac{2}{5}$ days

49. The perimeters of five squares are 24 cm, 32 cm, 40 cm, 76 cm and 80 cm respectively. The perimeter of another square whose area is equal to the sum of the areas of these squares will be

(a) 128 cm (b) 100 cm

(c) 124 cm (d) 120 cm

Ans. (c) : The perimeters of five square 24 cm, 32 cm, 40 cm, 76 cm and 80 cm

Perimeter = 4 × side

$a_1 = 6, a_2 = 8, a_3 = 10, a_4 = 19, a_5 = 20$

Area = $(\text{Side})^2$

Sum of area of all squares.

$= (6)^2 + (8)^2 + (10)^2 + (19)^2 + (20)^2$

$= 36 + 64 + 100 + 361 + 400$

Area = 961 cm^2

$(\text{Side})^2 = \text{Area}$

Side $= \sqrt{961} = 31$

Perimeter = 4 × side $= 4 \times 31 = 124$ cm

50. Select the option that is related to the fifth number in the same way as the fourth number is related to the third number and in the same as the second number is related to the first number.

6 : 34 :: 8 : 62 :: 9 : ?

(a) 79 (b) 64

(c) 81 (d) 18

Ans. (a) : From question,

6 : 34 :: 8 : 62 :: 9 : ? 79

$(6)^2-2$ $(8)^2-2$ $(9)^2-2$

51. Solve the following

$$\mathbf{108 \div \left(36 \times \frac{1}{4}\right) + \frac{2}{5} \times 3\frac{1}{4} = ?}$$

(a) $\frac{130}{10}$ (b) $13\frac{3}{10}$

(c) $\frac{13}{10} + 11$ (d) $\frac{132}{10}$

Ans. (b) : From question,

$$108 \div \left(36 \times \frac{1}{4}\right) + \frac{2}{5} \times 3\frac{1}{4} = ?$$

$= 108 \div 9 + \frac{2}{5} \times \frac{13}{4}$

$= 12 + \frac{2}{5} \times \frac{13}{4}$

$= 12 + \frac{13}{10}$

$= \frac{133}{10} = \boxed{13\frac{3}{10}}$

52. Recently, Indian Defence Minister attended the Victory Day Parade held in Moscow, Russia on the occassion of the 75th anniversary of the Soviet victory over ———— .

(a) USA (b) Germany

(c) England (d) France

Ans. (b) : India's Defense Minister Rajnath Singh attended the Victory Day parade in Moscow (Russia) to mark the 75th Anniversary of the Soviet Union's victory over Germany in world war II.

In this Parade, the troops of the three armies were included in the Indian contingent. It is to be noted that this Victory Day Parade was held on June 24, 2020.

53. Find the sum of the all even natural number less than 85.

(a) 4700 (b) 840

(c) 1806 (d) 1408

Ans. (c) : Even Natural Numbers smaller than 85 are.

2, 4, 6, 8, 10, ...80, 82, 84

$n = \frac{l-a}{d} + 1$

(Where l - last term, a - first term, d - Difference of terms)

$= \frac{84-2}{2} + 1$

$\boxed{n = 42}$

Sum of even natural number = n (n + 1)

= 42 (42 + 1)

= 1806

54. Which of the following Indian pairs has won the Miss Universe title?

(a) Sushmita Sen and Lara Dutta
(b) Lara Dutta and Diana Hayden
(c) Reita Faria and Aishwarya Rai
(d) Priyanka Chopra and Manushi Chhillar

Ans. (a) : In India Sushmita Sen (1994) and Lara Dutta (2000) won the Miss Universe title and Reita Faria, Aishwarya Rai, Diana Hayden, Yukta Mukhi, Priyanka chopra and Manushi Chhillar have won the miss world title.

55. Which of the following options is NOT correct regarding Swachh Bharat Abhiyan?

(a) It's main focus is achieving cleanliness only in urban areas of India
(b) It was launched by Prime Minister Narendra Modi in the year 2014?
(c) It is the reorganization of Nirmal Bharat Abhiyan
(d) The main goal of the campaign was to eradicate the practice of open defection.

Ans. (a) : Swachh Bharat Mission (SBM) or Clean India Mission is a country-wide campaign initiated by the Government of India in 2014 to eliminate open defecation and improve solid waste management.

The mission was split into two part : Rural and urban.

In rural areas this mission was financed and monitored through the Ministry of Drinking Water and Sanitation.

In urban was overseen by the Ministry of Housing and Urban Affairs.

56. The reduction in the external value of the domestic currency is called:

(a) Decrease in inflation
(b) Devaluation of currency
(c) Increase in purchasing power
(d) Economic growth

Ans. (b) : Devaluation of currency is the deliberate downward adjustment of a country's money relative to another currency.

Countries that have a fixed exchange rate or semi fixed exchange rate use this monetary policy tool.

Devaluation reduces the cost of a country's exports, rendering them more competitive in the global market, which in turn, increases the cost of imports.

57. Out of the four words listed, three are alike in some manner and one is different. Select the odd one.

(a) Hibiscus (b) Fish
(c) Pig (d) Bear

Ans. (a) : Fish, pig and Bear come in the animal while Hibiscus is a plant so Hibiscus is different from the other three.

58. Which mission was launched by the Government of India in December 2014 to achieve full immunisation coverage for all children and pregnant women at a rapid pace?

(a) Sukanya Yojana (b) Jan Dhan Yojana
(c) Ujjwala yojana (d)Mission Indradhanush

Ans. (d) : To strengthen and re-energize the programme and achieve full immunization coverage for all children and pregnant women at a rapid pace, the Government of India launched "Mission Indradhanush" in December 2014.

The ultimate goal of mission Indradhanush is to ensure full immunization with all available vaccines for children up to two years of age and pregnant women.

Sukanya Yojana–22 January 2015
Ujjwala Yojana–1 May 2016 (Ballia, UP)
Jan Dhan Yojana–28 August 2014

59. A tailor has 37.5 m of cloth. he has to make 8 pieces out of 3 m of cloth. How many pieces can he make out of his cloth?

(a) 100 (b) 90
(c) 300 (d) 150

Ans. (a) : A tailor has total cloth = 37.5 m

Pieces out of 3m of cloth = 8

Pieces out of 1m of cloth $= \frac{8}{3}$

Pieces out of 37.5m of cloth $= 37.5 \times \frac{8}{3}$

$= 100$

60. In what time will ₹1000 become ₹1331 at an interest rate of 10% annum compounded annually?

(a) 2 years (b) 4 years
(c) $2\frac{1}{2}$ years (d) 3 years

Ans. (d) : Principal (P) = ₹ 1000

Rate (r) = 10 %

Time (t) = ?

Amount (A) = ₹1331

$$\text{Amount (A)} = P\left(1+\frac{r}{100}\right)^t$$

$$1331 = 1000\left(1+\frac{10}{100}\right)^t$$

$$\frac{1331}{1000} = \left(\frac{11}{10}\right)^t$$

$$\left(\frac{11}{10}\right)^3 = \left(\frac{11}{10}\right)^t$$

t = 3 years

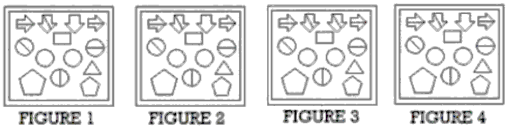
When bases are equal their powers are also equal.

61. Who among the following never became United Nations' Secretary General?

(a) Dag Hammarskjold (b) Kofi Annan
(c) Louise Frechette (d) Ban Ki-moon

Ans. (c) : Louise Frechette, is a Canadian diplomat and Public Servant who served for eight years as United Nations Deputy Secretary General. It is noteworthy that the post of Deputy Secretary General in the UN was announced in the year 1997.
Antonio Guterres is the ninth secretary General of the United Nations, took office on 1st January 2017.

62. Which of the following figures is different from the rest?



(a) Figure-2 (b) Figure-4
(c) Figure-1 (d) Figure-3

Ans. (d) : In the given figures, the patterns of figure (1), (2) & (4) are all same while in the third figure the third pattern of the first line makes it different from all. Hence, the third figure is different from all.

63. If $\cos x = -\frac{3}{5}$ and x lies in the third quadrant, then the value of the sin x is:

(a) 0 (b) $\frac{4}{5}$

(c) $-\frac{4}{5}$ (d) 1

Ans. (c) : $\cos x = -\frac{3}{5}$ and x lies in the third quadrant.

$$\sin x = \sqrt{1-\cos^2 x} = \sqrt{1-\frac{9}{25}} = \pm\frac{4}{5}$$

x being in third quadrant.

$$\boxed{\sin x = -\frac{4}{5}}$$

64. A Student multiplied a number by 3/5 instead of 5/3. What is the percentage error in the calculation?

(a) 46% (b) 20%
(c) 64% (d) 10%

Ans. (c) : Let Number = x
According to question.

$$\text{Error} = \frac{5x}{3} - \frac{3x}{5} = \frac{16x}{15}$$

Percentage Error

$$= \frac{\frac{16x}{15}}{\frac{5x}{3}} \times 100 = \frac{16x}{25x} \times 100 = 64\,\%$$

65. At which of the following railway stations of South Africa was Gandhiji thrown out of a train after refusing to leave the first-Class compartment?

(a) Pietermaritzburg (b) Johannesburg
(c) Durban (d) Cape Town

Ans. (a) : Mahatma Gandhi was thrown off a train at the Pietermaritzburg railway station in South Africa in 1893, after a white man objected to him travelling in the first class coach. Gandhiji spent nearly 21 years in a South Africa practicing law, and adopting Satyagraha against the racist regime. At that time he had faced racism for the first time there.

66. If a lens has a focal length of 25 cm, what will be the power of that lens?

(a) 2 D (b) 6 D
(c) 1 D (d) 4 D

Ans. (d) : $\text{Power} = \frac{1}{\text{Focal Length}}$

$$P = \frac{1}{f \text{ metre}}$$

$$= \frac{1}{0.25 \text{ metre}}$$

$$P = 4 \text{ D}$$

67. The minute hand of a watch is 1.5 cm long. How far does its tip move in 40 minutes? (take $\pi = 3.14$)

(a) 6.00 cm (b) π cm
(c) 6.28 cm (d) 2π m

Ans. (c) : Length of minute hand = 1.5 cm.
According to the question,

$$\text{Tip move in 40 minutes} = 2\pi r \times \frac{40}{60}$$

$$= 2\pi r \times \frac{2}{3}$$

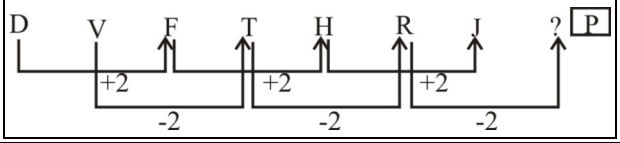
$$= 2 \times 3.14 \times \frac{2}{3} \times 1.5$$

$$= 6.28 \text{ cm.}$$

68. Select the letter that can replace the question mark (?) in the following series.
D, V, F, T, H, R, J, ?

(a) L (b) O
(c) M (d) P

Ans. (d) : The given series is as follows.



69. Find the greatest four-digit number that is a perfect square.

(a) 9999 (b) 9008

(c) 9801 (d) 9000

Ans. (c) : From option (c)–

$$\begin{array}{r|l} & 9\ 9 \\ \hline 9 & \overline{98}\ \overline{01} \\ 9 & 81 \\ \hline 189 & 1701 \\ 9 & 1701 \\ \hline & \text{xxxx} \end{array}$$

The greatest four digit number that is a perfect square is 9801.

70. In an election between two candidates, 75% of the voters enrolled in the election to cast their votes, out of which 2% were declared invalid. A candidate got 9261 votes, which were 75% of the valid votes. The total number of voters enrolled in that election were.

(a) 18000 (b) 16400

(c) 16000 (d) 16800

Ans. (d) : Let total number of voter $= x$

$$\text{Number of cast votes} = x \times \frac{75}{100} = \frac{75x}{100}$$

$$\text{Valid Votes} = \frac{75x}{100} \times \frac{98}{100}$$

According to question,

$$9261 = \frac{75x}{100} \times \frac{98}{100} \times \frac{75}{100}$$

$$9261 = x \times \frac{3}{4} \times \frac{49}{50} \times \frac{3}{4}$$

$$\boxed{x = 16800}$$

71. The mean and standard deviation of 100 observations were calculated as 40 and 5.1 respectively by a student who took 50 instead of 40 for one observation. What is the correct mean and standard deviation ?

(a) 39.09,5 (b) 39.9,50

(c) 39.0,5 (d) 39.9,5

Ans. (d) : $\bar{x} = 40, \sigma = 5.1, n = 100$

$$\bar{x} = \frac{1}{n}\sum_{i=1}^{n} x_i$$

$$\sum_{i=1}^{100} x_i = 40 \times 100$$

$$\sum_{i=1}^{100} x_i = 4000$$

Incorrect mean $= 4000 - 50 + 40 = 3990$

$$\text{Correct mean} = \frac{\text{Incorrect mean}}{\text{Number of obsevations}}$$

$$= \frac{3990}{100}$$

Correct mean $= 39.9$

$$\sigma = \sqrt{\frac{1}{n}\sum_{i=1}^{n} x_i^2 - \left(\bar{x}\right)^2}$$

$$(5.1)^2 = \frac{1}{100}\sum_{i=1}^{n} x_i^2 - (40)^2$$

$$(26.01 + 1600) \times 100 = \sum_{i=1}^{100} x_i^2$$

$$\sum_{i=1}^{100} x_i^2 = 162601$$

$$= 162601 - (50)^2 + (40)^2$$

$$= 162601 - 2500 + 1600$$

$$= 161701$$

Correct Standard Deviation

$$= \sqrt{\frac{1}{n}\sum_{i=1}^{n} x_i^2 - \left(\bar{x}\right)^2}$$

$$= \sqrt{\frac{161701}{100} - (39.9)^2}$$

$$= \sqrt{1617.01 - 1592.01}$$

$$= \sqrt{25}$$

Correct Standard Deviation $= 5$

72. Which of the following countries is not a member of the world Bank Group?

(a) Canada (b) China

(c) USA (d) Cuba

Ans. (d) : World Bank is a component of World Bank Group. It comprises of two institutions.

(1.) The International Bank for Reconstruction and Development (IBRD).

(2.) The International Development Association (IDA). World Bank is an financial institution that provides loans and grants to the governments of low and middle income countries for the pursuing capital projects. It is headquartered in Washington D.C.189 countries are the member of World Bank. While Cuba is not the member of world Bank.

73. The radius of the circle in which a central angle of 60° intercepts an arc of length 35 cm is:

(a) 35π cm (b) $\frac{35}{\pi}$ cm

(c) $\frac{105}{\pi}$ cm (d) $\frac{100}{\pi}$ cm

Ans. (c) : Length of arc = 35 cm

$$\theta = 60^{o} = \frac{\pi}{180} \times 60 = \left(\frac{\pi}{3}\right)^{o}$$

$$\theta = \frac{l}{r}$$

$$\frac{\pi}{3} = \frac{35}{r} = \boxed{r = \frac{105}{\pi}\text{cm}}$$

74. Which of the following countries is the largest producer of gold in the world in 2019?

(a) Australia (b) China

(c) South Africa (d) India

Ans. (b) : As per the current reports of forbes, leading producer of gold, countries are.

1. China 2. Russia 3. United States 4. Canada 5. Ghana

75. Who discovered the sea route to India?

(a) Vasco D Gama

(b) Ibn Battuta

(c) Christopher Columbus

(d) Hsuan Tsang

Ans. (a) : Vasco D Gama discovered the sea route to India in the year 1498. On 1948 two years after he set his sail from Lisbon, Portugal. Vasco da Gama arrived on the western sea coast of India at Kozhikode (Calicut), Kerala. This was the first time when a European had arrived in India via the sea.

Hence Vasco da Gama is credited with the discovery of the sea route to India

76. A, B and C all start their journey from the same place and all three follow the same route. However, A travels at a speed of 60 km/h, B at a speed of 75 km/h and C at a speed of 80 km/h. Also, A starts the journey five hours before B does. If B and C both overtake A at the same instance while travelling, how much time after A did C start the journey ?

(a) 6 hours 12 minutes (b) 6 hours 30 minutes

(c) 6 hours 15 minutes (d) 6 hours 25 minutes

Ans. (c) :

●←—y km—→←—300 km—→←—x km—→●

C→80 km/h B→75 km/h A→60 km/h

According to question,

$\because \quad \frac{x + y + 300}{80} = \frac{300 + x}{75}$

$15(x + y + 300) = 16\,(300 + x)$

$15y - x = 300$ .....(i)

$\because \quad \frac{300 + x}{75} = \frac{x}{60}$

$12(300 + x) = 15x$

$3x = 12 \times 300$

$x = 1200$ km

$y = 100$ km

$\because$ Hence, C will start journey after 6 hours 15 minutes.

77. There are 2401 students in a school. The PT teacher wants all of them to stand in rows and columns. find the number of rows, if the number of rows is equal to the number of columns.

(a) 29 (b) 39

(c) 49 (d) 19

Ans. (c) : Let number of Rows = x

and number of columns = x

Number of students in school = 2401

According to question,

Number of rows × Number of columns = 2401

$x \times x = 2401$

$x^2 = 2401$

$x = 49$

78. The fungus Puccinia Graminis causes:

(a) Red rot of sugarcane

(b) Ringworm in Humans

(c) Late blight of potato

(d) Black Rust in Wheat

Ans. (d) : Name of the diseases caused by fungus in plants.

• Diseases in Plants	• Pathogen (Fungus)
• Black worm disease of wheat (Black Rust)	• Puccinia graminous triticale
• Red Rot Disease of Sugarcane	• Colletotrichum falcatum
• Peanut tikka disease	• Socospora Presenata Rachidiola, cerco personata
• Green ear disease of millet	• Sclerospare graminei kola

79. What is the full form of COBOL?

(a) Common Open Business Objective Language

(b) Computer Operative Business Oriented Language

(c) Common Business-Oriented Language

(d) Computer Operative Business Objective Language

Ans. (c) : The full form of COBOL is "Common Business Oriented Language". It is a high level programming language for business applications. It was the first popular language designed to be operating system-agnostic and is still in use in many financial and business applications today.

80. Which of the following is not a lucrative insect?

(a) Termite (b) Lac insect
(c) Silk moth (d) Honey bee

Ans. (a) : Those species of insects which help in pollination, Pest control and crop production are called "Beneficial" or friend of farmers.
These insects are - Lac insect- bee, silk moat etc.
While termites are not beneficial insects.

81. A man travelled from a village to a post-office at a speed of 25 km/h and walked back at a speed of 4 km/h. If the whole journey took 5 hours 48 minutes, then find the distance of the post office from the village.

(a) 20 m (b) 20 km
(c) 40 m (d) 40 km

Ans. (b) : Let distance of the post office from village = x km

According to question,

$$\frac{x}{25}+\frac{x}{4}=5 \text{ hours } 48 \text{ minutes}$$

$$\frac{4x+25x}{100}=5\frac{4}{5}$$

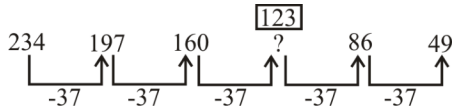
$$\frac{29x}{100}=\frac{29}{5}$$

$$x = 20 \text{ km}$$

82. Select the number that can replace the question mark (?) in the following series.
234, 197, 160, ?, 86, 49

(a) 118 (b) 123
(c) 98 (d) 132

Ans. (b) : The given number series is as follows.



Hence, 123 will be in place of question mark.

83. If $\frac{144}{0.144}=\frac{14.4}{x}$, then what is the value of x?

(a) 0.00144 (b) 0.0144
(c) 0.01044 (d) 0.144

Ans. (b) : According to question

$$\frac{144}{0.144}=\frac{14.4}{x}$$

$$144x = 14.4\times 0.144$$

$$144x = \frac{144\times 144}{10000}$$

$$\boxed{x = 0.0144}$$

84. There are three consecutive road crossings at which traffic lights change after every 35 seconds, 42 seconds and 90 seconds, respectively. if the lights are set on simultaneously at 8:00, then after how much time will they change again simultaneously?

(a) 10 minutes 30 seconds
(b) 9 minutes 10 seconds
(c) 7 minutes 20 seconds
(d) 9 minutes 30 second

Ans. (a) : L.C.M of 35, 42 and 90.

2	35, 42, 90
3	35, 21, 45
3	35, 7, 15
5	35, 7, 5
7	7, 7, 1
	1, 1, 1

$= 2 \times 3 \times 3 \times 5 \times 7$
$= 630$ Seconds
$= 10$ minute 30 seconds

After 10 minutes 30 seconds light will again change simultaneously.

85. Which one of the following is not an operating system?

(a) MS Windows (b) Linux
(c) MacOS (d) Microsoft Office

Ans. (d) : An operating system (os) is system software that manages computer hardware, software resources and provides common services for computer programs. Like - MS windows, Linux, Macos, Unix etc.

86. According to the given table, how many schools won less than 15 gold medals in any of the two consecutive years? X = Schools, Y = Year.

Y → / X ↓	2001	2002	2003	2004
School A	**20**	**13**	**16**	**11**
School B	**15**	**18**	**14**	**25**
School C	**14**	**21**	**16**	**9**
School D	**19**	**8**	**14**	**21**
School E	**5**	**12**	**16**	**17**

Number of Gold Medals won by different schools in different years during Interschool competition.

(a) 3 (b) 1
(c) 2 (d) 4

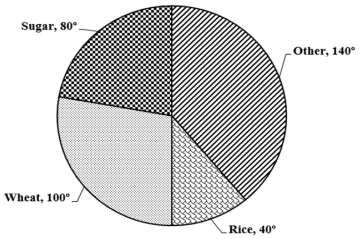
Ans. (c) : According to given list

School-D won less than 15 gold medals in 2002 and 2003.

School-E won less then 15 gold medals in 2001 and 2002.

Hence, Two school are their which won less than 15 gold medals in any of two consecutive years.

87. Study the given pie chart that shows the annual Agricultural yield of a certain place and answer the question that follows.



If the total production is 8100 tons, then the yield of rice (in tonnes) will be:

(a) 2025 (b) 900

(c) 4860 (d) 3240

Ans. (b) : Total production = 8100 Tonnes

$$\text{Yield of rece} = 8100 \times \frac{40^0}{360^0}$$

= 900 Tonnes

88. According to the given table, which of the following has the highest growth rate of production from 2001 to 2005?

Years	Gold	Silver	Copper	Iron
2001	**24**	**87**	**12**	**27**
2002	**56**	**89**	**20**	**29**
2003	**65**	**95**	**35**	**16**
2004	**75**	**101**	**43**	**37**
2005	**85**	**103**	**54**	**69**

Production of four elements (Thousand tonnes)

(a) Iron (b) Silver

(c) Copper (d) Gold

Ans. (c) : From option–

Percentage growth of Iron

$$= \frac{69\text{-}27}{27} \times 100 = 155.55\%$$

Percentage growth of Silver

$$= \frac{103\text{-}87}{87} \times 100 = 18.390\%$$

Percentage growth of Copper

$$= \frac{54\text{-}12}{12} \times 100 = 350\%$$

Percentage growth of Gold

$$= \frac{85\text{-}24}{24} \times 100 = 254.16\%$$

Highest growth rate of production from 2001 to 2005 is copper.

89. Table gives the marks of two friends Anita and Sunita in various subjects in a semester exam. What is the difference between their percentage of aggregate marks ?

Subject	Anita	Marks	Sunita	Marks
English	70	100	85	100
French	50	100	90	100
Biology	45	50	40	50
Physics	30	50	25	50

(a) 7% (b) 1%

(c) 15% (d) 10%

Ans. (c) : Total percentage of Anita's marks = $\frac{195}{300} \times 100 = 65\%$

Total percentage of Sunita's marks = $\frac{240}{300} \times 100 = 80\%$

Difference between Sunita and Anita marks = 80 – 65

= 15%

90. Items L, Z, A, M and P are to be delivered to BCD showroom on 5 consecutive days beginning from Monday to Friday. Items Z and P cannot be delivered on Consecutive days. Items L and Z have to be delivered on alternate days. M and P cannot be delivered on consecutive days. L has to be delivered on Monday. Which item will be delivered on Tuesday?

(a) Z (b) A

(c) M (d) L

Ans. (c) : Given–

Z and P can not be delivered on consecutive days.

M and P can not be delivered on consecutive days.

L and Z can be delivered on alternate days.

L has to be delivered on Monday.

Company	Item will be	day
B	L	Monday
	M	Tuesday
C	Z	Wednesday
	A	Thursday
D	P	Friday
Hence, Item M will be delivered on Tuesday.		

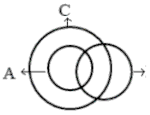
91. Out of the four letter-clusters listed, three are alike in some manner and one is different. Select the odd one.

(a) BO (b) DF

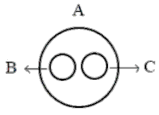
(c) CG (d) AI

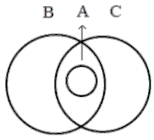
Ans. (a) : BO is different from all other option because BO have consonant and vowel both but in other options there is either vowel or consonant.

92. Which of the following diagram best depicts the relationship between A, B and C, where A means 'Colour of the leaves', B means 'Yellow coloured things' and C means 'Green coloured things'?

(a) 

(b) 

(c) 

(d) 

Ans. (b) : A means = Colour of leaves

B means = yellow coloured things

C means= Green coloured things.

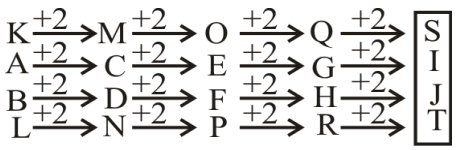
93. Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.

KABL, MCDN, OEFP, QGHR, ?

(a) WSTX (b) UQRV

(c) SIJT (d) YBAZ

Ans. (c) : The given series is as follows–



Hence ? = SIJT

94. In the given statement, relationship between different elements is shown. Which of the following conclusions logically follow(s) from the given statements?

Statement:

S < G < X = T > W > Q < R.

Conclusions:

I. W < X

II. Q = S

(a) Only conclusion II follows 6

(b) Only conclusion I follows

(c) Either conclusion I or II follows

(d) Both, conclusion I and II follow

Ans. (b) : According to question,

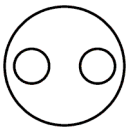
S < G < X = T > W > Q < R

X = T > W

X > W

Thus, it is clear from statement that only conclusion (I) follows.

95. The relationship between which of the following groups of items is best represented by the given Venn Diagram?



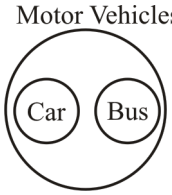
(a) Car, Bus, Motor Vehicles

(b) Doctors, Nurses, Surgeons

(c) Year, Month, July

(d) Criminal, Thief, Police

Ans. (a) : Car and Bus come under the motor vehicles whereas Bus and Car are different vehicles.



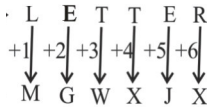
Hence, option (a) is required answers

96. In a code language, LETTER is written as MGWXJX. Select the option that will be written as ICNYSG in that language.

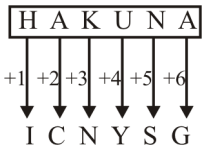
(a) MATOLA (b) HAKUNA

(c) HAKURA (d) MATATA

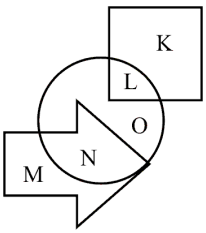
Ans. (b) : Just as,



Similarly



97. In the given diagram, circle represents 'boxers' , square represents 'philosophers' and arrow represents 'business women'.

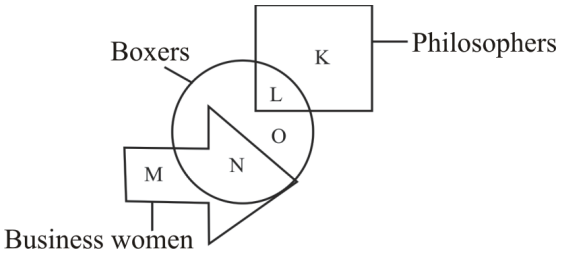


Which of the following letters represents boxers who are not men?

(a) N (b) L

(c) M (d) O

Ans. (a) :



N represents boxers who are not men.

98. Study the given information carefully and answer the question that follows.

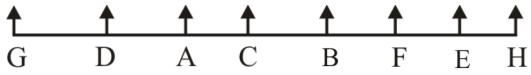
Eight persons A, B, C, D, E, F, G and H are sitting in a row facing the north but not necessarily in the same order. Three persons are sitting between D and F. G is sitting to the immediate left of D. Only one person is sitting between E and B. E is not sitting at any of the extreme ends. More than three persons are sitting between H and A. A is sitting to the left of H. Either H or A is sitting at one of the ends. Neither D nor F is sitting at any of the extreme ends. E and B are not the immediate neighbours of G and D. E is sitting to the right of B.

How many persons are sitting between H and C?

(a) Zero (b) One

(c) Two (d) Three

Ans. (d) : According to question,



Three person (E, F and B) are sitting between H and C.

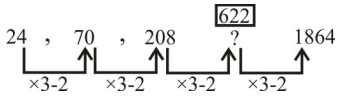
99. Select the number from among the given options that can replace the question mark (?) in the following series.

24, 70, 208, ?, 1864

(a) 476 (b) 622

(c) 515 (d) 558

Ans. (b) : The given series is as follows–



Hence, ? = 622

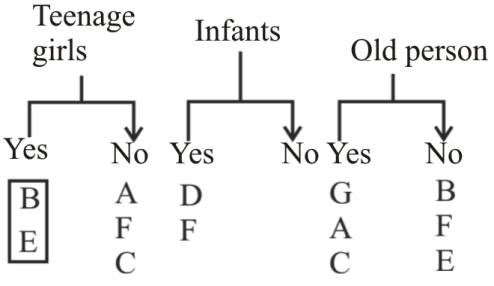
100. A, B, C, D, E, F and G are the names of two teenage girls, two infants and three old men. B, F and E are not old men. A, F and C are not teenage girls. G is an old man while D is an infant.

Which of the following are two teenage girls?

(a) B and E (b) A and E

(c) F and E (d) B and F

Ans. (a) : According to question,



Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 17.02.2021] **[Time : 3.00 pm-4.30 pm]**

1. Whose famous quote is this?
"If you cry because the sun has gone out of your life, your tears will prevent you from seeing the stars."
(a) Rabindranath Tagore
(b) Amrita pritam
(c) Sumitranandan Pant
(d) Sri Aurobindo

Ans. (a) : "If you cry because the sun has gone out of your life, your tears will prevent you from seeing the stars" is the greatest quote of Rabindranath Tagore. It is significant that, Rabindranath Tagore, India's first Nobel laureate will always be remembered in India as his poetic composition reverberates in our hearts and spirits in the form of our national anthem.

2. Who is the world's youngest international chess grandmaster as of 31st December 2020?
(a) Sergey Karjakin
(b) Wesley Barbasa So
(c) Bhaskaran Adhiban
(d) Humpy Koneru

Ans. (a) : As of 31st December 2020, the world's youngest international chess grandmaster was Sergey Karijakin; a Russian Chess Grandmaster (formerly representing Ukraine). On August 12, 2002, Karijakin, a World Championship Challenger in 2016, secured the Grandmaster title at the age of 12 years and seven months. At present, Indian-American prodigy Abhimanyu Mishra is the youngest international master in 2019 at the age of 10 and began earning his Grandmaster norms in 2021. Abhimanyu Mishra, took 12 years four months, and 25 days to obtain the highest title in chess.

3. Select the set that can replace the question marks (?) in the following series $\frac{D}{23}\ \frac{20}{G}\ \frac{J}{17}\ \frac{14}{M}\ \frac{P}{11}\ \frac{?}{?}$
(a) $\frac{8}{S}$ (b) $\frac{R}{8}$
(c) $\frac{8}{T}$ (d) $\frac{9}{S}$

Ans. (a) : $\frac{D}{23}\ \frac{20}{G}\ \frac{J}{17}\ \frac{14}{M}\ \frac{P}{11}\ \frac{?}{?}$

$\frac{4}{23}\ \frac{20}{G}\ \frac{10}{17}\ \frac{14}{M}\ \frac{16}{11}\ \boxed{\frac{8}{S}=\frac{8}{19}}$

In this, the value of English alphabet and its opposite letter is given.
Numerical value of letter + Numerical value of opposite letter = 27.

4. What does FQDN stands for?
(a) File Qualified Division Name
(b) Fully Qualified Domain Name
(c) Frequency Query Domain Name
(d) Fully Qualified Disk Name

Ans. (b) : FQDN stands for Fully Qualified Domain Name. It is a complete address for a website, computer server or similar entity that exist on the internet. The FQDN consists of two parts, the hostname and the domain name.

5. Read the given statement and assumptions carefully and decide which of the assumptions is/are logically implicit from the statement.
statement : Romila got elected as the president of the student's committee of her school, so she must be senior.
Assumptions:
I. Only members of the student's committee can be senior.
II. Only senior can be the president of the student's committee
III. Only girls can be the members of the student's committee.
(a) Only assumptions II is implicit
(b) Both assumptions II and III are implicit
(c) Only assumptions I is implicit
(d) Both assumptions I and II are implicit

Ans. (a) : Choosing Romila as the president of the student committee of her school means that she is the seniormost among the other students. On this basis only assumption (II) is true as per the statement.

6. Which one of the following is an example of Major Tectonic Plate?
(a) Cocos Plate (b) Arabian Plate
(c) Pacific Plate (d) Nazca Plate

Ans. (c) : The Earth's lithosphere is divided into 7 major and some minor plates. Young Fold Mountain ridges, Oceanic trenches and/or transform fault surround the major plates. Major plates include :- The Antarctic plate, The Pacific plate, The North American plate, The South American Plate, The India-Australia-New Zealand plate, The Africa with the eastern Atlantic floor plate and Eurasia & the Adjacent oceanic plate. Where as Cocos plate, Nazca plate, Arabian plates, Fuji plate & Caroline plate etc. are included in minor plates.

7. AICC (All India Congress Committee) passed the Quit India Resolution on:

(a) 8th January, 1942 (b) 18th July, 1942

(c) 8th August, 1942 (d) 15th August, 1942

Ans. (c) : The Quit India Resolution was passed by All India Congress Working Committee on 8 August 1942 in Bombay. On 8th August 1942, M.K. Gandhi gave a clarion call to end the British rule and launched the Quit India Movement at the session of All India Congress Committee in Mumbai. Gandhiji gave the call Do or Die in his speech delivered at the Gowalia Tank Maidan now popularly known as August Kranti Maidan. The slogan of Quit India was coined by Yusuf Mehar Ali.

8. How many heritage cities have been selected for rejuvenation and development under National Heritage City Development and Augmentation Yojana (HRIDAY).

(a) 12 (b) 10

(c) 25 (d) 20

Ans. (a) : National Heritage City Development and Augmentation Yojana (HRIDAY) was launched by the Ministry of Housing & Urban Affairs on 21st January 2015. This scheme was introduced to preserve and revitalize the rich cultural heritage of the country. There are 12 cities that are listed under this scheme. They are as:- Ajmer, Amravati, Badami, Gaya, Mathura, Puri, Varanasi, Velankanni, Warangal, Dwarka, Kanchipuram & Amritsar.

9. If a : b = 3 :7, then (4a + 5b) : (9a + 2b) = ?

(a) 47 : 41 (b) 37 : 31

(c) 41 : 47 (d) 31 : 37

Ans. (a) : $\because a : b = 3 : 7$

Let $a = 3, b = 7$

$$\therefore \frac{4a+5b}{9a+2b} = \frac{4\times3+5\times7}{9\times3+2\times7}$$

$$= \frac{47}{41} = 47 : 41$$

10. What is the official name of JavaScript?

(a) ECMA script (b) Livescript

(c) JavaScript (d) Wirescript

Ans. (a) : JavaScript was invented by Brendan Eich in 1995, and became an ECMA in 1997. EMCA script is the official name of the language. JavaScript is a scripting language specification.

11. Who built the Lingraj Temple?

(a) Mughal Emperor Shah Jahan

(b) Rulers of the Rajput Chandela Dynasty

(c) King Yayati Keshri of Somavanshi

(d) King Anantawarman Chodaganga Deva

Ans. (c) : Lingraj Temple was built in 11th century AD by the Somvanshi king Yayati I. It is dedicated to Lord Shiva and is considered as the largest temple of the city Bhubaneshwar (Odisha). It is built of red stone and is a classic example of Kalinga style of architecture.

12. Two sides of triangle are of lengths 4 cm and 10 cm. If the length of the third side is a cm then

(a) $6 < a < 14$ (b) $a > 5$

(c) $a < 6$ (d) $6 < a < 12$

Ans. (a) : We know that the measure of any side of any triangle is less than the sum of the other two sides and greater than the difference.

$\therefore (10-4) < a < (10+4)$

$6 < a < 14$

13. Read the given statements and conclusions carefully. Assuming that the information given in the statement is true, even if it appears to be at variance with commonly known facts, decide Which of the conclusions logically follows from the statements.

Statement :

I. All hens are pens.

II. No pen is a ship.

Conclusion :

I. No hen is a ship.

II. All pens are hens.

(a) Neither conclusion I nor II follows.

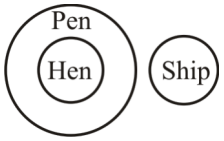
(b) Only conclusion II follows.

(c) Only conclusion I follows.

(d) Either conclusion I or II follows.

Ans. (c) : According to question

It is clear from the diagram that only conclusion (i) follows.



14. A, B and C get ₹ 1,800 to complete a work. A worked for 6 days, B worked for 4 days and C worked for 9 days, if the ratio if their daily wages are 5 : 6 : 4. How much money will A get?

(a) ₹1,000 (b) ₹800
(c) ₹600 (d) ₹400

Ans. (c) : Ratio of wages of A, B and C.

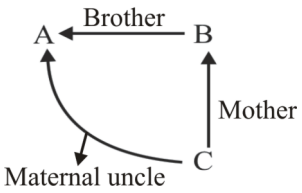
$$A : B : C = 5\times6 : 6\times4 : 4\times9$$
$$= 5 : 4 : 6$$
$$\text{Money received by A} = 1800\times\frac{5}{15}$$
$$= ₹\ 600$$

15. Which place in India has been chosen as a UNESCO world heritage site in 2018?
(a) Victorian Gothic and Art Deco Ensembles of Mumbai
(b) Lalbagh Botanical Garden, Bangalore
(c) Konark Sun Temple, Odisha
(d) Dachigam National Park, Srinagar

Ans. (a) : UNESCO World Heritage site is a place that has been recognized by the United Nations Educational, Scientific and Cultural Organization as of distinctive cultural or physical importance which is considered as outstanding value to humanity. There are 40 UNESCO World Heritage site in India. Victorian and Art Deco Ensemble of Mumbai became the UNESCO World Heritage site in 2018. Dholavira & Rudreswara Temple become the UNESCO World Heritage Site in 2021.

16. If L + M means ' L is the son of M', L – M means 'L is the husbands of M', 'L × M means ' L is the brother of M' and L ÷ M means ' L is the mother of M'. What does A × B ÷ C mean?
(a) A is the Mother of C
(b) A is the father of C
(c) A is the nephew of C
(d) A is the maternal uncle of C

Ans. (d) : A × B ÷ C
On making diagram, according to question,



It is clear that A is C's maternal uncle or uncle.

17. Steel Authority of India Limited is an examples of :
(a) Co-operative sector industry
(b) Public sector industry
(c) Private sector industry
(d) Joint sector industry

Ans. (b) : Steel Authority of India (SAIL) is a steel manufacturing enterprise owned & operated by Ministry of Steel, Govt. of India. It is a public sector Industry, established on 19 January 1954.

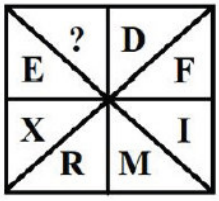
18. In a triangle ABC, tanA + tanB + tanC = ?
(a) 1
(b) -tanA.tanB.tanC
(c) tanA.tanB + tanB.tanC + tanC.tanA
(d) tanA.tanB.tanC

Ans. (d) : tanA + tanB + tanC = ?
A + B + C = 180°
A + B =180°– C
tan (A+B) = tan (180°– C)
$$\frac{\tan A+\tan B}{1-\tan A\cdot\tan B}=-\tan C$$
tan A + tanB = – tanC + tan A · tanB ·tanC
tan A + tan B + tan C = tan A · tanB ·tanC

19. Name the Indian scientist who shared the Nobel Prize for Medicine and Physiology in 1968 for cracking the genetic code.
(a) Har Gobind Khorana
(b) Visvesvaraya
(c) Venkatarman Radhakrishnan
(d) Meghnad Saha

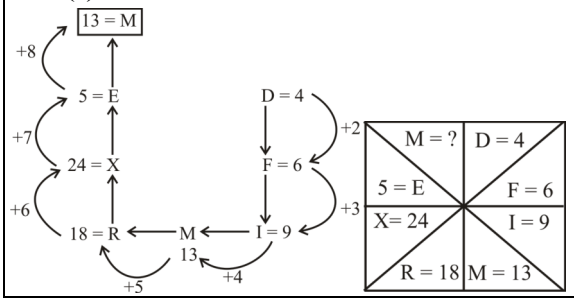
Ans. (a) : The Nobel Prize in physiology or medicine in 1968 was awarded jointly to Robert W Holley, Har Gobind Khorana and Marshall W. Nirenberg for their interpretation of the genetic code and its, function in protein synthesis. In 2021, this award was awarded jointly to David Julius and Ardem Pata Poution for their discoveries of receptors for temperature & touch.

20. Select the letter that can replace the question mark (?) in the figure below.



(a) X (b) W
(c) M (d) P

Ans. (c) :



21. Which pathogen causes ' bakane' (foolish seedling) disease in rice seedlings?

(a) Gibberella Fujikuroi
(b) Curvularia lunata
(c) Drechslera gigante
(d) Rhizoctonia oryzae

Ans. (a) : The Bakanal (Foolish Seedling) disease of rice seedling is caused by a fungal pathogen Gibberella Fujikuroi. The appearance of symptoms of the disease in rice seedling was reported when they were treated with sterile filtrate of the fungus. The active substance was later identified as gibberellic acid.

22. The LCM of two prime numbers a and b(a > b > 1) is 697. The value of a – 2b is:

(a) 8 (b) 6
(c) 7 (d) 5

Ans. (c) : The LCM of prime numbers is equal to their product.

$a \times b = 697 = 17 \times 41$

i.e $a = 41, b = 17$ (because $a > b > 1$)

$\therefore a - 2b = 41 - 34 = 7$

23. Who was the first Muslim lady to sing Vande Mataram at a Congress session?

(a) Rehana Tyabji
(b) Begum Harzat Mahal
(c) Asghari Begum
(d) Razia Khatun

Ans. (a) : Vande Mataram song was sung for the first time at Kolkata session of Indian National Congress in 1896. The song was written by Bankim Chandra Chatarjee in 1874. Rehana Tayabjee was the first muslim lady to sing Vande Mataram at Congress session. On 24 January 1950, the Indian Constituent Assembly adopted Vande Mataram as a national song.

24. What is the electronic configuration of rhodium?

(a) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^{10}\ 4s^2\ 4p^6\ 4d^8\ 5s^1$
(b) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 3d^8\ 4p^5$
(c) $1s^2\ 2s^2\ 2p^6\ 3s^1$
(d) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^1\ 3d^5$

Ans. (a) : Rhodium atoms have 45 electrons and the shell structure is 2,8,18,16,1. The Electronic congfiguration of rhodium is $1S^2\ 2S^2\ 2P^6\ 3S^2\ 3P^6\ 3d^{10}\ 4S^2\ 4P^6\ 4D^8\ 5S^1$.

The Electronic configuration is the distribution of electrons of an atom or molecule in atomic or molecular orbitals. It describes how electrons are distributed in its atomic orbitals.

25. 40% of any number is 46 less than $\frac{4}{5}$ of the same number, Find the number.

(a) 110 (b) 105
(c) 115 (d) 85

Ans. (c) : Let the number be x.

According to question,

$$x \times 40\% = x \times \frac{4}{5} - 46$$

$$x \times \frac{2}{5} = x \times \frac{4}{5} - 46$$

$$x \times \frac{2}{5} = 46$$

$$\Rightarrow x = 23 \times 5 = 115$$

26. What does Article 243 'C' deal with?

(a) Provision for early childhood care and education to children below the age of 6 years
(b) Name and territory of the union
(c) Protection of life and personal liberty
(d) Composition of the Panchayats

Ans. (d) :

Articles	Deal with
•243	Definition of Panchayats
•243A	Gram Sabha
•243B	Constitution of Panchayats
•243C	Composition of Panchayats
•243 D	Reservation of Seats in Panchayats
•243E	Duration of Panchayats, etc.
•243F	Disqualification for membership of Panchayats
•243G	Powers, authority and responsibilities of Panchayats
•243 H	Powers to impose taxes and funds of the Panchayats
•243 K	Elections of the Panchayats

27. Spice Jet recently operated India's first ever biojet fuel flight. Which of the following institute prepared the fuel?

(a) Indian Space Research Organization, Bengaluru
(b) Bhabha Atomic Research Centre, Mumbai
(c) Defence Research and Development Organization, New Delhi
(d) CSIR- Indian Institute of Petroleum (IIP), Dehradun

Ans. (d) : Spice jet successfully operated India's first ever biojetfuel flight. A Bombardier Quoo aircraft partially using biojet fuel took off from Dehardun and landed at the airport in New Delhi. The fuel of this aircraft was developed by CSIR-Indian Institute of Petroleum Dehradun.

28. If $a^2+b^2+c^2+3 = 2(a+b+c)$, then the value of (a+b+c) is.

(a) 3 (b) 2
(c) 5 (d) 4

Ans. (a) : $a^2 + b^2 + c^2 + 3 = 2(a+b+c)$
$(a^2-2a+1) + (b^2-2b+1) + (c^2-2c+1) = 0$
$(a-1)^2 + (b-1)^2 + (c-1)^2 = 0$
$\Rightarrow a = b = c = 1$
then, $(a+b+c) = (1+1+1) = 3$

29. Sundari, Kasu and Joyti took two tests each. The ratio of marks obtained to total marks for each of their two tests is given below;

Sundari - $\frac{24}{60}$ and $\frac{32}{40}$

Kasu - $\frac{35}{70}$ and $\frac{54}{60}$

Joyti - $\frac{27}{90}$ and $\frac{45}{50}$

Who among them registered the maximum progress?

(a) Both Sundari and Kasu
(b) Only Sundari
(c) Only Joyti
(d) Only Kasu

Ans. (c) : Progress of Sundari = 80 – 40 = 40%
Progress of Kashi = 90 – 50 = 40%
Progress of Jyoti = 90 – 30 = 60%
Hence It is clear that Jyoti registered the maximum progress.

30. Recently, Which Indian Institute has edited the banana genome for the first time using the CRISPR/CAS9 technique?

(a) Indian Agricultural Statistics Research Institute, New Delhi
(b) Indian Institute of Vegetable Research, Varanasi
(c) National Agri-food Biotechnology Institute, Mohali
(d) Indian Agricultural Research Institute (IARI), New Delhi

Ans. (c) : In 2020, National Agri-Food Biotechnology Institute, Mohali had edited the banana genome for the first time using the CRISPR/CAS9 technique. This was the first ever research study on genome editing in any fruit crops from India. The research team was led by Dr. Siddhartha Tiwari.

31. According to the United Nations which year is considered as the International Year of the Indigenous Languages?

(a) 2019 (b) 2009
(c) 2007 (d) 2018

Ans. (a) : In 2016 the United Nation General Assembly adopted a resolution proclaiming 2019 as the "International year of Indigenous Languages" based on a recommendation by the Permanent forum on indigenous Issues.

32. The compound interest on a sum of ₹7,500 for 2 years at 4% p.a. is.

(a) ₹612 (b) ₹515
(c) ₹850 (d) ₹750

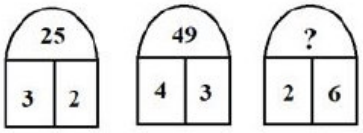
Ans. (a) : Required rate of two years at 4% p.a.
$4+4+\frac{4\times4}{100} = 8.16\%$
$C.I = 7500\times\frac{8.16}{100}$
= ₹ 612

33. A dealer offers a discount 10% on the market price of an article and still makes a profit of 20%. If the market price is ₹1,200 , then the cost price is.

(a) ₹950 (b) ₹900
(c) ₹850 (d) ₹800

Ans. (b) : $\frac{MP}{CP} = \frac{100+P}{100-D}$
$\frac{1200}{CP} = \frac{120}{90}$
CP = ₹ 900
Hence cost price of that an article = ₹ 900

34. Select the number that can replace the question mark (?) in the third figure.



(a) 36 (b) 64
(c) 16 (d) 81

Ans. (b) : Just as,
$(3+2)^2 = 25$
and $(4+3)^2 = 49$
similarly,
$(2+6)^2 = 64$
Hence ? = 64

35. From a group of five boys P, Q R, S, T and three girls X, Y, Z a team of five have to be selected on the basis of the following criteria.
S and T cannot be together
R and S cannot be together
S and Z cannot be together
Q cannot be put with P

If S is one of the members of that team which one of the teams following will be formed?

(a) TXRYS (b) SRYZQ
(c) PSXQY (d) RQSYX

Ans. (d) : According to question,

$S \neq T$

$R \neq S$

$S \neq Z$

$Q \neq P$

$\therefore$ The team will be like this − SRPXY

or SRQXY

Hence Required answer = SRQXY

or (RQSYX)

36. Read the given statement and conclusions carefully and decide which of the conclusions logically follows from the statement.

Statement : Of all the mobile phones manufactured in Korea, the 'Maxto' brand has the highest sale.

Conclusion : The quality of no other mobile phones in Korea is as high as that of 'Maxto'.

II. The number of sales of all the brands of mobile phones manufactured in Korea is known.

(a) Either conclusion I or II follows.
(b) Only conclusion I follows
(c) Neither conclusion I nor II follows
(d) Only conclusion II follows

Ans. (d) : According to the statement, it is becoming clear that the data of all types of mobile brands produced in Korea are known, only then conclusion (ii) follows from the statement on the basis of which the sales of 'Maxto' brand are said to be more than others.

37. Since 2011 the Supreme Court banned the manufacture, sale and use of which pesticide that causes hazardous effects to human life as well as the environment?

(a) Chlorpyrifos (b) Chlothianidin
(c) Endosulfan (d) Malathion

Ans. (c) : Endosulfan is an organochlorine insecticide which was first introduced in 1950s is commonly known by its trade name Thiodan. The Supreme Court in India has banned the manufacture, sale, use and export of endusulfan through out the country citing its harmful health effect in 2015.

It is listed under both Rotterdam convention on the prior informed Consent and the Stockholm Convention on Persistent Organic Pollutant.

38. The product of the LCM and the HCF of two positive numbers is 32 and the difference of the numbers is 4. The sum of the number is.

(a) 12 (b) 14
(c) 16 (d) 10

Ans. (a) : Let the numbers be A and B.

According to question, $A \times B = 32$

and $A - B = 4$

then $(A+B) = ?$

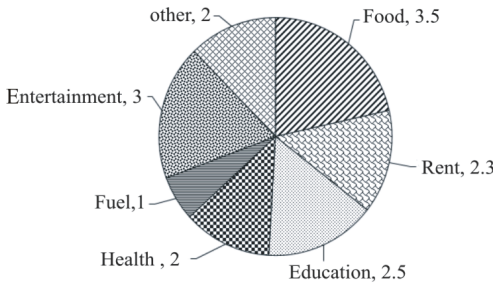
$(A+B)^2 = (A-B)^2 + 4AB$

$(A+B)^2 = 16 + 4 \times 32$

$(A+B)^2 = 16 + 128 = 144$

$(A+B) = 12$

39. The Pie chart depicted below shows the monthly budget of a middle class family. Study the chart carefully and answer the question that follows.



If the amount spent on food and education during a month was ₹18,000, then what was the total approximate amount spent in that month?

(a) ₹45700 (b) ₹48900
(c) ₹50300 (d) ₹29500

Ans. (b) : According to question, $(3.5+2.5) \rightarrow 18000$

$6 \rightarrow 18000$

$1 \rightarrow 3000$

Total amount $= (2 + 3 + 1 + 2 + 2.5 + 2.3 + 3.5) = 16.3$

$16.3 \rightarrow 16.3 \times 3000 = ₹48900$

40. Arrange the following words in the order in which they appear in an English dictionary.

1.Prophet
2.Prong
3.Propensity
4.Propose

(a) 2, 1, 3, 4 (b) 2, 3, 1, 4
(c) 1, 2, 3, 4 (d) 4, 3, 2, 1

Ans. (b) : Prong $\rightarrow$ Propensity $\rightarrow$ Prophet $\rightarrow$ Propose
2 3 1 4

41. Which among the following is the process of covering the soil/ground to create more favourable conditions for plant growth, development and efficient crop production?

(a) Mulching (b) Shelter belts
(c) Terrace farming (d) Contour farming

Ans. (a) : Mulching involves covering the soil layer in between the crops with organic matter such as leaves, grass clippings, straw etc. Apart from protecting the soil from erosion, mulching also help in conserving the soil moisture which will reduce the need for frequent watering. It also adds nutrient to the soil by way of slow decomposition of the organic matter.

42. Which is the heaviest and most powerful communication satellite of India?

(a) Kalpana-1 (b) IRNSS-1D
(c) GSAT-11 (d) GSAT-6

Ans. (c) : India's heaviest and most powerful communication satellite is GSAT - 11. It was launched by European Space Agency's Ariane-5 VA-246 Rocket from Guian space centre, French Guiana on 5 December 2018. It's total weight is about 5854 kg.

43. Who has been selected as the 193rd member of the UN?

(a) South Sudan (b) France
(c) Brazil (d) Colombia

Ans. (a) : The United Nation (UN) is an International Organization founded on 24 October 1943. It is headquartered in New York, USA. It is currently made of 193 Member countries. South Sudan became the 193rd member of the U.N. in 2011.

44. The mean of three number is 32. The range of this data set is 28 while the difference between the two smallest numbers is 8. the greatest of the three numbers is:

(a) 52 (b) 51
(c) 50 (d) 48

Ans. (d) : Let the smallest number be x.

Middle number $= x + 8$

The greatest number $= x + 28$

According to question−

$\Rightarrow \quad x + x + 8 + x + 28 = 3 \times 32$

$\Rightarrow \quad 3x + 36 = 96$

$\Rightarrow \quad 3x = 60$

$\Rightarrow \quad x = 20$

Hence the greatest no. of the three no. is $(20 + 28) = 48$

45. When was the National Food For Work Programme launched?

(a) 14 October, 2004 (b) 14 October, 2005
(c) 14 November, 2004 (d) 14 December, 2004

Ans. (c) : National Food for Work Programme was launched on 14 November 2004 in 150 most backward districts of India, identified by the Planning Commission in consultation with the Ministry of Rural Development and the state government. It aims to enhancing food security through wage employment. Food grain are supplied to state free of cost.

46. Which of the following sermons of Gautama Buddha known as Fire Sermon?

(a) Dhammachakra Pravartan Sutta
(b) Adittapariyaya Sutta
(c) Anatta-lakkhana Sutta
(d) Brahmajala Sutra

Ans. (b) : The Adittapariyaya Sutta, Sermon of Gautam Buddha known as fire Sermon. In this Buddha preaches about achieving liberation from sufferings through detachment from the five senses and mind. Dhammachakra Pravartan Sutta is considered to be a record of the first teaching given by Buddha after he attained enlightenment. Anattalakkhana Sutta is traditionally recorded as the second discourse delivered by Gautama Buddha.

47. Which of the following is a dormant volcano?

(a) Sakurajima in Japan
(b) Mt. Erebus in Antarctica
(c) Etna in Italy
(d) Mauna Kea in Hawaii

Ans. (d) : Dormant volcano are not extint but have erupted in recent history. The dormant Volcanoes may erupt in future. Mauna kea in Hawaii, Mount Kilimanjaro in Tan-Zania, Mt.Fuji in Japan etc. are classified as dormant volcano.

48. 8 men working 9 hours a day can complete a task in 20 days. How long will 7 men working 10 hours a day take to complete the same task.

(a) $\frac{103}{55}$ days (b) $\frac{21}{2}$ days
(c) 21 days (d) $\frac{144}{7}$ days

Ans. (d) : Formula,

$M_1D_1H_1 = M_2D_2H_2$

$8 \times 9 \times 20 = 7 \times 10 \times x$

$x = \frac{144}{7}$ day

49. The value of the largest four-digit perfect square number divided by the smallest four-digit perfect square number will be:

(a) equal to 10 (b) more than 10
(c) equal to 9 (d) less than 10

Ans. (d) : Division method for the greatest four digit perfect square number.

9	9999
9	81
189	1899
9	1701
	198

Perfect square no. = 9999 - 198 = 9801

Division method for the smallest perfect square number.

3	1000
3	9
61	100
1	61
	39

Perfect square no. = 1000 + 39 = 1039

Now, $\frac{9801}{1039} = 9.43$

i.e les than 10.

50. Which era is called the golden age of ancient India?

(a) The Mauryan, Empire 3rd century
(b) The Chola Empire 3rd century
(c) The Gupta Empire, 4th century
(d) The Kushan Empire, 1st century

Ans. (c) : The Gupta age (4th century) in ancient India has been called the "Golden age of India because of the many achievements in the field of arts, science and literature that Indians made under the Guptas. The prosperity under the Guptas initiated a period of splendid accomplishments in arts and sciences. The Gupta Empire lasted from 320 CE to 550CE. They ruled over extensive empire with their capital at Pataliputra.

51. According to the Department of Industrial Policy and Promotion (DIPP). Which state ranked the best performer in start-up ranking 2019?

(a) Delhi (b) Gujarat
(c) Chhattisgarh (d) Punjab

Ans. (b) : States 'Startup Ranking Framework' is an evolved evaluation tool aimed to strengthen the support of states and Union Territories to holistically build their startup ecosystem. The Department for Promotion of Industry & Internal Trade (DPIIT) conducts the states startup Ranking exercise. Gujarat was the best performer in category X followed by Karnataka & Kerala in states "Startup Ranking' 2019.

52. If 60% of a number is added to 36, gives the number itself then the number is:

(a) 90 (b) 100
(c) 75 (d) 80

Ans. (a) : According to question,

$60\% + 36 = 100\%$

$40\% = 36$

$10\% = 9$

$\therefore\ 100\% = 90$

Hence, that number $= 90$

53. Three positive numbers are in the ratio of 1 : 2 : 5 and their LCM is 120. The HCF of the same numbers is

(a) 14 (b) 12
(c) 10 (d) 16

Ans. (b) : $L = H\,abc$

Where $L \rightarrow$ LCM

$H \rightarrow$ HCF

and ABC is the product of the ratio of the numbers.

$\therefore\ 120 = H \times 1 \times 2 \times 5$

$\Rightarrow H = 12$

54. If the difference between the compound interest and the simple interest on a certain sum of money of 8% p. a. for 2 years is ₹240 , then the sum of money is

(a) ₹37,000 (b) ₹38,500
(c) ₹38,000 (d) ₹37,500

Ans. (d) : $D = \frac{PR^2}{100^2}$ (for two years)

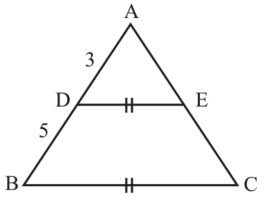
$240 = \frac{P \times 8 \times 8}{100 \times 100}$

P = ₹37500

55. In a triangle ABC. points D and E are on the side AB and AC such that DE is parallel to BC and $\frac{AD}{BD} = \frac{3}{5}$. If AC = 4cm, then the value of AE is.

(a) 1.5 cm (b) 2 cm
(c) 1.8 cm (d) 2.4 cm

Ans. (a) : From Thales theorem,



$\Delta ABC \sim \Delta\ ADE$

$\frac{AD}{AB} = \frac{AE}{AC}$

$\frac{3}{8} = \frac{AE}{4}$

$AE = \frac{3}{2} = 1.5\,cm$

56. What is the theme of the World Economic Forum Annual Meeting 2019?

(a) Globalization 4.0 : shaping a Global Architecture in the age of the Fourth Industrial Revolution

(b) New beginning : making a difference

(c) New global context

(d) Creating a shared future in a fractured world

Ans. (a) : World Economic Forum (WEF) is a non-profit organization that was founded in January 1971. It is based in Cologny, Geneva Canton, Switzerland and was formed with an initiative to improve the states of the world. The WEF Annual meeting 2019 held on 22-25 January 2019 at Davos-Klosters Switzerland. Theme of this event was "Globalization 4.0: Shaping a Global Architecture in the age of the fourth Industrial Revolution.

"The Great Reset" was the theme of a Unique twin summit in January 2021, convened by the WEF.

57. A large cube is formed by melting of three smaller cubes of sides 3 cm, 4 cm and 5 cm each. The ratio of the surface area of the three smaller cubes to the large cube is.

(a) 9 : 4 (b) 18 : 25

(c) 25 : 18 (d) 27 : 64

Ans. (c) : According to question,

$(3)^3 + (4)^3 + (5)^3 = A^3$

$27 + 64 + 125 = A^3$

$216 = A^3$

$A = 6$ cm

Surface area of large cube $= 6A^2$

$= 6\times(6)^2$

$= 216\ cm^2$

Sum of the surface area of three small cubes $= 6\ (3^2 + 4^2 + 5^2)$

$= 6\ (9 + 16 + 25)$

$= 300\ cm^2$

Hence Required ratio $= \frac{300}{216} = 25:18$

58. In a certain code language 'she is fine' is written as 'li qi si' and ' is sam healthy' is witten as ' oi ti li', Find the code for 'is',

(a) qi (b) si

(c) li (d) oi

Ans. (c) : she is fine $\rightarrow$ li qi si

is sam healty $\rightarrow$ oi ti li

thus, is will be written as li.

59. If $\frac{a}{b} = 0.25$, then the value of $\left(\frac{2a-b}{2a+b}\right)+\frac{2}{9}$ is;

(a) $\frac{5}{9}$ (b) $-\frac{1}{9}$

(c) $-\frac{2}{9}$ (d) $\frac{4}{9}$

Ans. (b) : $\frac{a}{b} = 0.25 = \frac{25}{100} \Rightarrow \frac{a}{b} = \frac{1}{4}$

then, $\left(\frac{2\times1-4}{2\times1+4}\right)+\frac{2}{9} = \frac{-2}{6}+\frac{2}{9}$

$\frac{-6+4}{18} = \frac{-1}{9}$

60. A tank 4 m long, 2 m wide and 1.5 m deep, is dug in a field 22 m long and 14 m wide. If the earth dug out is evenly spread out over the remaining field, then the level of the field will rise by:

(a) 4.75 m (b) 5 cm

(c) 3.5 cm (d) 4 cm

Ans. (d) : Let the level of the field be increased by h height.

Volume of dug soil = Area of remaining field × height.

$4\times2\times1.5 = (22\times14 - 4\times2)\times h$

$12 = 4(75)\times h$

$h = \frac{12}{300}$ m

$h = \frac{12}{300}\times100$

$h = 4$ cm

61. Which of the following is used as 'a' fissionable fuel in a nuclear reactor?

(a) U^{208} (b) U^{235}

(c) Pu^{229} (d) Pu^{115}

Ans. (b) : Nuclear power plants use a certain type of Uranium - U^{235} as fuel because its atoms are easily split apart. U^{235} is relatively rare at just over .7% of natural Uranium - U^{235} Contains 92 protons and 143 neutrons.

62. If the side of an equilateral triangle is 2cm, then find the area and the altitude of the triangle.

(a) Area = $\sqrt{3}\ cm^2$ and altitude = $\sqrt{3}$ cm

(b) Area = $\frac{3}{2}\ cm^2$ and altitude = $\sqrt{3}$ cm

(c) Area = $\frac{2}{3}\ cm^2$ and altitude = $\sqrt{3}$ cm

(d) Area = $\sqrt{3}\ cm^2$ and altitude = $\frac{2}{3}$ cm

Ans. (a) : If the side of an equilateral triangle is a unit.

then Area $= \frac{\sqrt{3}}{4}a^2$

$\frac{\sqrt{3}}{4} \times 2^2 = \sqrt{3}$

and altitude $\frac{\sqrt{3}}{2}a = \frac{\sqrt{3}}{2} \times 2 = \sqrt{3}$ cm

Hence area $= \sqrt{3}$ cm^2 and altitude $= \sqrt{3}$ cm

63. For treatment of which of the following is the bark of the Arjun tree primarily used

(a) Tuberculosis (b) Skin disease

(c) Heart disease (d) Inflammation

Ans. (c) : The bark of Arjuna tree has been used in India for more than 3000 years, primarily as a heart remedy. Arjuna tree is also used for bile duct disorders, scorpion stings and poisonings. An Indian physician named Vagbhata has been credited as the first to used this product for heart condition in the 7th century A.D.

64. An express train travelled at an average speed of 100 km/h stopping for 3 min after every 75 km. How much time it took the express train to travel 600 km?

(a) 370 min (b) 381 min

(c) 384 min (d) 308 min

Ans. (b) : $\frac{600}{75} = 8$ times

Then train will stop $= (8-1) = 7$ times

Total time = Distance/speed

$= 600/100 = 6$ hours

$= (6 \times 60 + 7 \times 3)$ min

$= 360 + 21 = 381$ minutes

65. If the product of two co-primes is 104, then their LCM is.

(a) can't be determined

(b) is 104

(c) is 1

(d) is equal to their HCF

Ans. (b) : The product of Co-prime numbers is their L.C.M

i.e LCM = 104

66. If the sum of two numbers is 'r' and there quotient is $\frac{s}{t}$, then find the numbers.

(a) $\frac{sr}{s+t}$ and $\frac{tr}{s+t}$ (b) $\frac{rs}{t}$ and $\frac{ts}{r}$

(c) $\frac{r}{s}$ and $\frac{r}{t}$ (d) $\frac{r-s}{t}$ and $\frac{r-t}{s}$

Ans. (a) : Let the numbers are A and B.

A+B = r……..(i)

$\frac{A}{B} = \frac{s}{t}$

let A = s and B = t

then, $s + t = r \Rightarrow 1 = \frac{r}{s+t}$

$\therefore \; s = \frac{rs}{s+t}, \; t = \frac{tr}{s+t}$

Hence numbers $A = \frac{rs}{s+t}, \; B = \frac{tr}{s+t}$

67. Which is India's Longest six-laned controlled-access expressway?

(a) Mumbai Pune expressway

(b) Western Peripheral expressway

(c) P.V. Narasimha Rao expressway

(d) Agra-Lucknow expressway

Ans. (d) : 302 Km long Lucknow- Agra Expressway is India's longest access controlled 6 lane expressway. It is constructed by the Uttar Pradesh Expressways Industrial Development Authority. This expressway can be expandable upto 8 lanes.

68. Which was the first Act passed by the British government to control and regulate the affairs of the East India Company in India?

(a) India Council Act of 1909

(b) Regulating Act of 1773

(c) Government of India Act of 1858

(d) Charter Act of 1853

Ans. (b) : Regulating Act of 1773 was a legislation passed by the British Parliament for the regulation of the British East India company in India, mainly in Bengal. The act provided for the appointment of a Governor-General. As per this Warren Hasting was appointed as the Governor-General of the Bengal. Through this act a Supreme Court was established at Calcutta with sir Elijah Impel as the first chief justice

69. Solve the following.

$$8 \div 8 \times \frac{8+8}{8 \div 8 \times 8 + 8} = ?$$

(a) 128 (b) 1

(c) 64 (d) $\frac{1}{128}$

Ans. (b) : $8 \div 8 \times \frac{8+8}{8 \div 8 \times 8 + 8} = ?$

$1 \times \frac{16}{16} = 1 \times 1 = 1$

70. When 25^{25} is divided by 26, then the remainder is?

(a) 1 (b) 25

(c) 24 (d) 2

Ans. (b) : $\frac{25^{25}}{26} \Rightarrow \frac{(26-1)^{25}}{26}$

$= (-1)^{25} = -1$

Required Remainder $= (26-1) = 25$

71. 'Waiting for a visa' is whose autobiography?

(a) B.R. Ambedkar (b) Indira Gandhi

(c) Satyajit Ray (d) Jawaharlal Nehru

Ans. (a) : "Waiting for a Visa" is an autobiography of Dr. B.R. Ambedkar. This book suggests how untouchables Dalit community still waits acceptance or welcome not only from the Indian government but also from the society in general. This book is used as a text book in Columbia University.

72. If 9 students are standing on a circular path, then the probability that 2 of them are always standing together is:

(a) $\frac{2}{7}$ (b) $\frac{1}{3}$

(c) $\frac{1}{4}$ (d) $\frac{7}{8}$

Ans. (c) : Total group of two students $= 4$

Total student in four groups $= 8$

Required probability $= \frac{2}{8} = \frac{1}{4}$ ($\because$ Only two people are standing together)

73. Who was the president of the first meeting of the constituent assembly, which was held on December 9, 1946?

(a) Dr. Sachchidananda Sinha

(b) Jawaharlal Nehru

(c) Manabendra Nath Roy

(d) Dr. Rajendra Prasad

Ans. (a) : The idea of Constituent Assembly was first proposed in 1934 by M.N.Roy. The assembly was actually formed in 1946 on the basis of the Cabinet Mission. The assembly first met on 9 December 1946. Dr Sachchidanand Sinha was the temporary president in the first meetings. After elections were held-Dr. Rajendra Prasad was a elected as the President and H C Mukherjee was elected as vice president . B. N . Rao was appointed as the constitutional advisor of the assembly.

74. If SHAME is coded as 20-9-2-14-6, then what is the code for FORT?

(a) 8-17-20-22 (b) 7-16-19-21

(c) 7-15-19-20 (d) 6-15-18-20

Ans. (b) : Just as, Similarly,

S $\longrightarrow$ 19 + 1 = 20

H $\longrightarrow$ 8 + 1 = 9 F $\longrightarrow$ 6 + 1 = 7

A $\longrightarrow$ 1 + 1 = 2 O $\longrightarrow$ 15 + 1 = 16

M $\longrightarrow$ 13 + 1 = 14 R $\longrightarrow$ 18 + 1 = 19

E $\longrightarrow$ 5 + 1 = 6 T $\longrightarrow$ 20 + 1 = 21

Hence code will be = 7-16-19-21

75. Name the indigenously built vessel commissioned by the Indian Coast Guard in September, 2018

(a) ICGS Vikram (b) ICGS Vijaya

(c) ICGS Samarth (d) ICGS Samarat

Ans. (b) : Indian Coast Guard Ship (ICGS) Vijaya is the second in the series of 98 meters off-shore patrol vessels (OPVs). It was commissioned in Chennai by Defence Secretary Sanjay Mitra in September 2018. ICGS Vijaya has been designed and built indigenously by Larsen and Toubro (L & T).

76. If $3a + 4b = 2$ and $ab = \frac{1}{36}$, then $27a^3 + 64b^3$ is,

(a) 6 (b) 4

(c) 8 (d) 2

Ans. (a) : $3a + 4b = 2$

On cubing both the sides.

$(3a+4b)^3 = 2^3$

$27a^3 + 64b^3 + 36ab\,(3a + 4b) = 8$

$27\,a^3 + 64b^3 + 36 \times \frac{1}{36} \times (2) = 8$

$27a^3 + 64b^3 = 6$

77. The 'Borlaug Award' is given for outstanding work in the field of:

(a) Agriculture and environment

(b) Films (c) Medicine

(d) Sports

Ans. (a) : Borlaug award the Indian scientist for their research and contribution to the field of agriculture and the environment. This award was created in 1972 and named in honour of Nobel Laureates and the father of Green Revolution "Norman Borlaug". Norman Borlaug was awarded with the Nobel peace prize in 1970 for a lifetime of work to feed a hungry world.

78. A dealer marks his goods 20% above the cost price. Then he allows a discount in it makes a profit of 8%. find the rate of discount offered by the dealer.

(a) 12% (b) 4%

(c) 10% (d) 6%

Ans. (c) :

$$\frac{MP}{CP}=\frac{100+P}{100-D}$$

$$\frac{120}{100}=\frac{100+8}{100-D}$$

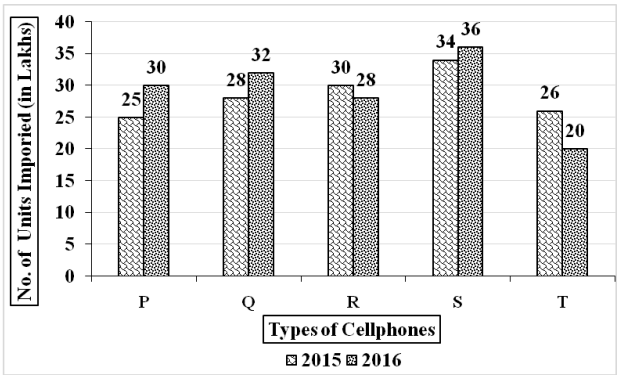
$$\frac{6}{5}=\frac{108}{100-D}$$

$$600-6D=540$$

$$6D=60$$

$$D=10\%$$

79. The bar graph given below shows the total number of different types of cell phones- P,Q Q, R, S and T (in lakhs numbers) imported by a company in the year 2015 and 2016, Study the graph carefully and answer the given question.



Which of the following types of cell phones from 2015 to 2016 has the minimum percentage change (increase or decrease) in the number of imported cell phones ?

(a) P (b) S
(c) R (d) Q

Ans. (b) : Minimum percentages change

(a) $P \to 25 \to 30 \Rightarrow \frac{5}{25}\times 100 = 20\%$

(b) $S \to 34 \to 36 \Rightarrow \frac{2}{34}\times 100 = 6\%\ (\text{Approx})$

(b) $R \to 30 \to 28 \Rightarrow \frac{2}{30}\times 100 = 6\frac{2}{3}\%$

(b) $Q \to 28 \to 32 \Rightarrow \frac{4}{28}\times 100 = 14\frac{2}{7}\%$

Hence, the minimum persentage change in the form of growth belongs to company S.

80. Which freedom fighter is remembered for his efforts in achieving the official language of India as Hindi?

(a) Purshottam Das Tandon
(b) Munishwar Dutt Upadhayay
(c) Mahavir Tyagi
(d) Ram Manohar Lohia

Ans. (a) : Purshottam Das Tandon is widely rememberd for his efforts in achieving the official language of India status for Hindi. He was given the title of Rajarshi. He was popularly known as UP Gandhi. He was awarded Bharat Ratna in 1961.

81. Study the table carefully and answer the question given below:

In the following table, the numbers of vacancies (in thousands numbers) for the post of clerk in three different states Delhi, Haryana, and Punjab are shown over the years 2015 to 2018

Year / State	2015	2016	2017	2018
Delhi	7.2	7.8	6.2	7
Haryana	5.6	6.2	5	5.2
Punjab	6.2	6	5.8	5.6

What is the average number of vacancies for the post of clerk in the state of Delhi for all the years together?

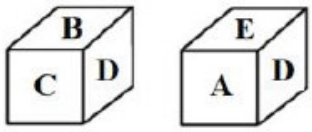
(a) 7200 (b) 7050
(c) 7005 (d) 5000

Ans. (b) : Average number of vacancies for the post of clerk in Delhi state during all the years

$$= \frac{7.2+7.8+6.2+7}{4}$$

$$= \frac{28.2}{4} = 7.05 = 7050 \quad \text{(in thousands)}$$

82. The positions of a cubical block with faces A, B, C, D, E and F are shown below. When F is at the top which face will be at the bottom?



(a) D (b) B
(c) C (d) A

Ans. (a) :

face → D C B

⇅ ⇅ ⇅

opposite face → D A E

It is clear that face of D is the opposite face of F.

83. For which disease/disorder tranquilizer is normally administered?

(a) Diarrhoea (b) Anxiety
(c) Diabetes (d) Cancer

Ans. (b) : Tranquilizers administered in patients for anxiety disorders to reduce anxiety. Tranquilizers are medicinal drug that helps in reducing stress and anxiety. This can even act as a medicine for mild mental illness. Luminal, Haldol and Ativan are the example of tranquillizers.

84. For which purpose India's fastest and the first multi-PetaFlops (OF) supercomputer 'Pratyush' used.

(a) Weather forecasting
(b) Pharmaceutical development
(c) Seismic data analysis
(d) Scientific data processing

Ans. (a) : Pratyush, a Cray XC_{40} system is an array of computers that can deliver a peak power of 6.8 Petaflops, installed at the Indian Institute of Tropical Meteorology (IITM), Pune is the fastest superco-mputer in India. It was launched in January 2018. It is fourth fastest High Performance Computer (HPC) dedicated to climate modeling in the world.

85. What is the feature of ISRO Propulsion Complex (IPRC) organization?

(a) It handles testing, assembly and integration of liquid propulsion control packages.
(b) It is used to launch sounding rockets
(c) It deals with the practical use of space technology such as geodesy, satellite based telecommunications, etc
(d) It applies remote sensing technology to manage natural resources

Ans. (a) : ISRO Propulsion Complex (IPRC) organization handle design, development, testing and implementation of liquid propulsion control packages, liquid stages and liquid engines for launch vehicles and satellites. The testing of these system is largely conducted at IPRC at Mahendragiri. IPRC delivers quality products to meet the zero defect demand of ISRO space programmes ensuring high standards of safety and reliability.

86. Select the number that can replace the question mark (?) in the following series.
2, 5, 11, 20, 32, 47, ?.

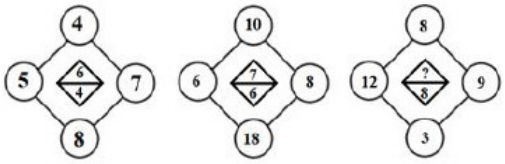
(a) 54 (b) 64
(c) 52 (d) 65

Ans. (d) : The series is an follows–

2 5 11 20 32 47 ?
+3 +6 +9 +12 +15 +18

$\Rightarrow$ 47 + 18 = ?
65 = ?

87. Understand the pattern and select the number that can replace the question mark (?) in the third figure.



1 2 3

(a) 10 (b) 6
(c) 12 (d) 4

Ans. (d) : Just as,
(1) 5 + 4 + 7 + 8 = 6×4
24 = 24
(2) 6 + 10 + 8 + 18 = 7×6
42 = 42
Similarly,
(3) 12 + 8 + 9 + 3 = ?×8
32 = ?×8
4 = ?

88. Select the number that can replace the question mark (?) in the following series.
2, 7, 23, 72, 220, ?

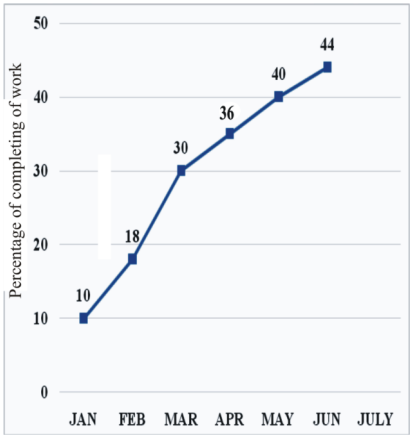
(a) 500 (b) 472
(c) 665 (d) 600

Ans. (c) : The series is as follow–

2 7 23 72 220 ?
×3+1 ×3+2 ×3+3 ×3+4 ×3+5

$\Rightarrow$? = 220×3 + 5
? = 660 + 5
? = 665

89. The following graph shows the month wise cumulative progress in the constructions of a dam. If the progress in July is equal to that of the highest progress recorded in any month in the given period, how much work will be completed by the end of July?



(a) 54% (b) 52%
(c) 56% (d) 50%

Ans. (c) : Work progress in January = 10%
Work progress in February = (18−10) = 8%
Work progress in March = (30−18) = 12%
Work progress in April = (36−30) = 6%
Work progress in May = (40−36) = 4%
Work progress in June = (44−40) = 4%
∵ The highest work progress recorded in march.
∴ Work will be done by the end of July = (44+12) = 56%

90. If 'Urdu', 'Sanskrit', 'History', 'Physics', and 'Economics' are known as 'Physics', 'History', 'Urdu', 'Economics', and 'Sanskrit', respectively , then in which subject did we study about Newton ?

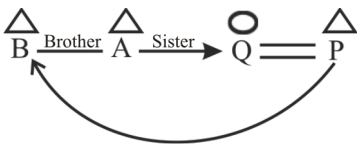
(a) History (b) Physics
(c) Urdu (d) Economics

Ans. (d) : It is clear from the above that we have studied Newton in physics while the plysics in question has been called economics.
Hence option (d) will be correct.

91. A and B are brothers, P and Q are married couple Q is sister of A. How is B related to P?

(a) Father (b) Maternal uncle
(c) Wife's father (d) Wife's brother

Ans. (d) :



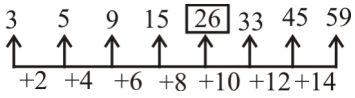
(Where ○ − female
△− Male)

It is clear that B is brother of the wife of P.

92. Identify the number that DOES NOT belong to the following series.
3, 5, 9, 15, 26, 33, 45, 59

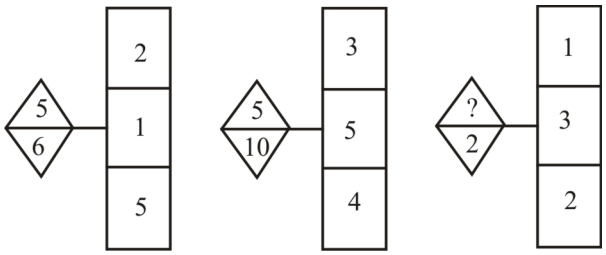
(a) 59 (b) 26
(c) 45 (d) 15

Ans. (b) : The series is as follows–



15 + 8 = 23
That is instead of 26, there should be 23.

93. Understand the pattern and select the number that can replace the question mark (?) in the third figure.



(a) 6 (b) 7
(c) 5 (d) 4

Ans. (b) : Just as,
(1) $2^2+1^2+5^2=5\times6$
$4+1+25=30$
$30=30$
(2) $3^2+5^2+4^2=5\times10$
$9+25+16=50$
$50=50$
Similarly
(3) $1^2+3^2+2^2=?\times2$
$1+9+4=?\times2$
$14=?\times2$
$7=?$

94. Study the following information and answer the question given below it/
Lee, Bruce and Chan are caring.
Min, Chan and Ho are sensitive.
Bruce, Ho and Min are honest.
Lee, Min and Ho are creative.
Which one of the following persons is neither honest nor creative?

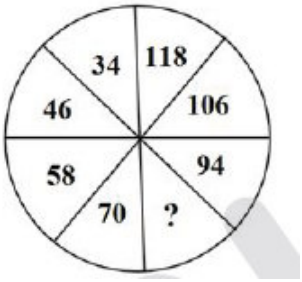
(a) Bruce (b) Lee
(c) Chan (d) Min

Ans. (c) :

Lee	Bruce	Chan	Min	Ho
↓	↓	↓	↓	↓
Caring creative	Caring honest	Caring sensitive	Sensitive creative honest	Sensitive honest creative

It is clear that Chan is a person who is neither honest nor creative.

95. Understand the pattern and select the number that can replace the question mark (?) in the following figure.



(a) 80 (b) 78
(c) 86 (d) 82

Ans. (d) :

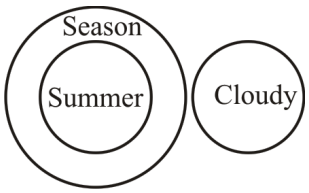
34 46 58 70 ? 94 106 118
+12 +12 +12 +12 +12 +12 +12

$\Rightarrow$ (70 + 12) = ?
82 = ?

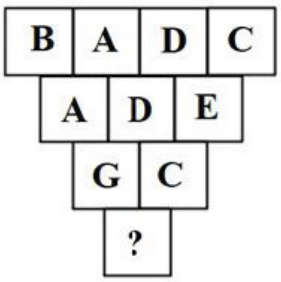
96. Which of the following Venn diagrams best depicts the relationship between the classes: Summer, Season, Cloudy

(a) (b)
(c) (d)

Ans. (a) : Right Venn diagram of summer, season and cloudy.



97. Select the letter that can replace the question mark (?) in the figure below.



(a) F (b) J
(c) I (d) H

Ans. (b) :

B A D C $\rightarrow$ 2 + 1 + 4 + 3 =10
A D E $\rightarrow$ 1 + 4 +5 = 10
G C $\rightarrow$ 7 + 3 = 10
J $\rightarrow$ 10

Hence, option (b) is correct.

98. Read the given statements and conclusions carefully. Assuming that the information given in the statement is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements :

Some sisters are brothers.

Very few balloons are sisters.

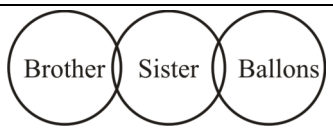
Conclusions :

I. Some brothers are balloons.

II.Some brothers are not balloons.

(a) Both the conclusions I and II follows.
(b) Either conclusions I or II follows.
(c) Only conclusions II follows.
(d) Only conclusions I follows.

Ans. (b) :



According to question it is clear from the venn diagram that either conclusion I or conclusion II follows.

99. Three of the following four numbers pairs are alike in a certain way and one is different. Pick the odd one out,

(a) 5 - 31 (b) 10 - 101
(c) 3 - 10 (d) 7 - 50

Ans. (a) :

(a) 5 – 31 $\Rightarrow 5^2 + 6 = 31$
(b) 10 – 101 $\Rightarrow 10^2 + 1 = 101$
(c) 3 – 10 $\Rightarrow 3^2 + 1 = 10$
(d) 7 – 50 $\Rightarrow 7^2 + 1 = 50$

It is clear that option (a) is irrelevant from other three options.

100. Three of the following four letter clusters are like in a certain way and one is different. Pick the odd one out.

(a) DOS (b) SLO
(c) REI (d) GQU

Ans. (c) : Except option (c), all other options have the same vowel.

Hence option (c) is different from others.

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 22.02.2021] **[Time : 10.30 am-12.00 pm]**

1. Three straight lines x + y - 3 = 0, x + y + 2 = 0 and 3x + 3y - 7 = 0 are :

(a) Intersecting each other
(b) Concurrent
(c) Perpendicular
(d) Parallel

Ans. (d) : From straight lines $x + y - 3 = 0$, $x + y + 2 = 0$, $a_1 = 1$, $b_1 = 1$, $c_1 = -3$, $a_2 = 1$, $b_2 = 1$, $c_2 = 2$

$$\frac{1}{1} = \frac{1}{1} \neq \frac{-3}{2}$$

$$\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$$

So, these numbers will not have any solution and these lines will be parallel.

Again in straight line $x + y + 2 = 0$ and $3x+3y-7 = 0$

$a_1 = 1$ $a_2 = 3$, $b_1 = 1$, $b_2 = 3$, $c_1 = 2$, $c_2 = -7$

$$\because \frac{1}{3} = \frac{1}{3} \neq \frac{2}{-7}$$

$$\therefore \frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$$

Therefore, the equation of these two straight lines will not have a single solution and these lines will also be parallel to each other. Thus all the three lines will be parallel to each other.

2. Find the value of 7500 + (1250 ÷ 50)?

(a) 6575 (b) 300
(c) 175 (d) 7525

Ans. (d) : 7500 + (1250 ÷ 50)
= 7500 + 25
= 7525

3. During which of the following movements did Mahatma Gandhi give the slogan 'Do or Die'?

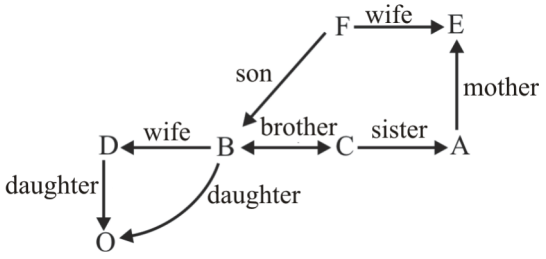
(a) The Home Rule Movement
(b) The Non-Cooperation Movement
(c) Quit India Movement
(d) Gadar Movement

Ans. (c) : The slogan 'Do or Die' is associated with Mahatma Gandhi. The slogan came into existence during the Quit India Movement initiated by Gandhiji on 9 August 1942. The Quit India Resolution was passed by the Congress Working Committee on 8 August 1942 in Bombay.

4. If B and C are brothers, A is the sister of C, O is the daughter of D, D is the wife of B, E is the mother of A and the wife of F, then how is O related to F?

(a) Mother's father (b) Mother's brother
(c) Daughter's daughter (d) Son's daughter

Ans. (d) : According to the question, blood relation diagram is as follows-

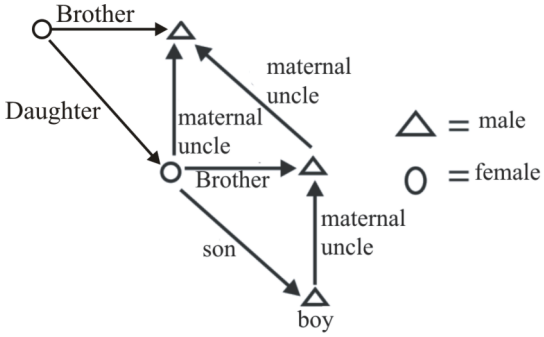


From the above diagram, it is clear that "O is the daughter of the son of F."

5. A nurse dressing the wound of a boy in a clinic is asked by her colleague how that boy is related to her. She replies, " My maternal uncle and the maternal uncle of his maternal uncle are the same." How is that boy related to the nurse?

(a) Brother (b) Brother's Son
(c) Paternal Aunt (d) Son

Ans. (d) : According to the question-

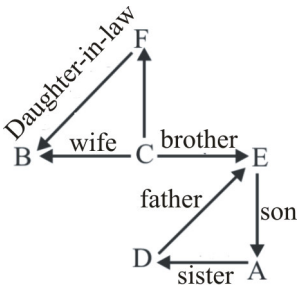


From the above diagram, it is clear that the boy is the son of the nurse.

6. There are six members in a family, named A, B, C, D, E and F.B is the wife of C.A is the son of E, E is the brother of C, D is the sister of A.B is the daughter-in-law of F. How is E related to D?

(a) Daughter (b) Sister
(c) Aunt (d) Father

Ans. (d) : According to the question, blood relation diagram is as follows-



From the above diagram, it is clear that "E is the father of D".

7. Who has taken over as the new CEO of the Railway Board on 1st Jan 2021?

(a) Piyush Goyal
(b) V K Yadav
(c) Ashutosh Gangal
(d) Suneet Sharma

Ans. (d) : Suneet Sharma has been appointed as the new Chief Executive Officer (CEO) of Railway Board (Ministry of Railway) and ex-officio Principal Secretary to Government of India. Suneet Sharma joined the Indian Railway in 1979 as a special class railway apprentice.

8. The position of the point (1, 2) with respect to the circle
$x^2 + y^2 - 3x - 4y + 1 = 0$

(a) lies on the circle
(b) cannot be decided
(c) lies outside the circle
(d) lies inside the circle

Ans. (d) : $x^2 + y^2 - 3x - 4y + 1 = 0$, Point(1, 2)

Equation of the circle, $x^2 + y^2 + 2gx + 2fy + c = 0$

$S = x^2 + y^2 - 3x - 4y + 1$……..(Given)

Putting the value of the point (1, 2) in the equation of given circle,

$S = 1 + 4 - 3 - 8 + 1$

$S = -5$ (– ve) $\Rightarrow$ The point will be inside the circle.

Note-

(i) When $S > 0$, then the point will be outside the circle.

(ii) When $S < 0$, then the point will be inside the circle.

(iii) When $S = 0$, then the point will be on the circumference of the circle.

9. Which of the following statements is correct?

(a) The Council of Ministers of a State is collectively responsible to the Legislative Council of the State.
(b) The Council of Ministers of a State is collectively responsible to the Council of States.
(c) The Council of Ministers of a State is collectively responsible to the Vice-President.
(d) The Council of Ministers of a State is collectively responsible to the Legislative Assembly of the State.

Ans. (d) : Article 164 (2):– The Council of Ministers shall be collectively responsible to the Legislative Assembly of the state.

Article 163:– Council of Ministers to aid and advice Governor (1)– There shall be a Council of Ministers with the Chief Minister as the head to aid and advise the Governor in the exercise of his functions except in so far as he is by or under this constitution required to exercise his functions or any of them in his discretion.

10. India's first national academy for music, dance and drama was :

(a) Sangeet Natak Akademi
(b) Bharat Kala Kendra
(c) Sangeet Kala Manch
(d) The Academy for Arts and Dance

Ans. (a) : Sangeet Natak Akademi– India's National Academy of Music, Dance and Drama is the first national academy of the arts setup by the Republic of India. It was created by a resolution of the Ministry of Education Government of India dated 31 May 1952. The first Chairman of the Akademi was Dr. P.V. Rajamannar. Since its inception, the Akademi has been functioning as the apex body in the field of performing arts in the country, preserving and promoting the vast intangible heritage of India's diverse culture expressed in forms of music, dance and drama.

11. If the first term of a geometric progression is 2 and the common ratio is 3, then what will be the fifth term of the geometric progression?

(a) 243 (b) 324
(c) 81 (d) 162

Ans. (d) : $a = 2$, $r = 3$

From $T_n = ar^{n-1}$

$T_5 = 2 \times 3^{5-1}$

$T_5 = 2 \times 3^4$

$= 162$

12. Two numbers are in the ratio 9 : 5. If 9 is added to the greater number and 5 is subtracted from the smaller number, the greater number becomes thrice of smaller number. Find the numbers.

(a) 36, 10 (b) 72, 40

(c) 18, 10 (d) 36, 20

Ans. (d) : Let both the number be 9x and 5x respectively.

According to the question,

$(9x + 9) = 3(5x - 5)$

$9x + 9 = 15x - 15$

$6x = 24$

$x = 4$

Required numbers-

$9x = 9 \times 4 = 36$

$5x = 5 \times 4 = 20$

13. In a class of 40 students, the number of girls is three fifths of the number of boys. Then find the number of boys in the class.

(a) 18 (b) 25

(c) 14 (d) 15

Ans. (b) : Let the number of boys be x.

Then the number of girls $= x \times \frac{3}{5}$

Total number of students in the class $= x + \frac{3}{5}x = 40$

$\frac{8}{5}x = 40$

$x = 40 \times \frac{5}{8} = 25$

Hence, the number of boys in the class $x = 25$.

14. If 24 men can complete a piece of work in 15 days working 8 h per day, then how many men will be required to complete the same work in 10 days working 6 h per day?

(a) 32 (b) 30

(c) 48 (d) 60

Ans. (c) : $M_1D_1H_1 = M_2D_2H_2$

$24 \times 15 \times 8 = M_2 \times 10 \times 6$

$M_2 = 48$ men

15. What is the full form of BARC

(a) Bhabha Aromatic Research Center

(b) Bhabha Atomic Rehabilitation Center

(c) Bhabha Aerospace Research Center

(d) Bhabha Atomic Research Center

Ans. (d) : The full form of BARC is Bhabha Atomic Research Centre. BARC was founded by Homi Jehangir Bhabha in 1954, Trombay (Mumbai). BARC formerly known as Atomic Energy Establishment Trombay (AEET). In 1966 after the death of Homi Jehangir Bhabha AEET renamed as BARC. It operates under the Department of Atomic Energy (DAE) which is directly overseen by the Prime Minister of India.

16. The perimeter of the floor of a room is 18m. What is the area of the walls of the room, if the height of the room is 3m?

(a) 108 m^2 (b) 21 m^2

(c) 54 m^2 (d) 42 m^2

Ans. (c) : Area of the four walls of the room

= 2 (Length + Breadth) × Height

= Perimeter×Height

= 18 × 3

= 54 m^2

17. _____ has three active forms : retinal, retinol and retinoic acid.

(a) Vitamin B (b) Vitamin A

(c) Vitamin D (d) Vitamin C

Ans. (b) : Vitamin A exists as a provitamin in vegetables. Vitamin A exists in three oxidation states, retinal, retinol, and retinoic acid. **Retinal** plays an important role in vision. **Retinoic acid** plays an important role in reproductive biology, bone remodeling and epithelial tissue homeostasis. (Retinol is skin care ingredients.) Although retinol and retinal are stored in the body, retinoic acid is not.

18. The _____ Five - Year Plan of India completed its term in March 2017.

(a) 10^{th} (b) 12^{th}

(c) 13^{th} (d) 11^{th}

Ans. (b) : The 12^{th} five year plan of India completed its term in March 2017 (2012-17). The theme of the 12^{th} five year plan is faster more inclusive and sustainable growth. The five year plans, developed, executed and monitored by the planning commission. The planning commission was formed on 15 March 1950 and dissolved on 17 August 2014 and it is replaced by NITI Ayog. (formed on 1^{st} Jan 2015)

19. The equation whose roots are –2 and 3 is :

(a) $x^2 - x + 6 = 0$ (b) $x^2 - x - 6 = 0$

(c) $x^2 - 5x + 6 = 0$ (d) $x^2 + 3x - 6 = 0$

Ans. (b) : The given roots $\alpha = -2, \beta = 3$

Equation $x^2 - (\alpha + \beta)x + \alpha\beta = 0$

$x^2 - (-2 + 3)x + (-2)3 = 0$

$x^2 - x - 6 = 0$

20. Solve the following

$$1+\frac{1+\cos\theta}{\sin\theta}-\frac{\sin^2\theta}{1+\cos\theta}-\frac{\sin\theta}{1-\cos\theta}=?$$

(a) $\cos\theta$ (b) $-\cos\theta$

(c) $\sin\theta$ (d) $-\sin\theta$

Ans. (a) : $1+\frac{1+\cos\theta}{\sin\theta}-\frac{\sin^2\theta}{1+\cos\theta}-\frac{\sin\theta}{1-\cos\theta}=?$

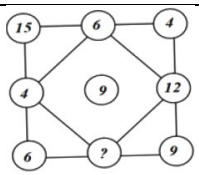
$=1+\frac{1+\cos\theta}{\sin\theta}-\frac{(1-\cos\theta)(1+\cos\theta)}{1+\cos\theta}-\frac{\sin\theta}{1-\cos\theta}$

$=1-(1-\cos\theta)+\frac{1+\cos\theta}{\sin\theta}-\frac{\sin\theta}{1-\cos\theta}$

$=1-1+\cos\theta+\frac{\sin^2\theta-\sin^2\theta}{\sin\theta(1-\cos\theta)}=\cos\theta+0$

$=\cos\theta$

21.



Select the number from among the given options that can replace the question mark(?) in the above figure.

(a) 15 (b) 33

(c) 20 (d) 10

Ans. (d) : 15 + 6 + 4 = 25

4 + 12 + 9 = 25

9 + ? + 6 = 25

? = 25 – 15 = 10

6 + 10 + 9 = 25

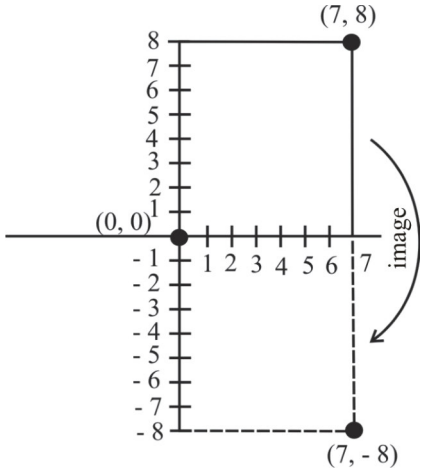
Hence $\boxed{?=10}$

22. The image of the point (7, 8) when reflected along the x - axis is :

(a) (8, 7) (b) (–7, –8)

(c) (–7, 8) (d) (7, –8)

Ans. (d) : The reflected image with respect to the X-axis will be as follows–



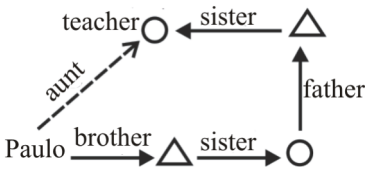
Hence, (7, – 8) is reflected image.

23. Pointing towards a teacher sitting in the teacher's room, Paulo said to his friend, "She is the sister of the father of the sister of my brother. How is that teacher related to Paulo?

(a) Maternal aunt (b) Paternal aunt

(c) Grandmother (d) Sister

Ans. (b) : According to the question, blood relation diagram will be as follows-



From the above diagram, it is clear that the teacher is paternal aunt of Paulo.

24. A man walking at the speed of 5 km/h crosses a bridge in 15 min. The length of the bridge in meteres is:

(a) 600 (b) 750

(c) 1000 (d) 1250

Ans. (d) : Let length of the bridge is x meters.

From distance travelled = Speed ×Time

Hence, the length of bridge $x=5\times\frac{15}{60}\times1000$ meters

$x=\frac{5}{4}\times1000$

$x=5\times250$

$x=1250$ meters

25. What will be the simple interest earned on an amount of ₹ 16,800 in 9 months at the rate of $6\frac{1}{4}\%$ per annum?

(a) ₹787.50 (b) ₹812.50

(c) ₹158 (d) ₹860

Ans. (a) : Given,

$r=6\frac{1}{4}\%$ yearly, t = 9 Month, P = ₹16,800

$S.I.=\frac{P\times r\times t}{100}$

$S.I.=\frac{16800}{100}\times\frac{25}{4}\times\frac{9}{12}$

S.I. = ₹ 787.50

26. Dandi March, the non-violent protest organized by Mahatma Gandhi against the British salt monopoly, culminated on:

(a) 6th April 1930 (b) 4th April 1930

(c) 7th April 1930 (d) 5th April 1930

Ans. (a) : Salt March also called Dandi March or Salt Satyagraha, was a major non violent protest action in India led by Mahatma Gandhi. The March was started in 12 March 1930 and ended on 6th April 1930. On the morning of April 6, Gandhi and his followers picked up handful of salt along the shore, thus technically producing salt and breaking the law.

27. Which of the following is the smallest fraction

$\frac{7}{6}, \frac{7}{9}, \frac{4}{5}, \frac{5}{7}$

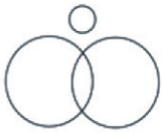
(a) $\frac{7}{6}$ (b) $\frac{4}{5}$

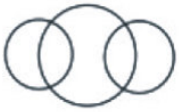
(c) $\frac{7}{9}$ (d) $\frac{5}{7}$

Ans. (d) : $\frac{7}{6} = 1.16,\ \frac{7}{9} = 0.77,\ \frac{4}{5} = 0.80,\ \frac{5}{7} = 0.71$

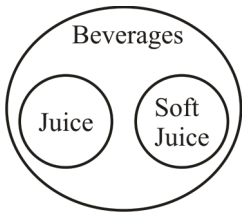
Hence, the smallest fraction is $\frac{5}{7}$.

28. Which of the Venn diagrams shown below correctly represents the relationship:
Juice, Soft Drinks, Beverages

(a)  (b) 

(c)  (d) 

Ans. (d) : Juice and soft drinks both are deverages.



Hence the Venn diagram of option (d) correctly represents the relationship between the given classes.

29. A dealer marks his goods 10% above the cost price and allows 10% discount. What is his percentage gain or loss?

(a) 1% loss (b) 10% loss

(c) 10% gain (d) 1% gain

Ans. (a) : Let CP = ₹100

MP = ₹110

According to the question,

$SP = 110 \times \frac{90}{100} = ₹99$

$Loss\% = \frac{100-99}{100} \times 100 = 1\%$

30. If the cost price of six items is equal to the selling price of seven items, then what will be the percentage profit or loss?

(a) 7.14% loss (b) 14.28% profit

(c) 9.09% loss (d) 14.28% loss

Ans. (d) : According to the question,

6 CP = 7 SP

$\frac{CP}{SP} = \frac{7}{6}$

$Loss\% = \frac{7-6}{7} \times 100 = 14.28\%$

31. The present worth of ₹ 338 due in 2 years at 4% per annum compound interest is : _____

(a) ₹ 365.58 (b) ₹ 350.50

(c) ₹ 294.00 (d) ₹ 312.50

Ans. (d) : $A = P\left(1+\frac{R}{100}\right)^T$

$338 = P\left(1+\frac{4}{100}\right)^2$

$338 = P\left(\frac{26}{25}\right)^2$

$P = \frac{338 \times 625}{676}$

= ₹312. 50

32. Who among the following is known as the 'father of Indian Supercomputers'?

(a) Jayant Narlikar (b) RA Mashelkar

(c) Nandan Nilkeni (d) Vijay Bhatkar

Ans. (d) : Vijay Pandurang Bhatkar a technocrat is considered as the father of Indian Supercomputer. He was the founder executive director of C-DAC. He developed the first Indian Supercomputer, the PARAM 8000 in 1991 and later the PARAM 10000 in 1998.

33. For which of the following fields did Madam Curie win the Nobel Prize?

(a) Physics and Chemistry

(b) Physics and Astronomy

(c) Physics and Meteorology

(d) Chemistry and Biology

Ans. (a) : Marie Curie, was a Polish-born French physicist, famous for her work on radioactivity and twice a winner of the Nobel Prize. She was awarded the 1903 Nobel Prize for Physics. She was the sole winner of the 1911 Nobel prize for Chemistry.

34. SENSEX is an index of Bombay Stock Exchange's top _____ companies.

(a) 50 (b) 100

(c) 30 (d) 40

Ans. (c) : BSE SENSEX, first compiled **in 1986** was calculated on a 'Market Capitalization Weighted' methodology of **30 component** stocks representing large well established and financially sound companies across key sectors. Since **Sept. 1, 2003** S & P **BSE SENSEX** is being calculated on a **free float market capitalization**. SENSEX is a stock market index of 30 well-established and financially sound company.

35. India's first struggle for independence started on 10th May 1857 at:

(a) Bareilly (b) Lucknow
(c) Meerut (d) Allahabad

Ans. (c) : On May 10, 1857 the Indian soldiers at the Meerut cantonment in modern UP revolted against the British. The Revolt of 1857 was no sudden occurrence and was the culmination of a century long resistance to British rule. The famous episode of greased cartiges provided the spark for the Indian sepoys. It begun in Meerut by Indian troops (sepoys) in the service of the British East India company, it spread to Delhi, Agra, Kanpur and Lucknow.

36. If 40% of a number is 800 then the number is :

(a) 200 (b) 2000
(c) 400 (d) 800

Ans. (b) : Let, number = x
According to the question,

$$x \times \frac{40}{100} = 800$$

x = 2000

37. Which of the following is NOT an allotrope of Carbon?

(a) Diamond (b) Carbon dioxide
(c) Graphite (d) Fullerenes

Ans. (b) : Diamond, graphite and fullerenes (substances that include nanotubes and 'buckyballs' such as buckminster fullerenes) are there allotropes of pure carbon.
Allotropes-The existence of a chemical element in two or more forms, which may differ in the arrangement of atoms in crystalline solids.

38. A school collected ₹2,601 as fees from its students. If the fees paid by each student and the number of students in the school were equal, then how many students were there in the school?

(a) 39 (b) 49
(c) 51 (d) 61

Ans. (c) : Let the number of students in the school = x
Fees paid by each student = ₹x
According to the question,

$x^2 = 2601$

$x = \sqrt{2601} = 51$

Hence, the number of students in the school, x = 51.

39. In which of the following cities is the Indian National Centre for Ocean Information Services (INCOIS) located?

(a) New Delhi (b) Chennai
(c) Kolkata (d) Hyderabad

Ans. (d) : INCOIS (The Indian National Centre for Ocean Information Services) is an autonomous organization of the Government of India under the Ministry of Earth Sciences, located in Hyderabad. INCOIS is mandated to provide the best possible ocean information and advisory services to society, industry government agencies and the scientific community through sustained ocean observation.

40. Bleaching powder is NOT used for:

(a) oxidising chemicals
(b) preparing bread
(c) bleaching cotton
(d) disinfecting water

Ans. (b) : Bleaching powder calcium hypochlorite is an inorganic compound with formula $Ca(OCI)_2$. It is the main active ingredient of commercial product bleaching power is used for oxidizing chemicals, bleaching cotton disinfecting water.

41. If y = 5, then what will be the value of $10y\sqrt{y^3 - y^2}$?

(a) 100 (b) 500
(c) $50\sqrt{2}$ (d) $200\sqrt{2}$

Ans. (b) : Given, y = 5

$10y\sqrt{y^3 - y^2}$

$= 10y\sqrt{y^3 - y^2} = 10y^2\sqrt{y - 1}$

$= 10 \times 25\sqrt{4}$

$= 250 \times 2$

$= 500$

42. Who among the following has the power to grant pardons under Article 161 of the Constitution of India?

(a) Prime Minister
(b) Chief Justice of India
(c) President
(d) Governor

Ans. (d) : Article 161 grants power of Governor to "grant pardons, reprieves, respites or remissions of punishment or to suspend, remit or commute the sentence." any person convicted of any offence against any law relating to a matter to which the executive power of the state extends.

43. What is the lubricating fluid found between the two bones at a movable joint called?

(a) Synovial fluid (b) Amniotic fluid
(c) Interstitial fluid (d) Cerebrospinal fluid

Ans. (a) : Synovial fluid also known as joint fluid is a thick liquid located between two joints. The fluid cushions the ends of bones and reduces friction when we move your joints. It is on all of two joints, including in our knee, shoulders, hips, hands and feet.

44. Who wrote 'Ain-i-Akbari'? It is a 16th-century detailed document recording the administration of the Mughal Empire under Emperor Akbar.

(a) Mulla Shah (b) Abdur Rahim
(c) Abul Fazal (d) Haji Ibrahim

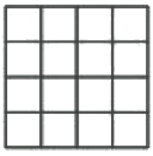
Ans. (c) : Ain-i-Akbari is a 16th century document written by Akbar's Court historian Abul Fazl in Persian language. It deals with the administration of Mughal Emperor Akbar. Ain-i-Akbari is a part of Akbar Nama.

45. The Satyagraha Sabha was founded in February 1919 by:

(a) Abdul Ghffar Khan
(b) Motilal Nehru
(c) Subhash Chandra Bose
(d) Mohandas Karamchand Gandhi

Ans. (d) : Mohandas Karamchand Gandhi began a crusade against the Rowlatt bill and setup Satyagraha Sabha on 24th February 1919 at Bombay. The Rowlatt Act empowered the British Government to suspend the right of habeas Corpus.

46. How many of squares are there in a given illustration



(a) 20 (b) 30
(c) 23 (d) 17

Ans. (b) : The number of squares in the given figure
$= 4\times4 + 3\times3 + 2\times2 + 1\times1$
$= 16 + 9 + 4 + 1$
$= 30$

47. The ☐ represents a set of calculations that are common across all the given equations. Identify the calculations involved and solve the third equation on the same basis:

25 ☐ 36 = 5; 6 ; 11
100 ☐ 64 = 10 ; 8 ; 18
36 ☐ 81 = ?; ? ; ?

(a) 9 ; 9 ; 117 (b) 10 ; 6 ; 4
(c) 4 ; 11 ; 18 (d) 6 ; 9 ; 15

Ans. (d) : Just as,
25 ☐ 36 = 5 ; 6 ; 11
$(5)^2$ $(6)^2 = 56$ (5+6)
And 100 ☐ 64 = 10 ; 8 ; 18
$(10)^2$ $(8)^2 = 108$ (10 + 8)
Same as, 36 ☐ 81 = 6 ; 9 ; 15
$(6)^2$ $(9)^2 = 69$ (6 +9)

48. The Great Victoria Desert is located in :

(a) The United Kingdom
(b) South Africa
(c) The United States
(d) Australia

Ans. (d) : The Great Victoria Desert is a sparsely populated desert ecoregion and interim Australian bioregion in Western Australia and South Australia. It is the largest desert in Australia.

49. Power Alcohol is a mixture of _____ and ethyl alcohol.

(a) diesel (b) petrol
(c) kerosene (d) mustard

Ans. (b) : Power alcohol is the mixture of petrol and ethyl alcohol. When absolute alcohol and petrol (20:80) mixture is used, the mixture is called power alcohol. It is used in automobiles.

50. What number must be subtracted from both the numerator and denominator of the fraction $\frac{15}{19}$ so as to make it $\frac{3}{4}$?

(a) 5 (b) 9
(c) 6 (d) 3

Ans. (d) : Let the fraction become $\frac{3}{4}$ on subtracting the number x from the numerator and denominator.
According to the question,
Subtracting on subtracting X in both numerator and denominator of 15/19'

$$\frac{15-x}{19-x}=\frac{3}{4}$$

$60 - 4x = 57 - 3x$
$x = 3$
Required number $x = 3$

51. Who among the following won the 'Player of the Match' award at the final of the ICC Cricket World Cup 2019?

(a) Ben Stokes (b) Eoin Morgan
(c) Mitchell Starc (d) James Neesham

Ans. (a) : The 2019 ICC Cricket World Cup was 12th cricket world cup. It was hosted between 30th May to 14th July across 10 venues in England and Wales. Ben Stokes won the Player of the Match award.

52. What is the mean of the data 2, 5, 4, 1, 8 ?

(a) 5 (b) 4
(c) 20 (d) 3

Ans. (b) : Required mean $= \frac{2+5+4+1+8}{5}$

$= \frac{20}{5} = 4$

53. Which of the following was Asia's first supercomputer?

(a) PARAM (b) CRAY-3
(c) HITAC S-300 (d) EKA

Ans. (d) : EKA is a super computer built by the Computational Research Laboratories (a Subsidiary of Tata Sons) with technical assistance and hardware provided by Hewlett-Pack. It is asia's first supercomputer. Eka is a sanskrit word which means one number.

54. Rahul has a deadline for a project in just two days and he has not yet started working on his project based on the following course of action, select the correct one.

Courses of action:

(i) He must immediately read a book on time management to avoid such problems in the future.

(ii) He must manage his time efficiently and starts his project without delay.

(iii) He must plan a layout of his project first and then starts following that layout.

(a) Only (ii) is correct
(b) Only (i) is correct
(c) Only(i) and (ii) are correct
(d) Only (ii) and (iii) are correct

Ans. (d) : There are only two days left for Rahul's project to end, and he hasn't started work on it yet. Thus conclusion (ii) and conclusion (iii) will follow the given statement.

55. In Brazil, coffee plantations are known as :

(a) Miranda (b) Fazenda
(c) Torino (d) Tarzana

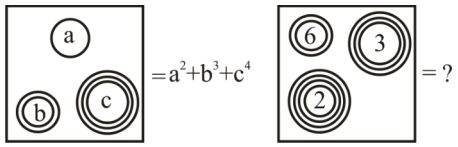
Ans. (b) : In Brazil, coffee plantation are known as Fazenda. Brazilian coffee is now as famous as Samba, Caipirinhas and Capoeira. Brazil is the largest coffee producer in the world. Brazil's coffee production represents one third of the world's coffee production.

56. United Nations was established in:

(a) 1945 (b) 1946
(c) 1944 (d) 1947

Ans. (a) : United Nations was established on 24 October, 1945, San Francisco, California US, headquartered in New York city. It maintains peace and security. Other important objectives include developing friendly relations among countries based on principles of equal rights and self determination of peoples achieving worldwide cooperation to solve international economic, social, cultural and humanitarian problems; respecting and promoting human rights.

57. Identify the number that will replace the question mark(?) in the second equation based on the relationship represented in the first equation.



(a) 36 (b) 329
(c) 79 (d) 420

Ans. (b) : Just as, In the first figure $\Rightarrow a^2 + b^3 + c^4$
Similarly, In the second figure $\Rightarrow 6^3 + 3^4 + 2^5$
$\Rightarrow 216 + 81 + 32$
$\Rightarrow 329$

58. Which of the following is NOT included in UNESCO's list of World Heritage Sites in India?

(a) Khajuraho (b) Bhimbetka
(c) Sanchi (d) Anand Bhavan

Ans. (d) : Khajuraho, Bhimbetka and Sanchi are in the World Heritage Sites list. The Anand Bhavan is a historic house museum in Prayagraj which is not listed in UNESCO world heritage site. In 2021 UNESCO declared the two World Heritage Sites of India Kakatiya Rudreshwara (Ramappa) temple in Telangana and Dholavira a Harappan era city in Gujarat. Now 40 World Heritage Sites exist in India.

59. The river that is known as Jamuna in Bangladesh is called _____ in India.

(a) Narmada
(b) Brahmaputra
(c) Ganga
(d) Sindhu

Ans. (b) : The Brahmaputra also known as Yarlung or Tsangpo in Tibet, China, the Siang/Dihang River in Arunachal Pradesh, and Luit, Dilao in Assam is a transboundry river which flows through Tibet India and Bangladesh. In Bangladesh, Brahmaputra is known as Jamuna.

60. What is the HCF of n and n + 1 where n is a natural number?

(a) 3 (b) 2
(c) 0 (d) 1

Ans. (d) : HCF of n and n + 1 = 1
Where (n = 1.....∞)
Hence, the HCF of two consecutive natural number is always 1.

61. With which of the following instruments is Hariprasad Chaurasia associated

(a) Violin (b) Tabla
(c) Flute (d) Drum

Ans. (c) : Hariprasad Chaurasia was born on July 1, 193, in Prayagraj, Indian fluitist in Hindustani classical tradition whose performances and compositions brought global recognition to the "Bansuri" a simple side blown bamboo flute. He got Sangeet Natak Academy-1984, Padam Bhusan-1992, Padam Vibhusan-2000 and many more awards.

62. Since July 2016, World Trade Organization (WTO) has _____members.

(a) 161 (b) 162
(c) 164 (d) 163

Ans. (c) : The World Trade Organisation (WTO) is an intergovernmental organization that regulates and facilitates international trade between nations. It officially commenced operations on January 1, 1995, pursuant to the 1994 Marrakesh agreement. It's headquartered in Geneva, Switzerland. It's member countries are 164.

63. Find the least number, which is exactly divisible by 12, 15, and 18.

(a) 160 (b) 120
(c) 180 (d) 240

Ans. (c) : The least number, which is exactly divisible by 12, 15 and 18 = LCM of 12, 15 and 18.
Hence, LCM of 12, 15 and 18 = 180

64. What is the full form of AIDS?

(a) Acquired Immune Deficiency Syndrome
(b) Acute Immune Deficit Syndrome
(c) Acute Immune Deficiency Syndrom
(d) Acquired Immune Deficit Syndrome

Ans. (a) : AIDS (Acquired Immunodeficiency Syndrome) is a chronic potentially life threating condition caused by the human immunodeficiency virus (HIV). It can also be spread by contact with infected blood etc. HIV is a virus that attacks the immune system, the body's natural defence against illness.

65. There are 6 contestants in a beauty pageant. Model Q is taller than Model A but shorter than Model E. Model X is not as tall as Model E but is taller than Model I. Model F is taller than Model I but shorter than Model Q. Who among the following is the tallest?

(a) Model Q (b) Model E
(c) Model F (d) Model A

Ans. (b) : According to the question,
The order of length is as follows– E > X > Q > F > I > A
Hence, it is clear that Model E is the tallest.

66. As per the Constitution of India, every person who is arrested and detained in custody shall be produced before the nearest magistrate within a period of _____hours of such arrest, excluding the time necessary for the journey from the place of arrest to the court of the magistrate

(a) 36 (b) 12
(c) 10 (d) 24

Ans. (d) : Article 22 (2) of Indian Constitution states that every person who is arrested and detained in custody shall be produced before the nearest magistrate within a period of 24 hours of such arrest excluding the time necessary for the journey from the place of arrest to court of the magistrate and no such person shall be detained in custody beyond the said period without the authority of a magistrate.

67. Pipe 1 can empty a tank in 6 h while pipe 2 can do so in 18 h. If both are working together, in how much time they will empty the full tank?

(a) 10 h (b) 5 h
(c) 9 h (d) 4.5 h

Ans. (d) :

Part of tank emptied by pipe 1 in one hour $= \frac{1}{6}$ part

Part of tank emptied by pipe 2 in one hour $= \frac{1}{18}$ part

Part of tank emptied by both the pipe together $= \frac{1}{6} + \frac{1}{18}$

Hence, the time taken to empty the full tank $= \frac{18}{4} = 4.5$ hours

68. Find the median and the mode of the following data:

2, 3, 5, 7, 2, 3, 3, 5, 7 and 9

(a) 4, 3 (b) 3, 4

(c) 3, 3 (d) 4, 4

Ans. (a) : The ascending order of the given data = 2, 2, 3, 3, 3, 5, 5, 7, 7, 9

Number of terms (n) = 10

$\because$ The number of terms is even,

$$\because \text{Median} = \frac{\left(\frac{n}{2}\right)^{\text{th}} \text{term} + \left(\frac{n}{2}+1\right)^{\text{th}} \text{term}}{2}$$

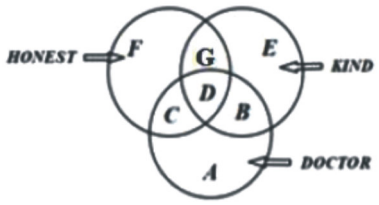
$$= \frac{\left(\frac{10}{2}\right)^{\text{th}} \text{term} + \left(\frac{10}{2}+1\right)^{\text{th}} \text{term}}{2}$$

$$\text{Median} = \frac{3+5}{2} = \frac{8}{2} = 4$$

And Mode = The number with the highest frequency.

Hence, the mode of above data = 3

69. Study the following diagram and select the region that best represents the below statement 'Adoctor who is kind as well as honest'



(a) C (b) F

(c) B (d) D

Ans. (d) : The doctor is D who is kind as well as honest.

70. Which of the following is NOT a computer programming language?

(a) Python (b) Java

(c) C^{++++} (d) Swift

Ans. (c) : Computer programming language allows us to give instructions to a computer in a language that computer understands. Python, Java, Java Scripts PHP Swift etc are programming languages. PHP is a server-side scripting language while Javascript is a client-side scripting language.

71. Four words have been given out of which three are alike in some manner, while the fourth one is different. Select the odd one.

(a) Time (b) Century

(c) Year (d) Decade

Ans. (a) : 'Century', 'Year' and 'Decade' are related to the measurement of 'Time'. Hence 'Time' is odd one.

72. Express the decimal number $3.12\overline{7}$ in fraction form

(a) $\frac{281}{900}$ (b) $\frac{563}{180}$

(c) $\frac{180}{563}$ (d) $\frac{365}{180}$

Ans. (b) : $3.12\overline{7}$

$$= 3 + \frac{127-12}{900} = 3 + \frac{115}{900}$$

$$3 + \frac{23}{180} = \frac{563}{180}$$

73. As of October 2020, the highest number of French Open tennis tournaments have been won by:

(a) Roger Federer (b) Novak Djokovic

(c) Dominic Thiem (d) Rafael Nadal

Ans. (d) : The highest number of French open tennis tournament have been won by Rafael Nadal. Nadal has won 20 Grand Slam man's singles title, 13 French open titles. The french open is a major tennis tournament held over two weeks at the Stade Roland-Garros in Paris, France beginning in late May each year.

74. Three of the following figures are alike in a certain way and one is different. Which one is different?

(a) 

(b) 

(c) 

(d) 

Ans. (b) : In figure (b) all the Δ signs are in the same direction. While it is not so in the other figures given in the options.
Hence, the figure given in option (b) is different from others.

75. Identify the series that is different from the rest

(a) 0.0016, 0.04, 0.2 (b) 343, 81, 27

(c) $\frac{1}{16}, \frac{1}{4}, \frac{1}{2}$ (d) 2401, 49, 7

Ans. (b) : (a) $\sqrt{0.0016} = 0.04, \sqrt{0.04} = 0.2$

(b) $343 = (7)^2, 81 = (9)^2, 27 = (3)^3$

(c) $\sqrt{\frac{1}{16}} = \frac{1}{4}, \sqrt{\frac{1}{4}} = \frac{1}{2}$

(d) $\sqrt{2401} = 49, \sqrt{49} = 7$

Hecne, option (b) is different from others.

76. The _____ Sector is the largest sector of India, contributing to a Gross Value Added (GVA) of ₹ 92.26 lakh crore in 2018 - 19.

(a) Service (b) Construction

(c) Manufacturing (d) Agriculture

Ans. (a) : The service sector is the largest sector of India contributing to a Gross Value Added (GVA) of ₹92.26 Lakh Crore in 2018-19. GVA at current Prices for the service sector is estimated at 96.54 lakh crore in 2020-21. Gross Value Added (GVA) is an economic productivity metric that measures the contribution of a corporate subsidiary, company or municipality to an economy.
GVA = GDP + Subsidies on products – taxes on products.

77. According to 2011 Census, the urban-rural population ratio in India was about:

(a) 32:68 (b) 35:65

(c) 31:69 (d) 28:72

Ans. (c) : According to 2011 census the urban rural population ratio in India was 31:69, While the sex ratio was 943 and the population density was 382.

78. Find the value of x if $\frac{52}{x} = \sqrt{\frac{169}{289}}$?

(a) 68 (b) 58

(c) 62 (d) 52

Ans. (a) : $\frac{52}{x} = \sqrt{\frac{169}{289}}$

$\frac{52}{x} = \frac{13}{17}$

x = 68

79. Which of the following is NOT related to Western Ghats

(a) Anaimalai Hills

(b) Mahendragiri Hills

(c) Nilgiri Hills

(d) Sahyadri Hills

Ans. (b) : Mahendragiri Hills is not related to Western Ghats. Remaing Hills (Annamalai, Nilgiri, Sahyadri) are related to Western Ghats. Mahendragiri, is a Mountain in Rajagada subdivision of district Gajapati, Odisha India.

80. In 2005, ASHA was instituted by the Government of India's Ministry of Health and Family Welfare as a part of the National Rural Health Mission. What is the full form of 'ASHA'?

(a) Active Social Health Activist

(b) Accredited School Health Activist

(c) Accredited Social Health Activist

(d) Active School Health Activist

Ans. (c) : ASHA (Accredited Social Health Activist) is a community health worker instituted by the Ministry of Health & Family Welfare as a part of India's National Rural Health Missions, began in 2005.

81. Girish Karnad who passed away in 2019, was awarded the 'Padma Shri' in the year_____.

(a) 1974 (b) 2014

(c) 1984 (d) 1994

Ans. (a) : Girish Karnad (1938-2019) was an Indian actor, film director and Kannada writer. He was a recipient of the 1998 Jnanpith award. He got Padma Shri and Padma Bhusan in 1974 and 1992 respectively.

82. If $x = \frac{1}{\sqrt{2}+1}$, then what will be the value of x+1?

(a) $\sqrt{2}$ (b) 2

(c) $\sqrt{2}+1$ (d) $\sqrt{2}-1$

Ans. (a) : $x = \frac{1}{\sqrt{2}+1}$

$x+1 = \frac{1}{\sqrt{2}+1}+1$

$= \frac{1+\sqrt{2}+1}{\sqrt{2}+1} = \frac{2+\sqrt{2}}{\sqrt{2}+1}$

$= \frac{\sqrt{2}\left(\sqrt{2}+1\right)}{\sqrt{2}+1} = \sqrt{2}$

83. The 'Bretton woods Twins' refers to the two multilateral organizations created at the Bretton Woods Conference in 1944. They are ____ and ____.

(a) IMF, World Bank (b) IMF, UN
(c) UN, World Bank (d) IMF, WTO

Ans. (a) : The Bretton Woods Twins refers to the two multilateral organization created at the Bretton Woods conference in 1944. They are the Internatinal Bank for Reconstruction and Development and International Monetary Fund (IMF).

84. If the area of a triangle with base 12 cm is equal to the area of a square with side 12cm, then the altitude of the triangle will be:

(a) 12 cm (b) 18 cm
(c) 36 cm (d) 24 cm

Ans. (d) : Area of the triangle = Area of the square

$\frac{1}{2} \times \text{Base} \times \text{Height} = (12)^2$

$\frac{1}{2} \times 12 \times \text{Height} = 144$

Height = 24 cm

85. In December 2008, the Government of India launched the INSPIRE Programme. The programme is related to the promotion of:

(a) Yoga
(b) International relations
(c) Cultural activities
(d) Science and technology

Ans. (d) : INSPIRE is an Innovative Programme developed by the Department of Science and Technology to attract talent to the excitement and study of science at an early age and to help the country build the required critical resource pool for strengthening and expanding the science & technology system and research & development base.

86. The following table shows the marks obtained by two students Raj and Ramesh in different subjects.

Subjects	Raj	Max-marks	Ramesh	Max-marks
Mathematics	18	20	85	100
Physics	17	20	70	100
Chemistry	16	20	60	100
Biology	15	20	75	100

What is the difference between Raj and Ramesh's percentage of aggregate marks?

(a) 10% (b) 2.5%
(c) 5% (d) 2%

Ans. (a) : Percentage of aggregate marks of Raj $= \frac{18+17+16+15}{20+20+20+20} \times 100 = \frac{66}{80} \times 100 = 82.5\%$

Percentage of aggregate marks of Ramesh $= \frac{85+70+60+75}{100+100+100+100} \times 100 = \frac{290}{400} \times 100 = 72.5\%$

Required difference = (82.5 – 72.5) = 10%

87. Given below the roll numbers of the candidates who have been shortlisted in an entrance examination. The first two digits represent the city, and next two digit represent the center and the last three digits represent the candidate. Study the data and answer the question that follows.

2367812	2852118	2453705	2946172
2578912	2452009	2345214	2850504
2687124	2371419	2731899	2578362
2834718	2182617	2431891	2718007
2463819	2486126	2275915	2363321

The maximum number of candidates have been selected from the city with which code?

(a) 27 (b) 28
(c) 23 (d) 24

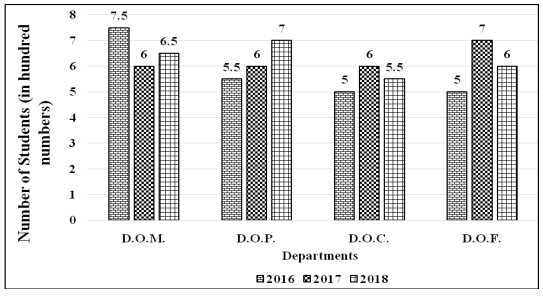
Ans. (d) : According to the question, the city is represented by the first two digits, the center by the next two digits and the candidates by the last three digits.

According to the option,

City	Number of Candidates
23	812 + 419 + 214 + 321 = 1766
24	619 + 009 + 126 + 705 + 891 = 2622
27	891 + 007 = 898
28	718 + 118 + 504 = 1340

Hence, it is clear that the city with code 24 has maximum number of candidates.

88. The bar graph given below shows the number of students (in hundred numbers) graduated from 4 different departments of a university, Mathematics (DOM), Physics (DOP), Chemistry (DOC) and English (DOE) during 3 consecutive years.



What is the average number of students that graduated from all the departments (in hundred numbers) for the years 2017?

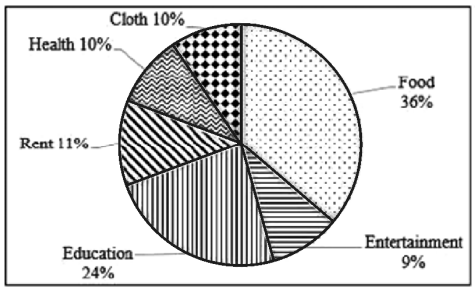
(a) 625 (b) 200
(c) 2500 (d) 550

Ans. (a) : Required average of all departments in the year 2017

$\frac{6+6+6+7}{4}$ hundred $= \frac{25}{4}$ hundred $= 6.25$ hundred

or $6.25 \times 100 = 625$

89. The following pie chart shows the monthly expenditure incurred by Raj's family over different items.



What is the percentage of expenditure incurred on food with respect to expenditure on cloth?

(a) 240% (b) 46%
(c) 26% (d) 360%

Ans. (d) : Required% $= \frac{36}{10} \times 100$

$= 360\%$

90. Out of the four words listed, three are alike in some manner and one is different. Select the odd one.

(a) Chalk (b) Paper
(c) Pen (d) Pencil

Ans. (b) : Paper is odd one because, 'Chalk', 'Pen' and 'Pencil' are used for writing whereas writing is done on 'Paper.'

91. There are two numbers with the difference of 14 between them and the difference of their squares is 56. What are those numbers?

(a) 9, –5 (b) 2, 16
(c) 3, 17 (d) 23, –9

Ans. (a) : Let the two numbers be x and y.

According to the question,

$x - y = 14$ ……(i)

$x^2 - y^2 = 56$ ……(ii)

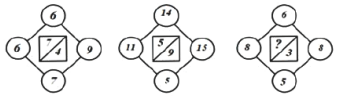
$(x - y)(x + y) = 56$

$x + y = 4$ ……(iii)

From equation (i) and equation (iii)

$x = 9, y = -5$

92. Select the number from among the given alternatives that can replace the question mark (?) in the last figure.



(a) 3 (b) 2
(c) 9 (d) 7

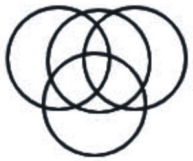
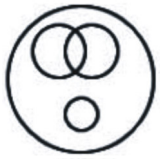
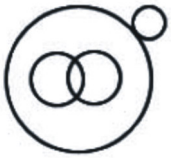
Ans. (c) : Just as, $6 + 6 + 9 + 7 = 28 = 7 \times 4$

and $11 + 14 + 15 + 5 = 45 = 5 \times 9$

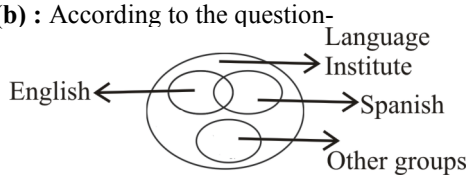
Similarly, $8 + 6 + 8 + 5 = 27 = \boxed{9} \times 3$

Hence $\boxed{? = 9}$

93. In a certain language institute English and Spanish language courses were available. Some students enrolled for only English and some students for only Spanish. A group of students of this institute were not interested in either so they didn't enrol. The rest enrolled for both English and Spanish. Which one of the following logic diagrams correctly reflects the above situation.

(a) 
(b) 
(c) 
(d) 

Ans. (b) : According to the question-

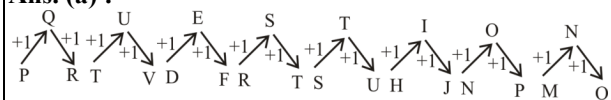


Hence, it is clear that the logic diagram of option (b) correctly reflects the given situation.

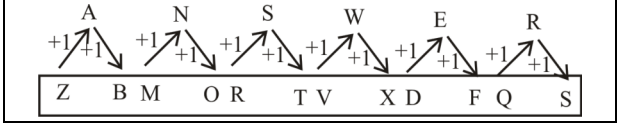
94. In a code language if QUESTION is coded as PRTVDFRTSUHJNPMO, then how will ANSWER be coded?

(a) ZBMORTVXDFQS
(b) OMNJHUSTRFDVTRP
(c) REWSNA
(d) ZABABCNMONOPQRSSTUWSQ

Ans. (a) :



Similarly



95. Select the number from among the given alternatives that can replace the question mark(?) in the last figure.

(a) 4 (b) 2
(c) 6 (d) 5

Ans. (a) : Just as,
In the first figure, $9 \times 4 = 36$
And,
In second figure, $8 \times 7 = 56$
Similarly,
In the third figure, $8 \times 6 = 48$
Hence, $\boxed{? = 4}$

96. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

(i) All Venus are Mercury.

(ii) Some Jupiter are Venus.

(iii) All Pluto are Jupiter.

Conclusions :

I. All Pluto are Mercury.

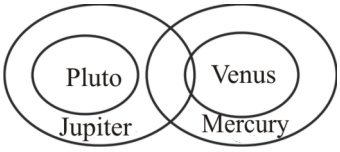
II. Some Pluto are Mercury.

III. Some Mercury are Jupiter.

IV. All Jupiter are Mercury.

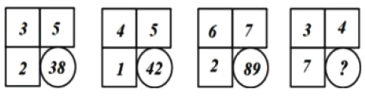
(a) Only conclusion II follows.
(b) Only conclusion I follows.
(c) Only conclusion III follows.
(d) Only conclusion I and III follows.

Ans. (c) : According to the statement, the Venn diagram is as follows-



Conclusions:
(I) (×)
(II) (×)
(III) (✓)
(IV) (×)
Hence, it is clear that only conclusion (III) follows.

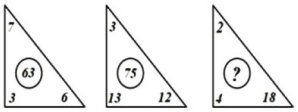
97. Select the number from among the given alternatives than can replace the question mark (?) in the last figure.



(a) 31 (b) 14
(c) 74 (d) 84

Ans. (c) : In first figure,
$3^2 + 5^2 + 2^2 \Rightarrow 9 + 25 + 4 = 38$
In second figure,
$4^2 + 5^2 + 1^2 \Rightarrow 16 + 25 + 1 = 42$
In third figure,
$6^2 + 7^2 + 2^2 \Rightarrow 36 + 49 + 4 = 89$
In fourth figure,
$3^2 + 4^2 + 7^2 \Rightarrow 9 + 16 + 49 = \boxed{74}$

98. Select the number from among the given alternatives that can replace the questions mark (?) in the last figure.



(a) 144 (b) 22
(c) 44 (d) 87

Ans. (c) : In first triangle, $(3 + 6) \times 7 = 63$
In second triangle, $(13 + 12) \times 3 = 75$
In third triangle, $(4 + 18) \times 2 = 44$

99. Read the given statement and conclusions carefully and decide which of the conclusions logically follow(s) from the statement.

Statement :

A friend in need is a friend indeed.

Conclusion :

(i)A person who helps you in difficult situations is your friend.

(ii) Your enemies can also sometimes have a change of heart and help you in times of

(a) Only conclusion (ii) follows
(b) Both conclusions (i) and (ii) follow
(c) None of the conclusion follows
(d) Only conclusion (i) follows

Ans. (d) : According to the statement only conclusion (i) "A person who helps you in difficult situations is your friend" follows the statements logically.

100. In a certain code language, COMPUTER is written as 31191267218 and PHONE is written as 12511142. How will MOTHER be written in the same code language?

(a) 91171852 (b) 91175218
(c) 91172518 (d) 91121875

Ans. (b) : Just as,
C O M P U T E R
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
3 11 9 12 6 7 2 18
And P H O N E
↓ ↓ ↓ ↓ ↓
12 5 11 14 2
By using the above code,
M O T H E R
↓ ↓ ↓ ↓ ↓ ↓
9 11 7 5 2 18

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 27.02.2021] **[Time : 10.30 am-12.00 pm]**

1. Which of these hormones stimulates uterine contractions and dilation of the cervix?

(a) Thyroxine (b) ADH
(c) Oxytocin (d) Progesterone

Ans. (c) : The hormone Oxytocin plays a key role in uterine contraction. Often called the 'love hormone', oxytocin is associated with feelings of bonding and motherhood. The another hormone released during labour called 'prolactin'. It helps us feel good, and it triggers nurturing feelings and behaviors. Receptor cells that allow body to respond to oxytocin increase gradually in pregnancy and then increase a lot during labour. Oxytocin stimulates powerful contractions that help to thin and open (dilate) the cervix, move the body down and out of the birth canal, push out the placenta, and limit bleeding at the site of the placenta.

2. Which team won the Women's FIFA Football World Cup in 2019?

(a) India (b) US
(c) China (d) New Zealand

Ans. (b) : The FIFA Women's World Cup is an international association of football competition contested by the senior women's national teams of the members of Federation International de Football Association (FIFA), the sport's international governing body. The competition has been held every four years and one year after the FIFA World Cup since 1991, when the inaugural tournament then called the FIFA Women's World Championship was held in China. The United States have won four times, and are the current champions after winning it, at the 2019 tournament in France. The 2023 FIFA Women's World Cup tournament will be jointly hosted by Australia and New Zealand and is scheduled to take place from 20 July to 20 August, 2023.

3. Read the given statements and conclusions carefully and decide which of the conclusions logically follows (s) from the statements.

Statement:

"My husband will drive me to the Hudson Shopping Mall because my hand is not in a healthy condition to drive our car", S told to Y.

Conclusion:

I. X will not go to Hudson Shopping Mall by walking

II. X is married.

III. Y is married.

IV. X knows how to drive a car.

(a) Only conclusion II, III and IV follow
(b) Only conclusion I and II follow
(c) Only conclusion I, II and IV follow
(d) Only conclusion II and IV follow

Ans. (c) : It is clear from the above statement that X will not go to Shopping Mall on foot, X is married and X knows driving. Hence only conclusions (i), (ii) and (iv) follow.

4. Which of the following is NOT a part of the alimentary canal of the human body?

(a) Rectum (b) Oesophagus
(c) Trachea (d) Pharynx

Ans. (c) : The alimentary canal is mainly referred to as the pathway by which food enters our body and moves out through the anus after digestion. The alimentary tract of the digestive system is composed of the mouth, pharynx, oesophagus, stomach, small and large intestines, rectum and anus. The trachea, commonly known as the windpipe, is a part of the airway system that connects the larynx to the bronchi of the lungs.

5. Read the given statements and conclusions carefully and decide which of the conclusions logically. Follow(s) from the statements.

Statements:

(A) All girls are pretty.

(B) X is pretty.

Conclusions:

I. X is a girl.

II. All pretty people are girls

(a) Both the conclusions follows
(b) Only conclusions II follows
(c) Only conclusions I follows
(d) Neither I nor II follows

Ans. (d) : It is clear from the above statement that Neither (i) or (ii) follow.

6. If $x = \frac{\sqrt{3}}{2}$, then find the value of $\sqrt{1+x} + \sqrt{1-x}$.

(a) $2 - \sqrt{3}$ (b) $\frac{\sqrt{3}}{2}$

(c) 3 (d) $2 + \sqrt{3}$

Ans. (c) : Given that,

$$x = \frac{\sqrt{3}}{2}$$

Then, $\sqrt{1+x} + \sqrt{1-x} = ?$

On squaring,

$$\left(\sqrt{1+x} + \sqrt{1-x}\right)^2 = \left(\sqrt{1+x}\right)^2 + \left(\sqrt{1-x}\right)^2 + 2\sqrt{1+x}, \times \sqrt{1-x}$$

$$= 1 + x + 1 - x + 2\sqrt{(1+x)(1-x)}$$

$$= 2 + 2\sqrt{1-x^2}$$

$$= 2 + 2\sqrt{\frac{4-3}{4}}$$

$$= 2 + 2\sqrt{\frac{1}{4}}$$

$$= 2 + 2 \times \frac{1}{2}$$

$$= 2 + 1$$

$$= 3$$

7. If $x^3 + y^3 = 36$ and $x + y = 6$, then $\frac{1}{x} + \frac{1}{y}$ =?

(a) $\frac{1}{3}$ (b) $\frac{3}{5}$

(c) 6 (d) $\frac{5}{6}$

Ans. (b) : Given,

$x + y = 6$ ...(i)

and, $x^3 + y^3 = 36$

$(x + y)^3 - 3xy(x + y) = 36$

$(6)^3 - 3xy(6) = 36$ (from eq^n (i))

$216 - 18xy = 36$

$18xy = 216 - 36$

$$xy = \frac{180}{18}$$

$xy = 10$ ...(ii)

$$\frac{1}{x} + \frac{1}{y} = \frac{y+x}{xy}$$

$$= \frac{6}{10}$$ (from eq^n (i) and (ii))

$$\frac{1}{x} + \frac{1}{y} = \frac{3}{5}$$

8. The HCF of two number is 30 and the LCM is 2310. If one of the number is 210, then the other number is:

(a) 550 (b) 220

(c) 330 (d) 440

Ans. (c) : Let second no. be x.

Formula, (L.C.M × H.C.F = First no. × Second no.)

$2310 \times 30 = 210 \times x$

$$x = \frac{2310 \times 30}{210}$$

$x = 10 \times 33$

Hence, second no. = 330

9. As of October 2020, Mr. Shashi Shankar is the Chief Managing Director of:

(a) GAIL India

(b) Oil India

(c) ONGC

(d) Hindustan Petroleum

Ans. (c) : As of October 2020, Mr. Shashi Shankar is the Chief Managing Director of ONGC. He will replace Dinesh K Sarraf, who retires on September 30, upon attaining superannuation age.

10. The full form of IRDAI is:

(a) Insurance Regulation and Developmental Authority of India

(b) Insurance Regulatory and Development Authority of India

(c) Irrigation and Rural Development Authority of India

(d) International Relations Development Authority of India

Ans. (b) : Insurance Regulatory and Development Authority of India (IRDAI), is statutory body formed under an Act of Parliament, i.e. Insurances Regulatory and Development Authority Act, 1999 for overall supervision and development of the Insurance sector in India. The power and functions of the Authority are laid down the IRDRI Act, 1999 and Insurance Act, 1938. Shubhash Khunthia appointed as IRDAI chairman succeeds TS Vijayan.

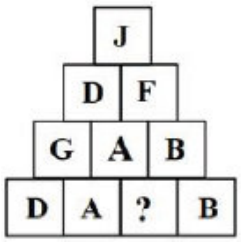
11. The Union government has appointed _____ as the Chairperson of an empowered committee for the administration of Covid-19 vaccine.

(a) Amit Shah (b) R S Sharma

(c) Piyush Goyal (d) Rajiv Kumar

Ans. (b) : The Union government has appointed RS Sharma, former TRAI Chief, as the Chairperson of an empowered committee for administration of Covid-19 vaccine. He has also been included as a member of the National Expert Group on Vaccine Administration of Covid-19 that was formed in August 2020 and is headed by Niti Aayog member, V K Paul. Ten member team has been constituted to be headed by R S Sharma.

12. Which letter will replaces the question mark in the given diagram?



(a) C (b) F
(c) A (d) D

Ans. (a) : Just as,

$J = 10$

and

D, F
↓ ↓
$4 + 6 = 10$

and

G A B
↓ ↓ ↓
$7 + 1 + 2 = 10$

Similarly,

D A ? B
↓ ↓ ↓ ↓
$4 + 1 + ? + 2 = 10$
$? = 10 - 7$
$? = 3$

Hence ? = C

13. Which of the following pigments are responsible to determine the colours of fruits and vegetables?

(a) Hemocynanine (b) Merocyanine
(c) Indocyanine (d) Anthocyanins

Ans. (d) : Anthocyanins are the pigments that are responsible for the colors, red, purple, and blue in fruits and vegetables. Berries, currants, grapes and some tropical fruits have high anthocyanins content. Hemocyanine and hemoglobin are respiratory proteins found in animal's blood.

14. If $\sqrt{0.03 \times 0.3 \times p} = 0.3 \times 0.03 \times \sqrt{q}$, then find the value of p/q is:

(a) 0.9 (b) 0.0009
(c) 0.09 (d) 0.009

Ans. (d) : $\sqrt{0.003 \times 0.3 \times p} = 0.3 \times 0.03 \times \sqrt{q}$

$$\sqrt{\frac{p}{q}} = \frac{0.3 \times 0.03}{\sqrt{0.03 \times 0.3}}$$

Squaring on the both side,

$$\frac{p}{q} = \frac{0.09 \times 0.0009}{0.03 \times 0.3}$$

$$\frac{p}{q} = \frac{0.000081}{0.009}$$

$$\frac{p}{q} = 0.009$$

15. As of October 2020, Kristalina Georgieva is Managing director of:

(a) New Development Bank
(b) World Bank
(c) International Monetary Fund
(d) United Nations

Ans. (c) : As of October 2020, Kristalina Georgieva is Managing Director of International Monetary Fund. She is a Bulgarian economist serving as chairperson and Managing Director of the International Monetary Fund (IMF) since 2019. She was the Chief Executive of the World Bank Group from 2017 to 2019 and served as Acting President of the World Bank Group from 1 February 2019 to 8 April 2019 following the resignation of Jim Yong Kim.

16. If the compound interest on a certain sum of money for 3 years at 5% per annum is ₹3783, then what would be the simple interest on the same sum of money for the same period and at the same rate?

(a) ₹3,400 (b) ₹3,680
(c) ₹3,600 (d) ₹3,440

Ans. (c) : CI = ₹3783, R = 5%, T = 3 years

$CI = A - P$

$$3783 = P\left(1 + \frac{5}{100}\right)^3 - P$$

$$3783 = P\left(\frac{21}{20}\right)\left(\frac{21}{20}\right)\left(\frac{21}{20}\right) - P$$

$$3783 = \frac{9261P - 8000P}{8000}$$

$$P = \frac{3783 \times 8000}{1261}$$

$P = ₹24000$

For the same period at the same rate on the same sum of money.

$$\text{Simple interest} = \frac{P \times R \times T}{100}$$

$$= \frac{24000 \times 5 \times 3}{100}$$

$= ₹3600$

17. If cos 42° = p, then tan 48° = ?

(a) $\frac{p^2}{\sqrt{1-p^2}}$ (b) $\frac{p+1}{\sqrt{1-p^2}}$

(c) $\frac{p}{\sqrt{1-p^2}}$ (d) $\frac{\sqrt{1-p^2}}{p}$

Ans. (c) : Given, $\cos 42^\circ = p$

then, $\cos^2 42^\circ = p^2$

$\because$ $\sin^2 42^\circ + \cos^2 42^\circ = 1$ $(\sin^2\theta + \cos^2\theta = 1)$

$\sin^2 42^\circ + p^2 = 1$

$\sin^2 42^\circ = 1 - p^2$

$\sin 42^\circ = \sqrt{1-p^2}$

Now $\tan 48^\circ = \cot(90 - 42^\circ)$

$= \frac{\cos 42^\circ}{\sin 42^\circ}$

$= \frac{p}{\sqrt{1-p^2}}$

18. The Novel 'A Prime Minister to Remember' was written by:

(a) Tavleen Singh

(b) Bipin Chandra

(c) Admiral Sushil Kumar

(d) Arundhati Roy

Ans. (c) : A book titled 'A Prime Minister to Remember Memories of a Military Chief' was authored by former Navy Chief Admiral Sushil Kumar. Admiral Sushil Kumar was the 16th Chief of Naval Staff and also look after the naval operation during the Kargil Conflict of 1999. He served as Navy Chief from 1998 to 2001. 'A Prime Minister to Remember Memories of a Military Chief', on PM Atal Bihari Vajpayee, in which he credited Mr. Vajpayee for turning a strategic loss into a massive victory. He also mentions operation Parakram that was called after the Parliament attack was not the military's finest hour.

19. Who won the Jnanpith Award 2018– The highest Literary Honour in India?

(a) Rana Dasgupta

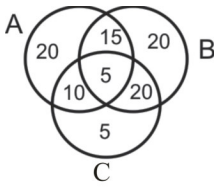
(b) Upmanyu Chaterrjee

(c) Amitav Ghosh

(d) Arundhati Roy

Ans. (c) : The Jnanpith (Gyanpith) Award awarded every year for best creative writing to an Indian citizen in any of the 22 languages that are included in schedule VIII of the Indian constitution. English has also been included for consideration of the award from 49th award. It carries a cash price of Rs. 11 lakhs, a citation plank and a bronze replica of goddess Saraswati 'Vagdevi'. Amitav Ghosh became the first English writer to win Jnanpith Award in 2018. He was also shortlisted for Booker Prize 2008.

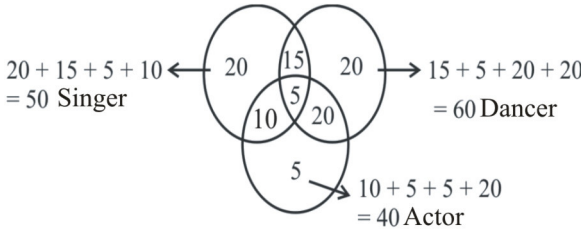
20. Circle A, B and C represents singers, dancers and actors respectively. The total number of these are 50, 60 and 40 respectively. What is the number of people who are both singers and dancers but are not actors?



(a) 15 (b) 40

(c) 75 (d) 5

Ans. (a) : The above Venn diagram is as follows–



Hence, it is clear that the no. of people who are both singers and dancers is 15 but not actors.

21. The reciprocal of the sum of the reciprocals of 5/7 and 9/5 is:

(a) $\frac{35}{88}$ (b) $\frac{88}{45}$

(c) $\frac{45}{88}$ (d) $\frac{88}{35}$

Ans. (c) : The sum of reciprocals of $\frac{5}{7}$ and $\frac{9}{5}$

$= \frac{7}{5} + \frac{5}{9}$

$= \frac{63+25}{45}$

$= \frac{88}{45}$

Hence, the inverse of the sum of reciprocal of $\frac{5}{7}$ and $\frac{9}{5}$

$= \frac{45}{88}$

22. Who was the founder of the Forward Block party?

(a) Subhas Chandra Bose

(b) Bipin Chandra Pal

(c) Sarat Chandra Bose

(d) Mahatma Gandhi

Ans. (a) : Netaji Subhash Chandra Bose and Jawaharlal Nehru were known for their leftist views in the Indian National Congress Party. Bose had many difference with Mahatma Gandhi on many points of ideology, which led him to resign from Indian National Congress on April 29, 1939. Soon after his resignation Netaji declared the formation of All India Forward Bloc on May 3, 1939. Its constitution and programme were adopted on June 22, 1939 in an all India session in Mumbai.

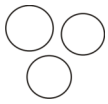
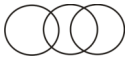
23. Name the elements that are required for Photosynthesis

(a) Oxygen water and light
(b) Water, oxygen and sunlight
(c) Carbon dioxide, water and Sunlight
(d) Sunlight, Chloroflexi and water

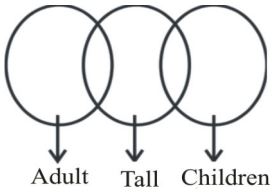
Ans. (c) : Photosynthesis is the process used by plants, algae and certain bacteria to harness energy from sunlight and turn it into chemical energy. The primary elements required for photosynthesis by higher plants are carbon dioxide, water and sunlight. Carbon dioxide is converted to sugar and oxygen evolved from the splitting of water molecules. It is written as follows:

$$6CO_2 + 12H_2O \xrightleftharpoons{\text{sunlight}} C_6H_{12}O_6 + 6H_2O + 6O_2$$

24. Which of the following best depicts the relationship between Children, Adult, Tall?

(a) 
(b) 
(c) 
(d) 

Ans. (d) :



Hence, option (d) best represents the relationship between the given classes.

25. Which is the most traded-around currency of the world?

(a) Euro (b) USD
(c) INR (d) Dinar

Ans. (b) : The US Dollar stands firm as # 1 in the list of most traded currencies in the world in 2021. With a daily trading volume of $ 2.9 trillion, it accounts for 88.3 percent of all global forex trades. It is the most dominant currency in the world, issued by the US Federal Reserve Bank. The United States has the world's largest economy and one of the most robust, allowing the USD to become the world's reserve currency.

26. Find the value

$$\frac{0.3^4 - 0.2^4}{0.3^2 + 0.2^2}$$

(a) 0.51 (b) 0.5
(c) 0.15 (d) 0.05

Ans. (d) :

$$\frac{0.3^4 - 0.2^4}{0.3^2 - 0.2^2}$$

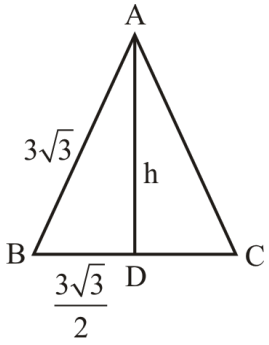
$$= \frac{0.0081 - 0.0016}{0.09 - 0.24} = \frac{0.0065}{0.13} = 0.05$$

27. Each side of an equilateral triangle is $3\sqrt{3}$ cm. Find the altitude of the triangle.

(a) 5 cm (b) 5.5 cm
(c) 4.5 cm (d) 4 cm

Ans. (c) : Side of equilateral triangle ABC = $3\sqrt{3}$cm

AB = BC = AC = $3\sqrt{3}$cm



Let the height of triangle = h

$$BD = \frac{1}{2}BC$$

$$BD = \frac{3\sqrt{3}}{2}$$

From pythagorous theorem,

$$AB^2 = AD^2 + BD^2$$

$$\left(3\sqrt{3}\right)^2 = h^2 + \left(\frac{3\sqrt{3}}{2}\right)^2$$

$$27 = h^2 + 27/4$$

$$h^2 = 27 - \frac{27}{4}$$

$$h^2 = \frac{108 - 27}{4}$$

$$h^2 = \frac{81}{4}$$

$$h = \frac{9}{2}$$

$$h = 4.5$$

Hence, the height of triangle = 4.5cm.

28. **If** $a+b+c=3$, $a^2+b^2+c^2=6$ **and** $\frac{1}{a}+\frac{1}{b}+\frac{1}{c}=1$**, where a, b and c ≠ 0 then abc = ?**

(a) $\frac{1}{2}$ (b) $\frac{5}{2}$

(c) 1 (d) $\frac{3}{2}$

Ans. (d) : Given,

$a+b+c=3$ ...(i)

and $a^2+b^2+c^2=6$ ...(ii)

We know that,

$(a+b+c)^2=a^2+b^2+c^2+2(ab+bc+ac)$

$(3)^2=6+2(ab+bc+ac)$

$ab+bc+ac=\frac{9-6}{2}$

$ab+bc+ac=\frac{3}{2}$ ...(iii)

Now, $\frac{1}{a}+\frac{1}{b}+\frac{1}{c}=1$

$\frac{bc+ac+ab}{abc}=1$

$ab+bc+ac=abc$

$abc=\frac{3}{2}$ [From eq^n. (iii)]

29. **Which of the following fishes has no head, bone, eyes or nose?**

(a) Starfish (b) Cat fish

(c) Alashka fish (d) Jellyfish

Ans. (*) : For this questions, discrepancy is found in question.

30. **Find the value**

$36-2(20+12\div4\times3-2\times2)+10$

(a) -3 (b) 3

(c) 4 (d) -4

Ans. (d) : $36-2(20+12\div4\times3-2\times2)+10$

According to BODMAS rule,

$=36-2(20+3\times3-2\times2)+10$

$=36-2(20+9-4)+10$

$=36-2(25)+10$

$=36-50+10$

$=46-50$

$=-4$

31. **If the sign + is interchanged with – and the number 9 is interchanged with 6, then which of the following four equations would be correct?**

(a) 9 + 6 - 4 = 1

(b) 6 - 9 + 7 = 1

(c) 4 - 9 + 5 = 1

(d) 6 - 9 + 4 = 1

Ans. (a) : In option (a) on interchanging the signs '+' and '–'

6 – 9 + 4 = 1

6 – 5 = 1

1 = 1

L.H.S. = R.H.S

Hence, option (a) will be required answer.

32. **The World Hindi day is celebrated annually**

(a) 10 January (b) 10 September

(c) 10 March (d) 10 April

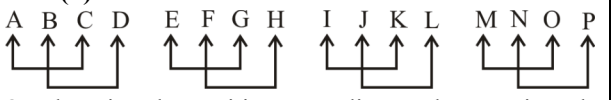
Ans. (a) : The World Hindi Day is celebrated annually on January 10 since 2006 to promote the language at the global level. The day marks the anniversary of first World Hindi Conference which was inaugurated on January 10, 1975. by Prime Minister Indira Gandhi. However, the celebration of first World Hindi Day was commenced on 10 January 2006 by former Prime Minister Dr. Manmohan Singh. It must be noted that the National Hindi Day is celebrated in India on 14 September every year. On that day in 1949, the constituent assembly adopted Hindi, written in Devanagari Script, as the official language of the Union.

33. **If A and C interchange their places, B and D interchange there places, E and G interchange there places and so on for rest of the letters in the alphabet, then which letter will be 5th to the left of O?**

(a) R (b) F

(c) H (d) T

Ans. (b) :



On changing the position according to the question, the alphabetical order will be as follows–

C D A B G H E F K L I J O P M N ---------

Hence, It is clear from the above that F will be the fifth letter from the left of O.

34. **How many type of Indian River Systems are there?**

(a) 4 (b) 2

(c) 3 (d) 1

Ans. (b) : There are two major types of Indian River system. Drainage systems based on its origin.

The Himalayan Rivers: Himalayan Rivers are those which originate in the Himalayas and flow through the Northern plains, e.g., The Ganga, the Yamuna and their tributaries etc.

The Peninsular Rivers: Peninsular Rivers are those which originate from the peninsular plateaus and small hills of India e.g., Godavari, Krishna, Narmada, Tapti etc.

35. 10 is the mean of a set of 7 observations and 5 is the mean of another set of 3 observations. The mean of the combined set is:

(a) 10 (b) 7.5

(c) 15 (d) 8.5

Ans. (d) :

$$\text{Mean} = \frac{\text{Sum of observation}}{\text{Number of observation}}$$

Sum of first observation $= 7 \times 10 = 70$

Sum of second observation $= 3 \times 5 = 15$

Mean of combined group

$$= \frac{\text{Sum of (First observation + Second observation)}}{\text{Number of (First observation + Second observation)}}$$

$$= \frac{70+15}{3+7}$$

$$= \frac{85}{10}$$

$$= 8.5$$

36. The first nationalistic revolutionary movement in British India emerged from____.

(a) Bengal (b) Maharashtra

(c) Tamil Nadu (d) Punjab

Ans. (a) The Indian Independence Movement was a series of historic events with the ultimate aim of ending British Rule in India. The movement spanned from 1857 to 1947. The first nationalistic revolutionary movement for Indian independence emerged from Bengal. It later took root in the newly formed Indian National Congress (INC) with prominent moderate leaders seeking only their fundamental right to appear for Indian Civil Service examinations in British India, as well as more rights for the people of the soil.

37. Find the HCF of $\frac{3}{2}, \frac{9}{8}, \frac{81}{16}$, and $\frac{27}{10}$

(a) $\frac{80}{3}$ (b) $\frac{1}{40}$

(c) $\frac{2}{81}$ (d) $\frac{3}{80}$

Ans. (d) : $\text{H.C.F of fraction} = \frac{\text{H.C.F of Numerator}}{\text{L.C.M of Denominator}}$

$$\text{H.C.F of } \frac{3}{2}, \frac{9}{8}, \frac{81}{16} \text{ and } \frac{27}{10} = \frac{\text{H.C.F of } 3, 9, 81, \text{and } 27}{\text{L.C.M of } 2, 8, 16 \text{ and } 10}$$

$$= \frac{3}{80}$$

38. If a : b = 3 : 2, then $(7a+9b):(5a+7b)$ = ?

(a) 29 : 19 (b) 29 : 39

(c) 39 : 29 (d) 19 : 39

Ans. (c) : Let a = 3x and b = 2x

Then, $\frac{7a+9b}{5a+7b} = \frac{7\times3x+9\times2x}{5\times3x+7\times2x}$

$$= \frac{21x+18x}{15x+14x}$$

$$= \frac{39x}{29x}$$

$$= \frac{39}{29}$$

39. A and B start driving simultaneously from point X and go towards point Y. X and Y are 60 km apart. A's speed is 4 km/h less than that of B. B, after reaching Y, returns and meets A at a point 12 km away from Y. Find the speed of A

(a) 16 km/h (b) 12 km/h

(c) 8 km/h (d) 20 km/h

Ans. (c) : Let the speed of A = x km/h

Then speed of B = (x + 4) km/h

Total distance covered by B = 60 + 12

= 72 km

Total distance covered by A = 60 – 12

= 48 km

According to the question,

$$\frac{72}{x+4} = \frac{48}{x}$$

$72x = 48x + 192$

$24x = 192$

$x = 8$ km/h

Hence, speed of A = 8 km/h

40. Which of these is NOT a part of the MS Office Suite?

(a) Power Point (b) Projects

(c) Word (d) Excel

Ans. (b) : The MS Office Suite of programs includes microsoft word, a word processing tool; microsoft excel, a spreadsheet.

Program:– Microsoft Power Point, used for creating interactive presentations; Microsoft Outlook, used for email and calendar management; Microsoft Access, a database management program ; and microsoft One Note, a note-taking application. MS Project is part of the Microsoft office family but has never been included in any of the office suites.

41. Which of the first element on the Periodic Table?

(a) Oxygen (b) Hydrogen

(c) Nitrogen (d) Carbon dioxide

Ans. (b) : Hydrogen is the first element on the Periodic Table. Hydrogen is the lightest element. Hydrogen is the chemical element with the symbol 'H' and atomic number 1. Numerous compounds are formed by Hydrogen combined with other elements. There are 118 known elements present in periodic table.

42. On 25 April 1945, _____ governments met in San Francisco for a conference and Started drafting the UN Charter

(a) 50 (b) 25
(c) 60 (d) 45

Ans. (a) : Delegates of fifty (50) nations met in San Francisco, California, USA, between 25 April and 26 June 1945 at the United Nations Conference on International Organization. Working on the Dumbarton Oaks proposals, the Yalta Agreement, and amendments proposed by various governments, the conference agreed upon the charter of the United Nations and the statute of the new International Court of Justice.

43. Raju is thrice as good as a workmen as Vinod and together they can finish a task in 21 days. In how many days can Vinod alone complete the work?

(a) 84 (b) 28
(c) 78 (d) 76

Ans. (a) : Let the work done by Vinod be = x
Time taken by Raju to complete the work = 3x
1 day work of Raju and Vinod = 21days

Raju 1 day work + Vinod's 1 day work = $\frac{1}{21}$ unit

$$3x + x = \frac{1}{21}$$

$$x = \frac{1}{84}$$

$\because$ Vinod 1 day work = $\frac{1}{84}$ unit

$\therefore$ Time taken by Vinod to complete the work= $\frac{1}{1/84}$ = 84 days

44. Mb in computer language is the abbreviation of which of the following?

(a) Megabyte (b) Megabit
(c) Megaboast (d) Masterboot

Ans. (b) : With a capital B, MB is an abbreviation for megabyte. With a lowercase b, Mb is an abbreviation for megabit. MB or Mb is also a common abbreviation for motherboard. Abbreviated as Mb (lowercase b) or a megabit and is 1,000,000 (10^6) bits. It measures a quantity of data. When divided by a unit of time, such as seconds, it measure the rate that data is transferred. For example, "100 Mbps " represents 100 megabits per second, which is one possible speed of a network card.

45. The Law of Gravitation was given by_____.

(a) Galileo Galilei (b) Isaac Newton
(c) Albert Einstein (d) Charles Darwin

Ans. (b) : Gravitation is the force of attraction between all masses in the universe especially the attraction of the earth's mass for bodies near its surface. Since the gravitational force is experienced by all matter in the universe, from the largest galaxies down to the smallest particles, it is often called Universal Gravitation Sir Isaac Newton was the first person to discover Gravity. He described and explained his discovery through his theory which is known as 'Newton's Law of Universal Gravitation' According to the theory 'Every object in this universe attracts every other object with a force which is directly proportional to the product of their masses and inversely proportional to the square of distance between their centres.

46. How will you write 8.17 hours, in hours, minutes and seconds?

(a) 8 hours, 17 minutes
(b) 8 hours, 10 minutes, 12 seconds
(c) 8 hours, 10 minutes, 7 seconds
(d) 8 hours, 12 minutes

Ans. (b) : 8.17 hours

$$= 8 \text{ hours}, \frac{17}{100} \times 60 \text{ minutes}$$

$$= 8 \text{ hours}, 10.2 \text{ minutes}$$

$$= 8 \text{ hours}, 10 \text{ minutes}, \frac{2}{10} \times 60 \text{ seconds}$$

$$= 8 \text{ hours}, 10 \text{ minutes}, 12 \text{ seconds}$$

47. India Water Impact Summit 2019 was held in which city/state?

(a) Mumbai (b) Hyderabad
(c) Delhi (d) Kolkata

Ans. (c) : Ministry of Jal Shakti, Government of India and the Centre for Ganga River Basin Management and studies (C Ganga) led by IIT Kanpur are pleased to organize the 4th India Water Impact Summit from 5-7 December 2019 at the Vigyan Bhawan, New Delhi. This year focus will on integrated water resources management in urban and rural settings in order to achieve the Government's goal of providing water to every household in the next 5 years. This will require a significant policy and behavioral shift in managing water resources. The 5th India Water Impact Summit (IWIS) kicked off on 10th December 2020 virtually inaugurated by Ratan Lal Kataria.

48. ₹200 was invested for 2 years on 10% compound interest per year. If the rate of interest had been 20%, then how much more would the investor have received as interest for the same period?

(a) ₹46 (b) ₹48

(c) ₹40 (d) ₹44

Ans. (a) : If, P = ₹200, R = 10% and T = 2

then, $A = 200\left(1+\frac{10}{100}\right)^2$

$A = 200\times\frac{11}{10}\times\frac{11}{10}$

$A = 2 \times 121$

$A = 242$

$CI = A - P$

$= 242 - 200$

$CI = ₹42$

Take the interest, R = 20%

Then, $A = 200\times\left(1+\frac{20}{100}\right)^2$

$A = ₹288$

$CI = 288 - 200$

$= ₹88$

Extra interest = 88 – 42 = ₹46

49. Which of these are NOT an Endocrine Gland?

(a) Pineal (b) Thyroid

(c) Adrenal (d) Salivary

Ans. (d) : Endocrine Glands are the glands which not have a duct and secrete the contents directly in the blood stream. Pancreas, Adrenal Gland and Thyroid Gland are the examples of the endocrine glands. Salivary gland is an exocrine gland. The gland contains many lobules which pour the saliva in the common salivary duct. The salivary duct empties the saliva in the mouth.

50. Four terms have been given in options, out of which there three are alike in some manner and one is different. Select the odd one.

(a) 3CX (b) 11KP

(c) 13MN (d) 9IH

Ans. (d) : From options,

(a) $(3)C \xrightarrow{\text{Opposite letter}} X(3)$

(b) $(11)K \xrightarrow{\text{Opposite letter}} P(11)$

(c) $(13)M \xrightarrow{\text{Opposite letter}} N(13)$

(d) $(9)I \xrightarrow{+10} H(9)$

Hence, it is clear from the above that option (d) is irrelevant.

51. The first Indian woman to win a gold in World Universiade in 2019 is:

(a) Dutee Chand (b) Saina Nehwal

(c) Sania Mirza (d) Mary Kom

Ans. (a) : Indian Sprinter Dutee Chand has won the gold medal in women's 100-meter sprint at the 30th Summer University Games in Napoli, Italy becoming the first Indian to win do so. She clocked 11.32s in the final. This is the first gold medal for India at this edition of the games. No Indian has qualified for the 100-meter final in the history of the University Games before this.

52. Three statements are given followed by two conclusions I and II. You have to consider the two statements to be true even if they seem to be at variance from commonly known facts and then decide which of the given conclusion(s) logically follows/ Follow from the given statements.

Statements:

1. All Trees are Flowers

2. No Flower is Plant.

3. Some Plants are Roots.

Conclusion :

I. Some Roots are Trees.

II. Some Plants are Trees.

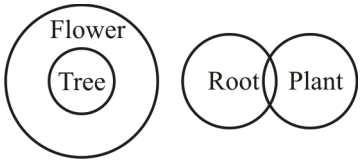
(a) Only conclusion I follows

(b) Both the conclusions follows

(c) Only conclusion II follows

(d) Neither conclusion I nor II follow

Ans. (d) : On making Venn diagram according to the statement.



Hence, it is clear from the above diagram that neither conclusion (i) nor (ii) follow.

53. There are five siblings: Raj, Rohan, Ram, Ritika and Rani. All of the siblings have different heights. Raj height is more than that of only one sibling. Rohan height is more than that of Raj and Ritika but not more than that of Ram. Ritika height is more than that of Raj. Ram is not the shortest. Who is the shortest among them?

(a) Rani (b) Ritika

(c) Raj (d) Ram

Ans. (a) : According to the question, the decreasing codes of length is as follows–

Ram > Rohan > Ritika > Raj > Rani

Hence, it is clear that Rani is the shortest.

54. Read the given statements carefully and decide which option is correct with respect to the statements.

Statements:

1. In any triangle, the current point of medians is a centroid.

2. In any triangle, the current point of altitudes is an orthocentre.

3. In any triangle, the concurrent point of internal angular bisectors is an in-centre.

(a) Only Statement 3 is correct

(b) All statements 1, 2 and 3 are correct.

(c) Only Statement 1 is correct

(d) Only Statement 2 is correct

Ans. (b) : We know that in any triangle, the concurrent point of the medians is a centroid. In any triangle, the concurrent point of the heights is the center of the perpendicular. In any triangle the concurrent point of the internal angular bisectors is an in-centre.

Hence, it is clear that statement 1, 2 and 3 are all correct.

55. The institution responsible for construction and maintenance of India's highways is:

(a) National Highways Authority of India

(b) Transport Authority of India

(c) Highway Association of India

(d) National Roads Safety Authority

Ans. (a) : The National Highways Authority of India (NHAI) was constituted by an Act of Parliament, the National Highways, Authority of India Act, 1988. It is responsible for the development, maintenance and management of National Highways entrusted to it.

56. As of December 2020, who is the Lieutenant Governor of Jammu and Kashmir?

(a) Arif Mohammad Khan

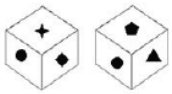
(b) Monoj Sinha

(c) Ram Madhav

(d) Satya Pal Malik

Ans. (b) : As of December 2020, Manoj Sinha is the Lieutenant Governor of Jammu & Kashmir. The Jammu & Kashmir Reorganisation Bill, 2019 was introduced in Rajya Sabha on August 5, 2019. The bill provides for reorganization of the state of Jammu & Kashmir into the Union Territory of J&K and Union Territory of Ladakh.

57. Two positions of a rotated cube are shown below.



Which shape will be at the bottom, when  is on the top?

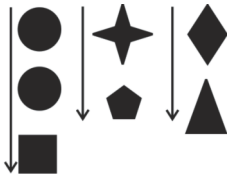
(a) 

(b) 

(c) 

(d) 

Ans. (a) : From given cubes

Opposite face 

Hence, the opposite face of  is 

58. The capital required to earn a monthly interest of ₹1500 at 12% per annum simple interest is:

(a) ₹1 Lakh (b) ₹1.5 Lakh

(c) ₹25 Lakh (d) ₹15 Lakh

Ans. (b) : Given, SI = ₹1500

$$R = 12\%$$

$$T = \frac{1}{12}\text{ year}$$

Then, $S.I = \frac{P \times R \times T}{100}$

$$1500 = \frac{P \times 12 \times 1}{100 \times 12}$$

$$P = \frac{1500 \times 100 \times 12}{12 \times 1}$$

P = ₹1,50,000

P = 1.5 lakh

59. What does the PRASAD Scheme of the Central Government focus on?

(a) Development of pilgrimage destinations

(b) Development of dams

(c) Road safety

(d) Panchayat Associations of India

Ans. (a) : The Government of India launched the PRASAD scheme in the year 2014-2015 under the Ministry of Tourism. The full from of the PRASAD scheme is 'Pilgrimage Rejuvenation and Spiritual Augmentation Drive'. This scheme focuses on developing and identifying pilgrimage sites across India for enriching the religious tourism experience, It aims to integrate pilgrimage destinations in a prioritized, planned and sustainable manner to provide a complete religious tourism experience.

60. Who said the following words: 'Indian nationalism is an elite phenomenon, a creation of lawyers and doctors and landlords'.

(a) Rajendra Prasad
(b) Pt Jawaharlal Nehru
(c) Sardar Vallabhbhai Patel
(d) Mahatma Gandhi

Ans. (d) : Mahatma Gandhi first major public appearance in India was at opening of Banaras Hindu University (BHU) in 1916. During his speech, Gandhiji charged the Indian elite with a lack of concern for the laboring poor sections of our society. Gandhiji speech at one level was a statement of the fact that Indian nationalism was an elite phenomenon in which lawyers, doctors and landlords were mostly involved.

61. As per Ministry of Road Transport & Highways, National Highways carry _____ of India's total road traffic.

(a) 40% (b) 50%
(c) 30% (d) 60%

Ans. (a) : India has 142.126 km (88, 313 miles) of National Highways as of April 2019. National Highways constituted 2.7% of India's total road network, but carried about 40% of road traffic, as of 2013.

62. Read the given information and statements carefully and decide which option is True with respect to the statement.

If a sum of money is lent at simple interest, then the:

Statements:

1. Money gets doubled in 6 years if the rate of Interest is 16%.

2. Money gets doubled in 5 years if the rate of interest is 18%.

(a) Both statements 1 and 2 are incorrect
(b) Only statement 1 is correct
(c) Only statement 2 is correct
(d) Statement 1 and 2 are correct

Ans. (a) : If the amount lent = ₹100

According to statement-1,

$$\text{Simple interest} = \frac{100\times16\times6}{100}$$

Simple interest = ₹96

Compound interest = 100 + 96 = ₹196

According to the statement–2,

$$\text{Simple interest} = \frac{100\times18\times5}{100}$$

Simple interest = ₹90

Compound interest = 100 + 90 = ₹190

Hence, it is clear that statement (1) and statement (2) both are wrong.

63. Read the given information and statements carefully and decide which option is correct with respect to the statements.

If a circle has a radius (r), area (A) and circumference (C), then:

Statements:

(1) A : C^2 = 1: 4π
(2) A : C = r : 2
(3) A : C^2 = 1: 4π
(4) A : C = r : 2

(a) Both statement 1 and 2 are true.
(b) Only statement 2 is true.
(c) Both statement 1 and 2 are false.
(d) Only statement 1 is true.

Ans. (a) : Area of a circle of radius r,

Area (A) = πr^2

Perimeter (C) = $2\pi r$

From statement-1 = $A : C^2 = \pi r^2 : (2\pi r)^2$

$A : C^2 = \pi r^2 : 4\pi^2 r^2$

$A : C^2 = 1 : 4\pi$

From statement-2 = $A : C = \pi r^2 : 2\pi r$

$A : C = r : 2$

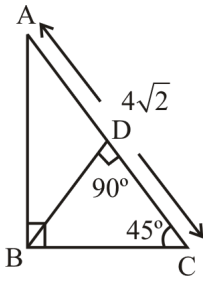
Hence, it is clear that statement (1) and statement (2) both are true.

64. In a triangle ABC $\angle B = 90°, \angle C = 45°$ and D is the midpoint of AC. If AC = $4\sqrt{2}$ units, then BD is:

(a) $3\sqrt{2}$ units (b) $2\sqrt{2}$ units
(c) $\sqrt{2}$ units (d) $4\sqrt{2}$ units

Ans. (b) : We know that–

$$\cos 45° = \frac{\text{Base}}{\text{Hypotenuse}}$$



In ΔABC,

$$\cos 45^\circ = \frac{BC}{4\sqrt{2}}$$

$$\frac{\sqrt{2}}{2} = \frac{BC}{4\sqrt{2}}$$

$$BC = \frac{2\times 4}{2}$$

$BC = 4$

Now, in triangle BDC:–

$BC^2 = DC^2 + BD^2$

$BD^2 = BC^2 - DC^2$

$$= (4)^2 - \left(\frac{4\sqrt{2}}{2}\right)^2$$

$$= 16 - \frac{16\times 2}{4}$$

$= 16 - 8$

$BD^2 = 8$

$BD = \sqrt{8}$

$BD = 2\sqrt{2}$ units

65. Who is known as the 'Father of Nuclear Physics'?

(a) Isaac Newton (b) James Watt

(c) JJ Thomson (d) E Rutherford

Ans. (d) : Earnest Rutherford (1871 – 1937) was a New Zealand born British physicist and recipient of the 1908 Nobel Prize in Chemistry. He is called as the 'Father of Nuclear Physics'. He is credited with the discovery of Protons and Hypothesized the existence of the Neutron.

66. Which day is observed as Armed Forces Flag Day across all colleges in India?

(a) 11 December (b) 7 December

(c) 15 August (d) 16 November

Ans. (b**) :** Since 1949, 7th December is observed as the Armed Forces Flag Day throughout the country to honour the martyrs and the men in uniform who valiantly fought on our borders to safe guard the country's honour. There can't be a noble cause than laying down ones life for the country. On this day the services rendered by personnel of Army, Navy and Air Force are remembered. The Flag Day, gives us an opportunity to contribute most generously to the Armed Forces Flag Day fund.

67. What is the speed of sound in air?

(a) 373 m/sec (b) 434 m/sec

(c) 343 m/sec (d) 383 m/sec

Ans. (c) : The speed of sound in air under typical conditions is about 343 meters per second. The speed of sound varies depending on the temperature of the air through which the sound moves.

68. A new dimension added by Amartya Sen to food security is:

(a) Sustainable livelihoods

(b) Entitlements

(c) Affordability

(d) Availability of Food

Ans. (b) : Amartya Sen added a new dimension to food security and emphasized the "access" to food through what he called 'Entitlements'- Acombination of what one can produce, exchange in the market along with state or other socially provided supplies. Amartya Sen, the Indian economist, philosopher, and public intellectual, lives on a quiet street in Cambridge. In 1998, he received the Nobel Prize for his contributions to welfare of economics.

69. Which of the following is NOT an economic grouping formed by different nations to strengthen their economies? ?

(a) G20 (b) SAARC

(c) G7 (d) L8

Ans. (d) : Regional economic grouping is one of the major instrument of promoting international trade activities among countries. It focuses on creation of larger economic unit from smaller national economics, Regional and economic groupings such as the SAARC, European Union, ASEAN, G-7, G-20, BRICS etc are formed to increase economic co-operation among nations in the neighborhood or those sharing common economic interests. L8 is not belong the above.

70. What is the sum of the squares of all two digit numbers each of which is completely divisible by 4?

(a) 78300 (b) 78320

(c) 78324 (d) 78220

Ans. (b) : The number of squares that are divisible by 4 from 1 to 100.

$\Rightarrow 4^2, 8^2, 12^2, 16^2 + ... + 96^2$

$4^2\left(1^2 + 2^2 + 3^2 + 4^2 + ... + 24^2\right)$

The sum of the squares of the first n natural numbers

$$= \frac{n(n+1)(2n+1)}{6}$$

$$\Rightarrow 4^2\left[\frac{24(24+1)\cdot(2\times 24+1)}{6}\right]$$

$\Rightarrow 4^2[4\times 25\times 49]$

$\Rightarrow 4\times 4\times 4\times 25\times 49$

$\Rightarrow$ 78400

According to the question, the sum of the squares of all two digit number (from 12 to 96) divisible by 4.

$\Rightarrow 78400 - \left(4^2 + 8^2\right)$

$\Rightarrow 78400 - (80)$

$\Rightarrow 78320$

71. If sin 2A = cos75°, then the smallest positive value of A is:

(a) 15° (b) 7.5°

(c) 30° (d) 75°

Ans. (b) : $\sin 2A = \cos 75^\circ$

$\cos(90^\circ - 2A) = \cos 75^\circ \quad \{\because \sin A = \cos(90 - A)\}$

$90 - 2A = 75$

$2A = 90^\circ - 75^\circ$

$2A = 15$

$A = \frac{15^\circ}{2}$

$A = 7.5^\circ$

72. Sodium is a reactive metal, which if kept open reacts with _____ explode and catch fire.

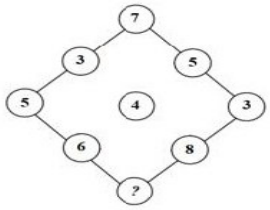
(a) Oxygen (b) Hydrogen

(c) Nitrogen (d) Phosphorus

Ans. (a) : Sodium is ordinarily quite reactive with air, and the reactivity is a function of the relative humidity, or water vapour content of the air. The corrosion of solid sodium by oxygen also is accelerated by the presence of small amounts of impurities in the sodium. Sodium is the metal reacts vigorously with oxygen and water-

$2Na_{(s)} + O_{2(g)} \rightarrow Na_2O_{(s)}$

73. What is the missing number in the given diagram?



(a) 5 (b) 6

(c) 8 (d) 4

Ans. (d) : Just as,

$7 + 5 + 3 = 15$

$3 + 4 + 8 = 15$

Same as,

$5 + 6 + ? = 15$

$11 + ? = 15$

$? = 15 - 11 = 4$

74. Select an option that has the pair of letter clusters with same relation between the letter cluster as is seen in the following pair:

AFKP : ZUPK

AFKP : ZUPK

(a) BGLQ : YTOJ (b) DINS : XSNI

(c) EJOT : VWXY (d) CHMR : WRMH

Ans. (a) : Just as,

A $\xrightarrow{\text{Opposite letter}}$ Z

F $\xrightarrow{\text{Opposite letter}}$ U

K $\xrightarrow{\text{Opposite letter}}$ P

P $\xrightarrow{\text{Opposite letter}}$ K

Same as,

B $\xrightarrow{\text{Opposite letter}}$ Y

G $\xrightarrow{\text{Opposite letter}}$ T

L $\xrightarrow{\text{Opposite letter}}$ O

Q $\xrightarrow{\text{Opposite letter}}$ J

Hence, option (a) will be the correct answer.

75. The least Mid day Meal guidelines prescribe the nutritional content of _____ calories per child per day for primary classes.

(a) 450 (b) 300

(c) 475 (d) 345

Ans. (a) : The Mid-Day Meal Scheme was started in India on 15 August 1995 as 'National Programme of Nutritional Support to Primary Education of Mid Day Meal in Schools' in October 2007, also known as the Mid-Day Meal (MDM) Scheme. According to MHRD, the children in primary school must be provided with at least 450 calories with 12 grams of protein through MDM while the children in upper primary schools get 700 calories with 20 grams of protein.

76. Mahathi purchases a cooker at nine-tenth of its marked price and sold it for 8% more than its marked price. Find the gain percentage.

(a) 20% (b) 14%

(c) 10% (d) 16%

Ans. (a) : Let the mark price of cooker = ₹x

Then cost price $= x \times \frac{9}{10} = \frac{9x}{10}$

And selling price $= x \times \frac{108}{100}$

$= ₹\frac{27x}{25}$

$$\text{Profit percentage} = \frac{\text{S.P} - \text{C.P}}{\text{C.P}} \times 100$$

$$= \frac{\frac{27x}{25} - \frac{9x}{10}}{\frac{9x}{10}} \times 100$$

$$= \frac{\frac{270x - 225x}{250}}{\frac{9x}{10}} \times 100$$

$$= \frac{45x \times 10}{250 \times 9x} \times 100$$

$$\text{Profit percentage} = \frac{5}{25} \times 100$$

$$= 20\%$$

77. Read the given statements and conclusions carefully and decide which of the conclusions logically follows from the Statements.

Statements:

All girls in my class are talented.

Urmila has not talent.

Conclusion.

I. Urmila is not among the girls in my class.

II. Urmila must find a talent.

(a) Only conclusion II follows

(b) Both the conclusion follow

(c) Only conclusion I follows

(d) Neither I nor II follows

Ans. (c) : It is clear from the statement "All the girls in the class are talented" and "Urmila has no talent" that Urmila is not among the girls of the class.
Hence, only conclusion (i) follows.

78. When did Bangladesh emerge as an independent country?

(a) 1972 (b) 1971

(c) 1975 (d) 1970

Ans. (b) : On 26 March 1971, Bangladesh was proclaimed as an independent nation by Sheikh Mujibur Rahman. This led to Bangladesh Liberation War, when a guerrilla war ensued between Pakistan and Bangladesh liberation Forces with Indian support. The Bangladesh Liberation War ended in December 1971 with the epic defeat of Pakistan.

79. A boy read three eighth of a book on one day and four-fifth of the remainder of the book on the next day. If 45 pages still remain unread, how many pages does the book contain?

(a) 330 (b) 380

(c) 340 (d) 360

Ans. (d) : Let total pages = x

$$\text{Part read on first day} = x \times \frac{3}{8} = \frac{3x}{8}$$

$$\text{Remaining part} = x - \frac{3x}{8}$$

$$= \frac{5x}{8}$$

$$\text{The part read by next day} = \frac{5x}{8} \times \frac{4}{5}$$

$$= \frac{x}{2}$$

$$\text{Total part read} = \frac{3x}{8} + \frac{x}{2}$$

$$= \frac{3x + 4x}{8}$$

$$= \frac{7x}{8}$$

$$\text{Unread part} = x - \frac{7x}{8} = 45$$

$$45 = \frac{x}{8}$$

$$x = 360$$

Hence, there are 360 pages in the book.

80. The LCM of 4, 6 and x CANNOT be:

(a) 24 (b) 18

(c) 36 (d) 60

Ans. (b) : L.C.M of 4, 6 and x = 12x
So, it is clear that the L.C.M of 4, 6 and x will be a multiple of 12.
The number given in option (b) is not a multiple of 12.
Hence, L.C.M of 4,6 and x can't be 18.

81. A alone can finish a job in 12 days, while B alone can finish it in 15 days. Which the help of C, they can finish the same job in 5 days. If they are paid ₹2880 for the whole job, what will be the share of C?

(a) ₹760 (b) ₹740

(c) ₹720 (d) ₹700

Ans. (c) : A's 1 day work $= \frac{1}{12}$ unit

B's 1 day work $= \frac{1}{15}$ unit

Let C's 1 day work $= \frac{1}{x}$ unit

According to question, $\frac{1}{12} + \frac{1}{15} + \frac{1}{x} = \frac{1}{5}$

$$\frac{1}{x}=\frac{1}{20}$$

Work of A, B and C $= \frac{1}{12}:\frac{1}{15}:\frac{1}{20}$

$$=120\times\frac{1}{12}:120\times\frac{1}{15}:120\times\frac{1}{20}$$

$$= 10 : 8 : 6$$

Hence, share part of C $= \frac{6}{24}\times 2880$

$$= ₹720$$

82. If a and b are of the same sign and $(3a^2-8b^2):(a^2+4b^2)=2:1$, then a : b = ?

(a) 1 : 4 (b) 4 : 5

(c) 5 : 4 (d) 4 : 1

Ans. (d) : $\frac{3a^2-8b^2}{a^2+4b^2}=\frac{2}{1}$

$3a^2 - 8b^2 = 2a^2 + 8b^2$

$3a^2 - 2a^2 = 8b^2 + 8b^2$

$a^2 = 16b^2$

$\frac{a^2}{b^2}=\frac{16}{1}$

$\frac{a}{b}=\frac{4}{1}$

83. In which year will India host the G20 Summit?

(a) 2025 (b) 2027

(c) 2023 (d) 2022

Ans. (c) : India will host the G20 presidency from December 1, 2022 and will convene the G20 leaders' summit in 2023 for the first time. Piyush Goyal, Union Minister of Commerce and Industry Minister has been appointed as India's Sherpa for the G20 in 2023 (18^{th} edition). A Sherpa is a diplomat who undertakes preparatory work prior to a summit conference. The 2021 edition of the G20 meet will be held in Rome, Italy. The 2022 G20 meet be held in Bali, Indonesia.

84. Which International tennis player was fined for $10,000 for damaging the Wimbledon court in 2019?

(a) Rafael Nadal (b) Naomi Osaka

(c) Sarena Williams (d) Roger Federer

Ans. (c) : Tennis star, Serena Williams is facing a fine of $10,000 and this is the consequence of allegedly damaging the practice courts at London with her racquet. The host of Wimbledon Tournament, All England Club were the ones who fined to Serena Williams. She damaged to the court during a practice round on 30 June 2019.

85. If A + B = 45°, then (1+ tanA) (1+tanB) = ?

(a) 3 (b) 2

(c) 1 (d) 4

Ans. (b) : Given, $A + B = 45^\circ$

Taking tangent on the both side,

$\Rightarrow \tan(A + B) = \tan45^\circ$

$\Rightarrow \frac{\tan A+\tan B}{1-\tan A.\tan B}=1$

$\Rightarrow \tan A + \tan B = 1 - \tan A.\tan B$

$\Rightarrow \tan A + \tan B + \tan A.\tan B = 1$

On adding 1 on the both side,

$\Rightarrow 1 + \tan A + \tan B + \tan A.\tan B = 1 + 1$

$\Rightarrow (1 + \tan A) + \tan B (1 + \tan A) = 2$

$\Rightarrow (1 + \tan A) (1 + \tan B) = 2$

86. The following table shows the marks obtained by two students P and Q in different subjects.

Subject	Student P	Maximum Marks	Student Q	Maximum Marks
Physics	50	100	65	100
Chemistry	85	100	90	100
Biology	55	100	50	100
Hindi	40	50	45	50

What is the approximate difference in the total percentages of P and Q?

(a) 9% (b) 10%

(c) 7% (d) 6%

Ans. (d) : Total score of student P $= 50 + 85 + 55 + 40$

$= 230$

Total number $= 100 + 100 + 100 + 50$

$= 350$

Percentages $= \frac{230}{350}\times 100$

$= 65.72\%$

Total score of student Q $= 65 + 90 + 50 + 45$

$= 250$

Total number $= 350$

Percentages $= \frac{250}{350}\times 100 = ?$

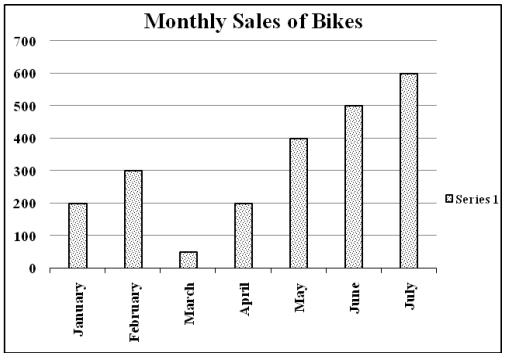
$= 71.43\%$

Required Difference $= 71.43 - 65.72$

$= 5.71\%$

$= 6\%$ (approx)

87. Below graph represents number of Bikes sold over a period of seven months. Observe the graph and answer the question given below.



Which of the following month individually accounts for the total sales in any of the other three months put together?

(a) May, June and July
(b) June and July
(c) Only July
(d) January, March and April

Ans. (b) :

Sales in June → Sales in (Jan. + March + April)

$500 = 200 + 100 + 200$

$500 = 500$

Sales in July → Sales in (Jan + Feb + March)

$600 = 200 + 300 + 100$

$600 = 600$

Hence, the sales made in June and July individually are equal to the total sales of any other three months.

88. Study the following table carefully to answer the question.

Expenditure (in million $) of a company A over the years.

Items of expenditure	Years			
	2012	2013	2014	2015
Salary	145	115	200	255
Transport	48	60	71	82
Interest on loans	25	18	14	13
Taxes	4	3.5	2	6.5

What is the ratio between the expenditure on taxes in the year 2014 to the total expenditure on transport for all the years respectively?

(a) 1 : 135.5 (b) 1 : 133.5
(c) 1 : 131.5 (d) 1 : 130.5

Ans. (d) : Expenditure on cars in 2014 = 2

Total expenditure on transport for all the years.

$= 48 + 60 + 71 + 82$

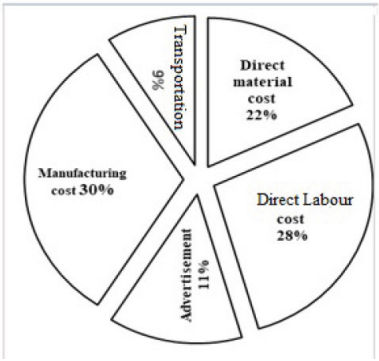
$= 261$

Required ratio $= \frac{2}{261}$

$= \frac{1}{130.5}$

89. The following pie-chart shows the percentage distribution of the expenditure incurred in manufacturing a ceiling fan. Study the pie-chart and answer the question.

If 10,000 celling fans are manufactured and the transportation cost on them accounts to Rs. 36,000 then what should the selling price of each celling fan be, so that the manufacturer can earn a profit of 50%.



(a) ₹40 (b) ₹75
(c) ₹50 (d) ₹60

Ans. (d) : From the above pie chart,

$9\% = ₹36000$

$100\% = \frac{36000}{9} \times 100$

$100\% = ₹400000$

Cost of 10,000 celling fan $= ₹4,00,000$

Cost of 1 celling fan $= \frac{4,00,000}{10,000}$

$= ₹40$

Selling price for 50% profit $= 40 \times \frac{150}{100}$

$= ₹60$

90. If the English alphabet is given in reverse order, then what is the 12th letter to the right of O?

(a) C (b) B
(c) A (d) E

Ans. (a) : On writing English alphabet in reverse order, 12th letter to the right of O will be C.

91. In a certain code language MEN is coded as 9 and Women is coded as 25, then, which of the following will be the code of CHILDREN in that language?

(a) 48 (b) 36
(c) 72 (d) 64

Ans. (d) : Just as,

MEN → 3 letter $\Rightarrow (3)^2 = 9$

and WOMEN → 5 letter $\Rightarrow (5)^2 = 25$

Similarly,

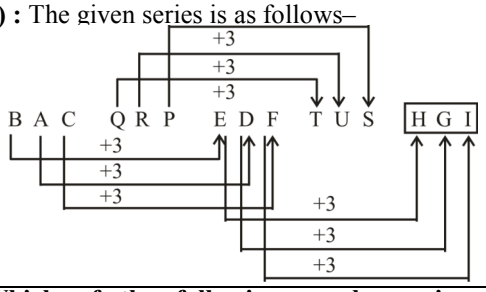
CHILDREN → 8 letter $\Rightarrow (8)^2 = 64$

92. Select the option that will fill in the blank and complete the series correctly.

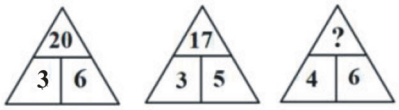
BAC, QRP, EDF, TUS, _____

(a) HIG (b) WVX
(c) FGE (d) HGI

Ans. (d) : The given series is as follows–



93. Which of the following numbers given in options will replace the question mark in the third diagram?



(a) 20 (b) 14
(c) 23 (d) 26

Ans. (d) : Just as,

$6 \times 3 + 2 = 20$

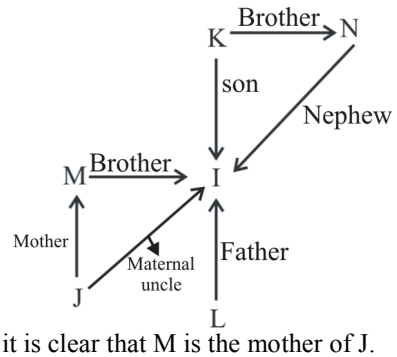
and $5 \times 3 + 2 = 17$

Similarly, $6 \times 4 + 2 = 26$

94. If I is J's maternal uncle, K's son, M's only sibling, L's father and N's nephew, how is M related to J

(a) Mother (b) Cousin
(c) Father (d) Aunt

Ans. (d) : According to question,
Blood relation diagram follows–



Hence, it is clear that M is the mother of J.

95. Select the option that is different from the rest in a certain way.

(a) Gujarat (b) Surat
(c) Ahmedabad (d) Rajkot

Ans. (a) : Surat, Ahmedabad and Rajkot are cities in the state of Gujarat while Gujarat is a state. Hence, option (a) 'Gujarat' is different from the other options.

96. If 'HOTEL' is coded as 'CJOZG' how will 'HONOR' be written using the same coding language?

(a) CJJJN (b) CJKJO
(c) CJIJM (d) CJPJU

Ans. (c) : Just as,

$H \xrightarrow{-5} C$
$O \xrightarrow{-5} J$
$T \xrightarrow{-5} O$
$E \xrightarrow{-5} Z$
$L \xrightarrow{-5} G$

Similarly,

$H \xrightarrow{-5} C$
$O \xrightarrow{-5} J$
$N \xrightarrow{-5} I$
$O \xrightarrow{-5} J$
$R \xrightarrow{-5} M$

97. Select the option that is different from the rest in a certain way.

(a) Army (b) Judiciary
(c) Legislature (d) Executive

Ans. (a) : Judiciary, legislature and executive are the parts of Indian polity while the army is different from them.

98. If 'SKIRT' is coded as 'MECLN', how will 'BLOUSE' be written using the same coding language?

(a) VFIMOY (b) VFOMIY
(c) VFIOMY (d) VFMOIY

Ans. (c) : Just as,

$S \xrightarrow{-6} M$
$K \xrightarrow{-6} E$
$I \xrightarrow{-6} C$
$R \xrightarrow{-6} L$
$T \xrightarrow{-6} N$

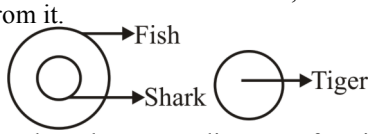
Similarly,

$B \xrightarrow{-6} V$
$L \xrightarrow{-6} F$
$O \xrightarrow{-6} I$
$U \xrightarrow{-6} O$
$S \xrightarrow{-6} M$
$E \xrightarrow{-6} Y$

99. Which of the following best depicts the relationship between Tiger, shark. Fish?

(a) (b)
(c) (d)

Ans. (d) : Sharks come under fish, while tigers are different from it.



Hence, it is clear that Venn diagram of option (d) best represents the relationship between the given classes.

100. Select the option that is related to the third number in the same way as the second number is related to the first number.

4704 : 336 :: 2590 : ?

(a) 188 (b) 185
(c) 158 (d) 180

Ans. (b) : Just as, $\frac{4704}{336} = 14$

Similarly, $\frac{2590}{?} = 14$

$\frac{2590}{14} = ?$

पहम, $? = 185$

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 03.03.2021] **[Time : 3.00 pm-4.30 pm]**

1. Evaluate:

$3\tan25^\circ \tan35^\circ \tan45^\circ \tan55^\circ \tan65^\circ$

(a) 0 (b) 3

(c) 4 (d) $3\sqrt{3}$

Ans. (b) :

$3\tan25^\circ\tan35^\circ\tan45^\circ\tan55^\circ\tan65^\circ$

$= 3\tan25^\circ\tan35^\circ\tan45^\circ\tan(90^\circ-35^\circ)\tan(90^\circ-25^\circ)$

$= 3\tan25^\circ\tan35^\circ\tan45^\circ\cot35^\circ\cot25^\circ$

$= 3\tan45^\circ$ $\left\{\because \tan(90^\circ-\theta)=\cot\theta,\ \tan\theta\cot\theta=1,\ \tan45^\circ=1\right\}$

$= 3 \times 1$

$= 3$

2. The SI unit of 'Magnetic Flux' is:

(a) Farad (b) Henry

(c) Pascal (d) Weber

Ans. (d) : The measurement of the total magnetic field which passes through a given area is known as Magnetic Flux. It is useful in describing the effects of the magnetic force acting on something occupying a given area. The SI unit of magnetic flux is Weber or volt-second and it has a symbol Wb.

3. First translation of the Bhagavad Gita into English was done by:

(a) William Jones (b) Charles Wilkins

(c) Max Muller (d) Colebrook

Ans. (b) : Charles Wilkins was a remarkable man and had a flair for languages. He came to India in the late 18th century and started his career as a printer and a clerk with the British East India Company. Soon enough, he was posted in Benares, where he learnt Sanskrit and became the first ever individual to translate the Bhagavad Gita into English. He titled his work Bhagwat Geeta or the Dialogues of Krishna and Arjun. Fortunately, Wilkins know the then Governor-General Warren Hastings, who was very impressed with his work and strongly recommended that the East India company publish it in England. It was, in 1785, and it received great acclaim.

4. Six years later Sunil will be twice as old as Kamal. Two years ago he was four times as old as Kamal find the present age of Kamal.

(a) 6 years (b) 4 years

(c) 18 years (d) 14 years

Ans. (a) : Let the present age of Kamal is x year and present age of Sunil is y year.

According to the first condition,

$(y + 6) = 2 (x + 6)$

$\Rightarrow \quad 2x - y = -6 \quad ...(i)$

According to the second condition,

$(y - 2) = (x - 2) \times 4$

$\Rightarrow \quad 4x - y = 6 \quad ...(ii)$

From equation (ii) and equation (i)

$2x = 12$

$\Rightarrow \quad x = 6$ year

Hence, present age of Kamal = 6 year

5. Simplify:

$$\frac{320 \div 8 \times 8 \div 4 \times \frac{1}{2}}{180 \times 5 \div 45 - 4}$$

(a) $\frac{5}{2}$ (b) $\frac{5}{8}$

(c) $\frac{2}{5}$ (d) 10

Ans. (a) :

$$\frac{320 \div 8 \times 8 \div 4 \times \frac{1}{2}}{180 \times 5 \div 45 - 4}$$

$$= \frac{40 \times 2 \times \frac{1}{2}}{20 - 4}$$

$$= \frac{40}{16}$$

$= 5/2$

6. At what annual rate of compound interest, compounded semi-annually, will ₹57,600 become ₹ 72,900 in one year?

(a) 6.25 % Annually (b) 12.5 % Annually

(c) 50 % Annually (d) 25 % Annually

Ans. (d) : By given data–

Principal amount (P)= ₹ 57600

Compound amount (A) = ₹ 72900

$\because$ Interest, calculated semi-annually

$\therefore$ R = R/2% , Time (T) = 1×2

$\Rightarrow \quad T = 2$

$\therefore \quad$ By $A = P\left(1+\frac{R}{100}\right)^T$

$\Rightarrow \quad \frac{729}{576} = \left(1+\frac{R}{200}\right)^2$

$\Rightarrow \quad \left(\frac{27}{24}\right)^2 = \left(1+\frac{R}{200}\right)^2$

$\Rightarrow \quad \left(1+\frac{R}{200}\right) = \frac{27}{24} \Rightarrow \frac{R}{200} = \frac{3}{24}$

$\Rightarrow$ R = 25% (yearly)

7. The 1857 revolt at Lucknow was led by:

(a) Tatya Tope
(b) Begum Hazrat Mahal
(c) Vir Savarkar
(d) Kunwar Singh

Ans. (b) : Begum Hazrat Mahal led the revolt of 1857 in Lucknow. She was also called Begum of Awadh. Begum Hazrat Mahal seized the control of Lucknow and declared her son as the ruler. She worked with the association of Nana Saheb. The Indian Mutiny of 1857-59 was the first expression of organized resistance against the British East India Company. In March 1857, Mangal Pandey, a sepoy in Barrackpore, had refused to use the cartridge and attacked his senior officers.

8. What is term of office of the Chief Election Commissioner of India?

(a) Five year term or continue till the age of 65, whichever is earlier
(b) Six year term or continue till the age of 70, whichever is earlier
(c) Six year term or continue till the age of 65, whichever is earlier
(d) Four year term or continue till the age of 60, whichever is earlier

Ans. (c) : Appointment and Tenure of the Chief Election Commissioner (CEC):–

♦CEC and Election Commissioner are appointed by the President.

♦CEC and Election Commissioner have a fixed tenure of six years or up to the age of 65 years, whichever is earlier.

♦CEC and Election Commissioner enjoy the same status and receive salary and perks as available to Judges of the Supreme Court of India.

9. The Suez Canal, which is very significant for commerce, was constructed in which of the following countries?

(a) Egypt (b) Brazil
(c) Argentina (d) Oman

Ans. (a) : The Suez Canal stretches 120 miles from Port Said on the Mediterranean sea in Egypt southward to the city of Suez (located on the northern shores of the Gulf of Suez).The canal separated the bulk of Egypt from the Sinai Peninsula. It took 10 years to build, and was officially opened on November 17, 1869.

10. Simplify:

$9+(45\div 9)-8\times(-4)$

(a) 46 (b) –171
(c) 8 (d) 38

Ans. (a) : 9 + (45 ÷ 9) – 8 × (–4)
= 9 + (5) – 8 × (–4)
= 9 + 5 + 32
= 46

11. If the length of a rectangle is doubled, what change should be made in its breadth so that its area remains the same?

(a) Breadth should be halved
(b) Breadth should be doubled
(c) Breadth should be kept unchanged
(d) Breadth should be made one fourth

Ans. (a) : Let length and breadth of rectangle is x and y
$\therefore$ Area of rectangle = x.y ...(i)
Again, Length of Rectangle = 2x
Breadth of rectangle = ky
Let k times change in breadth of Rectangle
So, Area of Rectangle = 2.k.xy ...(ii)
By equation (i) and (ii).
2kxy = xy

$\Rightarrow \quad k = \frac{1}{2}$

So, breadth = ky
= y/2
Hence, breadth should be halved.

12. A cryogenic engine makes use of which of the following as its fuel?

(a) Liquid oxygen
(b) Liquid oxygen and liquid hydrogen
(c) Oxygen and hydrogen
(d) Liquid hydrogen

Ans. (b) : Cryogenic Engine makes use of Liquid Oxygen (LOX) and Liquid Hydrogen (LH2) as propellants which liquefy at-183 degree celsius and-253 degree celsius respectively. LOX and LH2 are stored in their respective tanks.

13. Simplify:–

$10-2\frac{1}{5}+5\frac{1}{5}$

(a) 5 (b) $13\frac{1}{5}$
(c) 13 (d) $\frac{87}{5}$

Ans. (c) :

$10-2\frac{1}{5}+5\frac{1}{5}$

$= 10-\frac{11}{5}+\frac{26}{5} = 10+\frac{15}{5} = 13$

14. The National Library of India is situated at?

(a) Kolkata (b) New Delhi
(c) Chennai (d) Mumbai

Ans. (a) : The National Library of India is a library located in Belvedere Estate, Alipore, Kolkata, India. It is India's largest library by volume and public record. The National Library came into being in the place of the Imperial Library by the Imperial Library (Change of Name) Act in 1948. It is also a legal deposit Library of India, where books published in the country are deposited under Delivery of Books Act, 1954.

15. Which of the following computer viruses damages the formatting of a document and does not allow it to edit?

(a) Boot Sector Virus (b) Macro Virus
(c) File Virus (d) Worm

Ans. (b) : A Macro virus is a computer virus written in the same macro language used to create software programs such as Microsoft Excel or Word. It centers on software applications and does not depend on the Operating System (OS). As a result, it can infect any computer running any kind of OS, including Windows, Mac OS and Linux.

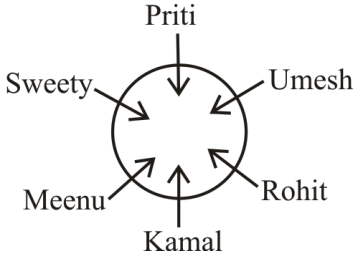
16. Read the given information carefully and answer the question that follows.

Six friends Priti, Kamal, Rohit, Sweety, Meenu and Umesh, are sitting in a circle (but not necessarily in the same order). Their faces are towards the centre. Meenu is sitting second to the left of Rohit. Umesh is sitting between Rohit and Priti. Sweety is sitting to the immediate right of Priti.

Who is sitting betwen Rohit and Meenu?

(a) Kamal (b) Sweety
(c) Priti (d) Umesh

Ans. (a) : The order of six friends sitting in a circle facing towards centre as follows



Hence, it is clear that Kamal is sitting between Rohit and Meenu.

17. If $(x - 1)$ and $(x + 2)$ are factors of $ax^3 + 3x^2 + bx$ then the values of a and b are-

(a) $a = 2$ and $b = 3$ (b) $a = 3$ and $b = 2$
(c) $a = 2$ and $b = 1$ (d) $a = 1$ and $b = 2$

Ans. (d) : Given Expression

$$ax^3 + 3x^2 + bx = 0 \quad ...(i)$$

$\because (x + 1)$ is factor of given expression then $x + 1 = 0$

$\Rightarrow$ Putting $x = -1$ in equation (i)

$$-a + 3 - b = 0 \Rightarrow a + b = 3...(ii)$$

and, $(x + 2) = 0$

$\{\because$ (x+2), is factor of expression$\}$

$\Rightarrow$ Putting $x = -2$ in equation (i),

$$-8a + 12 - 2b = 0 \Rightarrow 4a + b = 6 \quad ...(iii)$$

by equation (iii) and (ii)

$\Rightarrow a = 1$

Putting the value of a in equation (ii)

$$1 + b = 3 \Rightarrow b = 3 - 1$$
$$\Rightarrow b = 2$$

18. Five chocolate cakes labeled A,B,C,D and E are made by a baker. D is not as sweet as B. A is sweeter than E but not as sweet as D. B is sweeter than C. Which of the following is the sweetest?

(a) E (b) D
(c) B (d) C

Ans. (c) : The order of decreasing sweetness of chocolate is follows as–

$$B > D > A > E$$
and $B > C$

Hence B is sweetest.

19. Wood's Dispatch was concerned with which of the following reforms?

(a) Railway (b) Industry
(c) Education (d) Irrigation

Ans. (c) : Charles Wood was the President of the Board of Control (Introduced through Pitt's India Act, 1784) of English East India Company. He had also been the Secretary of the state of India. In 1854 he sent a dispatch to Lord Dalhousie (the Governor-General of India at that time). Wood's dispatch suggested that primary schools must Adopt vernacular languages. Through the dispatch, he also suggested that high schools use anglo-vernacular medium and that English should be the medium for college-level education. Hence Wood's Dispatch is considered as 'Magna-Carta' of English Education in India.

20. Find out the H.C.F of 12, 39 and 54.

(a) 3 (b) 52
(c) 1404 (d) 6

Ans. (a) :

$$12 = 2 \times 2 \times 3$$
$$39 = 3 \times 13$$
$$54 = 2 \times 3 \times 3 \times 3$$

Hence, H.C.F of 12, 39 and 54 = 3

21. Read the given information carefully and answer the question that follows.

Six students P, Q, R, S , T and U are the top six rank holders in a school. The rank of Q is between the Rank of R and S. Rank of Q is fourth. There are two students between the ranks of T and S. Among them the rank of T is the lowest. The rank of U is just above the rank of P. Who, among these ranks is fifth?

(a) R (b) T
(c) P (d) S

Ans. (a) :

Student	Rank
U	1st
P	2nd
S	3rd
Q	4th
R	5th
T	6th

Hence, it is clear that the Rank of R is fifth in six students.

22. Which among the following is a Saprophytic fungus?

(a) Algae (b) Tapeworm
(c) Cuscuta (d) Penicillium

Ans. (d) : Penicillium is a Saprophytic Fungus. The fungi that derive their food from the dead matter, are known as the Saprophytic fungi. Penicillium Belongs to the class Ascomycetes of the fungi. It produces a Penicillin molecule, that is used in making antibiotics. Cuscuta is a parasitic plant. Algae and Fungi belong to Thallophyta and their symbiotic relationship is known as Lichen. Tape worm belongs to Platyhelminthes.

23. 1 EB is equal to -

(a) 1024 TB (b) 1024 GB
(c) 1024 MB (d) 1024 PB

Ans. (d) : An Exabyte (EB) is a unit of digital information storage used to denote the size of data.

Data Measurement Chart

Unit	Expansion	Unit	Expansion
1 Bit	Single Binary Digit (1 or 1)	1 Terabyte (1 TB)	1024 Gigabytes
1 Nibble	4 bits (half a byte)	1 Petabyte (1 PB)	1024 Terabytes
1 Byte (1B)	8 Bits	1 Exabyte (1EB)	1024 Petabytes
1 Kilobyte (1 KB)	1024 Bytes	1 Zettabyte (1ZB)	1024 Exabytes
1 Megabyte (1 MB)	1024 Kilobytes	1 Yottabyte (1YB)	1024 Zettabytes
1 Gigabyte (1GB)	1024 Megabytes		

24. Who was the UNO's first Secretary-General from the African continent?

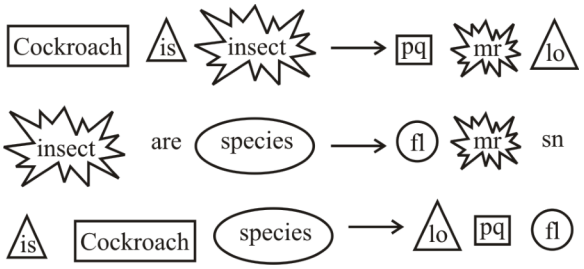
(a) Winston Churchill
(b) Boutros Boutros-Ghali
(c) Kurt Waldheim
(d) Dag Hammarskjold

Ans. (b) : Under the Charter, the Secretary-General is appointed by the General Assembly upon the recommendation of the Security Council. Boutros Boutros-Ghali (Egypt), who held office from January 1992 to December 1996 and also the UNO's first Secretary-General from the African continent. In 1996, the United States vetoed the re-appointment of Boutros-Ghali, claiming he had failed in implementing necessary reforms to the UN.

25. In a certain code languages, 'cockroach is insect' is written as 'pq mr lo' insect are species' is written as 'fl mr sn', 'is cockroach species' is written as 'lo pq fl'. What is the code for 'species insect' in that code language?

(a) Sn mr (b) fl lo
(c) lo mr (d) fl mr

Ans. (d) :



Hence, it is clear that the code of 'species insect' is fl and mr consecutively.

26. Select the option that is similar to the following numbers in a certain manner.

361, 729, 841

(a) 216 (b) 512
(c) 343 (d) 529

Ans. (d) : Given number

361, 729, 841

$\downarrow \quad \downarrow \quad \downarrow$

$(19)^2 \quad (27)^2 \quad (29)^2$

$\because \quad 216 \rightarrow (6)^3$

$512 \rightarrow (8)^3$

$343 \rightarrow (7)^3$

$529 \rightarrow (23)^2$

Hence, option (d) 529, is consistent with given numbers.

27. Which of the following is NOT one of the three rivers whose interplay is responsible for the formation of the northern plains in India?

(a) Indus (b) Ganga

(c) Brahmaputra (d) Godavari

Ans. (d) : The Godavari is not one of the three whose interplay is responsible for the formation of the Northern Plains. The sediments for the formation of the Northern Plains. The sediments deposited by the three rivers Indus, Ganga, and the Brahmaputra led to the formation of Northern Plain. The sediments of these rivers were deposited on the foot hills of the Himalayas. The Northern plain is a very fertile plain and contributes significantly to the agriculture sector and also has a high population density. Godavari is the second-longest river after Ganga and is termed as the Ganga of South.

28. Select the number that can replace the question mark (?) in the following series.

125, 216, 343, ?

(a) 512 (b) 729

(c) 576 (d) 441

Ans. (a) : Given series is as follows–

125, 216, 343 512

↑ ↑ ↑ ↑

$(5)^3$, $(6)^3$, $(7)^3$, $(8)^3$

Hence 512 will be the place of ?.

29. What is name of India's first research station located at the International Arctic Research Base Ny-Alesund, Svalbard, Norway?

(a) Maitri (b) Himadri

(c) Dakshin Gangotri (d) Bharathi

Ans. (b) : Himadri 'the abode of snow' is India's first research station located at the International Arctic Research base, Ny-Alesund, Svalbard, Norway. It is located at a distance of 1,200 kilometers from the North Pole. It was inaugurated on the 1st July, 2008 by Shri Kapil Sibal the then Honorable Minister of Science and Technology and Earth Science, in the presence of dignitaries from Norway, UK, Germany, and other countries besides India. National Centre for Polar and Ocean Research (NCAOR) as nodal agency make sure availability of the requisite facilities at the Himadri. Dakshin Gangotri-the first, Maitri- the second and Bharti, India's latest research station in Antarctica.

30. Radius of a solid spherical ball with volume 38808 cm^3 is:

(a) 21cm (b) $\frac{21}{2}$cm

(c) 42 cm (d) 9261 cm

Ans. (a) : By given data:–

Volume of spherical ball = 38808 $(cm)^3$

$\Rightarrow \frac{4}{3}\pi R^3 = 38808$

$\Rightarrow \frac{4}{3}\times\frac{22}{7}\times R^3 = 38808$

$\Rightarrow R^3 = \frac{38808\times 3\times 7}{22\times 4}$

$\Rightarrow R^3 = 21 \times 21 \times 21$

$\Rightarrow R = 21$ (cm)

31. National poet Ramdhari Singh 'Dinkar' was awarded Gyanpith Award for which of his following works?

(a) Rashmirathi

(b) Urvashi

(c) Kurukshetra

(d) Sanskriti ke chaar Adhyay

Ans. (b) : National poet Ramdhari Singh 'Dinkar' was awarded Gyanpith Award for Urvashi in 1972. Hunkar is his epic poem published in the year 1938. Ramdhari Singh 'Dinkar' was born in a poor Bhumihar Brahmin family in the village of Simariya in Begusarai district of Bihar. In 1959, he was awarded the Sahitya Akedemi Award for "Sankrit ke Char Adhyay". Dinkar's "Kurukshetra" received several awards from the Kashi Pracharini Sabha, Uttar Pradesh Government, and Government of India. His works are mostly of 'Veer Rasa'.

32. Which country hosted the G20 Summit in 2019

(a) Japan (b) China

(c) Mexico (d) India

Ans. (a) : On the 28th and 29th of June 2019, the world leaders gathered for the G20 Summit in Osaka. Concurrent with the Summit meeting, a series of Ministerial meetings is also being held at eight different locations throughout Japan by the end of 2019. The G20 presidency will be held by Italy in 2021, Indonesia in 2022, India in 2023 and Brazil in 2024.

33. Out of the four letter-clusters listed, three are alike in some manner one is different. Select the odd one.

(a) QSU (b) XZC

(c) CEH (d) JLO

Ans. (a) : The odd letter group follows as–

$Q \xrightarrow{+2} S \xrightarrow{+2} U$

$X \xrightarrow{+2} Z \xrightarrow{+3} C$

$C \xrightarrow{+2} E \xrightarrow{+3} H$

$J \xrightarrow{+2} L \xrightarrow{+3} O$

Hence odd letter group = QSU

34. Read the given statements and conclusion carefully and decide which of the conclusions logically follows from the statements.

Statement

(a) No blue is black

(b) No black is white

(c) Some white are grey

(d) All grey are green

Conclusion:

(i) Some green are not black

(ii) Some white are green

(iii) All green are grey

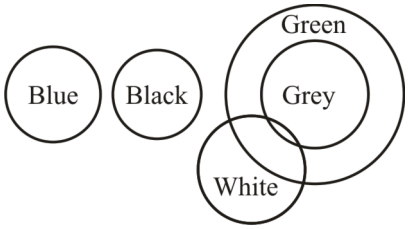
(a) Only (ii) and (iii) follow

(b) Only (i) follows

(c) Only (i) and (iii) follows

(d) Only (i) and (ii) follows

Ans. (d) :



Conclusion (i) Some green are not black (✓)

(ii) Some white are green (✓)

(III) All greens are grey (✗)

35. Mean of first ten odd natural number is.

(a) 19 (b) 9

(c) 10 (d) 11

Ans. (c) : Sum of first 'n' odd natural numbers $= n^2$

$\because n = 10$

$\therefore$ Sum of first 10 odd natural number $= (10)^2$

$= 100$

Mean of first 10 odd natural numbers $= \frac{100}{10}$

$= 10$

36. As of December 2020, who is the coach of Indian men's hockey team?

(a) Igor Stimac (b) Shyam Thapa

(c) Graham Reid (d) Stephen Constantine

Ans. (c) : India's Australian Hockey Coach Graham Reid is the man behind the men's Hockey team's Olympic Medal win after 41 years. On August 2021, the Indian men's hockey team registered a historic win in the Tokyo Olympics 2020 by Clinching a bronze medal after defeating Germany. Graham Reid was brought in as the Chief Coach of the team in 2019.

37. The average of salaries of husband and wife is ₹65,000 and ratio of their salaries is 15:11 respectively. How much is the salary of the wife?

(a) ₹ 32,500 (b) ₹ 75,000

(c) ₹ 27,500 (d) ₹ 55,000

Ans. (d) : Let salary of husband $= 15x$

and salary of wife $= 11x$

According to the question,

$$\frac{15x + 11x}{2} = 65,000$$

$$26x = 65000 \times 2$$

$$x = \frac{65000 \times 2}{26}$$

$$x = 5,000$$

So, salary of wife $= 11x = 11 \times 5000$

$= ₹55,000$

38. Black soil is predomenantly found in which one of the following state?

(a) Maharashtra (b) Odisha

(c) Karnataka (d) Jharkhand

Ans. (a) : Black soil is formed by cooling and solidification of lava. It is found in the Deccan tract which consists of the states Maharashtra, Chhattisgarh, Madhya Pradesh, Gujarat, Andhra Pradesh and Tamil Nadu. Black soil is ideal for the cultivation of cotton.

39. India's first costume museum is situated at -

(a) Goa (b) Uttar pradesh

(c) Maharashtra (d) West Bengal

Ans. (a) : The Moda Goa Museum by Wendell Rodricks will be India's first costume museum, housed in a 450- year - old traditional Goan Villa 'Cosa Dona Maria' in Colvale (Goa).

40. Each interior angle of a regular polygon is 140°. Find the number of sides of the polygon.

(a) 15 (b) 18

(c) 9 (d) 12

Ans. (c) : Let number of sides of the polygon is n.

$\because$ Each interior angle of polygon $= 140°$

$$\Rightarrow \left(\frac{n-2}{n}\right) \times 180° = 140°$$

$$\Rightarrow \left(\frac{n-2}{n}\right) = \frac{140}{180}$$

$$\Rightarrow 9n - 18 = 7n$$

$$\Rightarrow 2n = 18$$

$$\Rightarrow n = 9$$

Hence the number of sides of polygon $n = 9$

41. A student must score 40% marks to pass an examination. He gets 70 marks and fails by 20 marks. Find the maximum marks.

(a) 175 (b) 360

(c) 125 (d) 225

Ans. (d) : Marks gain by the students = 70

Marks gain to qualify the exam = 40% (maximum marks)

According to the question,

$$40\% = 70 + 20$$

$$\Rightarrow \quad 40\% = 90$$

$$\Rightarrow \quad 100\% = \frac{90}{40} \times 100$$

$$= 225$$

So maximum marks = 225

42. A man bought a number of apples at 5 for ₹50 and equal number at 6 for ₹50. If he sells them at 11 for ₹100. What would be his percentage profit or loss?

(a) $\frac{100}{121}$% loss (b) $\frac{100}{121}$% profit

(c) $\frac{121}{100}$% profit (d) $\frac{121}{100}$% loss

Ans. (a) : Cost price of 1 Apple bought at rate on 5 in ₹50 $= \frac{50}{5}$

Cost price of 1 Apple bought at rate of 6 in ₹50 $= ₹\frac{50}{6}$

Cost price of two Apple (one rate of 5 + one rate of 6) = $\frac{50}{5} + \frac{50}{6} = ₹\frac{55}{3}$

$\therefore$ Cost price of 1 Apple $= \frac{55}{2 \times 3}$

$= ₹ (55/6)$

Selling price of 1 Apple $= ₹ (100/11)$

$$\Rightarrow \therefore \text{ Loss\%} = \frac{\frac{605 - 600}{66}}{(55/6)} \times 100$$

$$\Rightarrow \text{Loss\%} = \frac{100}{121}\%$$

43. Which kind of mirrors is used as rear view wing mirrors in vehicles?

(a) Concave and convex (b) Concave

(c) Plane (d) Convex

Ans. (d) : We use convex mirror as a rear view mirror in the vehicles because convex mirror always forms virtual, erect and diminished images irrespective of distance of the object. A convex mirror enables a driver to view large area of the traffic behind him. Convex mirror forms very small image than the object. Due to this reason convex mirrors are used as rear view mirrors in vehicles. The bathroom mirrors are an example of plane mirror.

44. Select the option that is different from the rest.

(a) C18O (b) B12J

(c) K23L (d) B20U

Ans. (d) : In given letter and number groups

C 18 O $\Rightarrow$ C + O = 3 + 15 = 18

B 12 J $\Rightarrow$ B + J = 2 + 10 = 12

K 23 L $\Rightarrow$ K + L = 11 + 12 = 23

B 20 U $\Rightarrow$ B + U = 2 + 21 = 23

Hence, inconsistent option will be option (d).

45. Simple interest on ₹50,000 at certain rate for 5 years is ₹20,000. The rate of interest is;

(a) 25% per annum (b) 5% per annum

(c) 4% per annum (d) 8% per annum

Ans. (d) : Given ,

Primary Amount = ₹50,000 , Interest = ₹20,000

Time = 5year

$$\because \text{ Simple Interest} = \frac{\text{Primary Amount} \times \text{Rate} \times \text{Time}}{100}$$

$$\Rightarrow 20{,}000 = \frac{50{,}000 \times \text{Rate} \times 5}{100}$$

$\Rightarrow$ Rate = 8%

46. A shopkeeper bought 25 chairs from a manufacturer for ₹37,500 and sold them at a profit equal to the selling price of 5 chairs. Then the SP of one chairs is:

(a) ₹1,875 (b) ₹1,200

(c) ₹1,500 (d) ₹1,250

Ans. (a) : Let selling price of each chair is x Rs.

$\therefore$ Selling price of 25 chair = 25x

Profit = Selling price of 5 chair

= ₹5x

Cost price of 25 chair = ₹37,500

According to the question,

$$25x - 37500 = 5x$$

$$\Rightarrow 20x = 37500$$

$$\Rightarrow x = \frac{37500}{20}$$

$$\Rightarrow x = ₹1875$$

Hence, selling price of one chair x = ₹1875

47. The Physical Research Laboratory (PRL) which is a National Research Institute for space and allied sciences, is situated at:

(a) Bangalore
(b) Thiruvananthapuram
(c) Hyderabad
(d) Ahmedabad

Ans. (d) : The Physical Research Laboratory (PRL) is a National Research Institute for space and allied sciences, supported mainly by Department of Space, Government of India. This research laboratory has ongoing research programmes in Astronomy and Astrophysics, Atmospheric sciences and Aeronomy, Earth sciences, Solar system studies and Theoretical physics. It manages the Udaipur solar observatory and is located in Ahmedabad.

48. Which of the following public sector enterprises comes under the category of Maharatna?

(a) IOCL (b) HAL
(c) BSNL (d) MTNL

Ans. (a) : At present, there are 11 Maharatnas and 14 Navratna Companies in India.
Maharatna Companies → IOCL, BHEL, BPCL, CIL, GAIL, HPCL, NTPC, ONG, SAIL, PGCI, PFC.
Navratna Companies → MTNL, HAL, BEL, CCIL, EIL, NACL, NBCC, NMDC, NLCL, OIL, PFCL, NICL, RPCL, SCIL.

49. A letter of english alphabet is chosen at random. Probability of getting a vowel is:

(a) $\frac{5}{26}$ (b) $\frac{5}{21}$
(c) $\frac{1}{4}$ (d) $\frac{6}{25}$

Ans. (a) :
Total letter in English alphabet n (s) = 26
Number of vowels = n(E) = 5
Probability of selected letter to be vowel

$$= \frac{n(E)}{n(s)}$$
$$= 5/26$$

50. A Scooterist travels for 5 hours, the first half of distance at 21 km/h and the rest at 24 km/h. Find the distance travelled.

(a) 225 km (b) 224 km
(c) 112 km (d) 56 km

Ans. (c) : Let total travelled distance by Scooterist is 'd' km.

According to the question, $\frac{d}{2\times21}+\frac{d}{2\times24}=5$

$$\Rightarrow \quad \frac{d}{42}+\frac{d}{48}=5$$
$$\Rightarrow \quad d\left[\frac{42+48}{42\times48}\right]=5$$
$$\Rightarrow \quad d=\frac{5\times42\times48}{90}$$
$$\Rightarrow d = 112 \text{ km}$$

51. Employee's State Insurance Corporation (ESIC) does NOT provide social security in respect of medical benifits to the employees of:

(a) Private Sector
(b) Multinational corporations
(c) Government sector
(d) Public Sector undertakings.

Ans. (b) : Employee's State Insurance Corporation (ESIC) does not provide social security in respect of medical benefits to the employees of Multinational corporations. The Employee's state Insurance Act, 1948 (ESI Act) is enacted with an objective to provide social security benefits to employees such as sickness, maternity, medical benefit and dependents' benefits - incase of death or disablement due to an employment injury or occupational hazards.

52. If '+' means '÷'. '–' means '+'. '×' means '–' and '÷' means '×', then find the value of 48 ÷ 6 – 6 + 6 × 2

(a) 290 (b) 14
(c) 287 (d) 289

Ans. (c) : Given,

$$+ \rightarrow \div$$
$$- \rightarrow +$$
$$\times \rightarrow -$$
$$\div \rightarrow \times$$
$$\therefore \ 48 \div 6 - 6 + 6 \times 2 = 48 \times 6 + 6 \div 6 - 2$$
$$= 288 + 1 - 2$$
$$= 287$$

53. If $a - b = 4$ and $a^2 + b^2 = 10$ then the value of $a^3 - b^3$ is

(a) 28 (b) 64
(c) 100 (d) –8

Ans. (a) : Given,

$a - b = 4$, $a^2 + b^2 = 10$
$\because \quad (a-b)^2 = a^2 + b^2 - 2ab$
$\therefore \quad (4)^2 = 10 - 2ab \Rightarrow 2ab = 10 - 16$
$\Rightarrow ab = -3$
$\therefore \quad a^3 - b^3 = (a-b)(a^2 + b^2 + ab)$
$= (4)(10 - 3)$
$= 4 \times 7$
$= 28$

54. At which temperature is the density of water maximum?

(a) 247 K (b) 244 K
(c) 277 K (d) 273 K

Ans. (c) : At 4ºC or 277 Kelvin(K) turns out to be the temperature at which liquid water has the highest density. If you heat it or cool it, it will expand. The expansion of water when you cool it to lower temperatures is unusual, since most liquids contract when they're cooled. At 277K of temperature is the density of water maximum due to anomalous property of water.

55. What was 26th January called in India before 1947 ?

(a) Martyr's Day
(b) Independence Day
(c) Republic Day
(d) Constitution Day

Ans. (b) : 26th January was called Independence day in India before 1947. 26 January was chosen as the date for Republic Day because it was on this day in 1929 when the Declaration of Indian Independence (Purna Swaraj) was proclaimed by the Indian National Congress in lieu of the Realm status as a Dominion later instated by the departing British Regime. India achieved independence from British Raj on 15 August 1947 following the Indian independence movement.

56. Pradhan Mantri Ujjwala Yojana was launched on:

(a) 1 May 2017 (b) 1 May 2018
(c) 1 May 2015 (d) 1 May 2016

Ans. (d) Pradhan Mantri Ujjwala Yojana was launched by Hon'ble Prime Minister Shri Narendra Modi on May 1st, 2016 in Ballia, Uttar Pradesh. Under this scheme, 5 Cr. LPG connections will be provided to BPL families with a support of Rs. 1600 per connection in the next 3 years. Ensuring women's empowerment, especially in rural India, the connection will be issued in the name of women the implementation of the BPL families will be done through Socio Economic Caste Census Data.

57. What is the time difference between the actual passing of the sun over the horizon and out being able to see the image of it on earth?

(a) 10 minute (b) 8 minute
(c) 4 minute (d) 2 minute

Ans. (d) : We are able to see the sun 2 minutes before the actual sunrise and 2 minutes after the actual sunset due to refraction of light by the atmosphere. A actual sunrise, we mean the actual crossing of the horizon by the Sun. When the sun is slightly below the horizon, the Sun's light comes from less dense air to more dense air. Therefore the light is refracted downwards as its passes through the atmosphere. As a result, the sun appears to be raised above the horizon and we are able to see the sun 2 minutes before the actual sunrise.

58. Consider the given statement and decide which of the given assumptions is/are implicit in the statement.

Statement

"She has been sneezing and has runny nose since a year. She could be suffering from allergic rhinitis." A doctor told a patient's mother.

Asumptions:

(I) Very few diseases have the symptom of a prolonged sneezing and runny nose.

(II) One symptom of allergic rhinitis is a prolonged sneezing and runny nose.

(III) Many diseases have the symptom of a prolonged sneezing and runny nose.

(a) Assumption II and either I or III are implicit.
(b) Only I and II are implicit.
(c) Only assumption I is implicit.
(d) Only assumption II is implicit.

Ans. (d) : It is clear from above statement that Assumption II "Prologned sneezing and runny nose is a symptom of allergic rhinitis" is implicit in statement.

59. The ..... takes the decision to declare any bill to be a money bill.

(a) President of India
(b) Chairman of Rajya Sabha
(c) Governor of the Reserve Bank of India.
(d) Speaker of the Lok Sabha

Ans. (d) : The speaker of the Lok Sabha certifies if a financial bill is a Money Bill or not. Under article 110 (1) of the constitution, a bill is deemed to be a money bill if it contains only provisions dealing with imposition, abolition, remission, alteration or regulation of any tax matters of consolidated fund, provides imposition of fines etc. The speaker's certificate on a money bill once given is final and cannot be challenged. A money bill can be introduced in Lok Sabha only on the recommendation of the President.

60. Which of the following did Emperor Akbar NOT construct?

(a) Agra fort
(b) Fatehpur Sikri
(c) Jama Masjid of Delhi
(d) Buland Darwaza

Ans. (c) : Mughal architecture is remarkably attractive and symmetrical combinations of Turkish, Persian and Indian architecture. It was first developed in India during the reign of the third Mughal emperor Akbar the Great and flourished during the reign of his grandson Shah Jahan. Here, some famous monuments of India built by Akbar and Mughal Emperor:-

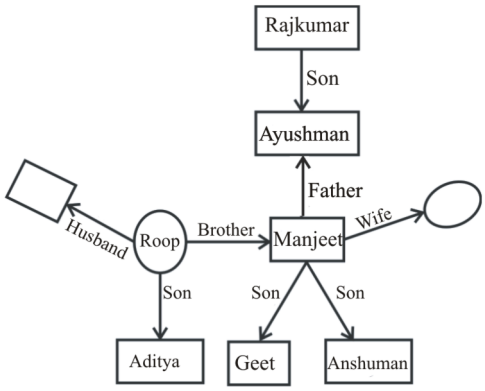
Monuments	Constructed by	Place
Agra fort	Akbar	Agra
Fatehpur Sikri	Akbar	Agra
Jama Masjid of Delhi	Shah Jahan	Delhi
Buland Darwaza	Akbar	Agra

61. Geet and Anshuman are the children of Aditya's Mother's brother. Roop has only one brother-Manjeet and no sister. Ayushman is the son of Rajkumar. Ayushman is the Manjeet's father. Roop's husband and Manjeet's wife have no siblings. If Aditya is Roop's son, how is Manjeet related to Geet?

(a) Father (b) Uncle

(c) Husband (d) Mother's brother

Ans. (a) :



Hence, it is clear that Manjeet is father of Geet.

62. Read the given statements and conclusions carefully and decide which of the conclusions logically follow(s) from the statements.

Statements:

(A) Some girls are boys.

(B) No boys are lazy.

Conclusions:

(I) Some girls are lazy.

(II) Some girls are not lazy.

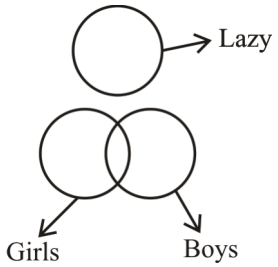
(a) Either I or II follows

(b) Both I and II follows

(c) Only conclusion I follows

(d) Only conclusion II follows

Ans. (d) :



Conclusion–(i) Some girls are lazy. (✗)

(ii) Some girls are not lazy. (✓)

63. Which type of rocks are Granite Rocks?

(a) Sedimentary Rocks

(b) Igneous Rocks

(c) Schist Rocks

(d) Metamorphic Rocks

Ans. (b) : Granite is an igneous rock composed of mostly two minerals: quartz and Feldspar. It is an intrusive rock, meaning that is crystallized from magma that cooled for below the earth's surface. Granites usually have a coarse texture (Individual minerals are visible without magnification), because the magma cools slowly underground, allowing larger crystal growth. It is the most common igneous rock. Some examples of igneous rocks are Basalt, Granite. Rhyolite and Gabbro.

64. The Earth hour programme began in

(a) 2006 (b) 2005

(c) 2007 (d) 2008

Ans. (c) : Earth Hour, Organized by WWF (World Wide Fund) is a global grassroots movement uniting people to take action on environmental issues and protect the planet. The first Earth Hour event was held on 31 March 2007. WWF- Australia inspired Sydney - Siders to show their support climate action, More than 2.2 million individuals and 2,00 businesses turned their light out for one hour in the first earth hour event.

65. Select the option that can replace the question mark (?) in the given equation.

8432 + 937 + 260 – ? = 5605 + 713

(a) 4311 (b) 15947

(c) 3311 (d) 3211

Ans. (c) : 8432 + 937 + 260 – ? = 5605 + 713

9629 – ? = 6318

$\Rightarrow$? = 9629 – 6318

$\Rightarrow$? = 3311

66. Select the number from among the given options that can replace the question mark (?) in the following series.

117, 118, 120, 129, 193,?

(a) 210 (b) 420

(c) 818 (d) 618

Ans. (c) :

117 118 120 129 193 818

$+1^0$ $+2^1$ $+3^2$ $+4^3$ $+5^4$

Hence, the number 818 will be the place of question mark.

67. Each side of a square is increased by 50% Find the percentage increase in its area.

(a) 150% (b) 25%

(c) 125% (d) 50%

Ans. (c) : By given data:–

Increase in side of square = 50%

Percentage increase in area of square = $\left(a+b+\frac{ab}{100}\right)\%$

$\therefore$ Percentage increase in area of square

$$= \left(50 + 50 + \frac{50 \times 50}{100}\right)\%$$

$$= 100 + 25$$

$$= 125\%$$

68. A and B together can do a piece of work in 21 days. With the help of C, they can finish it in 14 days. In how many days will C alone be able to finish the work?

(a) 7 days (b) 42 days

(c) 35 days (d) $\frac{35}{2}$ days

Ans. (b) : One day work of (A + B) = $\frac{1}{21}$

One day work of (A + B + C) = $\frac{1}{14}$

$\therefore$ One day work of C = $\frac{1}{14} - \frac{1}{21}$

$$= \frac{3-2}{42}$$

$$= \frac{1}{42}$$

Hence will complete the work alone in 42 days.

69. The Sundarban Delta is formed by which of the following rivers?

(a) Ganga and Yamuna

(b) Ganga and Brahmaputra

(c) Mahanadi and Brahmaputra

(d) Ganga and Mahanadi

Ans. (b) : The Ganges- Brahmaputra Delta (also known as the Brahmaputra Delta, the Sundarbans Delta or the Bengal Delta) is a river delta in the Bengal region of the Indian subcontinent. The name Sundarbans is thought to be derived from Sunday or Sundari (Heritiera fomes), the name of the large mangrove trees most plentiful in the area.

70. From ..... on words, Economic Survey in India has been delinked from the Union Budget.

(a) 1962 (b) 1960

(c) 1964 (d) 1966

Ans. (c) : Economic Survey contains the most authoritative and updated source of data on India's economy. It is usually presented a day before the Union Budget is presented in the Parliament. India's first economic survey was presented in the year 1950-51. Up to 1964, it was presented along with the Union Budget. From 1964 onwards, it has been delinked from the Budget. The Economic Survey was prepared by the economic division of the Department of Economic Affairs in the Finance Ministry under the overall guidance of the Chief Economic Adviser.

71. The least multiple of 7 which when divided by 8, 12 and 16 leaves 3 as remainder in each case

(a) 70 (b) 48

(c) 147 (d) 56

Ans. (c) : Number = (L.C.M of 8, 12 and 16) K + 3

= 48 K + 3 Where K = 1, 2, 3, 4.....

Taking K = 3 for the least multiple of 7.

Least multiple = 48 × 3 + 3

= 147

72. The average marks obtained by a group of 25 students was 36. One student left the group, as a result of which the average of the remaining students grow to 37.5. Soon after another joined the same group, as a result of which the average marks dropped to 37.2. Find the average marks of the student who left and the student who joined the group.

(a) 37.5 (b) 22.5

(c) 30 (d) 15

Ans. (d) : Total marks obtained by 25 students = 25 × 36

= 900

Total marks obtained by 24 students = 24 × 37.5

= 900

So obtained mark by student leaving group = 900 – 900

= 0 mark

Obtained mark by 24 students + 1 new joined student

= 25 × 37.2

= 930

Obtain mark by new join student = 930 – 900

= 30 mark

Hence average of obtained marks of leaving and joining students = $\frac{0+30}{2}$

= 15 marks

73. Provision of 'First past the post' in Indian constitution has been adopted from the constitution of

(a) Ireland (b) France

(c) Britain (d) USA

Ans. (c) :

Country	Characteristics borrowed in Indian Constitution
Britain	First past the post system in elections. Parliamentary form of government, single citizenship, the procedure established by law, speaker and its role
Ireland	Directive Principles of State Policy
Canada	The quasi-federal government,

	distribution of power between the centre and the states and retention of residuary power by the central government.
USA	Preamble, Fundamental Rights, the electoral college, federal structure of government, Judicial review independence of the judiciary, President as the supreme commander of armed forces.

74. A man and a woman can complete a work in 8 and 12 days respectively. How many women must assist 2 men to complete the work in 2 days?

(a) 3 (b) 2
(c) 4 (d) 5

Ans. (a) : $\because$ M $\rightarrow$ Male
W $\rightarrow$ Female
$\because$ One day work of one man = 1/8
One day work of one woman= 1/12
$\Rightarrow$ M : W = 2 : 3 $\Rightarrow$ 2 M = 3 W ...(i)
Let x woman need with two males
According to the question,
$1W \times 12 = (3W + xW) \times 2$ $\{\because 2M = 3W\}$
$\Rightarrow 12W = 6W + 2xW$
$\Rightarrow 6 + 2x = 12$
$\Rightarrow 2x = 6$
$\Rightarrow x = 3$

75. In which of the following states is the Mathuri folk dance practiced?

(a) Mizoram (b) Telangana
(c) Goa (d) Jharkhand

Ans. (b) : Mathuri is a famous tribal dance which has its roots in Mathura and is performed by the tribes named Mathuris found in the Adilabad district of the Telangana. This particular tribal dance is some what similar to the Ras - Lila dance of Uttar Pradesh. The Mathuri tribe seem to have migrated from Mathura in Uttar Pradesh and the dance is mainly performed by the male and female members on Sri Krishna Jayanti day in the Hindu month of Sravan.

76. Solve:

$$\frac{9\sqrt{144}}{4} \times 3\sqrt{484} \times \frac{1}{\sqrt{729}}$$

(a) 88 (b) 63
(c) 66 (d) 84

Ans. (c) :

$$\frac{9\sqrt{144}}{4} \times 3\sqrt{484} \times \frac{1}{\sqrt{729}}$$

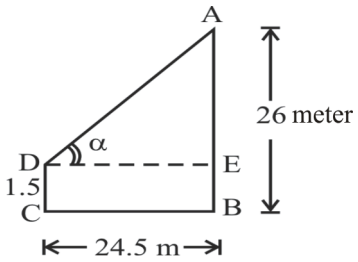
$$= \frac{9 \times 12}{4} \times 3 \times 22 \times \frac{1}{27}$$

$$= 27 \times 3 \times 22 \times \frac{1}{27} = 66$$

77. An observer 1.5m tall is 24.5m away from a 26m high tower. The angle of elevation of the top of the tower from the eye of the observer is

(a) 60° (b) 30°
(c) 75° (d) 45°

Ans. (d) :



Let angle of elevation from eye of observed is α
DC = Length of observer = 1.5 meter
AB = Height of tower = 26 meter
BC = 24.5 meter
$\because$ AB = 26 meter
$\therefore$ AE = AB – BE
= 26 – 1.5 $\{\because$ EB = DC = 1.5 meter$\}$
= 24.5 meter
Now in Δ AED

$$\tan\alpha = \frac{AE}{DE}$$

$$\Rightarrow \tan\alpha = \frac{24.5}{24.5}$$

$\Rightarrow \tan\alpha = 1$
$\Rightarrow \tan\alpha = \tan 45^\circ$
$\Rightarrow \alpha = 45^\circ$

78. What is the scientific name of green pea?

(a) Pisum sativum (b) Pisum savitum
(c) Triticum aestivum (d) Zea mays

Ans. (a) : The Scientific name of green peas in Pisum Sativam. It is also called garden pea.
The scientific name of Wheat is Triticum aestivum.
The scientific name of Maize is Zea mays.

79. From which Asian country did Ahmad Shah Abdali come to India?

(a) Persia (b) Turkey
(c) Afghanistan (d) Mangolia

Ans. (c) : Ahmad Shah Durrani, otherwise called Ahmad khan Abdali, was the originator of the Durrani Empire and is viewed as the organizer of the cutting edge territory of Afghanistan. In July 1747 Ahmad Shah was delegated as the king of Afghanistan by a Loya Jirga in Kandahar, where he set up his capital. In the third battle of Panipat on 14 January 1761, he defeated the Maratha Army led by Sadashivrao Bhau.

80. In a certain coding language, 'MOLECULES' is written as 'SLEUECLMO' How will 'TRANSDUCTION' be written as in that language?

(a) NOITCUARTDSN (b) NIOTUCDNSATR

(c) UCTIONTRANSD (d) NOITCUDSNART

Ans. (b) : Just as,

1 2 3 4 5 6 7 8 9 — 9 7 8 6 4 5 3 1 2

M O L E C U L E S → S L E U E C L M O

Similarly,

1 2 3 4 5 6 7 8 9 10 11 12 — 12 10 11 9 7 8 6 4 5 3 1 2

T R A N S D U C T I O N → N I O T U C D N S A T R

81. Karuna reads $\frac{1}{4}$ th of a book in one hour. What fraction of the book will she be able to read in 2h 15 min?

(a) $\frac{1}{9}$ (b) $\frac{1}{8}$

(c) $\frac{9}{16}$ (d) 9

Ans. (c) :

$\because$ 2 hours 15 minute $= 2h + \frac{15}{60}$ hours

$= \left(2 + \frac{1}{4}\right)$ hours

= 9/4 hours

Read parts in 1 hours= $\frac{1}{4}$

$\therefore$ Read part in $\frac{9}{4}$ hours $= \frac{1}{4} \times \frac{9}{4}$

$= \frac{9}{16}$

82. Which one of the following Indian state is the biggest producer of soyabean in year 2019-20.

(a) Maharashtra (b) Madhya Pradesh

(c) Andhra Pradesh (d) Rajasthan

Ans. (b) : The leading producer of Soyabean in India is Madhya Pradesh followed by Maharashtra and Rajasthan.

Top Rice Producing States: West Bengal > Punjab > Uttar Pradesh > Andhra Pradesh > Bihar

Top Wheat Producing States : Uttar Pradesh > Punjab > Madhya Pradesh > Haryana > Rajasthan

83. The credit of propounding the law of comparative advantage is given to which of these popular person?

(a) David Ricardo (b) Bertil ohlin

(c) Eli Heckscher (d) Adam Smith

Ans. (a) : Comparative advantage, economic theory, first developed by 19th century British economist David Ricardo, that attributed the cause and benefits of International trade to the differences in the relative opportunity costs (costs in terms of other goods given up) of producing the same commodities among countries. In Ricardo's theory, which was based on the 'labour theory of value' (in effect, making labour the only factor of production), the fact that one country could produce everything more efficiently that another was not an argument against international trade.

84. How many decimal numbers can be found between 0.225 and 0.227?

(a) 2 (b) Infinite

(c) 1 (d) 226

Ans. (b) :

$0.225 = \frac{225}{1000}$ and $0.227 = \frac{227}{1000}$

Infinite number can be found between $\frac{225}{1000}$ and $\frac{227}{1000}$

85. In which year did India join the United Nations?

(a) 1945 (b) 1950

(c) 1962 (d) 1947

Ans. (a) : United Nation was formed in October, 1945 with main objective that any war like World War II does not happen again. India become member of United Nation in 1945, India was one of 51 original members of UN. R. Mudagliar signed memorandum to join UN on India's behalf. India is a charter member of the United Nations and participates in all of its specialized agencies and organizations.

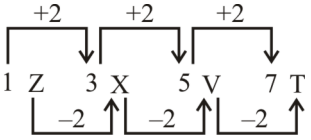
86. Select the term that can replace the (?) in the following alphanumeric sereis.

1Z, 3X, 5V?

(a) 7T (b) 7G

(c) 7S (d) 7R

Ans. (a) : It will be the place of question mark in series.



87. Answer the question given below based on the given information.

A jeweler has five gold articles 'P', 'Q', 'R', 'S' and 'T' each of which weighs differently.

'T' weight thrice as much as 'S'

'S' weight four times as much as 'R'

'R' weight half as much as 'Q'

'Q' weight half as much as 'P'
'P' weight less than 'T' but more than 'R'
Which of the following gold articles is the lightest in weight?

(a) S (b) R
(c) T (d) P

Ans. (b) : Let weight of P is x.

$P = x$

$Q = x/2$

$R = x/4$

$S = 4 \times \frac{x}{4} = x$

$T = 3x$

So, decreasing order or weight follows as–

$T > P = S > Q > R$

Hence, R is lightest in weight.

88. Select the option that is related to the third number in the same way as the second number is related to the first number.
3 : 111 :: 7 : ?

(a) 259 b) 245
(c) 252 (d) 266

Ans. (a) : Just as,

3 : 111
×37 ↑

Same as,

7 : 259
×37 ↑

89. In a certain code language, RAIN is written as 4678 and WET is written as 135, How will ENTER be written as in that languages?

(a) 35384 (b) 38534
(c) 38543 (d) 35834

Ans. (b) : Just as,

$R \to 4$ and $W \to 1$
$A \to 6$ $E \to 3$
$I \to 7$ $T \to 5$
$N \to 8$

Using the code of above letters,

$E \to 3$
$N \to 8$
$T \to 5$
$E \to 3$
$R \to 4$

$\Rightarrow$ ENTER = 38534

90. Select the term that can replace the question mark (?) in the following series.
DW, FU, HS, ?

(a) KR (b) JQ
(c) KP (d) JR

Ans. (b) : Just as,

$D \xrightarrow{\text{Opposite letter}} W$
$F \xrightarrow{\text{Opposite letter}} U$
$H \xrightarrow{\text{Opposite letter}} S$

Same as,

$J \xrightarrow{\text{Opposite letter}} Q$

Hence, option (b) will be right.

91. 'Income' is related to which of the following options in the same way as 'Expenditure' is related to 'EMI' ?

(a) Salary (b) Revenue
(c) Profit (d) Tax

Ans. (a) : Just as, Income is related with salary, same as Expenditure is related with EMI.

92. Omelete is related to Egg in the same way as metal is related to:

(a) Ore (b) Iron
(c) Gold (d) Aluminium

Ans. (a) : Just as– Omelete is obtained from eggs,
Same as–Metal is obtained from Ore.

93. Select the option that can replace the question mark (?) in the following series:
A3A, Y8E, ?, O33M, G53Q

(a) S30I (b) U18I
(c) T22I (d) U20I

Ans. (b) : Series follows as–

$A \xrightarrow{-2} Y \xrightarrow{-4} \boxed{U} \xrightarrow{-6} O \xrightarrow{-8} G$
$3 \xrightarrow{+5} 8 \xrightarrow{+10} \boxed{18} \xrightarrow{+15} 33 \xrightarrow{+20} 53$
$A \xrightarrow{+4} E \xrightarrow{+4} \boxed{I} \xrightarrow{+4} M \xrightarrow{+4} Q$

So, U18I will came on the place of Question mark.

94. Each of the six friends A, B, C, D, E and F is reading one book among the book G, H, I, J, K and L in a reading program. A and B are not reading books G, J and L. F is reading book H. B,C and D are not reading the book I and L. Which book is being read by A?

(a) J (b) G
(c) K (d) I

Ans. (d) :

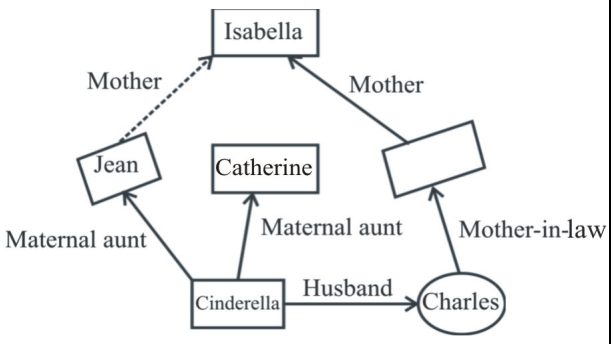
	Reading program					
	G	H	I	J	K	L
A	×		✓	×		×
B	×		×	×	✓	×
C			×			×
D			×			×
E						✓
F		✓				

It is clear from above graph that student A is reading book 'I'.

95. Jean and Catherine are the maternal aunts of Cinderella. Charles is the husband of Cinderella. Isabella is the mother of mother-in-law of Charles. How is Isabella related to Jean?

(a) Mother (b) Maternal Aunt
(c) Grand mother (d) Sister

Ans. (a) :

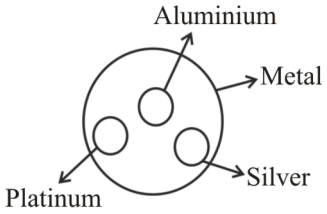


It is clear from above figure that Isabella is mother of Jean.

96. Select the option that is different from the rest.

(a) Silver (b) Aluminium
(c) Platinum (d) Metal

Ans. (d) :



Silver, Aluminium and Platinum is under the metal. So metal is Inconsistent.

97. 'JQM' is related to which of the following option in the same way as 'CEA' is related to 'EHC'?

(a) LTO (b) OVR
(c) MRP (d) MTR

Ans. (a) : Just as,

$C \xrightarrow{+2} E$
$E \xrightarrow{+3} H$
$A \xrightarrow{+2} C$

Same as,

$J \xrightarrow{+2} L$
$Q \xrightarrow{+3} T$
$M \xrightarrow{+2} O$

So, JQM → LTO

98. Consider the given statement and decide which of the given assumptions is/are implicit in the statement.

Statement:

"In the latest edition of your book, we misspelled your name of the book cover. We are very sorry Ma'am". A novel editor told his client.

Assumptions:

(I) It is crucial to print the correct name of the author on the book cover

(II) It is not very important to print the correct name of the author on the book cover

(a) Only assumption II is implicit.
(b) Only assumption I is implicit.
(c) Both assumptions are implicit.
(d) Neither assumptions are implicit.

Ans. (b) : According to given statement it is clear that assumption (I) it is crucial to print the correct name of the author on the book cover is implicit in statement.
Hence, option (b) is right answer.

99. In a certain coding language, 'CUMIN' is written as 'AVKJL' and 'GUEST' is writting as 'EVCTR'. How will 'ALIEN' be written as in that language?

(a) YMGFL (b) BJKLF
(c) UHFTR (d) VTFSE

Ans. (a) : Just as,

$C \xrightarrow{-2} A$ $\quad$ $G \xrightarrow{-2} E$
$U \xrightarrow{+1} V$ $\quad$ $U \xrightarrow{+1} V$
$M \xrightarrow{-2} K$ and $E \xrightarrow{-2} C$
$I \xrightarrow{+1} J$ $\quad$ $S \xrightarrow{+1} T$
$N \xrightarrow{-2} L$ $\quad$ $T \xrightarrow{-2} R$

Same as,

$A \xrightarrow{-2}$ Y
$L \xrightarrow{+1}$ M
$I \xrightarrow{-2}$ G
$E \xrightarrow{+1}$ F
$N \xrightarrow{-2}$ L

So, ALIEN → YMGFL

100. Select the option that is related to the third term in the same way as the second term is related to the first term.

Soldier: Battle Tank :: Farmer: ?

(a) Water (b) Crop
(c) Land (d) Tractor

Ans. (d) : Just as– Battle tank is used for the help of soldiers in Battle, same as Tractor is used for the help of farmer in Agriculture.

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 04.03.2021] **[Time : 3.00 pm-4.30 pm]**

1. Select the option that is different from the rest.

(a) Yam (b) Eggplant
(c) Potato (d) Radish

Ans. (b) : Eggplant is odd because, Yam, Potato and Radish all grow under the ground but not the Eggplant (brinjal).

2. Find the value of $\left(22+8\sqrt{6}\right)^{\frac{1}{2}}$?

(a) $\left(22+8\sqrt{2}\right)$ (b) $\left(4+\sqrt{6}\right)$
(c) $\left(4-\sqrt{6}\right)$ (d) $\left(8+2\sqrt{6}\right)$

Ans. (b) : $\left(22+8\sqrt{6}\right)^{\frac{1}{2}}$

$=\sqrt{22+8\sqrt{6}}=\sqrt{16+6+8\sqrt{6}}=\sqrt{(4)^2+\left(\sqrt{6}\right)^2+2\times4\sqrt{6}}$

$[a^2 + b^2 + 2ab = (a + b)^2]$

$=\sqrt{\left(4+\sqrt{6}\right)^2}=4+\sqrt{6}$

3. Ram eats 7 bananas in the morning, 8 in the afternoon and 3 in the evening. How many dozens of bananas does he eat in a day?

(a) $\frac{2}{3}$ (b) $\frac{2}{15}$
(c) $\frac{3}{2}$ (d) $\frac{8}{18}$

Ans. (c) : Ram eats total bananas in a day = 7 + 8 + 3 = 18

Total dozens $=\frac{18}{12}=\frac{3}{2}$ dozen.

4. Which of the following sectors contribute the most to GDP in India.

(a) Primary sector (b) Unorganized sector
(c) Tertiary sector (d) Secondary sector

Ans. (c) : Tertiary sector contributes the most to GDP in India. The service sector, also known as the tertiary sector, is the third tier in the three-sector economy.Examples of service sector jobs include housekeeping, tours, nursing, and teaching etc. The services sector is the largest sector in India.The service sector accounts for 53.66% of the total India's GVA of Rs. 137.51 lakh crore.It employs 40% of the country's workforce, next only to the agricultural sector.The service sector makes an important contribution to GDP in most countries, providing jobs, inputs, and public services for the economy.

5. What are the small pieces of rock that revolve around the sun called?

(a) Asteroids (b) Galaxy
(c) Geoids (d) Meteoroids

Ans. (d) : The small pieces of rocks which move around the sun is known as meteoroids.
Meteoroids are lumps of rock or iron that orbit the sun, just as planets, asteroids, and comets do. Meteoroids, especially the tiny particles called micrometeoroids, are extremely common throughout the solar system. They orbit the sun among the rocky inner planets, as well as the gas giants that make up the outer planets. Meteoroids are even found on the edges of the solar system, in regions called the Kuiper belt.

6. A shopkeeper sold some articles at ₹77/- each and earned a profit of 40%. What would be the selling price of each article if the profit is 6%

(a) ₹59.75 (b) ₹60.40
(c) ₹62.50 (d) ₹58.30

Ans. (d) : Sells an article at the rate of ₹77 each.
Selling price = ₹140% of C.P.

$140\% = ₹77$

$1\% = \frac{77}{140}$

$100\% = \frac{77}{140}\times100$

Cost pricc = ₹55

Now the article has to be sold for 106% to get 6%, profit.

$100\% = ₹55$

$1\% = \frac{55}{100}$

$106\% = \frac{55}{100}\times106$

$= ₹58.30$

The selling price of each atricle will be 58.30

7. What was the theme of the Financial Literacy Week 2019?

(a) Housewives (b) Farmers
(c) Industrialists (d) Students

Ans. (b) : The theme of Financial Literacy Week 2019 is 'Farmers' which focuses on how they can get benefit by being a part of the formal banking system. The aim of initiative is to create awareness about financial products and services, good financial practices, going digital and consumer protection. During the Financial Literacy Week, the message disseminated was focused on Responsible Borrowing & Agricultural Finance.

8. Read the given statement and possible courses of action carefully and decide which of the courses of action logically follows from the statement.

Statement:

If any of the faculty of sociology or social work sends his/her students to the inter-college debate, the college will definitely get some prizes.

Courses of Action:

(i) The management must make sure that either of the two faculties of sociology or social work makes his/her students participate in the debate.

(ii) The management must allow only the students of faculty of sociology and social work to take part in the debate.

(iii) Students from sociology or social work must be encouraged to participate in inter-collegiate debates.

(a) All the actions, (i), (ii) and (iii) follows
(b) Only action (i) and (iii) follows
(c) Only action (i) and (ii) follows
(d) Only action (ii) follows

Ans. (b) : Only action (i) and (iii) follows.

9. Insects breathe through:

(a) lungs (b) skin
(c) gills (d) spiracles

Ans. (d) : For insects, respiration is separate from the circulatory system. Oxygen and carbon dioxide gases are exchanged through a network of tubes called tracheae. Instead of nostrils, insects breathe through openings in the thorax and abdomen called spiracles.

10. In which session of the Congress did Mahatma Gandhi convince other leaders to start a non-cooperation movement in support of Khilafat as well as swaraj?

(a) Nagpur session (b) Bombay session
(c) Calcutta session (d) Lucknow session

Ans. (c) : Mahatma Gandhi felt the need to launch a more broad-based movement in India. But he was certain that no movement could be organised without bringing the Hindus and Muslims closer together. One way of doing this, he felt, was to take up the Khilafat issue. The First World War had ended with the defeat of Ottoman Turkey. And there were rumours that a harsh peace treaty was going to be imposed on the Ottoman emperor the spiritual head of the Islamic world (the Khalifa). To defend the Khalifas temporal powers, a Khilafat Committee was formed in Bombay in March 1919. A young generation of Muslim leaders like the brothers Muhammad Ali and Shaukat Ali, began discussing with Mahatma Gandhi about the possibility of a united mass action on the issue. Gandhiji saw this as an opportunity to bring Muslims under the umbrella of a unified national movement. At the Calcutta session of the Congress in September 1920, he convinced other leaders to start a non-cooperation movement in support of Khilafat as well as for Swaraj.

11. The Ministry of Human resource Development, Government of India, has designed an education portal named:

(a) NCERT (b) EDUCATION
(c) SAKSHAT (d) NIOS

Ans. (c) : The Ministry of Human Resource Development (Now Education Ministry) has designed an education portal which cares to the needs of students, starting from elementary students to research, scholars, teachers and life long learners. SAKSHAT is the name of the portal which was launched in the year 2006. It was launched by former President of India Dr. APJ Abdul Kalam. It was developed by eGyanKosh of IGNOU.

12. The volume of a cylinder is 5500 cm^3. If its curved surface are is 4400 sq. cm, then find its height.

(a) 480 cm (b) 180 cm
(c) 280 cm (d) 380 cm

Ans. (c) : Area of curved surface $= 2\pi rh$

$$4400 = 2 \times \frac{22}{7} \times r \times h$$

$rh = 700$

$$r = \frac{700}{h} \text{ .....(i)}$$

Volume of cylinder $= \pi r^2 h$

$$5500 = \frac{22}{7} \times r \times rh \text{ .....(ii)}$$

From eqn (i) and (ii)-

$$h = \frac{22}{7} \times \frac{700 \times 700}{5500} \Rightarrow h = 280\,cm$$

13. What is the ratio of the L.C.M. and H.C.F. of the number 56 and 84?

(a) 2 : 3 (b) 3 : 2
(c) 6 : 1 (d) 7 : 2

Ans. (c) : LCM of 56 and 84 is 168 and HCF is 28.

2	56, 84
2	28, 42
2	14, 21
3	7, 21
7	7, 7
	1, 1

Therefore required ratio $= \frac{\text{LCM}}{\text{HCF}}$

LCM $= 2\times2\times2\times7\times3 = 168$

HCF $= 2\times2\times7 = 28$

$= \frac{168}{28} = \frac{6}{1} \Rightarrow 6:1$

14. For x > 0 find the value of

$$\left(1+\frac{1}{x+1}\right)\left(1+\frac{1}{x+2}\right)\left(1+\frac{1}{x+3}\right)\left(1+\frac{1}{x+4}\right)$$

(a) $1+\frac{1}{x+5}$ (b) $\frac{1}{x+5}$

(c) $\frac{x+1}{x+5}$ (d) $\frac{x+5}{x+1}$

Ans. (d) : $\left(1+\frac{1}{x+1}\right)\left(1+\frac{1}{x+2}\right)\left(1+\frac{1}{x+3}\right)\left(1+\frac{1}{x+4}\right)$

$= \left(\frac{x+1+1}{x+1}\right)\left(\frac{x+2+1}{x+2}\right)\left(\frac{x+3+1}{x+3}\right)\left(\frac{x+4+1}{x+4}\right)$

$= \left(\frac{x+2}{x+1}\right)\left(\frac{x+3}{x+2}\right)\left(\frac{x+4}{x+3}\right)\left(\frac{x+5}{x+4}\right)$

$= \frac{(x+2)}{(x+1)}\times\frac{(x+3)}{(x+2)}\times\frac{(x+4)}{(x+3)}\times\frac{(x+5)}{(x+4)}$

$= \frac{x+5}{x+1}$

15. Which branch of Physical Geography is devoted to the study of landforms, their evolution and related processes?

(a) Soil Geography (b) Climatology

(c) Hydrology (d) Geomorphology

Ans. (d) : Geomorphology is devoted to the study of landforms,their evolution and related processes. Climatology is the study of structure of atmosphere and elements of weather and climate and climatic types and regions.

Hydrology studies the realm of water over the surface of the earth including oceans, lakes, rivers and other water bodies and its effect on different life forms including human life and their activities.

Soil Geography study the processes of soil formation, soil types, their fertility status, distribution and use.

16. If four women and 7 girls can complete a piece of work in 58 days, then how much time will 12 women and 8 girls take to complete the same work?

(a) 14 days (b) 29 days

(c) $26\frac{1}{3}$ days (d) 7 days

Ans. (*) : Note- This question has been canceled by RRB.

17. In the Constitution of India, principles of Liberty, Equality and Fraternity were borrowed from:

(a) The Irish constitution

(b) The United States Constitution

(c) The British Constitution

(d) The French Constitution

Ans. (d) : The Principles of Liberty, Equality, and Fraternity of the Indian Constitution are borrowed from the French Constitution. India has borrowed Directive Principles of State Policy. Nomination of members to Rajya Sabha and Method of the election of a president from Ireland. Features like Federation with a strong Centre, Vesting of residuary powers in the Centre, appointment of state governors by the Centre and advisory jurisdiction of the Supreme Court are borrowed from Canada. India has borrowed fundamental Rights, judicial review from the United States.

18. A and B entered into a partnership investing ₹20000/- and ₹16000/-, respectively. After 3 months, C joined them with an investment of ₹15000/-. What is B's share (in ₹) if the half yearly profit is ₹4350/-

(a) ₹1,760 (b) ₹20,00

(c) ₹1,600 (d) ₹1,850

Ans. (c) : A : B : C

A and B invest for six month while C invests after three months.

∵ Capital × Time = Dividend

Hence,

A B C

₹20000×6 month : ₹16000×6 month : ₹15000×3 month

20×6 : 16×6 : 15×3

120 : 96 : 45

40 : 32 : 15

Total unit = 40 + 32 + 15 = 87 unit Dividend

87 unit - 4350

1 unit - $\frac{4350}{87}$

32 unit $= \frac{4350}{87}\times32$

$= 50 \times 32 = ₹1600$

19. The Air India logo consists of:

(a) A flying swan only

(b) A flying duck with the wheel of Konark inside it

(c) A flying crane with the wheel of konark inside it

(d) A flying swan with the wheel of konark inside it

Ans. (d) : Air India's mascot is the Maharaja (Emperor) and the logo consists of a flying swan with the wheel of Konark inside it. Over 60 international destinations are served by Air India across four continents. It was founded in 15th October, 1932 as Tata Airlines.

20. Which of the following is NOT a non-ferrous metallic mineral?

(a) Mica (b) Copper
(c) Bauxite (d) Lead

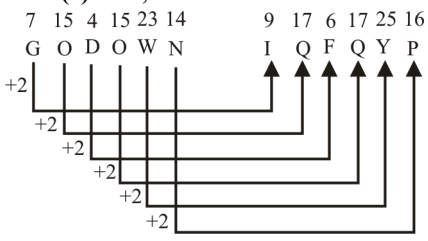
Ans. (a) : On the basis of composition, minerals are classified mainly as metallic and non-metallic minerals.

- Metallic minerals contain metal in raw form. Metals are hard substances that conduct heat and electricity and have a characteristic lustre or shine. Iron ore, bauxite, manganese ore are some examples.
- Metallic minerals may be ferrous or non-ferrous.
- Ferrous minerals like iron ore, manganese and chromites contain iron.
- A non-ferrous mineral does not contain iron but may contain some other metal such as gold, silver, copper or lead.
- Non-metallic minerals do not contain metals. Limestone, mica and gypsum are examples of such minerals. The mineral fuels like coal and petroleum are also non-metallic minerals.

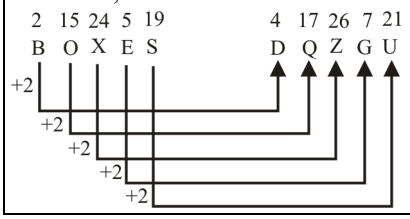
21. In a code language, GODOWN is written as IQFQYP and TRUNK is written as VTWMP. How will BOXES be written as in that code language.

(a) ZQVQC (b) DQZUG
(c) DQZGU (d) ZQVCQ

Ans. (c) : As,



Like wise,



22. Which of the following is NOT a source of sea energy?

(a) Ocean thermal energy (b) Solar energy
(c) Wave energy (d) Tidal energy

Ans. (b) : There are different kind of energies produced from sea. They are:

- **Tidal Energy:** Tidal energy is harnessed by constructing a dam across a narrow opening to the sea. A turbine fixed at the opening of the dam converts tidal energy to electricity.
- **Wave Energy:** Electric power generated from waves
- **Ocean Current Energy:** Ocean surface is comparable to wind which rotates the turbine to generate electricity.
- **Ocean Thermal Energy:** The warm surface-water is used to boil a volatile liquid like ammonia. The vapours of the liquid are then used to run the turbine of generator.

But solar energy are not produced from seas. Hence they are not forms of oceanic/sea energy. Solar energy is radiant light and heat from the Sun that is harnessed using a range of technologies such as solar water heating, photovoltaics, solar thermal energy, solar architecture, molten salt power plants and artificial photosynthesis

23. A sum of ₹25000/- amounts to ₹31500/- in 4 years at a certain rate of simple interest. What is the rate of Interest.

(a) 4.5% (b) 5.5%
(c) 6.5% (d) 3.5%

Ans. (c) : Principal Amount = ₹25000, Final Amount = ₹31500

Interest = Final Amount – Principal Amount
= 31500 – 25000 = ₹6500

The annualy interest increases equally in simple interest.

Interest of 4 years = 6500

$1 \text{ year } = \frac{6500}{4} = ₹1625$

$\text{Rate of interest} = \frac{\text{Interest of one year}}{\text{Principal amount}} \times 100$

$\text{Rate of interest} = \frac{1625}{25000} \times 100$

$= 6.5\%$

24. Find the LCM of $\frac{4}{5}, \frac{3}{8}$ and $\frac{9}{8}$

(a) 9 (b) 28
(c) 8 (d) 36

Ans. (d) : $\text{LCM of fraction} = \frac{\text{LCM of Numerator}}{\text{HCF of Denominator}}$

2	4, 3, 9
2	2, 3, 9
3	1, 3, 9
3	1, 1, 3
	1, 1, 1

$= \frac{\text{L.C.M. of } 4,3,9}{\text{H.C.F. of } 5,8,8} = \frac{36}{1} = 36$

25. Right to life is guaranteed under _____of the Constitution of India.

(a) Article 15 (b) Article 16
(c) Article 21 (d) Article 14

Ans. (c) : Article 21 comes under the Part III of the Indian Constitution and is one of the fundamental rights guaranteed to all citizens of India as well as friendly foreigners. Article 21 states that "No person shall be deprived of his life or personal liberty except according to a procedure established by law." Thus, article 21 guaranteed two rights: Right to life and Right to personal liberty.

26. The Non-cooperation Movement was pitched in under the leadership of Mahatma Gandhi from:

(a) 1918 to 1920 (b) 1915 to 1919
(c) 1930 to 1935 (d) 1920 to 1922

Ans. (d) : The Non-Cooperation Movement was launched on 5th September 1920 by the Indian National Congress (INC) under the leadership of Mahatma Gandhi. In September 1920, in Congress session in Calcutta, the party introduced the Non-Cooperation programme.

27. Which of the following websites is NOT related to Education?

(a) www.ignou.ac.in
(b) www.onlinesbi.com
(c) www.ncert.inc.in
(d) www.education.nic.in

Ans. (b) : 'www.onlinesbi.com' is not related to Education. It is the internet banking portal of SBI, enables its retail banking customers to operate their accounts from anywhere anytime, removing the restrictions imposed by geography and time.

28. If $\sqrt{484\sqrt{25 \div x}} = 22$, then x _____.

(a) 100 (b) 25
(c) 50 (d) 75

Ans. (b) : $\sqrt{484\sqrt{25 \div x}} = 22 \quad \left(\because (22)^2 = 484\right)$

$\Rightarrow 22\sqrt{\frac{25}{x}} = 22$

$\Rightarrow \sqrt{\frac{25}{x}} = \frac{22}{22} = 1$

$x = 25$

29. The railway platform at Delhi station is 238 meters long. In how many seconds is it cleared by an express train which is 162 m long and travels at a speed of 120 km an hour?

(a) 10 Seconds (b) 14 Seconds
(c) 16 Seconds (d) 12 Seconds

Ans. (d) : Given-

Length of train = 162 m

Length of platform = 238 m

Speed = 120 km/h

$= 120 \times \frac{5}{18} = \frac{100}{3}$ m/s.

$\text{Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{\text{Leagth of train+Leagth of platform}}{\text{time}}$

$\frac{100}{3} = \frac{162 + 238}{\text{time}}$

$\text{Time} = \frac{400}{\frac{100}{3}} = \frac{1200}{100} = 12$ Second.

30. Study the given pattern carefully and select the alphabet that can replace the question mark (?) in it.

B	F	J	N	?

(a) Q (b) R
(c) S (d) V

Ans. (b) :

B	F	J	N	?
2	6	10	14	18
	+4	+4	+4	+4

Increasing in order of four by four.

Therefore in the place of (?) will be R.

31. Provincial autonomy was prescribed under the government of India Act of.

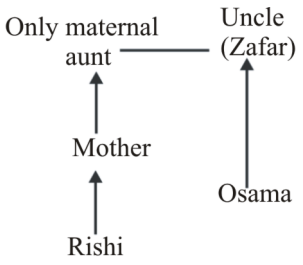
(a) 1947 (b) 1935
(c) 1937 (d) 1920

Ans. (b) : The Government of India Act was passed by the British Parliament in August 1935. It was the longest act enacted by the British Parliament at that time. Provincial autonomy was introduced in the Government of India Act, 1935. The Ministers of the provincial governments, according to it, were to be responsible to the legislature. The powers of the legislature were increased. However, in certain matters like the Police, the government had the authority.

32. Osama and Rishi are best friends. One day, Rishi found out that his mother's only maternal aunt is married of Osama's paternal uncle Zafar. how is Zafar related to Rishi's maternal grandmother?

(a) Sister's Husband (b) Son in Law
(c) Brother (d) Friend

Ans. (a) : According to the question,



Option (a) sister's husband.

33. Find the median of 7, 14, 13, 12, 20, 11, 15 and 8.

(a) 11 (b) 12.5
(c) 11.5 (d) 12

Ans. (b) : 7, 14, 13, 12, 20, 11, 15, 8

Arrange in ascending order- 7, 8, 11, 12, 13, 14, 15, 20

Number of terms (n) = 8

Note- If the series of numbers are odd then to calculate median, arrange the series in ascending/descending order and the number which is positioned in between would be the median. If the numbers are in even then add the 2 numbers which are positioned in between and divide it by 2.

$$\text{If even number then median} = \frac{\frac{n}{2}\text{th term} + \left(\frac{n}{2}+1\right)\text{th term}}{2}$$

$$\underline{7, 8, 11,}\ 12, 13, \underline{14, 15, 20}$$

$$\text{Median} = \frac{\frac{8}{2}\text{th term} + \left(\frac{8}{2}+1\right)\text{th term}}{2}$$

$$= \frac{12+13}{2} = \frac{25}{2} = 12.5$$

34. Find the smallest number that should be added to 166, so that the sum leaves a remainder of 3 on dividing by each of, 4, 6, 9 and 15.

(a) 163 (b) 13
(c) 17 (d) 16

Ans. (c) : According to the question-

L.C.M. of 4, 6, 9, 15 = 180

On adding = 166 + x

166 + x = 180 + 3 (remainder)

166 + x = 183

x = 17

35. Ram invested ₹42000/- in the shares of a company. He sold one-third of the total shares at a profit of 10%. He sold the remaining shares at 10% loss. How much did Ram lose?

(a) ₹5,200 (b) ₹4,000
(c) ₹1,400 (d) ₹4,200

Ans. (c) : Invested by Ram = ₹42000

As per question, $42000 \times \frac{1}{3} = ₹14000$

Selling the 10% profit of ₹14000

$$14000 \times \frac{110}{100} = 15400$$

Sells the remaining amount at 10% loss

$\Rightarrow$ 42000 – 14000 = 28000

$$28000 \times \frac{90}{100} = 25200$$

total- 15400 + 25200 = 40600 in selling

loss = 42000 – 40600 = ₹1400

36. If $\sqrt{625} \div \sqrt{x} = \frac{1}{5}$, then x = ?

(a) 15625 (b) 3125
(c) 125 (d) 1225

Ans. (a) : $\sqrt{625} \div \sqrt{x} = \frac{1}{5}$

$$\frac{25}{\sqrt{x}} = \frac{1}{5} \Rightarrow \sqrt{x} = 125$$

x = 15625

37. Which of the following is the basic unit of classification of living organisms?

(a) Genus (b) Order
(c) Species (d) Family

Ans. (c) : Species is the basic unit of classification.A group of organisms with similar characteristics are categorized into species. Species are distinguished based on morphological characters.

- A species is a basic unit of classification and a taxonomic rank, as well as a unit of biodiversity.
- The term taxonomy was originally coined by Augustin Pyramus de Candolle in 1813.

38. International Bank for Reconstruction and Development is commonly knows as:

(a) Reserve Bank of India
(b) World Bank
(c) State Bank of India
(d) International Monetary Fund

Ans. (b) : International Bank for Reconstruction and Development is one of the member of World Bank Group. It was set up in 1944. It offers loans to middle-income developing countries. The headquarter of IBRD is situated in Washington DC, USA.

39. Deduction of depreciation from Gross National Product is known as:

(a) Corporate
(b) Net National Product
(c) Gross domestic Product
(d) National Income

Ans. (b) : Net national product (NNP) is gross national product (GNP), the total value of finished goods and services produced by a country's citizens overseas and domestically, minus depreciation. NNP is often examined on an annual basis as a way to measure a nation's success in continuing minimum production standards.

40. Find the compound interest on ₹20000/- in 2 years at 8% per annum, if interest is compounded yearly?

(a) ₹3,220.00 (b) ₹3109.78
(c) ₹3328.00 (d) ₹3200.00

Ans. (c) : Principal Amount - ₹20000

rate = 8%

time = 2 year

$$\text{Compound Amount} = \text{Principal}\left(1+\frac{r}{100}\right)^{t}$$

$$= 20000\left(1+\frac{8}{100}\right)^{2}$$

$$= 20000\times\frac{108}{100}\times\frac{108}{100}$$

$$= 23328$$

$$\text{Compound Interest} = \text{Compound Amount} - \text{Principal}$$

$$= 23328 - 20000$$

$$= 3328$$

41. Which President of India is known as the Missile Man.

(a) Dr APJ Abdul kalam (b) Gyani Zail Singh
(c) Dr. Rajendra Prasad (d) Dr. Zakir Husain

Ans. (a) : Dr APJ Abdul Kalam was born on October 15, 1931, in Rameshwaram, Tamil Nadu. Abul Pakir Jainulabdeen Abdul Kalam, the former president of India, passed away on July 27, 2015. He was known for his incredible work on the development of ballistic missiles, and launch vehicle technology, he is termed as the Missile Man of India. Dr Kalam played a crucial organisational, technical, and political role in India's Pokhran-II nuclear tests in 1998.

42. Select the option in which the words share the same relationship at that share by the given pair of words.

Music : Composer

(a) Song : Lyricist (b) Director : Drama
(c) Producer : Movie (d) Movie : Actor

Ans. (a) : As music is related to composer same as song is related to lyricist.

43. The word 'Monsoon' is derived from the _____ word 'mausim' which means 'season'

(a) Arabic (b) Sanskrit
(c) French (d) Latin

Ans. (a) : The word "monsoon" comes from the Arabic word mausim, meaning season. Basically, it describes a seasonal wind shift over a region that is usually accompanied by a dramatic increase in precipitation.

44. Which Indian cricket player got the Rajiv Gandhi Khel Ratna Award in 2018?

(a) Dinesh Kartik
(b) Rohit Sharma
(c) Mahendra Singh Dhoni
(d) Virat Kohli

Ans. (d) : Indian cricket captain Virat Kohli, and weightlifter Saikhom Mirabai Chanu, the first Indian to win gold at the World Championships in more than two decades, received the Rajiv Gandhi Khel Ratna award 2018, the highest sporting honour in the country. Now the Rajiv Gandhi Khel Ratna Award has given the name of Major Dhyanchand Khel Ratna award. Rohit Sharma was awarded with same award in 2020.

45. Who was the revenue minister of Emperor Akbar?

(a) Wazir khan (b) Noor Jahan
(c) Todar Mal (d) Abul Fazl

Ans. (c) : Raja Todar Mal was Emperor Akbar's revenue minister. Akbar introduced numerous reforms in his revenue department with the assistance of Raja Todar Mal. He introduced a new system of revenue known as zabt and a system of taxation called dahshala. He took a careful survey of crop yields and prices cultivated for a 10-year period 1570–1580.

46. Which of the following is NOT a fundamental right as per the constitution of India?

(a) Right to Constitutional Remedies
(b) Equal Justice and Free Legal Aid
(c) Freedom of speech and Expression
(d) Right of Equality

Ans. (b) : There are six fundamental rights recognised by the Indian Constitution:

1. Right to equality (Articles. 14-18)
2. Right to freedom (Articles. 19-22)
3. Right against exploitation (Articles. 23-24)
4. Right to freedom of religion (Articles. 25-28)
5. Cultural and Educational Rights (Articles. 29-30), and
6. Right to Constitutional Remedies (Article. 32)

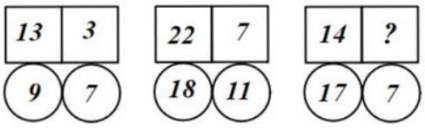
• Equal justice and free legal aid is enshrined in article 39A of DPSPs (directive principles of state policy).

47. What is the sex ratio (number of females per 1000 males) of Kerala as per the Census of India 2011?

(a) 943 (b) 1084
(c) 963 (d) 1058

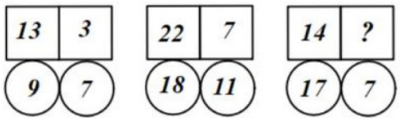
Ans. (b) : In the Population Census of 2011 it was revealed that the population ratio in India, was 943 females per 1000 males. Haryana has the lowest sex ratio (877) in Indian states while in union territory Daman Diu has lowest sex ratio of 618. Kerala has the highest sex ratio of 1084 in the all Indian states.

48. Study the given pattern carefully and select the number that can replace the question mark (?) in it.



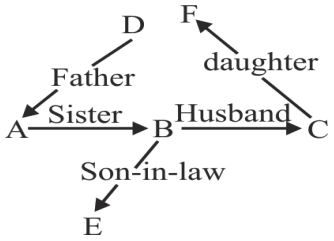
(a) 38 (b) 10
(c) 3 (d) 21

Ans. (b) :
13 + 3 = 16 22 + 7 = 29 14 + ? = 24 ? = 10



9 + 7 = 16 18 + 11 = 29 17 + 7 = 24

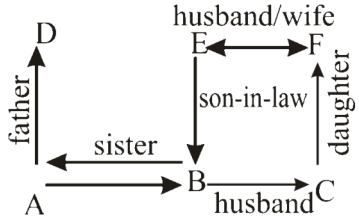
49. In the following relationship chart, A– B means A is the mother (or any other relationship) of B. Now using the chart find out how is F related to E.



(Reference–Father - Daughter - Sister - Husband - Son-in-law)

(a) Daughter (b) Spouse
(c) Sibling (d) Father

Ans. (b) :



In the following relationship chart, E and F is Spouse (Husband/Wife).

50. If $\frac{1}{25}:\frac{1}{x}=\frac{1}{x}:\frac{1}{625}$, then x = ?

(a) 25 (b) 125
(c) 625 (d) 1.25

Ans. (b) : $\frac{1}{25}:\frac{1}{x}=\frac{1}{x}:\frac{1}{625}$

$$\frac{\frac{1}{25}}{\frac{1}{x}}=\frac{\frac{1}{x}}{\frac{1}{625}} \Rightarrow \frac{1}{25}\times\frac{x}{1}=\frac{625}{x}$$

$$\Rightarrow \frac{x}{25}=\frac{625}{x} \Rightarrow x^2=25\times625$$

$$x=\sqrt{25}\times\sqrt{625}=5\times25=125$$

51. Which of the following is an example of a thermonuclear fusion reaction?

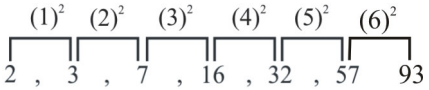
(a) Nuclear power generation
(b) Hydrogen bomb
(c) Both nuclear and hydrogen bombs
(d) Nuclear bomb

Ans. (b) : The thermonuclear reaction is the fusion of two light atomic nuclei into a single heavier nucleus by a collision of the two interacting particles with high temperatures as a consequence of which a large amount of energy is released. The hydrogen bomb is an example of an uncontrolled fusion reaction.

52. Select the option that will come next in the following series.
2, 3, 7, 16, 32, 57, ?

(a) 93 (b) 107
(c) 92 (d) 100

Ans. (a) :

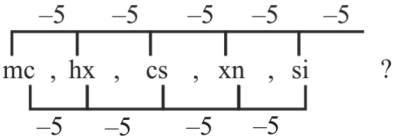


Now, square of 6 will be added to 57.
57 + 36 = 93

53. Select the option that will come next in the following series.
mc, hx, cs, xn, si, ?

(a) oe (b) mc
(c) nd (d) cx

Ans. (c) :



Thus, substracting 5 from the next term 14 = N and substracting 5 from i (9) will be 4
Hence ? will be replaced by 'nd'.

54. The headquarters of which of the following international organizations is situated Washington DC?

(a) IMF (b) ECB

(c) OECD (d) ILO

Ans. (a) :

International Organization	Headquarters
International Monetary Fund (IMF)	Washington, D.C.
European Central Bank (ECB)	Frankfurt, Germany
Organisation for Economic Co-operation and Development (OECD)	Paris, France
International Labour Organization (ILO)	Geneva, Switzerland

55. Select the option that is related to the third term in the same way as the second term is related to the first term

Shoe : Lace :: Shirt : ?

(a) Buttons (b) Sleeve

(c) Pocket (d) Collar

Ans. (a) : As shoe is related to lace same as shirt is related to Buttons.

56. During the Swadeshi movement in Bengal, a tricolour flag was designed having colours:

(a) Green, White and yellow

(b) Orange, white and green

(c) Red, green and yellow

(d) Red, green and white

Ans. (c) : The national movement made the national leaders aware that icons and symbols helped in unifying the people of the nation. Thus, during the Swadeshi Movement in Bengal, a tricolour flag was designed. Its main features were:

- The flag consisted of three colours–red, green and yellow.
- It also had eight lotuses which represented the eight British provinces in India.
- It had a crescent Moon which represented both Hindus and Muslims.

57. Which one of the following books is NOT authored by Amartya Sen?

(a) Poverty and Famines

(b) On Economic Inequality

(c) Poverty of India

(d) Resources, values, and development

Ans. (c) :

Books	Author
Poverty and Famines	Amartya Sen
Poverty of India	Dadabhai Naoroji
On Economic Inequality	Amartya Sen
Resources, values and development	Amartya Sen

58. Find the arithmetic mean of 36, 53, 50, 43, 57, 50, 40, 35, 39 and 34.

(a) 52.4 (b) 43

(c) 50 (d) 43.7

Ans. (d) :

$$\text{Arithmetic mean} = \frac{\text{Sum of observations}}{\text{Total numbers of observations}}$$

$$= \frac{36+53+50+43+57+50+40+35+39+34}{10}$$

$$= \frac{437}{10} = 43.7$$

59. What is the principal amount which earns ₹154/- as a compound interest for the second year at 10% per annum?

(a) ₹1,400.00 (b) ₹1,200.00

(c) ₹1,540.00 (d) ₹2,750.50

Ans. (a) : If the compound interest rate for the first year is 10%

from option (a)-

$$\text{Compound interest of first year} = \frac{1400\times10}{100} = ₹140$$

Principal amount of second year = 140 + 1400

$$= ₹1540$$

$$\text{Compound interest of second year} = \frac{1540}{100}\times10$$

$$= ₹154$$

Therefore option (a) is correct.

60. By how much is 2/3 of 3000 more than 2/5 of 1500?

(a) 2000 (b) 1400

(c) 1000 (d) 1500

Ans. (b) : $\frac{2}{3}$ Part of 3000 - $\frac{2}{5}$ part of 1500

$$3000\times\frac{2}{3} - 1500\times\frac{2}{5}$$

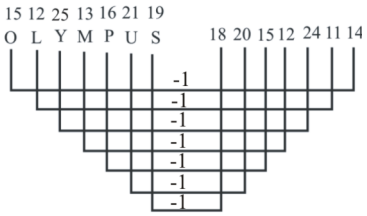
$$2000 - 600 = 1400$$

61. If in some language, OLYMPUS is written as 18201512241114, then how will MEETING be written as in that language?

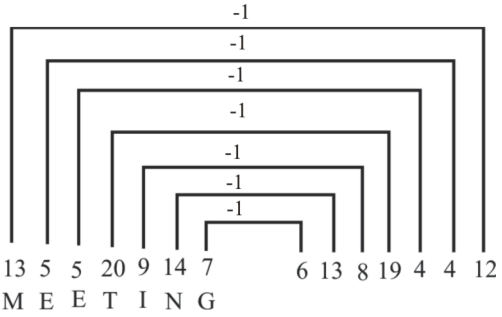
(a) 1381962144 (b) 6218418134

(c) 6138194412 (d) 6431814812

Ans. (c) : As,



Likewise,



62. Silappatikaram, a famous Tamil epic, was composed by:

(a) Kalidas (b) Chathanar

(c) Thiruvalluvar (d) IIango Adigal

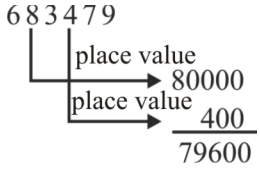
Ans. (d) : "The Tale of an Anklet" also referred to as Silappathikaram or Silappatikaram, is the earliest Tamil epic. It is a poem of 5,730 lines in almost entirely akaval (aciriyam) meter. It was written in the 5th–6th century AD by Prince Ilanko Adikal (Ilango Adigal). The epic is a tragic love story of an ordinary couple, Kannaki and her husband Kovalan.

63. Find the difference between the place values of 8 and 4 in the number 683479.

(a) 7 (b) 80000

(c) 79600 (d) 76600

Ans. (c) :



64. Which of the following sectors in Indian Economy is also known as service sector?

(a) Tertiary sector (b) Unorganized sector

(c) Secondary sector (d) Primary sector

Ans. (a) : Transport, storage, communication, banking, trade are some examples of tertiary activities. Since these activities generate services rather than goods, the tertiary sector is also called the service sector.

65. Deficiency of Vitamin C causes:

(a) Goiter (b) Scurvy

(c) Loss of vision (d) Beriberi

Ans. (b) : Scurvy, a condition caused by a severe lack of vitamin C in the diet. Vitamin C is found in citrus fruits and vegetables.

Vitamin/Mineral	Deficiency diseases/disorder	Symptoms
Vitamin A	Loss of vision	Poor vision, loss of vision in darkness (night), sometimes complete loss of vision
Vitamin B1	Beriberi	Weak muscles and very little energy to work
Vitamin C	Scurvy	Bleeding gums, wounds take longer time to heal
Vitamin D	Rickets	Bones become soft
Calcium	Bone and tooth decay	Weak bones, tooth decay
Iodine	Goiter	Glands in the neck appear swollen, mental disability in children
Iron	Anaemia	Weakness

66. In which of the following states are India's richest Hematite deposits located?

(a) Odisha

(b) Bihar

(c) West Bengal

(d) Chhattisgarh

Ans. (a) : Existing reserves of hematite merely accounts for 28% of the total iron resource of the country(28.52 billion tonnes), In India, around 70% of the hematite reserves and 50% of the total remaining resources (Total Resources 60%) are located in the States of Odisha & Jharkhand only while, Chhattisgarh and Karnataka account for around 11% each of the hematite reserves and around 40% of total remaining resources.

67. If Ramu, Rohit and Shyam together can finish a piece of work in 8 days, Ramu alone can complete this work in 16 days and Rohit in 24 days, then Shyam alone can finish this work in how many days.

(a) 24 (b) 32

(c) 16 (d) 48

Ans. (d) : Ramu, Shyam and Rohit work together in 8 days.

Ramu works in 16 days.

Rohit works in 24 days.

Let us assume Shyam may finish the work in x days.

$$\frac{1}{16}+\frac{1}{24}+\frac{1}{x}=\frac{1}{8}$$

$$\frac{3x+2x+48}{48x}=\frac{1}{8}$$

$24x + 16x + 384 = 48x$

$8x = 384$

$x = 48$

68. The expression (21.98 ×21.98+ 21.98 X + 0.04 × 0.04) will be a perfect square if x = ?

(a) 0.08 (b) 0.20
(c) 0.02 (d) 0.40

Ans. (a) : 21.98 ×21.98+ 21.98 X + 0.04 × 0.04
$\Rightarrow (21.98)^2 + (.04)^2 + \underline{2 \times 0.4} \times 21.98$
$(a + b)^2 = a^2 + b^2 + 2a \times b$
then, $2 \times .04 = x$
$x = 0.08$

69. Which chemical element is required to harden steel?

(a) Vanadium (b) Manganese
(c) Nickel (d) Chromium

Ans. (b) : Steel, alloy of iron and carbon in which the carbon content ranges up to 2 percent. Steel in general is an alloy of carbon and iron, it does contain some other elements, some of which are retained from the steel making process, other elements are added to produce specific properties. Manganese is the second most important element after Carbon on steel. Manganese is a necessity for the process of hot rolling of steel by its combination with oxygen and sulphur.It increases the hardening ability and tensile strength but decreases ductility.

70. In which year was the Tata iron and Steel Company (TISCO) incorporated?

(a) 1915 (b) 1948
(c) 1906 (d) 1907

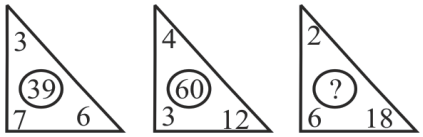
Ans. (d) : Tata Steel Limited is an Indian multinational steel-making company based in Jamshedpur, Jharkhand, and is headquartered in Mumbai, Maharashtra, India. It is a subsidiary of the Tata Group.
Formerly known as Tata Iron and Steel Company Limited (TISCO),Tata Steel Ltd was incorporated in the year 1907 with the name Tata Iron & Steel Company Ltd.

71. To raise awareness for tiger conservation, when is global tiger day celebrated?

(a) 26 July (b) 20 July
(c) 25 July (d) 29 July

Ans. (d) : 29th July is referred as the Global Tiger Day. On July 29, 2010 a number of countries became signatories to an agreement at the Saint Petersburg Tiger summit in Russia. The countries pledged to raise awareness abour the dramatic fall in the number of tigers and the steps required to preserved the species from going extinct. The theme for the 2021 International Tiger Day is "Their survival is in our hands".

72. Study the given pattern carefully and select the number that can replace the question mark (?) in it.



(a) 48 (b) 26
(c) 30 (d) 24

Ans. (a) : 7 + 6 = 13×3 = 39
3 + 12 = 15×4 = 60
6 + 18 = 24×2 = 48

73. Banda Bahadur, Military commander of Khalsa army was executed in:

(a) 1715 (b) 1717
(c) 1716 (d) 1718

Ans. (c) : Banda Singh Bahadur, also called Lachman Das, Lachman Dev, or Madho Das was a Sikh warrior and a commander of Khalsa army. He was first Sikh military leader to wage an offensive war against the Mughal rulers of India, thereby temporarily extending Sikh territory. On 9 June 1716 he was killed.

74. If $(a+b+c) = 6,\ a^2+b^2+c^2 = 2$, then ab + bc + ca = ?

(a) 4 (b) 36
(c) 34 (d) 17

Ans. (d) : Given-
$(a+b+c) = 6,\ a^2+b^2+c^2 = 2$
We know that-
$(a + b + c)^2 = a^2 + b^2 + c^2 + 2ab + 2bc + 2ca$
$(6)^2 = (a^2 + b^2 + c^2) + 2(ab + bc + ca)$
$36 = 2 + 2\ (ab + bc + ca)$
$ab + bc + ca = \frac{34}{2} = 17$

75. Find the value $\frac{119.5^2 - 116.4^2}{(119.5 - 116.4)}$

(a) 235.9 (b) 3.1
(c) 235.1 (d) 217.9

Ans. (a) : $\frac{(119.5)^2 - (116.4)^2}{(119.5 - 116.4)}$
$= \frac{(119.5 + 116.4)(119.5 - 116.4)}{(119.5 - 116.4)}$
= 119.5 + 116.4
= 235.9

76. If $\theta = 60^o$ then $\frac{2\cot^2\theta}{1 - \cot^2\theta}$ = ?

(a) $\frac{1}{\sqrt{3}}$ (b) 1

(c) $\sqrt{3}$ (d) 2

Ans. (b) : $\theta = 60^\circ$

$$\frac{2\cot^2\theta}{1-\cot^2\theta} = \frac{2\times\left(\sqrt{\frac{1}{3}}\right)^2}{1-\left(\frac{1}{\sqrt{3}}\right)^2} \qquad \because \cot 60 = \frac{1}{\sqrt{3}}$$

$$= \frac{\frac{2}{3}}{\frac{2}{3}} = \frac{2}{3}\times\frac{3}{2} = 1$$

77. Read the given statements and conclusions carefully and decide which of the conclusions logically follow(s) from the statements.

Statements:

(i) All the food recipes at ABC Restaurant have some of the spices in them that are Indian.

(ii) Some American and French cuisines are also served at this restaurant.

(iii) Some soft drinks and no milkshakes are served at this restaurant.

Conclusions:

(i) The American cuisines served at ABC Restaurant have an Indian-cuisine-hint in them.

(ii) Indian spices are also added in the French cuisine served at ABC Restaurant.

(iii) Some milkshakes and no soft drinks are served at ABC restaurant.

(a) Only Conclusion (i) follows

(b) Only Conclusion (i) and (ii) follows

(c) Only Conclusion (iii) follows

(d) Only Conclusion (i) and (iii) follows

Ans. (b) : Only Conclusion (i) and (ii) follows.

78. Find the area of the curved surface of a cone of radius 7 cm and slant height 25 cm.

(a) 550 cm^2 (b) 500 cm^2

(c) 450 cm^2 (d) 225 cm^2

Ans. (a) : Area of curved surface $= \pi r l$, r = 5 cm, l = 25cm

$$= \frac{22}{7}\times 7\times 25$$

$$= 550 \text{ cm}^2$$

79. The concept of 'sustainable development' was introduced by which one of the following reports?

(a) Johannesburg declaration

(b) Brundtland report

(c) Agenda 21

(d) Rio Declaration

Ans. (b) : The Brundtland Report, published in 1987 by the United Nations World Commission on Environment and Development, coined the term "sustainable development" and defined it as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs. As the concept of sustainable development developed, it has shifted its focus more towards the economic development, social development and environmental protection for future generations.

80. Select the option that is different from the rest.

(a) VE (b) UF

(c) QK (d) TG

Ans. (c) : VE, UF and TG are opposite pairs of each other whereas QK is different.

81. What do the letter NPK on a fertilizer pack indicates?

(a) Nitrogen, Potassium, Phosphors

(b) Nitrogen, Phosphorus, Potassium

(c) Nitrogen, Phosphoric acid, Potassium

(d) Nitric acid, Phosphorus, Potassium

Ans. (b) : All fertilizer products provide some uniform information to help consumers compare products easily. Every label carries three conspicious numbers, usually right above or below the product name. These three letters form what is called the fertilizer's N-P-K ratio — the proportion of three plant nutrients in order: Nitrogen (N), Phosphorus (P) and Potassium (K).The product's N-P-K numbers reflect each nutrient's percentage by weight.

82. The mean of 11 numbers is 44. If the mean of the first 6 numbers is 39 and that of the last 6 numbers is 48, then what is the 6th number?

(a) 34 (b) 36

(c) 38 (d) 32

Ans. (c) : $\text{Mean} = \frac{\text{Sum}}{\text{Numbers}}$

$44 = \frac{\text{sum}}{11}$

Sum of 11 numbers = 484 and sum of last 6 number = $6\times48 = 288$

Sum of first 6 number $= 6\times39 = 234$

Therefore No. of 6 the place = (Sum of first 6 number + Sum of last 6 number) – sum of 11 number

$= 288 + 234 - 484$

$= 38$

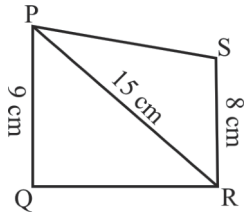
83. Who won the Dronacharya Award 2018 in Table Tennis?

(a) Vijay Sharma (b) Sandip Gupta
(c) Clarence Lobo (d) A Srinivasa Rao

Ans. (d) : The 2018 Dronacharya Award for Table Tennis was given to A Srinivasa Rao. The 2019 Dronacharya Award for Table Tennis was given to Sandip Gupta. At present, Recipients of Dronacharya Award 2020 are:-

Name of the Sportsperson	Discipline
Jude Sebastian	Hockey
Yogesh Malviya	Mallakhamb
Jaspal Rana	Shooting
Kuldeep Kumar Handoo	Wushu
Gaurav Khanna	Badminton

84. Observe the figure below and find the area of trapezium PQRS.

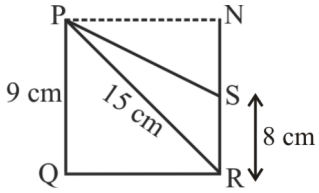


(a) 108 cm^2 (b) 114 cm^2
(c) 119 cm^2 (d) 102 cm^2

Ans. (d) : Given-

PR = 15 cm

and PQ = 9 cm



$PR^2 = PQ^2 + QR^2$

$(15)^2 = (9)^2 + QR^2$

$QR = 225 - 81$

$QR = \sqrt{144} = 12cm$

From point P we will draw a perpendicular to point N

PN = QR

PN = 12 cm

Now Area of trapezoid = $\frac{1}{2} \times$(sum of parallel side)$\times$height

$= \frac{1}{2}(9+8) \times 12$

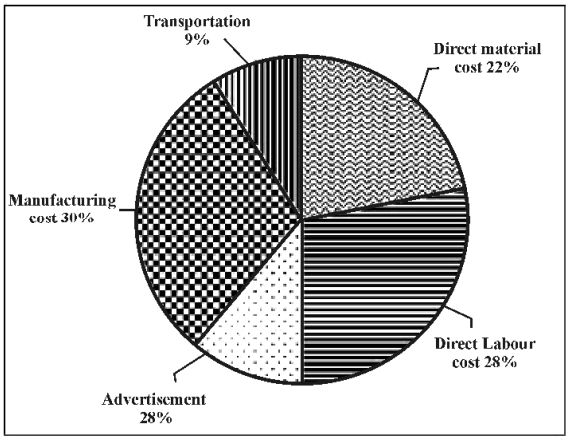
$= 102\ cm^2$

85. Which one among the following is NOT a land-based ballistic missile?

(a) Dhanush (b) Prithvi
(c) Saurya (d) Agni

Ans. (a) : The Dhanush missile is an Indian short-range, ship-launched ballistic missile (ShLBM). It is the third variant of the Prithvi missile family, which includes the Prithvi I, Prithvi II, and the Prithvi Air Defense interceptor. It has a range of 350 km and is capable of carrying a conventional as well as nuclear payload of more than 500 kg. It can hit both land and sea-based targets. It is liquid fueled, capable of carrying nuclear or conventional payloads.

86. The following pie chart shows the percentage distribution of the expenditure incurred in manufacturing furniture. Study the pie chart and answer the question that follows.



What is the central angle of the sector corresponding to the expenditure incurred on Direct labour cost

(a) 110.9º (b) 100.8º
(c) 150º (d) 90º

Ans. (b) : 100% = 360º

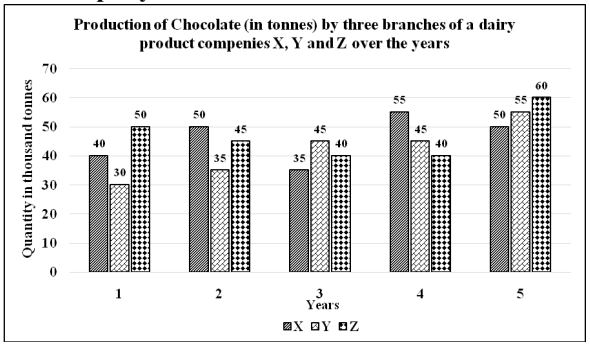
$1\% = \frac{360^\circ}{100}$

$\therefore$ Direct labour cost is 28%

Therefore, $\frac{360^\circ}{100} \times 28$

$= 100.8^\circ$

87. The given bar graph shows the data of the production of chocolates (in thousand tonne) by three branches X, Y and Z of a dairy product company.



What is the ratio of the average production by branch X in the Years 3 to 5 to the average production by branch Y in the same period.

(a) 10 : 20 (b) 3 : 04
(c) 25 : 30 (d) 28 : 29

Ans. (d) :

$$\frac{\text{The average production by branch x in the year 3 to 5}}{\text{The average production by branch y in the year 3 to 5}}$$

$$= \frac{\frac{35+55+50}{3}}{\frac{45+45+55}{3}}$$

$$= \frac{28}{29}$$

Hence 28 : 29

88. Study the following table carefully to answer the question that follows.

State / Year	Bihar	U.P.	M.P.	Punjab	Kerala
2012	410	300	250	280	440
2013	500	400	280	320	400
2014	450	450	240	260	350
2015	320	500	400	400	380
2016	500	430	540	350	420

Number of candidates appeared in the interview for the post of P.O. in a bank from five different states of India.

Identify the only State whose average of students appearing for the interview for all the years, is higher than that of U.P.

(a) Punjab (b) Kerala
(c) Madhya Pradesh (d) Bihar

Ans. (d) : According to the option (d)

Average number of Bihar's student

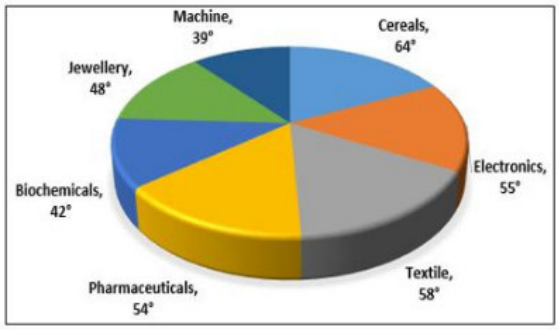
$$= \frac{410+500+450+320+500}{5} = \frac{2180}{5} = 436$$

Average number of Uttar Pradesh student

$$= \frac{300+400+450+500+430}{5} = \frac{2080}{5} = 416$$

Therefore, Bihar's average is more than U.P.

89. Study the following pie charge carefully which shows the spending of a country on importing various products from neighboring country during a particular years.



If total amount spent on imports during the years was 10 crore, then what was the amount (in ₹) spent on biochemical's and jeweller taken together?

(a) 2 crore (b) 2,60,000
(c) 2.5 crore (d) 15,00,000

Ans. (c) : Total amount spent on import = 10 Crore

Amount spent on Biochemicals - 42°

Amount spent on Jewellery - 48°

Total spend = 42° + 48° = 90°

$$360^\circ = 100000000 \Rightarrow 1^\circ = \frac{100000000}{360}$$

$$90^\circ \times 1^\circ = \frac{100000000}{360^\circ} \times 90^\circ$$

= 2.5 Crore

90. Which of the following option is eighth to the right of the 15th letter from the left in the English alphabet?

(a) U (b) W
(c) O (d) V

Ans. (b) : Required answer = $15^{th} + 8^{th} = 23^{th}$ letter will be W.

91. Four different positions of a cube are shown. Which shape is on the face opposite to the one having ●?.

(a) ○ (b) ▱
(c) ■ (d) ★

Ans. (c) :

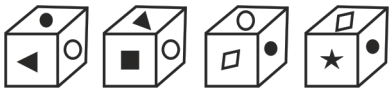


Fig. I Fig. II Fig. III Fig. IV

We solve with the help of options.

From option (a) ○, will not the answer because in Fig. I, ● and ○ is an adjacent.

From option (b) ▱, will not the answer because in Fig. III, ● and ▱ is an adjacent.

From option (c) ■, will be answer because in Fig. II, ■ and ● is not adjacent.

From option (D) ★ will not answer because in Fig. IV, ● and ★ is an adjacent.

92. Select the option that CANNOT be concluded from the statements given below.

Statements:

1. All spices are cupboards
2. All cupboards are fans
3. All doors are cupboards.

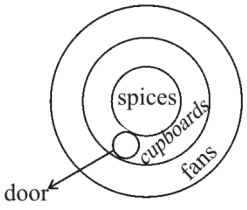
(a) Some cupboards are door

(b) All fans are spices

(c) Some fans are doors

(d) All spices are fans

Ans. (b) :



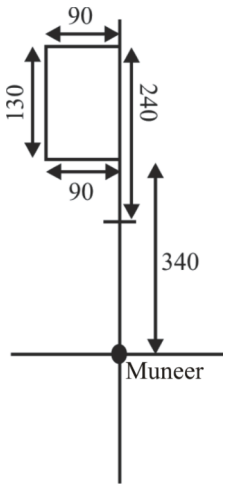
Hence option (b) is correct.

93. Muneer ran 340 steps towards north and then ran 90 steps after turning to his left. He then ran 130 steps towards his right. He then, turned towards his right and ran 90 steps. From there, he turned towards his right and ran another 240 steps. How far and in which direction is Muneer with respect to the starting point?

(a) 230 steps, North (b) 200 steps, South

(c) 100 steps, North (d) 330 steps East

Ans. (a) : As per question-



Therefore distance of Muneer = (340 + 130) – 240

= 470 – 240

= 230 m. North

94. Select the number that can replace the question mark (?) in the following series.

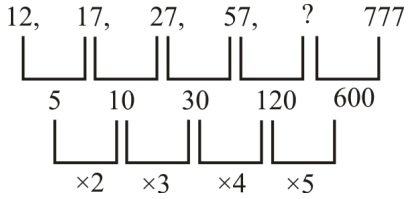
12, 17, 27, 57, ?, 777

(a) 117 (b) 87

(c) 107 (d) 177

Ans. (d) : 12, 17, 27, 57, ?, 777

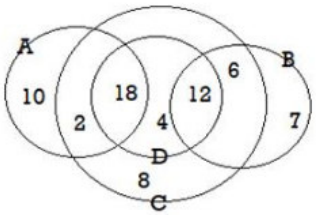
As,



Likewise,

? = 30×4+57 = 177

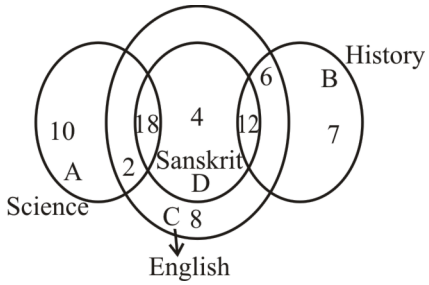
95. The following figure is a combination of 4 CIRCLES, A, B, C and D. The numbers in the figure corresponds to the number of people in that category. Circle A represents people who like Science while circle B represents the ones who like History. Circle C and D represent people who like English and Sanskrit, respectively. According to the given figure, find total number of people who like ONLY Science and ONLY English and History together?



(a) 18 (b) 55

(c) 16 (d) 28

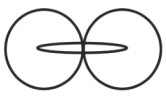
Ans. (c) :



Therefore only Science + only English and History (both) 10 + 6 = 16

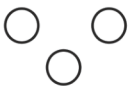
96. Select the option that correctly represents the given classes.

Brass, Copper, Zinc

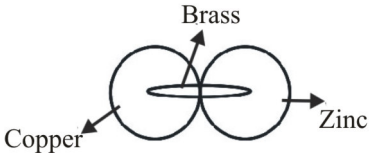
(a) 

(b) 

(c) 

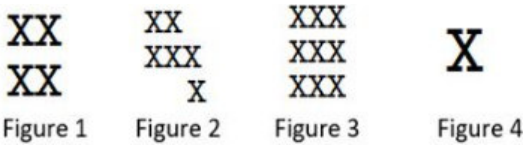
(d) 

Ans. (a) : We know that Brass is the mixture of copper and Zinc.



Hence option (a) will be correct.

97. Three of the following four figures are similar in a certain way and one is different. Select the figure that is different.



(a) Figure 3 (b) Figure 1

(c) Figure 4 (d) Figure 2

Ans. (c) : Figure 4 is odd becaue another figure are in group whereas Figure 4 is single.

98. Study the given pattern carefully and select the alphabet that can replace the question mark (?) in it.

(a) D (b) T

(c) Z (d) C

Ans. (a) :

As-

T = 20

P + D = 16 + 4 = 20

F + A + M = 6 + 1 + 13 = 20

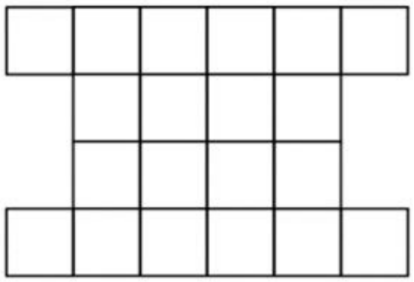
Likewise-

F + I + A + ? = 20

6 + 9 + 1 + ? = 20

? = D

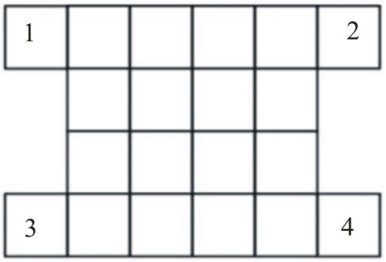
99. How many squares are there in the following figure?



(a) 30 (b) 24

(c) 20 (d) 34

Ans. (d) : Numbers of squares $= 1^2 + 2^2 + 3^2$.....



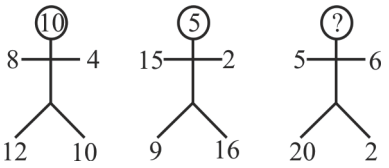
$1^2 + 2^2 + 3^2 + 4^2$

∵ In this big square contains 4 small squares.

Hence $1^2 + 2^2 + 3^2 + 4^2 = 1 + 4 + 9 + 16 = 30$

Total square $= 30 + 4 = 34$

100. Study the given pattern carefully and select the number that can replace the question mark (?) in it.



(a) 8

(b) 43

(c) 15

(d) 0

Ans. (a) : As-

(8×4) – (12 + 10) = 10

and

(15×2) – (9 + 16) = 5

Likewise-

(5×6) – (20 + 2) = 8

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 05.03.2021] **[Time : 3.00 pm-4.30 pm]**

1. The Kyoto Protocol is NOT applicable to which country?

(a) USA (b) Australia

(c) Japan (d) Indonesia

Ans. (a) : The Kyoto Protocol was an international treaty which extended the 1992 United Nations Framework Convention on Climate Change (UNFCCC) that commits countries to reduce greenhouse gas emissions. The Kyoto Protocol was adopted in Kyoto, Japan, on 11 December 1997 and entered into force on 16 February 2005. As of 2020, the US is the only signatory that has not ratified the Protocol.

2. If $\sin x - 5\cos x = 2\sqrt{6}\cos x$, then the value of cotx is :

(a) $5+2\sqrt{6}$ (b) $5-2\sqrt{6}$

(c) 1 (d) $2\sqrt{6}$

Ans. (b) : $\sin x - 5\cos x = 2\sqrt{6}\cos x$

$\sin x = 5\cos x + 2\sqrt{6}\cos x$

$\sin x = (5+2\sqrt{6})\cos x$

$$\frac{\sin x}{\cos x} = 5+2\sqrt{6}$$

or $$\frac{\cos x}{\sin x} = \frac{1}{5+2\sqrt{6}}$$

$$\cot x = \frac{1}{5+2\sqrt{6}} \times \frac{5-2\sqrt{6}}{5-2\sqrt{6}} = \frac{5-2\sqrt{6}}{25-24} = 5-2\sqrt{6}$$

3. Given that $a = \sqrt{4}$, find the value of the following.

$\sqrt{9} + 25a + \sqrt{64}$

(a) 51 (b) 61

(c) 41 (d) 31

Ans. (b) : Given that, $a = \sqrt{4} = 2$

According to the question,

$\sqrt{9} + 25a + \sqrt{64}$

$= 3 + 25 \times 2 + 8$

$= 3 + 50 + 8$

$= 61$

4. Select the option that is related to the third term in the same way as the second term is related to the first term.

Ankle : Knee :: Wrist : ?

(a) Palm (b) Finger

(c) Hand (d) Elbow

Ans. (d) : Just as ankle and knee are related to the joint of the bones of the foot, similarly the wrist and elbow are related to the joint of the bones of the hand.

5. Co-founder of Wikileaks Julian Assange is a computer programmer of which country?

(a) Australia (b) Russia

(c) UK (d) USA

Ans. (a) : Julian Assange is an Australian computer programmer who founded the media organization WikiLeaks. Assange created WikiLeaks in 2006 to serve as a clearinghouse for sensitive or classified documents in May 2011. The Sydney peace foundation has awarded his gold medal for peace with justice to Julian Assange

6. During the first decade of 20th century. Which place was considered as nerve centre of Indian nationalism?

(a) Bengal (b) Bihar

(c) Uttar Pradesh (d) Madras

Ans. (a) : During the first decade of 20th century Bengal became a centre of modern culture, intellectual and scientific activities, politics and education and was considered as the nerve centre of Indian nationalism.

7. Which of the following states have the highest number of operational landholders as per the agriculture census for 2015-16?

(a) Bihar (b) Maharashtra

(c) Rajasthan (d) Uttar Pradesh

Ans. (d) : The total number of operational land holdings in the country has increased from 138 million in 2010-11 to 146 million in 2015-16. Uttar Pradesh is largest number of land holders, constituting 16% of the total number followed by Bihar and Maharashtra.Small and marginal holdings (below two hectares) constituted 86.21% of the total land holdings.

8. India's Polar Satellite Launch Vehicle (PSLV)-C45 successfully lunched _____ on 1st April, 2019.

(a) DELSAT (b) EMISAT
(c) INSAT (d) GSAT

Ans. (b) : The PSLV-C45 is the 47th mission of the Indian Polar Satellite Launch Vehicle (PSLV) program. The Polar Satellite Launch Vehicle (PSLV)-C45 was launched on 1 April 2019 with EMISAT (Electromagnetic Intelligence-Gathering Satellite) and a payload of 29 satellites, including one for electronic intelligence, along with 28 customer satellites from other countries from Satish Dhawan Space Centre (SDSC) SHAR in Sriharikota.

9. The Radcliffe Line has become the international border between:

(a) India and Bangladesh (b) India and Pakistan
(c) India and Nepal (d) India and China

Ans. (b) :

Countries	International Boundary
Afghanistan- Pakistan	Durand Line
India- China	McMohan Line
India- Pakistan	Radcliffe Line
USA - Canada	49th Parallel

10. The International Telecommunication Union (ITU) ..... founded in_____to provide International connectivity in communication networks.

(a) 1945 (b) 1995
(c) 1865 (d) 1885

Ans. (c) : The International Telecommunication Union (ITU) is an agency of the United Nations (UN) whose purpose is to coordinate telecommunication operations and services throughout the world. Originally founded on 17 May 1865, as the International Telegraph Union. It is headquartered in Geneva, Switzerland, the ITU's global membership includes 193 countries.

11. The first Pradhanacharya of the Brahmo Samaj was:

(a) Swami Vivekanand
(b) Raja Ram Mohan Roy
(c) Ishwar Chandra Vidyasagar
(d) Ramakrishna Paramhans

Ans. (b) : Brahmo Samaj was founded on 20 August 1828 in Kolkata by Raja Ram Mohan Roy. The Pradhanacharya-first of Brahmo Samaj was Raja Ram Mohan Roy. It acted as the first important organization of religious reforms. It forbade idol worship and discarded meaningless rites and rituals.The greatest achievement in the field of social reform was the abolition of Sati in1829. He advocated the abolition of polygamy and wanted women to be educated and given the right to inherit property.

12. Select the option that is different from the rest.

(a) JQ (b) CX
(c) KQ (d) LO

Ans. (c) :

(a) J → Q (b) C → X

Opposite letter Opposite letter

(c) K → Q (+6) (d) L → O

Opposite letter

Hence, KQ is irrelevant with all others.

13. What decimal of an hour is a second?

(a) 0.00027 (b) 0.027
(c) 0.27 (d) 0.0027

Ans. (a) : Required decimal number $=\frac{1}{60\times 60}=0.00027$

14. The National Electronics Policy (NEP) 2019 aims to create an SPF. What does SPF stand for?

(a) Sovereign Protection Fund
(b) Sovereign Protection Factor
(c) Sovereign Patent fund
(d) Sovereign Patent Factor

Ans. (c) : The National Electronics Policy (NEP), 2019 aims to create a Sovereign Patent Fund (SPF) to promote the development and acquisition of IPs (Intellectual Property) in Electronics System Development and Maintenance (ESDM) sector.

15. Who was the Chief Election Commissioner of India during the Lok Sabha Elections of 2019?

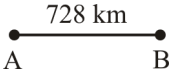
(a) Sunil Arora (b) Om Prakash Rawat
(c) TN Seshan (d) Nasim Zaidi

Ans. (a) : Sunil Arora was the 23rd Chief Election Commissioner of India. On 26 November 2018, he assumed the office of Chief Election Commissioner in December 2018, succeeding Om Prakash Rawat. He supervised the conduct of 2019 Lok Sabha election and several state elections during his tenure. Currently, Sushil Chandra is the 24th Chief Election Commissioner and the two Election Commissioners are Rajiv Kumar and Anup Chandra Pandey.

16. Suhas can cover the distance between point A and point B in 7 hours, if he travels at an average speed of 104 km/h. He travelled for the first four hours at an average speed of 118 km/h. What should be his average speed for the rest of the journey, if he wants to reach his destination in a total time of 8 hours from the start of the journey?

(a) 72 km/h (b) 60 km/h
(c) 70 km/h (d) 64 km/h

Ans. (d) :



The total distance between A to B can be covered by Suhas in 7 hours $= 104 \times 7 = 728$ km

Distance covered in first 4 hours $= 118 \times 4 = 472$ km

Remaining distance $= 728 - 472 = 256$ km

Average speed in last 4 hours $= \frac{256}{4} = 64$ km/h

17. A fruit seller has some oranges. He sells 60% of them and still has 360 oranges. Originally, he had _____ oranges.

(a) 930 (b) 920
(c) 950 (d) 940

Ans. (c) : Let the fruit seller had x oranges.

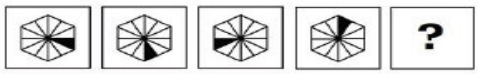
The remaining oranges after the sale of 60% of the oranges = 40%

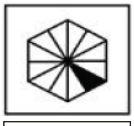
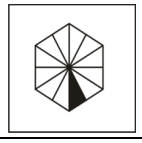
According to the question-

$$x \times \frac{40}{100} = 380$$

$$x = 950$$

18. Select the figure from the options that when placed in the blank space will complete the pattern.



(a) 
(b) 
(c) 
(d) 

Ans. (d) : The given hexagon figures are divided into 12 parts. In these, the parts blackened from first figure to second figure, third figure and fourth figure respectively were blackened in clockwise direction at intervals of 1, 2 and 3 parts respectively. So the next figure will be the shape of option (d) which will come in place of the question mark (?).

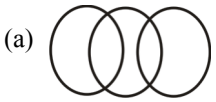
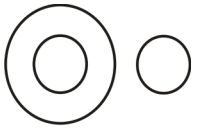
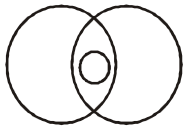
19. GPRS stands for:

(a) General Popular Radio System
(b) Guiding Packet Radio Systems
(c) General Payment Radio Services
(d) General Packet Radio Services

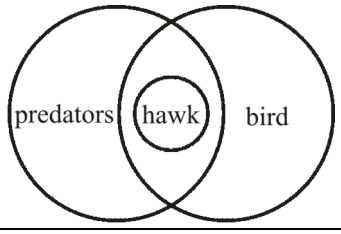
Ans. (d) : GPRS stands for General Packet Radio Service. It is a packet oriented wireless data communication service for mobile communications on 2G and 3G cellular communication systems. It is non-voice, high speed packet switching technology intended for GSM networks.

20. Select the Venn diagram that best represents the relationship between the given set of classes.

Hawk, Predator, Bird

(a) 
(b) 
(c) 
(d) 

Ans. (d) : The best relationship among hawk, predator and bird is as follows Venn diagram-



21. _____ is the first lagged Indian item under the Geographic Indicatoc tag through the TRIPS Agreement.

(a) Indian Neem (b) Indian Turmeric
(c) Darjeeling Tea (d) Basmati Rice

Ans. (c) : India, as a member of the World Trade Organization (WTO), enacted the Geographical Indications of Goods (Registration & Protection)Act, 1999 has come into force with effect from 15th September 2003. Darjeeling Tea was the first Indian product to get the Geographical Indication (GI) tag. In 2004, the famous beverage got recognition.

22. Muriatic acid is scientifically known as:

(a) Perchloric Acid (b) Hydrochloric Acid
(c) Sulphuric Acid (d) Picric Acid

Ans. (b) : Muriatic acid is a colorless, ultra-pungent solution consisting of hydrogen chloride in water. It is a very strong mineral and highly corrosive with numerous industrial uses. It was historically produced with a common salt and vitriol, a kind of sulfuric acid. Muriatic acid is scientifically known as hydrochloric acid.

23. RLV-TD of ISRO, an unmanned test bed, stands for:

(a) Reusable Satellite Long Vehicle-Technology Demonstrator

(b) Refillable Satellite Long Vehicle-Technology Demonstrator

(c) Relaunchable Satellite Long Vehicle-Technology Demonstrator

(d) Reusable Satellite Launch Vehicle-Technology Demonstrator

Ans. (d) : Reusable Launch Vehicle – Technology Demonstrator (RLV-TD) is one of the most technologically challenging endeavors of ISRO towards developing essential technologies for a fully reusable launch vehicle to enable low cost access to space. The configuration of RLV-TD is similar to that of an aircraft and combines the complexity of both launch vehicles and aircraft. RLV-TD was successfully flight tested on 23 May 2016 from SDSC SHAR Sriharikota validating the critical technologies such as autonomous navigation, guidance & control, reusable thermal protection system and re-entry mission management.

24. Which bank recently in April 2019 became the 3rd higher bank of India after the merge with two other banks".

(a) Punjab National Bank (b) Indian bank

(c) State Bank of India (d) Bank of Baroda

Ans. (d) : In April 2019 Dena, Vijaya Bank merged to Bank Of Baroda to form India's 3rd largest bank. After the process is complete, as of now India have 12 Public Sector Banks (PSBs) instead of 27 backs in 2017.

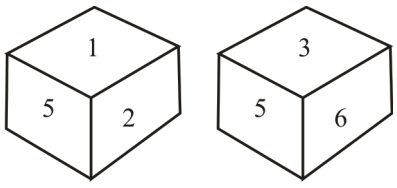
25. Convert $\frac{8}{9}$ into a decimal number.

(a) 0.85 (b) 0.88

(c) 0.91 (d) 0.77

Ans. (b) : Required decimal number $= \frac{8}{9} = 0.88$

26. Two positions of a rotated cube are shown below.



Which number will be at the bottom, when 5 is on the top?

(a) 2 (b) 3

(c) 6 (d) 4

Ans. (d) : $5 \xrightarrow{\text{Opposite side}} 4$ Common surface

$1 \xrightarrow{\text{Opposite side}} 3$

$2 \xrightarrow{\text{Opposite side}} 6$

Hence, the opposite side of 5 will be the number 4.

27. The ratio of the age of Naresh and Suresh is 6 : 5 and the sum of their ages is 44 years. The ratio of their respective ages after 15 years will be:

(a) 34 : 39 (b) 39 : 34

(c) 39 : 35 (d) 30 : 35

Ans. (c) : Let the age of Naresh and Suresh be 6x and 5x.

According to the question-

$6x + 5x = 44$

$11x = 44$

$x = 4$

The ratio of age after 15 years $= \frac{6x+15}{5x+15} = \frac{6\times4+15}{5\times4+15} = \frac{39}{35}$

28. The share of the Government of India (GOI) in NABARD has increased to _____ in April 2019.

(a) 50.00% (b) 100%

(c) 90.00% (d) 75%

Ans. (b) : The RBI divested its entire stake in NABARD on 26 February 2019 and with this, the Government of India now holds 100% stake in NABARD. It came into existence on 12 July 1982 by transferring the agricultural credit functions of RBI and refinance functions of the then Agricultural Refinance and Development Corporation (ARDC). It was established to provide credit for the promotion of the agriculture, SSI and cottage and village industry. It is an apex bank for agriculture. Its finances are available to SLDBs, SCBs (State Cooperative Banks), Scheduled Commercial Banks, and RRBs.

29. Find the value of the following.

$4.6 \times 13.5 + 5.4 \times 13.5$

(a) 134 (b) 135

(c) 132 (d) 133

Ans. (b) : $4.6 \times 13.5 + 5.4 \times 13.5$

$= 13.5(4.6 + 5.4)$

$= 13.5 \times 10$

$= 135$

30. The process of separating cotton fibers from seeds is called:

(a) Ginning (b) Carding

(c) Scutching (d) Spinning

Ans. (a) : Cotton is obtained from cotton balls. These balls burst and open on maturing after which white strands of cotton fibre are visible. The process of separation of cotton fibres from seeds is known as ginning.

31. Study the given pattern carefully and select the number that can replace the question mark (?) in it.

6	**38**	**9**	**21**	**4**	**6**
10	**8**	**15**	**4**	**6**	**?**

(a) 16 (b) 3
(c) 1 (d) 60

Ans. (b) : Just as, $(6\times8) - 10 = 38$
and $(9\times4) - 15 = 21$
Similarly, $(4\times?) - 6 = 6$
$4\times? = 12$
$? = 3$
Hence the number 3 will come in place of the question mark (?).

32. Select the option in which the words share the same relationship as that shared by the given pair of words
Rhino : Horn

(a) Elephant : Tusk (b) Cow : Calf
(c) Dog : Bark (d) Donkey : Bray

Ans. (a) : Just as the rhinocerous has horns, Similarly the elephant has tusk.

33. A spring balance is a device commonly used for measuring the ——— acting on an object.

(a) Mass (b) Velocity
(c) Force (d) Momentum

Ans. (c) : Spring balance is a mechanical device used for measuring the weight or force of an object by opposing the force of gravity with the force of an extended spring.

34. What is the domain of sine function?

(a) N (b) R
(c) W (d) Z

Ans. (b) : The domain of sine function is R (set of real numbers). The range of sine is [-1, 1].

35. Which of the following states has the largest Uranium reserves in India?

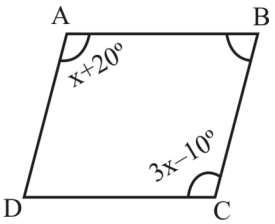
(a) Andhra Pradesh (b) Odisha
(c) Punjab (d) Himachal Pradesh

Ans. (a) : The state of Andhra Pradesh is the largest producer of uranium in India. Tummalapalle village, located in the Kadapa district of Andhra Pradesh, is may be considered as one of the largest uranium reserves in the world. India has uranium reserves in Rajasthan, Jharkhand, Chhattisgarh, Meghalaya, Telangana, Andhra Pradesh and Karnataka. It is currently operating mines in Jharkhand and Andhra Pradesh.

36. ABCD is a parallelogram in which $\angle A = x + 20^\circ$ and $\angle C = 3x - 10^\circ$. The value of x is _____.

(a) 40° (b) 30°
(c) 15° (d) 60°

Ans. (c) : The opposite angles in a parallelogram are equal i.e.
$\angle A = \angle C$
$\angle B = \angle D$

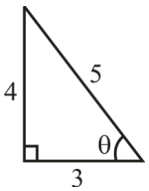


$x + 20^\circ = 3x - 10^\circ$
$2x = 30^\circ$
$x = 15^\circ$

37. If $\sin\theta = \frac{4}{5}$ and θ is NOT in the first quadrant, then find the value of cosθ.

(a) $\frac{4}{5}$ (b) $\frac{3}{5}$
(c) $\frac{-4}{5}$ (d) $\frac{-3}{5}$

Ans. (d) : Given-
$\sin\theta = \frac{4}{5}$ (here the value of $\sin\theta = \frac{4}{5}$ is positive)



The value of sin θ is positive only in the first and second quadrants while given that is not in the first quadrant. So (θ) will be in the second quadrent.
In the second quadrant, $\cos\theta = -\frac{3}{5}$ (Negative) because in second quadrant cos θ will be-negative.

38. The Chinaman style of bowling in Cricket has been named after:

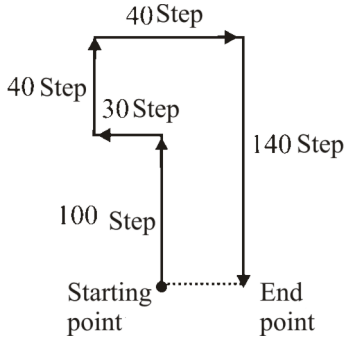
(a) An Indian bowler of Chinese origin
(b) An Australian bowler of Chinese origin
(c) An English bowler of Chinese origin
(d) West Indies bowler of Chinese origin

Ans. (d) : The term is traditionally believed to have originated with the former West Indian spinner Ellis Achong. Back in 1933, England hosted West Indies in a Test match in Old Trafford. Achong bowled an unexpected delivery from his wrist which got a sharp turn after pitching outside off and got the English batsman Walter Robins stumped. From then, left-arm wrist spinners have been referred to as chinaman bowlers.

39. Karan walked 100 steps towards the north and then walked 30 steps after turning to his left. Then he walked 40 steps towards his right, Then he, turned towards his right and walked 40 steps. From there turning towards his right he walked 140 steps. How far and in which direction is Karan with respect to the starting point.

(a) 10 Steps, West (b) 20 Steps, North
(c) 10 Steps, East (d) 20 Steps, West

Ans. (c) : The path of travel of Karan's as follows-



Hence, Karan is 10 steps east from his starting point.

40. Who among the following first conceived the idea of the Indian National Army?

(a) Subhash Chandra Bose
(b) Rash Behari Bose
(c) Mohan Singh
(d) Lala Hardayal

Ans. (c) : The idea of the Indian National Army (INA) was first conceived in Malaya by Mohan Singh. He was Indian officer of the British Indian Army. It was an armed force formed by Indian nationalists in 1942 in Southeast Asia during World War II. It was again strengthened under the leadership of Subash Chandra Bose.

41. The concept of Federation with strong Centre in the Indian Constitution has been taken from:

(a) Great Britain (b) Canada
(c) USA (d) Ireland

Ans. (b) : List of Borrowed Features of Indian Constitution:

Name of Countries	Borrowed Features of the Constitution
Britain	1. Parliamentary government 2. Rule of Law 3. Legislative procedure 4. Single citizenship 5. Cabinet system 6. Prerogative writs 7. Parliamentary privileges 8. Bicameralism
Ireland	1. Directive Principles of State Policy 2. Method of Election of the president 3. Members nomination to the Rajya Sabha by the President
Unites States of America	1. Impeachment of the president 2. Functions of president and vice-president 3. Removal of Supreme Court and High court judges 4. Fundamental Rights 5. Judicial review 6. Independence of judiciary 7. The preamble of the constitution
Canada	1. Centrifugal form of federalism where the centre is stronger than the states. 2. Residuary powers vest with the centre 3. Centre appoints the Governors at the states 4. Advisory jurisdiction of the supreme court
Australia	1. Concept of Concurrent list 2. Article 108 i.e. Joint sitting of the two houses 3. Freedom of trade and commerce
USSR (Now Russia)	1. Fundamental duties 2. The ideals of justice (social, economic and political), expressed in the Preamble.
France	1. Concept of "Republic"

	2. Ideals of Liberty, Equality and Fraternity (contained in the Preamble)
Germany	1. Fundamental Rights are suspended during Emergency
South Africa	1. Election of members of the Rajya Sabha 2. Amendment of the Constitution
Japan	1. Concept of "procedure established by Law"

42. If $\frac{a}{3}=\frac{b}{4}=\frac{c}{7}$, then $\frac{a+b+c}{c}$ is equal to :

(a) 3 (b) 2

(c) 1 (d) 4

Ans. (b) : Let $\frac{a}{3}=\frac{b}{4}=\frac{c}{7}=k$

Then a = 3k, b = 4k, c = 7k

According to the question,

$$\frac{a+b+c}{c}=\frac{3k+4k+7k}{7k}=\frac{14k}{7k}=2$$

43. In a code language, BIHAR is written as AGEWM and GUJARAT is written as FSGWMUM. How will KASHMIR written as in that code language?

(a) JYPDCHK (b) JYPDHCK

(c) JYPHDCK (d) JYPCHDK

Ans. (b) : Just as,

$B \xrightarrow{-1} A$ and $G \xrightarrow{-1} F$

$I \xrightarrow{-2} G$ $U \xrightarrow{-2} S$

$H \xrightarrow{-3} E$ $J \xrightarrow{-3} G$

$A \xrightarrow{-4} W$ $A \xrightarrow{-4} W$

$R \xrightarrow{-5} M$ $R \xrightarrow{-5} M$

$A \xrightarrow{-6} U$

$T \xrightarrow{-7} M$

$K \xrightarrow{-1} J$

$A \xrightarrow{-2} Y$

$S \xrightarrow{-3} P$

Similarly, $H \xrightarrow{-4} D$

$M \xrightarrow{-5} H$

$I \xrightarrow{-6} C$

$R \xrightarrow{-7} K$

Hence, KASHMIR is written as JYPDHCK.

44. What does CDMA stand for?

(a) Code Division Maximum Access

(b) Core Division Multiple Access

(c) Core Division Maximum Access

(d) Code Division Multiple Access

Ans. (d) : CDMA stands for Code Division Multiple Access. It is a wireless technology used in the transmission of signals from places with high security and noise reduction.The principle of the spread spectrum is used to work with CDMA. CDMA is not frequency specific to each user, instead, every channel uses the full available spectrum.

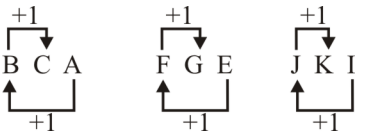
45. Select the option that will fill in the blank and complete the given series.

BCA, WVX, FGE, SRT, JKI, ——

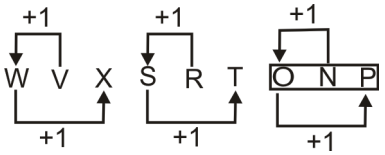
(a) OPN (b) NOM

(c) ONP (d) MNL

Ans. (c) : The given letter sorts will be as follows-



and



Hence the complete series is as follows.

BCA, WVX, FGE, SRT, JKI, ONP

46. The Battle of Plassey was fought between the East India Company and the:

(a) Nawab of Hyderabad (b) Nawab of Bengal

(c) Marathas (d) Mughals

Ans. (b) : The Battle of Plassey was fought between the British East India Company headed by Robert Clive and Siraj-ud-Daulah, Nawab of Bengal and this battle took place on 23rd June 1757. The victory of British East India company in the battle is one of the most important event in Indian History.

47. If the cost price of 12 pens is equal to the selling price of 8 pens, the percentage gain is:

(a) 30% (b) 50%

(c) 20% (d) 40%

Ans. (b) : 12 CP = 8 SP

$$\frac{CP}{SP}=\frac{8}{12}=\frac{2}{3}$$

Required Profit% $=\frac{(3-2)}{2}\times 100=50\%$

48. The World Wildlife Fund (WWF) logo is a/an _____.

(a) Elephant (b) Red Panda
(c) Tiger (d) Giant panda

Ans. (d) : World Wide Fund for Nature (WWF) is an international non-governmental organization founded on 29 April 1961, headquartered in Gland, Switzerland. The Giant panda is the featured animal on the logo for World Wildlife Fund as a symbol of all endangered species that would be able to thrive if permitted the range and natural environment of their origin. The Giant panda is representative of World Wildlife Fund's commitment to protect wildlife and wild spaces.

49. Select the option that can not be concluded from the statements given below:

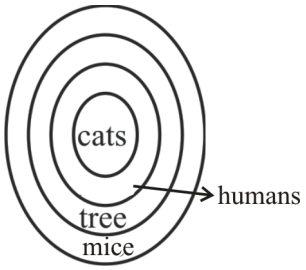
Statement 1: All cats are humans.

Statement 2 : All trees are mice.

Statement 3 : All human are trees.

(a) Some humans are not mice
(b) All trees are not cats.
(c) Some trees are not cats.
(d) All cats are mice

Ans. (a) : On making Venn diagram-



Option (a) some humans are not rats is not correct.

50. The president of India nominates two members of the _____ community in the Lok Sabha.

(a) Indian Buddhist (b) Indian Jain
(c) Anglo-Indian (d) Parsi

Ans. (c) : Article 331: Representation of the Anglo-Indian community in Lok Sabha, It says that President may appoint two members from Anglo-Indian community to Lok Sabha, if in his opinion that this community is not represented adequately, notwithstanding anything mentioned in Article 81 which deals with composition of Lok Sabha.The two seats are reserved in the Lok Sabha, the lower house of the Parliament of India, for members of the Anglo-Indian community. These two members were nominated by the President of India on the advice of the Government of India.

51. Qamar sold 18 toys for ₹980, thereby making a loss equal to the cost price of 4 toys. What the cost price of each toy?

(a) ₹ 60 (b) ₹ 75
(c) ₹ 70 (d) ₹ 80

Ans. (c) : Selling price of 18 toys = ₹980
Loss = cost price is equal of 4 toys
18CP = 18SP + 4CP
14CP = 18SP

$$\frac{CP}{SP}=\frac{18}{14}=\frac{9}{7}$$

or CP of 1 toys $=\frac{9}{7}SP$

While selling price of 1 toy $SP=\frac{980}{18}$

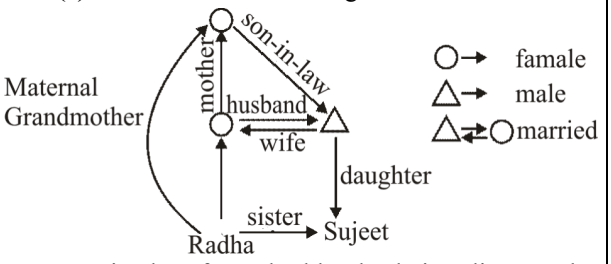
According to question-

Cost price of 1 toy $=\frac{980}{18}\times\frac{9}{7}=₹70$

52. Pushpa introduced her friends to Sujeeta and Radha by saying, 'Radha's maternal grandmother's only son-in-law is Sujeeta's father. From the options given below, how is Sujeeta related to Radha"?

(a) Mother-in-law (b) Maternal aunt
(c) Sister (d) Mother

Ans. (c) : The blood relation diagram is a follows-



Hence, It is clear from the blood relation diagram that Sujeeta is the sister of Radha.

53. Trachea is a part of the _____ system of the human body.

(a) cardiac (b) respiratory
(c) excretory (d) digestive

Ans. (b) : Trachea is a part of the respiratory system of the human body. Trachea, commonly known as the windpipe, is a tube about 4 inches long and less than an inch in diameter in most people. The trachea begins just under the larynx (voice box) and runs down behind the breastbone (sternum). The trachea then divides into two smaller tubes called bronchi: one bronchus for each lung.The trachea is composed of about 20 rings of tough cartilage. The back part of each ring is made of muscle and connective tissue. Moist, smooth tissue called mucosa lines the inside of the trachea. The trachea widens and lengthens slightly with each breath in, returning to its resting size with each breath out.

54. The first 5 year plan of the Government of India was based on the:

(a) P.C. Mahalanobis Model
(b) Keynesian IS/LM Model
(c) Harrod-Domar Model
(d) Gadgil Model

Ans. (c) : The First Five-year Plan was launched in 1951 which mainly focused in the development of the primary sector(such as farming, logging, hunting, fishing, and mining). The First Five-Year Plan was based on the Harrod–Domar model with few modifications.

55. Which of the following organelles is called suicidal bags of the cell?

(a) Lysosomes (b) Chloroplasts
(c) Golgi complex (d) Mitochondria

Ans. (a) : Lysosomes are sphere-shaped sacs filled with hydrolytic enzymes that have the capability to break down many types of biomolecules. They are produced by the Golgi body. They consist of a single membrane surrounding powerful digestive enzymes. Lysosomes are known as suicide bags of the cell because they contain lytic enzymes capable of digesting cells and unwanted materials. Autolysis and burst open when the cell is damaged. This causes the hydrolytic enzymes to be released. The released enzymes then digest their own cell, causing the cell to die. As a result, they're known as cell suicide bags.

56. Ramu can reach a certain distance to 30 hours. If he reduce his speed by $\frac{1}{15}^{th}$, he goes 10 km less in that time. Find his speed.

(a) 4 km/h (b) 5 km/h
(c) $5\frac{1}{2}$ km (d) 6 km/h

Ans. (b) : Let distance = x

Speed of Ramu = y

From, Speed = $\frac{\text{Distance}}{\text{Time}}$

In first condition-

$$y = \frac{x}{30} \text{.....(i)}$$

In second condition-

$$\frac{14y}{15} = \frac{(x-10)}{30}$$

$$420y = 15x - 150 \text{ .....(ii)}$$

On putting the value of $y = \frac{x}{30}$ from eq. (1) to eq. (ii)-

$$420 \times \frac{x}{30} = 15x - 150$$

$$\frac{42x}{3} = 15x - 150$$

$$14x - 15x = -150$$

distance (x) = 150 km

Now eq. from (i)-

Speed (y) = $\frac{150}{30}$

Speed (y) = 5 km/h.

57. Simplify the following.

$$5\frac{3}{9} \div 3\frac{1}{4} \times 7\frac{5}{16} + \frac{7}{8} \times 16$$

(a) 30 (b) 29
(c) 26 (d) 28

Ans. (c) : $5\frac{3}{9} \div 3\frac{1}{4} \times 7\frac{5}{16} + \frac{7}{8} \times 16$

$$= \frac{48}{9} \times \frac{4}{13} \times \frac{117}{16} + 14$$

$$= \frac{3 \times 4 \times 9}{9} + 14$$

= 12 + 14

= 26

58. There is a group of 5 people A, B, C, D and E. Out of them, one is a teacher, one is a doctor, one is lawyer, one is an engineer and one is a writer. Teacher, A and B prefer cold drink. The lawyer and D prefer coffee. The teacher is the brother of C. Who among the five is a teacher?

(a) D (b) C
(c) E (d) B

Ans. (c) :

People	Occupation	Drinkable items
A	-	cold drink
B	-	cold drink
C	lawyer	coffee
D	-	coffee
E	teacher	cold drink

59. Ramu and Somu together can complete a task in 10 days. Somu and Dhamu together can complete it in 12 days. Dhamu and Ramu together can complete it in 15 days. If Ramu, Somu and Dhamu work together, in how many days will they complete the task?

(a) 8 (b) 6
(c) 9 (d) 7

Ans. (a) : (Ramu+Somu) one day's work $= \frac{1}{10}$

(Somu+Chamu) one day's work $= \frac{1}{12}$

(Dhamu+Ramu) one day's work $= \frac{1}{15}$

2 (Ramu+Somu+Dhamu) one day's work

$$= \left(\frac{1}{10}+\frac{1}{12}+\frac{1}{15}\right)$$

$$= \frac{6+5+4}{60}$$

$$= \frac{15}{60}=\frac{1}{4}$$

(Ramu+Somu+Dhamu) one day's work

$$= \frac{1}{4\times 2}=\frac{1}{8}$$

$\because \frac{1}{8}$ of work done by (Ramu+Somu+Dhamu) in one day.

Hence, total time taken to complete the work is 8 days.

60. What percentage of a day is 3 h?

(a) $16\frac{1}{2}\%$ (b) $10\frac{1}{2}\%$

(c) $14\frac{1}{2}\%$ (d) $12\frac{1}{2}\%$

Ans. (d) : Let x% of a day be equal to 3 hours.

According to the question-

$$24\times\frac{x}{100}=3$$

$$x=\frac{100}{8}=\frac{25}{2}=12\frac{1}{2}\%$$

61. OTPC is a joint venture of which of the following PSUs?

(a) ONGC (b) CIL

(c) SAIL (d) NTPC

Ans. (a) : Oil and Natural Gas Corporation(ONGC) along with Infrastructure Leasing and Financial Services Limited (IL&FS) and Government of Tripura formed a Special Purpose Vehicle ONGC Tripura Power Company (OTPC) by entering into a Shareholders' Agreement (SHA) on 18 September 2008 to implement a 726.6 MW Combined Cycle Gas Turbine (CCGT) thermal power plant at Palatana, Tripura.

62. Slash and Burn method of farming in Andaman & Nicobar Islands is known as .....?

(a) Milpa (b) Dipa

(c) Jhumming (d) Pamlou

Ans. (b) Slash and Burn agriculture is also known as fire–fallow cultivation which is a cultivating technique that includes the cutting and consuming of plants in a backwoods or forest to make a field called a swidden in means agriculture, slash-and-consume ordinarily utilizes little innovation.

'Slash and Burn Agriculture' is known by a specific name in different states of India. These are:

- Jhumming- Assam, Meghalaya, Mizoram and Nagaland
- Pamlou- Manipur
- Dipa- Bastar (Chhattisgarh) and Andaman & Nicobar Islands

63. Simplify the following.

$$\frac{2}{5}\times\left[2+\{3+(12+4+3)\}\right]$$

(a) $9\frac{3}{5}$ (b) $9\frac{3}{4}$

(c) $9\frac{3}{2}$ (d) $9\frac{3}{6}$

Ans. (a) : $\frac{2}{5}\times\left[2+\{3+(12+4+3)\}\right]$

$$=\frac{2}{5}\times[2+22]$$

$$=\frac{2}{5}\times 24=\frac{48}{5}=9\frac{3}{5}$$

64. If the angle of a sector in a pie diagram is 135º, then it is equivalent to _____ of the pie diagram.

(a) $\frac{3}{4}$ (b) $\frac{3}{8}$

(c) $\frac{1}{8}$ (d) $\frac{1}{4}$

Ans. (b) :

$\because$ The measure of the angle about the center of the circle is 360º $\Rightarrow$ 1 part

$\therefore$ Angle of the segment = $135^\circ \Rightarrow \frac{1}{360^\circ}\times 135^\circ=\frac{3}{8}$ part

65. The product of the first six even numbers is:

(a) 46020 (b) 46080

(c) 46060 (d) 46800

Ans. (b) : First 6 even numbers are 2, 4, 6, 8, 10, 12 respectively.

According to the question-

$2\times4\times6\times8\times10\times12 = 46080$

66. In which state is Mamallapuram Utsav celebrated?

(a) Kerala (b) Tamil Nadu

(c) Karnataka (d) Andhra Pradesh

Ans. (b) : Mamallapuram Utsav is a dance Festival is organized during the months of January and February in the city of Mahabalipuram in Tamil Nadu. It is celebrated in assocaiton with Tamil Nadu Tourism Department.

67. Deen Dayal Upadhyaya Grameen Kaushalya Yojana comes under:

(a) National Rural Livelihood Mission
(b) Atal Innovation Mission
(c) National e-Governance Mission
(d) National Rural Health Mission

Ans. (a) : Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY) was announced by the Ministry of Rural Development (MoRD) on 25 September 2014. This scheme is a part of the National Rural Livelihood Mission (NRLM). It has the objective of catering to the career aspirations of the rural youths and providing diversity to the incomes of rural poor families. This scheme aims at building skills of the rural youth for placing them in relatively higher wage employment sectors of the economy.

68. Solve the following -

$\sqrt[3]{\sqrt{0.000064}} = ?$

(a) 2.0 (b) 0.02
(c) 0.002 (d) 0.2

Ans. (d) : $\sqrt[3]{\sqrt{0.000064}} = \sqrt[3]{\sqrt{0.008 \times 0.008}}$

$= \sqrt[3]{0.008}$

$= \sqrt[3]{0.2 \times 0.2 \times 0.2}$

$= \left[(0.2)^3\right]^{\frac{1}{3}}$

$= 0.2$

69. The difference between 16% profit and a 12% loss while selling an article, is ₹ 70. What is the cost price of the article?

(a) ₹ 250 (b) ₹ 240
(c) ₹ 235 (d) ₹ 225

Ans. (a) : Let the cost price of article by $= ₹x$
According to the question-

$x \times \frac{116}{100} - x \times \frac{88}{100} = 70$

$28x = 70 \times 100$

$x = ₹250$

70. Which country held the world's first underwater cabinet meeting to highlight the issue of climate change?

(a) Thailand (b) Malaysia
(c) Haiti (d) Maldives

Ans. (d) : The Republic of the Maldives is an island nation located in the Indian Ocean and Arabian Sea. On 17 October 2009 President Mohammed Nasheed and 13 government officials held an underwater cabinet meeting in Girifushi to call international attention to the threat of global warming on the island nation.

71. There of the following four figures three are similar in a certain way and one is different. Select the figure that is different from the rest.

(a) Figure 4 (b) Figure 3
(c) Figure 2 (d) Figure 1

Ans. (a) : Except in figure 4, the letters in all other figures are rotated 90º clockwise while the letter in figure (4) is rotated 90º anti-clockwise. Hence figure (4) is inconsistent with the others.

72. HCF of $\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{4}{5}$ is:

(a) 12 (b) $\frac{1}{60}$
(c) $\frac{4}{5}$ (d) 1

Ans. (b) : Fraction of HCF $= \frac{\text{HCF of numerator}}{\text{LCM of denominator}}$

$= \frac{\text{HCF of } 1,2,3,4}{\text{LCM of } 2,3,4,5} = \frac{1}{60}$

73. The sum of the angles of a quadrilateral is _____.

(a) 180º (b) 270º
(c) 90º (d) 360º

Ans. (d) : The sum of all the angles of any quadrilateral is 360º.

74. Which of the following is a NOT a Constitutional body of India?

(a) Comptroller and Auditor General of India
(b) Election Commission of India
(c) Central Information Commission
(d) State Public Service Commission

Ans. (c) : Bodies that are not formed by the government's action and are not mentioned in the Indian Constitution are called non-constitutional bodies. They include the National Human Rights Commission, NITI Aayog, National Development

Council, State Human Rights Commission, State Information Commission, Lokpal and Lokayuktas, Central Information Commission, Central Bureau of Investigation, and Central Vigilance Commission. Constitutional bodies are those bodies which are mentioned in the Indian Constitution and they include- Finance Commission, Comptroller and Auditor General of India, Union Public Service Commission, Election Commission, State Public Service Commission, National Commission for SCs, National Commission for STs, Attorney General of India, Advocate General of State, Comptroller and Auditor General of India, and Special Officer for linguistic minorities.

75. The perimeter of a rectangle is 100 m and its length is 29 m. Find its width.

(a) 48 m (b) 69 m
(c) 21 m (d) 42 m

Ans. (c) : Perimeter of rectangle = 100 m
2 (Length + Width) = 100
Length + Width = 50 ($\because$ Length = 29 m)
Width = 50 – 29
= 21 m

76. Which of the following fractions are in ascending order?

(a) $\frac{12}{18}, \frac{14}{17}, \frac{16}{19}$ (b) $\frac{14}{17}, \frac{12}{18}, \frac{16}{19}$
(c) $\frac{16}{19}, \frac{14}{17}, \frac{12}{18}$ (d) $\frac{12}{18}, \frac{16}{19}, \frac{14}{17}$

Ans. (a) : $\frac{12}{18} = 0.66, \frac{14}{17} = 0.82, \frac{16}{19} = 0.84$

Required ascending order $= \frac{12}{18}, \frac{14}{17}, \frac{16}{19}$

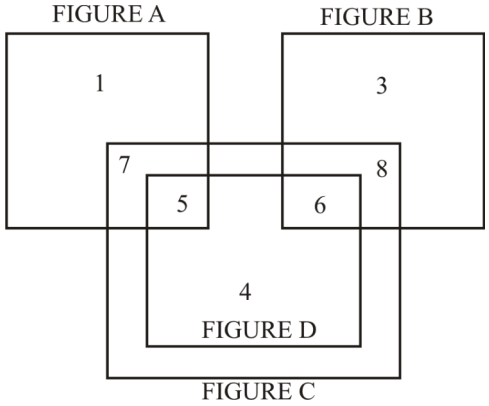
77. If $\sqrt{7} = 2.6$, then the value of $\frac{5\sqrt{7}}{4\sqrt{7} - 0.4}$ is:

(a) 1.3 (b) 1.2
(c) 1.5 (d) 1.1

Ans. (a) : $\frac{5\sqrt{7}}{4\sqrt{7} - 0.4}$ $\left(\because \sqrt{7} = 2.6\right)$

$= \frac{5 \times 2.6}{4 \times 2.6 - 0.4} = \frac{13.0}{10.4 - 0.4} = \frac{13}{10} = 1.3$

78. The following figure is a combination of four figures A, B, C and D. Figure A represent people who are pizza lovers, while figure B represent burger lovers. Figure C and D represent noodle and dumpling lovers respectively. According to the figure below what does region 5 depict?



(a) People who are only pizza, noodle and dumpling lovers
(b) People who are only pizza and dumpling lovers
(c) People who are pizza, noodle and burger lovers
(d) People who are only pizza and noodle lovers

Ans. (a) : Representation of area 5 as per given figure = people who like only Pizza, Noodle and Dumpling.

79. Which of the following is most commonly used as a semiconductor in solar cells?

(a) ZnSi (b) GaAs
(c) GeAs (d) ZmTe

Ans. (b) : In Group III-V semiconductor the most common material is Gallium Arsenide (GaAs). Commonly used as a substrate of other semiconductors like GaInNas, InGaAs. Used for high-efficiency solar cells, fast electronics, near-IR LEDs.

80. The famous Konark Sun Temple is attributed to:

(a) King Samrat Ashoka
(b) King Rajaraja Chola
(c) King Narasimhadeva I
(d) King Raghunath Singha

Ans. (c) : Konark Sun Temple is a 13th-century CE (year 1250) Sun temple at Konark about 35 kilometres northeast from Puri on the coastline of Odisha, India. The temple is attributed to king Narasimhadeva I of the Eastern Ganga dynasty about 1250 CE.

81. 1 gigabyte is equals to:

(a) 10 megabytes (b) 100 megabytes
(c) 10000 megabytes (d) 1000 megabytes

Ans. (d) : The size of information in the computer is measured in Kilobytes (KB), Megabytes (MB), Gigabytes (GB), and Terabytes (TB).
(1) Kilobyte (KB) = 1024 Bytes
(2) Megabyte (MB)= 1024 Kilobytes (KB)
(3) Gigabyte (GB) = 1024 Megabytes (MB)
(4) Terabyte (TB) = 1024 Gigabytes (GB)

82. Which of the following is (Under Mughal ruler-Foreign traveller visited India)-correctly matched?

(a) Shah Jahan – William Hawkins

(b) Jahangir – Manucci

(c) Aurangzeb – Manucci

(d) Akbar – Sir Thomas Roe

Ans. (c) :

Foreign Travellers	Reign of Rulers
William Hawkins	Jahangir
Sir Thomas Roe	Akbar
Manucci	Shah Jahan and Aurangzeb
Peter Mundy	Shah Jahan

83. If 10% of *x* = 15% of y, then what will be the value of x : y ?

(a) 2 : 3 (b) 2 : 1

(c) 3 : 2 (d) 1 : 2

Ans. (c) : $x \times \frac{10}{100} = y \times \frac{15}{100}$

$10x = 15y$

$\frac{x}{y} = \frac{15}{10}$

$\frac{x}{y} = \frac{3}{2}$

or $x : y = 3 : 2$

84. Telangana is the _____ state of India.

(a) 28^{th} (b) 30^{th}

(c) 27^{th} (d) 29^{th}

Ans. (d) : Telangana is the 29th State of India, formed on the 2nd of June 2014. created on 2 June 2014. It was created from ten former districts of north-western Andhra Pradesh. Its capital city is Hyderabad. Presently, the total number of states in India is 28, with effect from 26th January 2020, and has 8 union territories.

85. Find the mean of the following data.

8, -2, 9, 6, 13, 17, 12

(a) 11 (b) 9

(c) 10 (d) 12

Ans. (b) : Required mean

$= \frac{8+(-2)+9+6+13+17+12}{7} = \frac{63}{7} = 9$

86. The following table shows the number of students appeared in an examination and the number of the students selected from different schools for admission in a well ranked university. Study the table carefully

School	No of student appeared in examination	No of selected students
ABC	**1000**	**800**
EFG	**1200**	**1050**
IJK	**1500**	**1350**
MNO	**1100**	**900**
QRS	**900**	**750**

In which of the following schools has been the maximum percentage of selection in university?

(a) lJK (b) ABC

(c) EFG (d) QRS

Ans. (a) :

Required % of school IJK $= \frac{1350}{1500} \times 100 = 90\%$

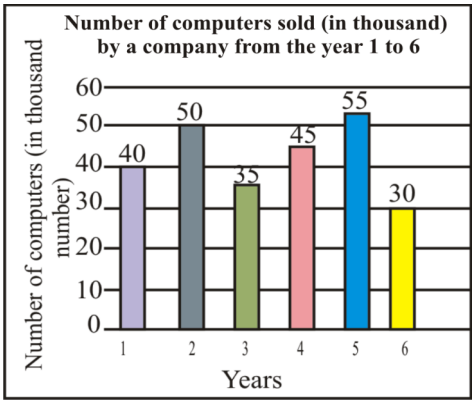
Required % of school ABC $= \frac{800}{1000} \times 100 = 80\%$

Required % of school EFG $= \frac{1050}{1200} \times 100 = 87.5\%$

Required % of school QRS $= \frac{750}{900} \times 100 = 83.3\%$

Hence, school IJK has the highest percentage of students selected for the university.

87. Study the given bar chart carefully and answer the question that follows.



The absolute difference between the annual sales in year 4 and the average sales for six years is the same as the absolute difference between the annual sales in another year and the average sales for six years. Identify the year.

(a) 4 year (b) 2 year
(c) 1 year (d) 3 year

Ans. (c) : Annual sales in year 4 = 45 thousand
Avg. sales of 6 years
$= \frac{40+50+35+45+55+30}{6} = \frac{255}{6} = 42.5$ thousand
Required difference = (45 – 42.5) thousand
= 2.5 thousand
Annual sales in 1 year = 40 thousand
Required difference = 42.5 – 40 = 2.5 thousand

88. Study the following table carefully and answer the question that follows.

Items of expenditure	Years			
	2012	2013	2014	2015
Salary	200	215	250	255
Transport	48	60	71	82
Interest on loans	25	18	14	13
Taxes	2.5	3	4	5.5

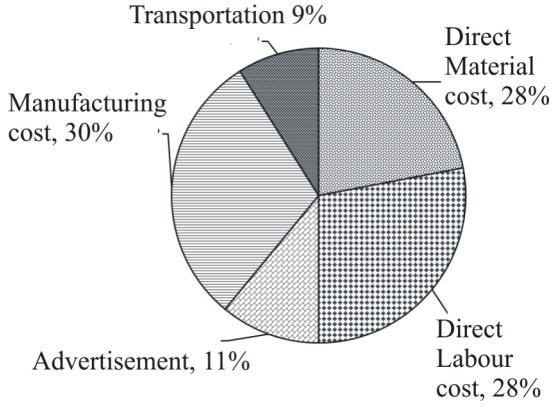
Expenditure of a company (in ₹ lakh) per year over the years

What is the ratio of the expenditure on transport in the year 2013 to the total expenditure on transport for all the years taken together?

(a) 10 : 110 (b) 13 : 112
(c) 15 : 45 (d) 20 : 87

Ans. (d) : Expenditure of transport in the year 2013 = ₹60 Lakh
Total expenditure on transport in all the years = 48 + 60 + 71 + 82
= ₹261 Lakh
Required ratio = 60 : 261 = 20 : 87

89. Study the following pie chart that shows the percentage distribution of the expenditure incurred towards manufacturing a certain product *X* and answer the question that follows.

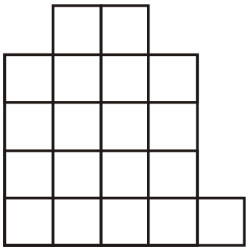


If 5000 units of product *x* are manufactured and the transportation cost incurred towards them amounts to ₹36,000, then what should be the selling price of one unit of the product *X* so that the product can earn a profit of 25%?

(a) 110 (b) 50
(c) 100 (d) 75

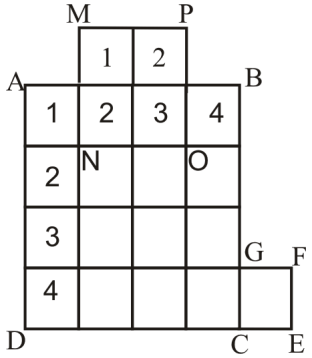
Ans. (c) : Total production of product X = 5000 units
Expenditure on transport = 9%
If total expenditure = x then,
$\frac{x \times 9}{100} = 36000$
x = ₹ 400000
Hence the expenditure incurred on product = 5000 Units = ₹ 400000
Now the expenditure on 1 unit = $\frac{400000}{5000} = ₹80$
Hence, the selling price required to make a profit of 25% $= 80 \times \frac{125}{100} = ₹100$

90. How many squares are there in the given figure ?



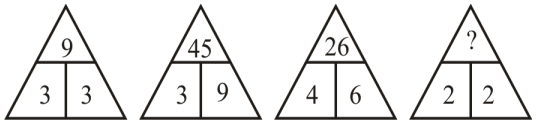
(a) 34 (b) 30
(c) 42 (d) 28

Ans. (a) :



Total number of squares in shape ABCD = $1^2 + 2^2 + 3^2 + 4^2 = 30$
Total number of squares in square MNOP = $1^2 + 2^2 = 5$
(But 2 squares of this have been counted in the larger square (ABCD) so there are 5–2 = 3 Squares.
1 square will be EFGC.
Total no. of squares = 30 + 3 + 1 = 34

91. Study the given pattern carefully and select the number that can replace the question mark (?) in it.



(a) 4 (b) 100

(c) 2 (d) 8

Ans. (a) : Just as in first triangle $\frac{3^2+3^2}{2}=\frac{18}{2}=9$

and in second triangle $\frac{3^2+9^2}{2}=\frac{90}{2}=45$

and in third triangle $=\frac{4^2+6^2}{2}=\frac{52}{2}=26$

Similarly,

In fourth triangle $\frac{2^2+2^2}{2}=\frac{8}{2}=4$

92. In a certain code language, if DICKENS is written as VQWOULG and ELIOT is written as UNQKF which letter will be in the fifth place, when counted from the left, if HEYER is written in that code language?

(a) G (b) H

(c) I (d) A

Ans. (b) : Just as,

D I C K E N S and E L I O T

↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓

V Q W Q U L G U N O K F

sum of the digit of both the letter = 26

sum of the digit of both the lettter = 26

Similarly,

H E Y E R

↓ ↓ ↓ ↓ ↓

R U A U H

1 2 3 4 5

Sum of the digit of both the letters = 26

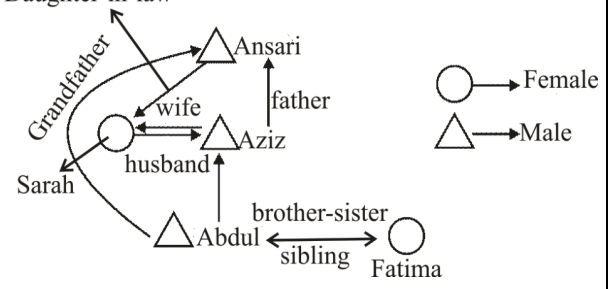
Hence, H will be the fifth letter from left.

93. Fatima and Abdul are siblings. Fatima's father Aziz is the only son of his parents. Ansari is the paternal grandfather of Abdul. Sarah is the daughter-in-law of Ansari. How is Sarah related to Aziz?

(a) Sister (b) Mother

(c) Wife (d) Aunt

Ans. (c) : The relationship diagram is as follows-



Hence, it is clear from the relation diagram that Sarah is Aziz's wife.

94. Select the option that is different from the rest.

(a) Meter Gauge (b) Broad Gauge

(c) Long Gauge (d) Narrow Gauge

Ans. (c) : Long Gauge is different or inconsistent while others, meter gauge, broad gauge and narrow gauge are related to the measurement of railway tracks.

95. Read the given statements and conclusions carefully and decide which of the conclusions logically follow (s) from the statements.

Statements:

(i) All the clothes sold in my boutique are of high standard.

(ii) None of the brands of clothes except Cara and Cucci are sold at my boutique.

(iii) Cucci's accessories such as bags and cosmetics are also sold.

Conclusions:

(i) My boutique sells clothes and accessories

(ii) Cara and Cucci brands have clothes of high standard

(iii) Some of the accessories sold at my boutique are of Cucci

(a) Only conclusion (i) follows

(b) All the conclusions (i), (ii) and (iii) follows

(c) Only conclusion (i) and (ii) follows

(d) Only conclusion (iii) follows

Ans. (b) : In the given question all the conclusions (i), (ii) and (iii) follow from the given statement.

96. If the English alphabet is given in reverse order, then which of the following will be the tenth letter to the right of R?

(a) H (b) J

(c) B (d) Q

Ans. (a) : Reverse order of the Engligh alphabet.

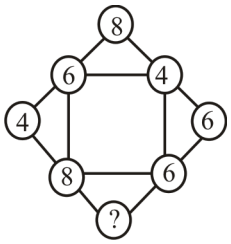
Z Y X W V U T S R Q P O N M L K J I H

$\rightarrow$

10^{th} letter to the right.

Hence H will be the 10^{th} letter to the right of R.

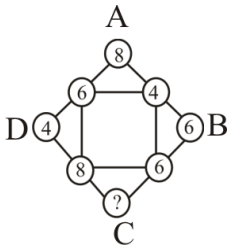
97. Study the given pattern carefully and select the number that can replace the question mark (?) in it.



(a) 5 (b) 8

(c) 4 (d) 6

Ans. (d) :



In this the sum of the digits on the four sides (AB, BC, CD, DA) of the outside square is 18.

Hence $8 + x + 4 = 18$

or $x = 18 - 12$

$x = 6$

98. A question is given followed by two arguments. Decide which of the arguments is/are strong with respect to the question.

Question:

Should students cheating in exams be punished?

Arguments:

(i) No, cheating is common fact among successful people

(ii) Yes, as the exams are conducted to assess the competency of an individual, so they should give exams honestly

(a) Neither Arguments 1 nor 2 is strong

(b) Only Arguments 1 is strong

(c) Both, Arguments 1 and 2 are strong

(d) Only Arguments 2 is strong

Ans. (d) : According to the given question only Argument 2 is strong.

99. Select the number from among the given options that is related to the fifth number in the same way as the fourth and second numbers are related to the third and first numbers respectively.

36 : 216 :: 100 : 1000 :: 25 : ?

(a) 625

(b) 125

(c) 225

(d) 3125

Ans. (b) : 36 : 216 :: 100 : 1000 :: 25 : 125

$\Downarrow \quad \Downarrow \quad \Downarrow \quad \Downarrow \quad \Downarrow \quad \Downarrow$

$(6)^2 \quad (6)^3 \quad (10)^2 \quad (10)^3 \quad (5)^2 \quad (5)^3$

100. If A and C interchange their places, B and D interchange their places, E and G interchange their places and so on, then which letter will be the 7^{th} to the left of T?

(a) M (b) L

(c) K (d) I

Ans. (d) :

Original sequence- A B C D E F G H I J K L M N O P Q R S T....

Changed sequence C D A B G H E F K L I J O P M N S T Q R..... $\longleftarrow$

Hence, the seventh letter to the left of T is I.

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 13.03.2021] **[Time : 3.00 pm-4.30 pm]**

1. Desktop computers, laptop computers, tablets and smartphones are different types of:
(a) Microcomputers
(b) Super Computers
(c) Mini Computers
(d) Mainframe Computers

Ans. (a) : "Microcomputer" is now primarily used to mean a Personal Computers (PC), but it can refer to any kind of small computer, such as a desktop computer, laptop computer, tablet, smartphone, or wearable. Microcomputer uses a single chip (microprocessor) for its central processing unit (CPU).

2. In a certain code language, APPLE is written as CRRNG. How will BANANA be written as in that code language?
(a) CBOBOB
(b) ZYLYLY
(c) ANANAB
(d) DCPCPC

Ans. (d) : Just as,

A	P	P	L	E
+2	+2	+2	+2	+2
C	R	R	N	G

Similarly,

B	A	N	A	N	A
+2	+2	+2	+2	+2	+2
D	C	P	C	P	C

3. Which is the highest peak of the Hindu Kush?
(a) Karakoram (b) Tirich Mir
(c) Udren Zom (d) Nanda Devi

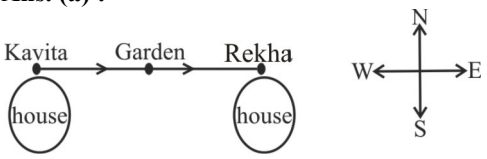
Ans. (b) : The Hindu Kush Mountain range runs along the border between Afghanistan and POK. Tirich Mir rises to 25,230 feet (7,690 metres) and is the highest peak of the northern Hindu Kush.

4. Which institution introduced the Udyam Abhilasha Program?
(a) ICICI (b) IFCI
(c) SIDBI (d) IDBI

Ans. (c) : On the occasion of birth anniversary of Mahatma Gandhi on October 02, 2018, Small Industries Development Bank of India (SIDBI) had launched a National Level Entrepreneurship awareness campaign, Udyam Abhilasha in 115 Aspirational Districts identified by NITI Aayog in 28 States . The main aim behind the initiative is to contribute to 'the transformation mission' unleashed for these districts. SIDBI is principal development financial institution for promotion, financing and development of Micro, Small and Medium Enterprises (MSME) sector in India. It was established on 2 April 1990. It is headquartered in Lucknow, Uttar Pradesh.

5. Kavita goes for yoga practice daily to the Rock Garden. The garden is towards the east from her house. From the garden, she goes to her friend Rekha's house, which is towards the east of the garden. In what direction is Kavita's house from Rekha's house?
(a) West (b) South
(c) East (d) North

Ans. (a) :



It is clear from the above diagram that Kavita's house is in the west direction from Rekha's house.

6. Find the Value of $(0.2)^3 - (0.02)^3$
(a) 0.009992 (b) 0.002992
(c) 0.001002 (d) 0.007992

Ans. (d) : $(0.2)^3 - (0.02)^3$
$0.008 - 0.000008$
0.007992

7. Which of the following pairs is correct?
(a) Khajuraho Temple – Andhra Pradesh
(b) Tijara Temple– Rajasthan
(c) Venkateswara Temple– Odisha
(d) Lingraj Temple – Madhya Pradesh

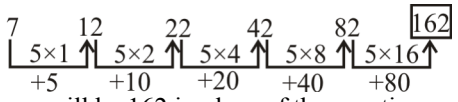
Ans. (b) :	
Khajuraho Temple	Madhya Pradesh
Tijara Temple	Rajasthan
Venkateshwara Temple	Andhra Pradesh
Lingraj Temple	Odisha

8. The human species have genetic roots in:
(a) Australia (b) Antarctica
(c) Africa (d) America

Ans. (c) : The human species have genetic roots in Africa. According to the paleontological evidence, the fossils of the earliest man, Homo Naledi were found in the regions of South Africa.

9. Select the number that can replace the question mark (?) in the following series.
7, 12, 22, 42, 82, ?
(a) 162 (b) 122
(c) 92 (d) 142

Ans. (a) : The given series is as follows-



Hence there will be 162 in place of the question mark.

10. An orchard has 5776 trees and the arrangement of trees is such that trees are as many rows as there are three in a row. Then the number of rows is:

(a) 48 (b) 76
(c) 65 (d) 56

Ans. (b) : Let the number of trees be X and the number of rows also X.
According to the question,

$X \times X = 5776$
$X^2 = 5776$
$X = 76$

So, the number of rows X = 76

11. Which one of the following is the largest compartment of stomach in hoofed animals?

(a) Rumen (b) Reticulum
(c) Abomas (d) Omasum

Ans. (a) : The Rumen (on the left side of the animal) is the largest stomach compartment and consists of several sacs in hoofed animals.

12. Find the value of $18\left[4-3\left\{6-\left(8\times\frac{1}{2}\right)\right\}\right]$

(a) –36 (b) 20
(c) 36 (d) 16

Ans. (a) : $18\left[4-3\left\{6-\left(8\times\frac{1}{2}\right)\right\}\right]$

$18[4-3\{6-4\}]$
$18[4-3\{2\}]$
$18[4-6]$
18×-2
-36

13. Name the vehicle developed by DRDO to detect and dispose a bomb.

(a) Daksh (b) Prahar
(c) Vajra (d) Rakshak

Ans. (a) : DAKSH is a remotely operated vehicle developed by India's Defense Research and Development Organization (DRDO). Daksh is an unmanned ground vehicle which operates in contact with the ground but no human is present onboard.

14. In a certain code language, INDIA is coded as 914491. How will DELHI be written as in that code language?

(a) 451289 (b) 128945
(c) 541289 (d) 894512

Ans. (a) : Just as,

INDIA → 914491

Similarly,

DELHI → 451289

Note- Hence the letters are coded in alphabetical order.

15. What is the objective of the KUSUM programme launched by the Indian government?

(a) Protection of women
(b) Starts ups for women and youth
(c) Providing financial security to farmers through harnessing solar energy capacities.
(d) Promotion of organic farming in the country.

Ans. (c) : PM-KUSUM (Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan) Scheme is aimed at ensuring energy security for farmers in India, along with honouring India's commitment to increase the share of installed capacity of electric power from non-fossil-fuel sources to 40% by 2030 as part of Intended Nationally Determined Contributions (INDCs). KUSUM scheme would provide additional income to farmers, by giving them the option to sell additional power to the grid, through solar power projects set up on their barren lands. The scheme was launched in 2019 by the Ministry of New and Renewable Energy (MNRE).

16. Which planet is known as the 'Earth's' Twin?

(a) Carla (b) Mars
(c) Moon (d) Venus

Ans. (d) : Planet Venus is called "Earth's Twin" because Venus and Earth have a very similar composition, are almost the same size, and approximately have about the same mass. Two planets in the solar system do not have a moon, they are Venus & Mercury.

17. The LCM of two numbers is 126 and their HCF is 2. If one number is 18 then the other is:

(a) 12 (b) 9
(c) 16 (d) 14

Ans. (d) : LCM × HCF = first number × second number

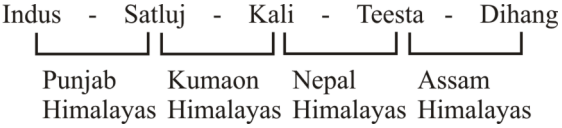
$126 \times 2 = 18 \times$ second number

$$\text{Second number} = \frac{126\times2}{18}$$
$$= 14$$

18. The part of the Himalayan Mountains that is lying between Tista and Dihang River is known as:

(a) Assam Himalayas
(b) Kumaon Himalayas
(c) Punjab Himalayas
(d) Kashmir & Himachal Himalayas

Ans. (a) : The Kali and Teesta rivers divide the Nepal Himalayan mountains and the part lying between Teesta and Dihang rivers is known as Assam Himalayas.



19. Which of the following is NOT listed as a 'fundamental right' in the Indian Constitution?
(a) Right to Equality
(b) Right to Freedom
(c) Cultural and Educational Right
(d) Right to Speech

Ans. (d) : The Fundamental Rights are enshrined in Part III of the Constitution (Articles 12-35). The Constitution of India provides for six Fundamental Rights:
1. Right to equality (Articles 14–18)
2. Right to freedom (Articles 19–22)
3. Right against exploitation (Articles 23–24)
4. Right to freedom of religion (Articles 25–28)
5. Cultural and educational rights (Articles 29–30)
6. Right to constitutional remedies (Article 32–35)
Originally the constitution also included Right to property (Article 31) in the Fundamental Rights. However, it was deleted from the list of Fundamental Rights by the 44th Amendment Act, 1978.

20. Ram Nath Kovind is the _____ President of India.
(a) 14th (b) 12th
(c) 17th (d) 19th

Ans. (a) : Ram Nath Kovind was sworn in as the 14th President of India on 25 July, 2017. He was born on 1st October 1945 at village Paraunkh in Kanpur district of Uttar Pradesh.

21. The diagonal of a cube is $6\sqrt{2}$cm. The surface area of the cube is:
(a) 24 cm^2 (b) 72 cm^2
(c) 144 cm^2 (d) 36 cm^2

Ans. (c) : Let the side of cube = a

$$\text{Diagonal of cube} = a\sqrt{3} = 6\sqrt{2}\,\text{cm}$$

$$a = \frac{6\sqrt{2}}{\sqrt{3}}$$

Surface area of the cube $= 6a^2$

$$= 6\times\left(\frac{6\sqrt{2}}{\sqrt{3}}\right)^2 = 6\times 36\times\frac{2}{3} = 144\,\text{cm}^2$$

22. At what rate of compound interest per annum will a sum of ₹1500 become ₹1591.35 in 2 years?
(a) 3% (b) 2%
(c) 5% (d) 4%

Ans. (a) : $A = P\left(1+\frac{R}{100}\right)^n$

$$1591.35 = 1500\left(\frac{100+R}{100}\right)^2$$

$$\frac{1591.35}{1500} = \left(\frac{100+R}{100}\right)^2$$

$$\frac{15913500}{1500} = (100+R)^2$$

$$10609 = (100+R)^2$$

$$100+R = 103$$

$$R = 3\%$$

23. Find the value of $\left(3\frac{1}{7}+4\frac{3}{7}\right)+\frac{7}{6}$
(a) $\frac{267}{42}$ (b) $\frac{343}{42}$
(c) $\frac{367}{42}$ (d) $\frac{432}{42}$

Ans. (c) : $\left(3\frac{1}{7}+4\frac{3}{7}\right)+\frac{7}{6}$

$$= \left(\frac{22}{7}+\frac{31}{7}\right)+\frac{7}{6}$$

$$= \frac{53}{7}+\frac{7}{6}$$

$$= \frac{318+49}{42}$$

$$= \frac{367}{42}$$

24. A train covers a distance of 35 km in 60 min. How long will it take to cover 105 km?
(a) 180 min (b) 120 min
(c) 140 min (d) 90 min

Ans. (a) :
∵ The train covers a distance of 35 km = in 60 minutes
∴ The train will cover a distance of 1 km $= \frac{60}{35}$ minutes
∴ Time taken by train to cover a distance of 105 km

$$= \frac{60}{35}\times 105 = 180\,\text{minutes}$$

25. Who gave M.K. Gandhi a title of Mahatma?
(a) Gopal Krishna Gokhale
(b) Lokmanya Tilak
(c) Rabindranath Tagore
(d) Dadabhai Naoroji

Ans. (c) : The Sanskrit word Mahatma, which means a great soul, is often taken to be Gandhi's given name. Nobel laureate Rabindranath Tagore bestowed the title on Gandhi in 1915 while writing his autobiography after the latter called him "Gurudev".

26. The least square number that is exactly divisible by 4, 5, 8, 16 and 32 is?
(a) 3600 (b) 400
(c) 900 (d) 1600

Ans. (d) : The number that is divisible by 45816 and 32 = LCM of 4, 5, 8, 16 and 32

$4 = 2\times 2$

$5 = 5\times 1$

$8 = 2\times 2\times 2$

$16 = 2\times 2\times 2\times 2$

$32 = 2\times 2\times 2\times 2\times 2$

$\text{LCM} = 2\times 2\times 2\times 2\times 2\times 5 = 160$

∵ The pair of 2 and 5 is not being formed.

∴ Multiplying by 2 and 5 in 160 will make the number a per feet square.
Least square number that is exactly divisible by 4, 5, 8, 16 and 32 = 160×2×5 = 1600

27. Select the option that is related to the third term in the same way as the second term is related to the first term.
Poet : Poetry :: Actor : ?
(a) Speech (b) Acting
(c) Dance (d) Singing

Ans. (b) : Just as poet is related to poem, similarly actor is related to acting.

28. The simple interest on ₹10000 for 6 months at the rate of 5 paisa per rupee per month is:
(a) ₹1000 (b) ₹1500
(c) ₹3000 (d) ₹2000

Ans. (c) : Rate of 5 paise/rupee per month = 5% per month
The SI on same rate on ₹10000 for 6 month
$$\text{Simple Interest} = \frac{10,000 \times 5 \times 6}{100} = ₹3000$$

29. Which statement regarding the "Green Rail Corridor" (launched in Tamil Nadu) is NOT correct?
(a) The stretch of the green rail corridor is 114 km
(b) It is India's first green rail corridor
(c) The trains under green rail corridor are equipped with bio toilets.
(d) It was inaugurated by Prime Minister Narendra Modi

Ans. (d) : The India's first Green Rail Corridor, a 114-km long Rameswaram-Manamadurai stretch in Tamil Nadu which ensures zero toilet discharge on rail tracks, was inaugurated by Railways Minister Suresh Prabhu in July, 2016.Trains in the section have been equipped with bio-toilets ensuring zero discharge of human waste on the rail tracks.

30. A cyclist covers 650 m distance in 2 min 10 sec. The speed of the cyclist in km/h is:
(a) 18 (b) 16
(c) 12 (d) 5

Ans. (a) : $\text{Speed} = \frac{\text{Distance}}{\text{Time}}$
$= \frac{650}{130} \times \frac{18}{5}$ (2min. 10 sec. = 130 sec.)
= 18 km/h

31. Find the value of $\left\{\left(2-\frac{1}{3}\right)+\left(\frac{2}{3}\times 1\frac{1}{5}\right)\right\}+\frac{3}{5}\times 2\frac{5}{7}$

(a) $2\frac{4}{21}$ (b) $4\frac{2}{21}$
(c) $2\frac{4}{27}$ (d) $4\frac{2}{27}$

Ans. (b) : $\left\{\left(2-\frac{1}{3}\right)+\left(\frac{2}{3}\times 1\frac{1}{5}\right)\right\}+\frac{3}{5}\times 2\frac{5}{7}$
$= \left\{\left(\frac{6-1}{3}\right)+\left(\frac{2}{3}\times\frac{6}{5}\right)\right\}+\frac{3}{5}\times\frac{19}{7}$
$= \left\{\frac{5}{3}+\frac{4}{5}\right\}+\frac{57}{35}$
$= \left\{\frac{25+12}{15}\right\}+\frac{57}{35}$
$= \frac{37}{15}+\frac{57}{35}$
$= \frac{259+171}{105}$
$= \frac{430}{105}$
$= \frac{86}{21}$
$= 4\frac{2}{21}$

32. If the number 2893#$ is divisible by 8 and 5, then one possible choice of the digits that come in the place of # and $ can be:
(a) 0, 2 (b) 2, 2
(c) 0, 0 (d) 2, 0

Ans. (d) : Divisibility rule of '5' $\Rightarrow$ if a number has '0' or '5' in its unit digit then it is completely divisible by 5.
Divisiblity rule of '8' $\Rightarrow$ if the last three digits of a given number are divisible by '8' then number will also be divisible by 8.
On taking '2' and '0' from option 'd'
$\left.\begin{matrix}\#\Rightarrow 2\\ \$\Rightarrow 0\end{matrix}\right]$ Putting on.
$\frac{289320}{5} \Rightarrow 57864$
$\frac{289320}{8} \Rightarrow 36165$

33. Ravi's salary is 20% more than Mohan's salary. If Mohan's salary is ₹1600 then Ravi's salary will be:
(a) ₹1890 (b) ₹1920
(c) ₹800 (d) ₹1750

Ans. (b) : Let, Mohan's salary 100x then Ravi's salary 120x.
According to the question,
100x = 1600
x = 16
Ravi's salary = 120x
= 120×16
= ₹1920

34. Name the satellite launched by NASA to precisely track Earth's shrinking polar ice cover.
(a) CYGNSS (b) SLINEX-2018
(c) HYSIS (d) ICESat-2

Ans. (d) ICESat-2 (short for Ice, Cloud and land Elevation Satellite), launched on 15 September 2018 by NASA to precisely track Earth's shrinking polar ice cover.

35. Who designed the National Flag of India?

(a) Ram Prasad Bismil
(b) Pingali Venkaya
(c) Tatya Tope
(d) Dr. Maghfoor Ahmed Ajazi

Ans. (b) : The National Flag of India was designed by Pingali Venkayya. He was an Indian freedom fighter from Andhra Pradesh.The National Flag of India was accepted in its present form during a meeting of the Constituent Assembly held on 22 July 1947. The National Flag is known as Tiranga in Hindi and it consists of three colors and Ashoka Chakra in its middle. Three colors represent:

- The Saffron colour-courage and sacrifice
- White – Truth, peace, and purity
- The Green colour-Prosperity Ashoka Chakra represents the Laws of Dharma.

36. Which of the following Nations was the member of "Allied Powers" group in World War II?

(a) Germany (b) Italy
(c) USA (d) Japan

Ans. (c) : The second World War or World War II was a global war between all the major countries of the World. These countries were divided into the Axis powers and its allies. This war took place between 1939-1945. The allied countries included France, Great Britain, United States, Soviet Union and China. The Axis Powers included Germany, Italy and Japan.

37. Which of the following scheme is the Micro Finance Scheme for women with rebate in interest?

(a) Social Security Pilot Scheme
(b) Mahila Samriddhi Yojana
(c) National Maternity Benefit Scheme
(d) Rajrajeshwari Mahila Kalyan Yojana

Ans. (b) : MAHILA SAMRIDDHI YOJANA is a Micro Finance Scheme for women with rebate in interest.

38. The book titled 'Soul of New Machine' was awarded with:

(a) Pulitzer
(b) Hugo
(c) Man Booker
(d) Neustadt International Prize for literature

Ans. (a) : The Soul of a New Machine is a non-fiction book written by Tracy Kidder and published in 1981. The book won the National Book Award for Non-fiction in 1982 and a Pulitzer Prize for General Non-Fiction in 1982.

39. The square root of $5\frac{44}{49}$ is:

(a) $\frac{12}{7}$ (b) $\frac{17}{7}$
(c) $\frac{15}{7}$ (d) $\frac{16}{7}$

Ans. (b) : Square root of $5\frac{44}{49} = \sqrt{\frac{289}{49}}$

$= \frac{17}{7}$

40. Mohan goes to school 5 days a week and the distance between his home and school is 5 km. On all these 5 days, after school he goes to the market which is at a distance of 3 kms from the school, and then from the market he walks 2.5 kms to reach his home. The remaining 2 days of the week, Mohan walks an average of 20 kms. How many kms does Mohan walk in a week?

(a) 113.5 km (b) 92.5 km
(c) 72.5 km (d) 93.5 km

Ans. (b) : Distance walked by Mohan per week

$= (5\times5 + 5\times3 + 5\times2.5 + 2\times20)$

$= (25 + 15 + 12.5 + 40)$

$= 92.5$ km.

41. A dice is cast twice, and the sum of the appearing numbers is 10. The probability that the number 5 has appeared at least once is:

(a) 2/3 (b) 1/4
(c) 1/2 (d) 1/3

Ans. (d) : On throwing the dice twice

No. of probability of appearing the sum "10"

= (4,6) (6,4) (5,5)

n(S) = 3

Probability that number '5' has appeared at least "once" = (5, 5)

n(E) = 1

$P(E) = \frac{n(E)}{n(S)} = \frac{1}{3}$

42. Which one of the following is the largest natural freshwater lake in India.

(a) Loktak (b) Wular
(c) Bhimtal (d) Barapani

Ans. (b) : Wular Lake, located in Bandipore district of Jammu and Kashmir, is the largest fresh water lake of India measuring approximately 260 sq. kilometres. In 1990, it was designated as a Wetland of International Importance under the Ramsar Convention.

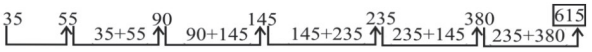
Loktak Lake	Manipur
Bhimtal Lake	Uttarakhand
Barapani Lake	Meghalaya

43. Select that number from among the given options that can replace the questions mark (?) in the following series.

35, 55, 90, 145, 235, 380, ?

(a) 525 (b) 625
(c) 615 (d) 380

Ans. (c) : The given series is as follows-



Hence in the series the 3rd number can be obtained by the sum of previous two numbers.

44. The value of the variable x in the equation 3 (5x + 2) – 4 = 2 (1 – 4x) is

(a) 2 (b) –1
(c) 10 (d) 0

Ans. (d) :

$3(5x+2)-4 = 2(1-4x)$
$15x+6-4 = 2-8x$
$23x = 2-2$
$23x = 0$
$x = 0$

45. A profit of 25% is made when an article is sold for ₹750. The profit, if the article is sold for ₹660. Will be:

(a) 15% (b) 10%
(c) 8% (d) 12%

Ans. (b) : Cost price of an article $= \frac{750}{125}\times 100$

$= 600$

Profit on selling at ₹660 $= \frac{660-600}{600}\times 100$

$= \frac{60}{600}\times 100$

$= 10\%$

46. Which temple is known as 'black pagoda'?

(a) Konark Sun Temple
(b) Shani Shingnapur
(c) Suryanar Temple
(d) Martand Sun Temple

Ans. (a) : Konark Sun Temple is a 13th century temple of Odisha, built by Narasimhadeva I of the Eastern Ganga Dynasty. It is also known as Black Pagoda. It's a World Heritage Site.

Note: Jagannath Puri temple is called 'Yamanika Tirtha'. This temple was called the "White Pagoda" and is a part of Char Dham pilgrimages (Badrinath, Dwaraka, Puri, Rameswaram).

47. Who has been appointed as UNICEF India's first ever Youth Ambassador in 2018?

(a) Hima Das (b) Sakshi Malik
(c) Nahid Afreen (d) Mary Kom

Ans. (a) : In 2018 UNICEF India appointed Hima Das as the first ever 'Youth Ambassador'. She is an Asian Games Gold medalist. The headquarter of UNICEF is located at New York.

48. Dena Bank and Vijaya Bank has recently merged with:

(a) State Bank of India
(b) Bank of India
(c) Punjab National Bank
(d) Bank of Baroda

Ans. (d) : Vijaya Bank and Dena Bank were merged with Bank of Baroda with effect from 1 April 2019.

49. Four cities have been given, out of which three are alike in some manner and one is different. Select the one odd one.

(a) Jodhpur (b) Kohima
(c) Shimla (d) Patna

Ans. (a) : Option 'a' is different because the remaining three are the capitals of Indian states while "Jodhpur" is an ordinary city.
Hence option (a) is odd one.

50. Which of the following organs of the digestive system has the similar shape to the English alphabet "J"?

(a) Mouth (b) Stomach
(c) Intestine (d) Liver

Ans. (b) : The stomach is a J-shaped organ in the upper belly (abdomen). It's part of the digestive system. It is between the end of the food pipe (esophagus) and the start of the first part of the small intestine of bowel (duodenum).

51. Which of the following the operation started by the government of India in the year 2018-19 to ensure the availability of tomato, onion and potatoes round the year without price volatility?

(a) Operation Green Hunt
(b) Operation Greens
(c) Operation Raahat
(d) Operation Sukoon

Ans. (b) : Ministry of Food Processing Industries launched Operation Greens scheme in November, 2018 for integrated development of Tomato, Onion and Potato (TOP) value chain with the objectives to enhance value realization of TOP farmers; reduction in post-harvest losses; price stabilization for producer and consumers and increase in food processing capacities and value addition.

52. Read the given statement and conclusions carefully and decide which of the conclusions logically follows from the statements
Statement:
Internet usage is increasing day by day.
Conclusions:
I. It is becoming easier to access the internet.
II. Internet facilities have no impact on internet usage.

(a) Only conclusion I follows
(b) Only conclusion II follows
(c) Neither conclusion I nor II follows
(d) Both conclusions I and II follow

Ans. (a) : According to the statement it is clear that only conclusion I follows.

53. A bought a horse for ₹4500. He sold it to B at a profit of 5%. B sold it to C at profit of 20%. How much is the amount paid by C to purchase the horse?

(a) ₹5240 (b) ₹5520
(c) ₹5430 (d) ₹5670

Ans. (d) : According to the question,
Selling price of A = Cost price of B

$$\text{Cost price of B} = \frac{4500\times105}{100}$$

$$= 4725$$

Selling price of B = Cost price of C

$$\text{Cost price of C} = \frac{4725\times120}{100}$$

$$= ₹5670$$

54. The intercepts made by the plane $3x - 4y - 2z = 6$ with the coordinate axis are:

(a) $-2, \frac{3}{2}, 3$ (b) $2, \frac{3}{2}, -3$
(c) $-2, -\frac{3}{2}, 3$ (d) $2, -\frac{3}{2}, -3$

Ans. (d) : Intercepts equation $= \frac{x}{a}+\frac{y}{b}+\frac{z}{c}=1$

$$3x-4y-2z=6$$

$$\frac{3x}{6}-\frac{4y}{6}-\frac{2z}{6}=\frac{6}{6}$$

$$\frac{x}{2}-\frac{2y}{3}-\frac{z}{3}=1$$

$$\frac{x}{2}+\frac{y}{\left(-\frac{3}{2}\right)}+\frac{z}{(-3)}=1$$

Comparing by Intercepts equation

$$a = 2$$

$$b = -\frac{3}{2}$$

$$c = -3$$

55. If 15 March 2015 was a Monday, then 10 July 2015 will be what day?

(a) Saturday (b) Friday
(c) Monday (d) Sunday

Ans. (a) : 15 March, 2015 $\Rightarrow$ Monday

10 July, 2015 $\Rightarrow$

Number of odd days $\Rightarrow \frac{16+2+3+2+10}{7}$

$$= \frac{33}{7}$$

Number of odd days = 5 days

10 July, 2015 $\Rightarrow$ Monday + 5 days

$\Rightarrow$ Saturday

56. Which of the following events is the oldest?

(a) Poona Pact
(b) Jallianwala Bagh Massacre
(c) Non-Cooperation Movement
(d) Quit India Movement

Ans. (b) : Following is year wise list of events:
1. Jallianwala Bagh massacre 1919
2. The Non-Cooperation Movement of 1920
3. The Dandi March of 1930
4. Poona Pact 1932
5. Quit India Movement of 1942
6. Cabinet Mission to India 1946

57. Which country's President suggested the name 'United Nations'?

(a) France
(b) Germany
(c) Russia
(d) United States of America

Ans. (d) : The name "United Nations", coined by United States of America's President Franklin D. Roosevelt, was first used in the Declaration by United Nations of 1 January 1942, The UN officially came into existence on 24 October 1945.

58. The word MANGO has been coded using 4 different codes.
Code 1 : NBOHP
Code 2: LZMFN
Code 3: OCPIQ
Code 4 : NCQKT
Which of the given codes is used to write the word ORANGE as PTDRLK?

(a) Code 4 (b) Code 1
(c) Code 2 (d) Code 3

Ans. (a) : Just as,

O	R	A	N	G	E
+1	+2	+3	+4	+5	+6
P	T	D	R	L	K

On writing MANGO in the code language,

M	A	N	G	O
+1	+2	+3	+4	+5
N	C	Q	K	T

Hence, the word ORANGE has been written as PTORLK via code 4.

59. The least number which when divided by 9, 16, 20 or 24 leaves 3 as remainder in each case is:

(a) 717 (b) 720
(c) 725 (d) 723

Ans. (d) : LCM of 9, 16, 20 and 24 = 720
According to the question,
The least number which when divided by 9, 16, 20 or 24 leaves 3 as remainder the number = 720+3 = 723

60. Name the Indian sportsman who became the youngest gold Medalist at the "Khelo India" games in Shooting in 2019.

(a) Abhinav Bindra (b) Abhinav Shaw
(c) Abhishek Verma (d) Manu Bhakar

Ans. (b) : Abhinav Shaw (10 years) became the youngest gold medalist in shooting at the Khelo India Youth Games 2019 in Pune.
'Khelo India Youth Games' earlier know as 'Khelo

India School Games'.		
Khelo India Youth Games	Host City/State	Year
First (KIYG) Edition	Delhi	2018
Second Edition	Pune	2019
Third Edition	Guwahati	2020
Fourth Edition	Haryana	2022

61. The equation of a straight line passing through (–2, 5) and (1, 3) is:

(a) 2x–3y–19 = 0 (b) 2x+2y+19 = 0

(c) 3x–2y–11 = 0 (d) 2x+3y–11 = 0

Ans. (d) : The equation of straight line passing through two points.

$$y - y_1 = \frac{y_2 - y_1}{x_2 - x_1}(x - x_1)$$

$$y - 5 = \frac{3-5}{1+2}(x+2)$$

$$3y - 15 = -2x - 4$$

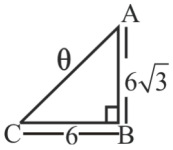
$$2x + 3y - 11 = 0$$

62. If the height of a pole is $6\sqrt{3}$m m and the length of its shadow is 6 m, then the angle of elevation of the sun is

(a) 0º (b) 45º

(c) 30º (d) 60º

Ans. (d) :



$$\tan\theta = \frac{\text{Perpendicular}}{\text{Base}}$$

$$\tan\theta = \frac{6\sqrt{3}}{6}$$

$$\tan\theta = \tan 60^\circ$$

$$\theta = 60^\circ$$

63. A box contains 2 black, 6 green and 4 yellow balls. If 2 balls are picked up at random, the probability that both are green is:

(a) 1/6 (b) 1/22

(c) 3/11 (d) 5/22

Ans. (d) : Total balls = 2 + 6 + 4 = 12

$$\text{Probability of green balls} = \frac{{}^{6}C_2}{{}^{12}C_2} = \frac{\frac{6\times5}{2\times1}}{\frac{12\times11}{2\times1}}$$

$$= \frac{30}{12\times11}$$

$$= \frac{5}{22}$$

64. In the following group of materials, which group contains only non-biodegradable materials?

(a) Food scraps, animal waste

(b) Wood, paper, leather

(c) Plastic, DDT, Bakelite

(d) Scraps, cotton, wool

Ans. (c) : Solid wastes can be divided into two distinct categories biodegradable and non-biodegradable waste. Biodegradable materials as those substances made of organic matter, such as plant and animal waste that can be easily broken down by nature. For example, vegetable peels and other kitchen waste, vegetables, fruits, tea leaves, paper, wood, etc. Non-biodegradable materials are those materials, which cannot be broken down easily, and retain their form for a long period of time. For example, metals, tin, glass, plastics, DDT, Bakelite etc.

65. Raj is 60% more efficient than Sundar and Sundar can finish a certain task in 16 days. How many days will Raj alone take to complete the same task?

(a) 12 (b) $7\frac{1}{2}$

(c) 8 (d) 10

Ans. (d) : Let the working efficiency of Sundar = 100

Work efficiency of Raj = 160

Ratio of working efficiency

$$\frac{\text{Sundar}}{\text{Raj}} = \frac{100}{160} = \frac{5}{8}$$

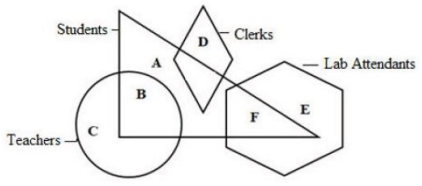
Total work $= 16\times5 = 80$ unit

Time taken by Sundar to complete the work $= \frac{80}{8}$

$= 10$ days

66. In the given figure, the circle represents persons who are 'teachers', the triangle represents persons who are 'students', the diamond represents persons who are 'clerks' and the hexagon represents persons who are 'lab attendants'

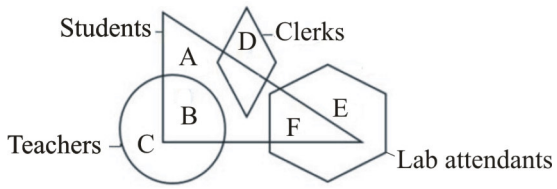
Based on the figure, select the region that represents persons who are only teachers.



(a) B (b) C

(c) A (d) F

Ans. (b) :



On the basis of the given figure, 'C' represents persons who are only teachers.

67. Which of the following museum is situated in Kerala?

(a) Dakshinachitra Museum
(b) Salar Jung Museum
(c) Albert Hall Museum
(d) Napier Museum

Ans. (d) : The Napier Museum is an art and natural history museum situated in Thiruvananthapuram, Kerala, India. The Museum is named after Lord Napier, the then Governor General of Madras. Impressed by the traditional Kerala style architecture, Lord Napier in 1872 CE assigned, the architect of the Government of Madras, Robert Fellowes Chisholm, to build this royal structure.

Whereas,

Dakshinachitra Museum → Chennai, Tamil Nadu

Salar Jung Museum → Hyderabad, Telangana

Albert Hall Museum → Jaiput, Rajasthan

68. If $2^x = 4^{y+1}$ and $3^y = 3^{x-9}$, then the respective values of x and y will be

(a) (7, 16) (b) (-16, 7)
(c) (16, 7) (d) (16, 7)

Ans. (c) : Given,

$2^x = 4^{y+1}$ व $3^y = 3^{x-9}$

$2^x = 2^{2(y+1)}$

On comparing

$x = 2y+2$ — (I)

and $3^y = 3^{x-9}$

$y = x-9$ — (II)

putting the value of 'y' in eq^n (i)

$x = 2x-18+2$

$x = 16$

putting the value of 'x' in eq^n (ii)

$y = 16 - 9$

$y = 7$

Hence, value of x and y will be 16, 7 respectively (16, 7)

69. Read the given statements carefully and decide which conclusion from the given options logically follows from the statements.

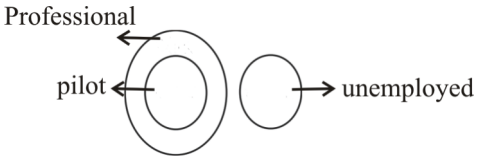
Statements:

1. All pilots are professionals.

2. No professionals are unemployed.

(a) Some professionals are unemployed
(b) All professionals are unemployed
(c) All pilots are unemployed
(d) No pilots are unemployed

Ans. (d) : According to the statement-



It is clear from the Venn diagram that the conclusion in option 'd' follows the statements logically

70. The ratio of simple interest earned by a certain amount at the rate of 5% for 6 years and 8% for 3 years is:

(a) 2 : 3 (b) 4 : 5
(c) 3 : 2 (d) 5 : 4

Ans. (d) : Ratio of Simple Interest

$$= \frac{\frac{P \times 5 \times 6}{100}}{\frac{P \times 8 \times 3}{100}}$$

$$= \frac{30}{24}$$

$$= \frac{5}{4}$$

71. Which country's constitution has been considered by India for the 'Principles of Liberty, Equality & Fraternity'?

(a) France (b) Ireland
(c) Britain (d) Australia

Ans. (a) : The Principles of Liberty, Equality, and Fraternity of the Indian Constitution are borrowed from the constitution of France.

Whereas,

- Directive Principles of State policy - Ireland
- Fundamental Duties - Russia
- Fundamental Rights - USA
- Bicameralism - Britain
- Joint sitting of the two houses - Australia

72. Who was the grandson of Bhim and Hidimba as per Mahabharata?

(a) Barbarika (b) Iravan
(c) Parikshit (d) Babruvahana

Ans. (a) : As per Mahabharata, Barbarika was the son of Ghatotkacha and the grandson of Hidimba and Bheem. His mother was Mata Ahilyavati (daughter of Basuki Naag).From the childhood itself, Barbarika was a very courageous warrior. Krishna, Dvaipayana Veda Vyas wrote the Mahabharata. The festival of Guru Purnima is dedicated to Veda Vyas.

73. Who was the secretary of UNO between the year 1997-2006?

(a) Kofi Annan (b) U–Thant
(c) Ban ki-Moon (d) Trigvi Li

Ans. (a) : Kofi Annan (Ghana) held office of Secretary-General of UNO from January 1997 to December 2006.

74. Rama can finish a task in 50 days. He worked for 10 days then Ravi finished the remaining task alone in 32 days. How much time will Rama and Ravi take, working together, to finish the task?

(a) $22\frac{2}{9}$ days (b) $24\frac{2}{9}$ days

(c) $24\frac{1}{9}$ days (d) $22\frac{4}{9}$ days

Ans. (a) : $\because$ One day work of Ram $= \frac{1}{50}$ part

$\therefore$ Work done by Ram in 10 days $= \frac{10}{50} = \frac{1}{5}$ part

Remaining work $= 1 - \frac{1}{5} = \frac{4}{5}$ part

Ravi does $\frac{4}{5}$ part of work in $= 32$ days

$\therefore$ Ravi alone will do the whole work in $= 32 \times \frac{5}{4} = 40$ day

Hence, the work done by Ram and Ravi in one day together

$$= \frac{1}{40} + \frac{1}{50} = \frac{5+4}{200} = \frac{9}{200} \text{ Part}$$

Ram and Ravi will complete the work in $= \frac{200}{9} = 22\frac{2}{9}$ days

75. The process of digestion of food in the humans begins in _____ and is completed in _____.

(a) Stomach; large intestine

(b) Mouth; small intestine

(c) Food pipe; large intestine

(d) Food pipe; small intestine

Ans. (b) : Digestion begins in the mouth with chewing and ends in the small intestine. As food passes through the gastrointestinal tract, it mixes with digestive juices, causing large molecules of food to break down into smaller molecules.

76. four body parts have been given, out of which three are alike in some manner and one is different. Select the odd one out.

(a) Eyes (b) Ear

(c) Nose (d) Chin

Ans. (d) : Option (d) is different among all because the others are sensory organs while chin is not.

77. A cylinder has 14 cm height and 660 cm^2 curved surface area. The volume of the cylinder is:

$\left(\textbf{Take } \pi = \frac{22}{7}\right)$

(a) 2425 cm^3 (b) 2275 cm^3

(c) 2475 cm^3 (d) 2225 cm^3

Ans. (c) : Given,

h = 14 cm

Curved surface area of cylinder $= 2\pi rh$

$$660 = 2 \times \frac{22}{7} \times r \times 14$$

$$r = \frac{660}{88}$$

$$= \frac{60}{8}$$

$$= 7.5\text{cm}$$

volume of the cylinder $= \pi r^2 h$

$$= \frac{22}{7} \times 7.5 \times 7.5 \times 14$$

$$= 2475\text{cm}^3$$

78. Which term is used for the tropical cyclone that originates in the north eastern Pacific and north Atlantic?

(a) Tornado (b) Hurricane

(c) Typhoon (d) Twister

Ans. (b) : Once a tropical cyclone reaches maximum sustained winds speed of 74 miles per hour or higher, it is then classified as a hurricane, typhoon, or tropical cyclone, depending upon where the storm originates in the world. In the North Atlantic, central North Pacific, and eastern North Pacific, the term hurricane is used for this types of tropical cyclone.

79. Who is known as the 'Martin Luther of India'

(a) Bal Gangadhar Tilak

(b) Dayanand Saraswati

(c) Pandit Lekhraj

(d) Swami Vivekanand

Ans. (b) : Swami Dayanand Saraswati is known as Martin Luther of India.He was the founder of Arya Samaj.

80. Name the first Indian newspaper that became available on the internet.

(a) National Herald (b) The Statesman

(c) The Hindu (d) Times of India

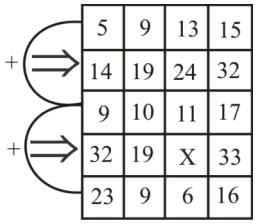
Ans. (c) : "The Hindu" was the first Indian newspaper available on the internet to it's online edition in the year 1995.

81. Study the given figure carefully and select the number that can replace the 'X'?

5	9	13	15
14	19	24	32
9	10	11	17
32	19	X	33
23	9	6	16

(a) 22 (b) 49
(c) 17 (d) 28

Ans. (c) :



$\Rightarrow$ Just as, $5 + 9 \Rightarrow 14$

$9 + 23 \Rightarrow 32$

Similarly

$13 + 11 \Rightarrow 24$

$11 + 6 \Rightarrow \boxed{17}$

Hence, 17 will replace X.

82. What is the SI unit of radioactivity?

(a) Becquerel (b) Curie
(c) Faraday (d) Rutherford

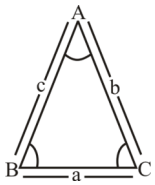
Ans. (a) : The SI unit of radioactivity is "Becquerel"

SI UNIT	Sign	Physical quantity
Metre	m	Length
Kilogram	kg	Weight
Second	s	Time
Ampere	A	Current
Kelvin	K	Temperature
Mole	mol	state of substance
Candela	Cd	Luminuous intenstity

83. In the triangle ABC, a = 25, b = 45 and c = 30. The value of cos A is:

(a) $\frac{23}{27}$ (b) $\frac{21}{27}$
(c) $\frac{25}{27}$ (d) $\frac{20}{27}$

Ans. (a) :



$$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

$$= \frac{45^2 + 30^2 - 25^2}{2 \times 45 \times 30}$$

$$= \frac{2025 + 900 - 625}{2 \times 45 \times 30}$$

$$= \frac{2300}{2 \times 45 \times 30}$$

$$= \frac{23}{27}$$

84. Which rank was given by EIU Global Democracy Index to India for the year 2019?

(a) 21st (b) 31st
(c) 51st (d) 41st

Ans. (c) : India was ranked 51st in the 2019 Democracy Index. Currently India is ranked at 53rd position in the 2020 democracy Index's global ranking, according to the Economist Intelligence Unit (EIU). India's overall score fell from 6.9 in 2019 to 6.61 in the Index. Out of 167 countries, the Democracy Index classifies 23 countries as full democracies, 52 as flawed democracies, 35 as hybrid regimes and 57 as authoritarian regimes. India has been classified as a 'flawed democracy' along with countries such as the US, France, Belgium and Brazil.

85. Pons is a part of human:

(a) Kidney (b) Adrenal gland
(c) Brain (d) Heart

Ans. (c) : The pons is a portion of the brain stem it is located above the medulla oblongata and below the midbrain. It is approximately 2.5 cm long, it serves several important functions. It is a bridge between various parts of the nervous system, including the cerebellum and cerebrum.

86. Direction (Question No. 86-88): The given table shows the final examination score of senior secondary students from Gujarat from Board X and Board Y over 6 years (from 2014 to 2019). Answer the question given below based on the table.

Year	X		Y	
	Boys	Girls	Boys	Girls
2014	75.85%	77.57%	74.56%	76.65%
2015	72.58%	73.80%	69.68%	71.45%
2016	81.00%	77.80%	68.50%	70.45%
2017	74.45%	82.00%	77.56%	80.67%
2018	70.56%	78.55%	70.50%	76.78%
2019	79.18%	81.48%	73.55%	81.65%

Which of the following statements regarding the data from the table is correct?

(a) 2014 is the year in which the difference in performance between Boys and Girls of Board X was the least
(b) 2018 is the year in which the difference in performance between Boys and Girls of Board Y was the highest.
(c) 2016 was the only year in which Boys of Board X outperformed the Girls of Board X.
(d) 2016 is the year in which the difference in performance between Boys and girls of Board Y was the least.

Ans. (c) :

(a) In year 2014, the difference between obtained marks of boys and girls of board 'X' = 77.5~75.85

= 1.72%

(b) In year 2018, the difference between obtained marks of boys and girls in board 'Y' = 76.78~70.80 = 6.78%

(c) In 2016, the boys of board who out performed the girls of board = 81.00~77.80 = 3.20%
(d) In year 2016, the difference of obtained marks of girls and boys of 'y' group = 70.45%~68.50 = 1.95%
Hence option 'c' is correct

87. Which among the following groups has the highest average score in the given period?
(a) Boys from Board X (b) Girls from Board Y
(c) Boys from Board Y (d) Girls from Board X

Ans. (d) :
(a) From 2014-2019, average of obtained marks of boys of board 'X'
$$\frac{75.85+72.58+81+74.45+70.56+79.18}{6}$$
$= 75.60\%$
(b) From 2014 to 2019, average of marks of girls of 'Y' board
$$= \frac{76.65+71.45+70.45+80.67+76.78+81.65}{6}$$
$= 76.27\%$
(c) From 2014 to 2019, average marks of boys of board 'Y'
$$= \frac{74.56+69.68+68.50+77.56+70.50+73.55}{6}$$
$= 72.39\%$
(d) From 2014 to 2019, the average marks of girls of board 'X'
$$= \frac{77.57+73.80+77.80+82+78.55+81.48}{6}$$
$= 78.53\%$
It is clear that the average marks of girls of board 'x' is highest. Hence option 'd' is correct.

88. In which year was the absolute increase in the percentage score from the previous year the maximum, in the case of Girls of Board X?
(a) 2018 (b) 2017
(c) 2016 (d) 2019

Ans. (b) : The absolute increase or decrease in percentage score of girls of Board 'X' in different years as compared to the previous year-
In the year 2018 $\rightarrow$ 78.55% – 82.00%
= - 3.45% (decreament)
In the year 2017 $\rightarrow$ 82.00% – 77.80%
= 4.2% (increament)
In the year 2016 $\rightarrow$ 77.80% – 73.80%
= 4% (increament)
In the year 2019 $\rightarrow$ 81.48% – 78.55%
= 2.9% (increament)
Hence in the year 2017 the absolute increase in the percentage score from the previous year is maximum in the case of Board X.

89. The given table shows undergraduate and postgraduate courses and the corresponding number of students for each course. Answer the question given below based on the table.

Total no of students	Course
455	M.B.A.
182	M.C.A.
182	B.B.A.
91	B.C.A.

Determine the ratio of the number of undergraduate students (B.B.A. & B.C.A) to that of postgraduate students (M.B.A. & M.C.A)
(a) 7 : 3 (b) 2 : 3
(c) 3 : 7 (d) 2 : 7

Ans. (c) : According to the question,
$$\frac{\text{No. of graduate (B.B.A \& B.C.A) student}}{\text{No. of postgraduate (M.B.A \& M.C.A) student}} = \frac{(182+91)}{(455+182)}$$
$$= \frac{273}{637}$$
$$= \frac{3}{7}$$

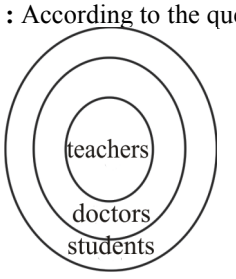
90. Four living things have been given, out of which three are alike in some manner and one, is different. Select the odd one out.
(a) Dog (b) Monkey
(c) Eagle (d) Cat

Ans. (c) : Option 'c' is different from others because Eagle is a bird while others are animal.

91. Select the letter that can replace the question mark (?) in the following series.
K, M, P, T, Y, ?
(a) A (b) E
(c) G (d) F

Ans. (b) : Series is as follows-
K M P T Y E
+2 +3 +4 +5 +6
Hence 'E' will be at the place of (?)

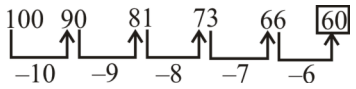
92. Read the given statements and conclusions carefully and decide which of the conclusions logically follow(s) from the statements.
Statements:
1. All teachers are doctors.
2. All doctors are students.
Conclusions:
I. All teachers are students.
II. All students are doctors.
(a) Only conclusion II follows
(b) Neither conclusions I nor II follows
(c) Only conclusion I follows
(d) Both conclusions I and II follow

Ans. (c) : According to the question-


conclusions
I ✓
II ✗
Hence from the above diagram it is clear that only conclusion I follows the statements.

93. Select the number that can replace the question mark (in) the following series.
100, 90, 81, 73, 66, ?
(a) 61 (b) 60
(c) 56 (d) 59

Ans. (b) : Series is as follows-



94. If 29 Q 8 R 56 = 176 and 84 R 5 Q 13 = 19, then 51 Q 3 R 46 = ?
(a) 94 (b) 109
(c) 132 (d) 107

Ans. (d) : Just as,
$29\times8-56 = 232-56 = 176$
and $84-5\times13 = 84-65 = 19$
Similarly,
$51\times3-46 = 153-46 = 107$

95. Select the correct word-pair.
(a) Abhinav Bindra : Shooting
(b) Mithali Raj : Badminton
(c) Mary Kom : Wrestling
(d) Saina Nehwal : Boxing

Ans. (a) :

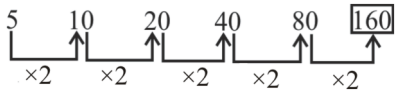
Player	–	**Play**
Abhinav Bindra	–	Shooting
Mithali Raj	–	Cricket
Mary Kom	–	Boxing
Saina Nehwal	–	Badminton

96. Select the option that is related to the third term in the same way as the second term is related to the first term.
Day : Night : : Sky : ?
(a) Sea (b) Clouds
(c) Earth (d) Universe

Ans. (c) : As 'Day' is related with 'Night', in the same way 'Sky' is related with 'Earth'.

97. Select the number that can replace the question mark (?) in the following series.
5, 10, 20, 40, 80, ?
(a) 100 (b) 120
(c) 140 (d) 160

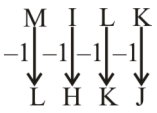
Ans. (d) : The given series is as follows-



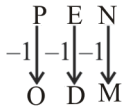
Hence, ? = 160

98. Select the option that is related to the third term in the same way as the second term is related to the first term.
MILK : LHKJ : : PEN: ?
(a) QFO (b) NPE
(c) ODM (d) NEP

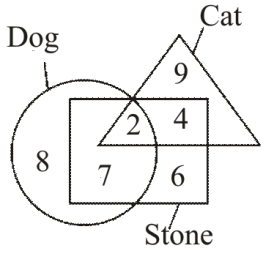
Ans. (c) : Just as,



Similarly,

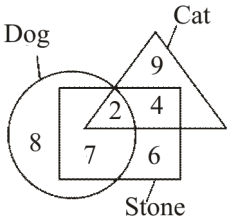


99. How many stones is neither Dog nor Cat?



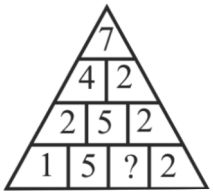
(a) 9 (b) 6
(c) 8 (d) 7

Ans. (b) :



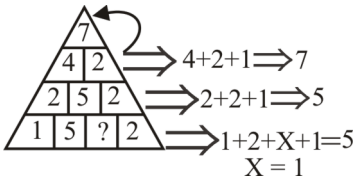
6 stones are from the above it is clear that neither dog nor cat.

100. Study the given pattern carefully and select the number that can replace the question mark (?) in it?



(a) 4 (b) 5
(c) 2 (d) 1

Ans. (d) :



Hence, '1' will be at the place of (?).

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 15.03.2021] **[Time : 10.30 am-12.00 pm]**

1. If a sum invested at simple interest, double itself in 8 years, how many times of itself will it be in 12 years?

(a) 3 times (b) 4 times
(c) 5 times (d) 3.5 times

Ans. (b) : Let the principal amount = ₹ P
Rate = R%
And time = T years.
So interest of 8 years = 2P
According to the question-

$$2P = \frac{P \times R \times 8}{100}$$

$$R = \frac{200}{8} = 25\%$$

Interest for 12 years-

$$\text{Interest} = \frac{P \times 25 \times 12}{100}$$

$$\text{Intesest} = 3P$$

New amount = P + 3P = 4P
Hence, it will become 4 times of itself in 12 years.

2. When 106 is subtracted from a number, it reduces to its 47%. What is 11.5% of that number?

(a) 13 (b) 31
(c) 23 (d) 32

Ans. (c) : Let numbers is x.
According to the question-

$$x - 106 = x \times \frac{47}{100}$$

$$x - \frac{47x}{100} = 106$$

$$53x = 10600$$

$$x = 200$$

Now, 11.5% of given number,

$$200 \times \frac{11.5}{100} = 23$$

3. Find the Value of $\sqrt{58\frac{7}{9}}$

(a) $7\frac{2}{3}$ (b) $7\frac{7}{9}$
(c) $2\frac{2}{3}$ (d) $2\frac{7}{9}$

Ans. (a) : $\sqrt{58\frac{7}{9}} = \sqrt{\frac{529}{9}} = \frac{23}{3} = 7\frac{2}{3}$

4. The battle of Haldighati was fought in:

(a) 1568 (b) 1552
(c) 1576 (d) 1584

Ans. (c) : The Battle of Haldighati was fought on 18 June, 1576 between the armies of Maharana Pratap, the Rana of Mewar, and the Mughal emperor Akbar's forces, led by Man Singh I of Amer. The battle ended in defeat of the forces of Mewar.

5. In a certain code language, SCHOOL is coded as the number 72. What number will FLOWER be coded as in that language?

(a) 54 (b) 79
(c) 71 (d) 89

Ans. (b) :
Just as, SCHOOL $\Rightarrow$ 19+3+8+15+15+12 = 72
Similarly, FLOWER $\Rightarrow$ 6+12+15+23+5+18 = 79

6. August Kranti is also known as the _____ Movement?

(a) Swadeshi (b) Home Rule
(c) Khilafat (d) Quit India

Ans. (d) : The Quit India Movement also known as August Movement or August Kranti, was led by Mahatma Gandhi on 08 August, 1942 from the Bombay session of the All-India Congress Committee in Mumbai. It is a part of the Civil Disobedience Movement launched by Mahatma Gandhi to end British rule in India.

7. The selling price of 150 items is equal to the cost price of 125 items. What will be the percentage loss?

(a) $16\frac{1}{3}\%$ (b) $16\frac{2}{3}\%$
(c) $11\frac{1}{9}\%$ (d) $15\frac{1}{3}\%$

Ans. (b) : 150 SP = 125 CP

$$\frac{SP}{CP} = \frac{5}{6}$$

$$\text{Required loss\%} = \frac{(6-5)}{6} \times 100 = \frac{1}{6} \times 100 = 16\frac{2}{3}\%$$

8. Walking at the rate of 3 km/h a man covers a certain distance in 8 hours. If the man runs at a speed of 16 km/h, then how much time will he take to cover the same distance?

(a) 2 hours (b) 1.5 hours
(c) 2.5 hours (d) 1 hours

Ans. (b) : Distance = Speed × Time
$= 3 \times 8$
$= 24$ km
Time taken to travel at a speed of 16 km/h = $\frac{24}{16} = 1.5$ hours

9. National Environmental Engineering Research Institute (NEERI) is located at:
(a) Indore (b) Pune
(c) Nainital (d) Nagpur

Ans. (d) : The CSIR-National Environmental Engineering Research Institute (CSIR-NEERI) is a research institute created and funded by the Government of India. It was established in Nagpur in 1958 with a focus on water supply, sewage disposal, communicable diseases, and to some extent on industrial pollution and occupational diseases found common in post-independent India. It is a pioneer laboratory in the field of environmental science and engineering and part of the Council of Scientific and Industrial Research (CSIR). It has five zonal laboratories in Chennai, Delhi, Hyderabad, Kolkata, and Mumbai. NEERI falls under the Ministry of Science and Technology (India) of the central government.

10. If a – 5 = b, then what is the value of $|a-b|+|b-a|$?
(a) 10 (b) –5
(c) 0 (d) 5

Ans. (a) : Given,
$a - 5 = b$
$a - b = 5$
$b - a = -5$
$|a-b|+|b-a|$
$= |5|+|-5|$
$= 5+5$
$= 10$

11. The domain of cosec x is:
(a) $\{2n\pi | n \in Z\}$
(b) $\{n\pi | n \in Z\}$
(c) $R - \{2n\pi | n \in Z\}$
(d) $R - \{n\pi | n \in Z\}$

Ans. (d) : Domain of cosec x is $R - \{n\pi | n \in Z\}$

12. Select the option that is related to the third term in the same way as the second term is related to the first term.
15 August : Freedom :: 26 January: ?
(a) Democracy (b) Secularism
(c) Constitution (d) Parliament

Ans. (c) : As like on 15 August, 1947 India got Independence form British rule. Similarly on 26 January, 1950 Indian Constitution was implemented.

13. What will be the correct sequence of the following words if they are arranged as per their order in an English Dictionary?
Process, Possess, Purpose, Propose
(a) Possess, Purpose, Propose, Process
(b) Possess, Process, Purpose, Propose
(c) Possess, Process, Propose, Purpose
(d) Possess, Propose, Process, Purpose

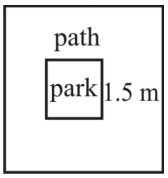
Ans. (c) : The order of the words according to the English dictionary is as follows-
Possess, Process, Propose, Purpose

14. Which of the following is a prime number?
(a) 143 (b) 173
(c) 123 (d) 213

Ans. (b) : Prime number are the numbers, which are only divisible by 1 and the number itself.
(a) 143 is divisible by 11, so it is not a prime number.
(b) 173 is divisible by 1 and itself, so it is a prime number.
(c) 123 is divisible by 3, so it is not a prime number.
(d) 213 is divisible by 3, so it is not a prime number.

15. A square park is surrounded by a path of uniform width 1.5 m all around it. The area of the path is 225 m^2. Find the perimeter of the park.
(a) 144 m (b) 142 m
(c) 143 m (d) 144.5 m

Ans. (a) :

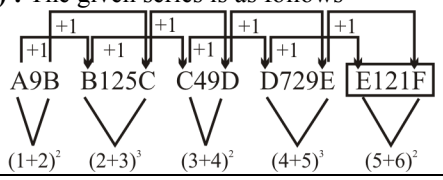


Area of the path = Area of the square park including the path – Area of the square park.
$[a + 2(1.5)]^2 - a^2 = 225$
$a^2 + 9 + 6a - a^2 = 225$
$6a = 216$
$a = 36$ m
Perimeter of the square park = 4×side = 4a
= 4×36 = 144 m

16. Select the option that will fill in the blank and complete the given series.
A9B, B125C, C49D, D729E, ...

(a) E121F (b) D122G
(c) E36F (d) G221H

Ans. (a) : The given series is as follows-



17. If $x = \frac{\sqrt{3}+1}{\sqrt{3}-1}$ and $y = \frac{\sqrt{3}-1}{\sqrt{3}+1}$ then 3(x + y) = ?

(a) 13 (b) 8
(c) 12 (d) 10

Ans. (c) : $x = \frac{\sqrt{3}+1}{\sqrt{3}-1}, y = \frac{\sqrt{3}-1}{\sqrt{3}+1}$

$$3(x+y) = 3\left(\frac{\sqrt{3}+1}{\sqrt{3}-1} + \frac{\sqrt{3}-1}{\sqrt{3}+1}\right)$$

$$= 3\left(\frac{3+1+2\sqrt{3}+3+1-2\sqrt{3}}{2}\right)$$

$$= 12$$

18. Find the value of x

$$1\frac{1}{5} - 3\frac{2}{4} \div 1\frac{3}{4} \div \left(x + 3\frac{1}{8}\right) \div 1\frac{1}{7} = 1$$

(a) $x = 3\frac{5}{8}$ (b) $x = 3\frac{3}{8}$
(c) $x = 5\frac{5}{8}$ (d) $x = 7\frac{5}{8}$

Ans. (c) : $1\frac{1}{5} - 3\frac{2}{4} \div 1\frac{3}{4} \div \left(x + 3\frac{1}{8}\right) \div 1\frac{1}{7} = 1$

$$\frac{6}{5} - \frac{14}{4} \times \frac{4}{7} \times \frac{8}{(8x+25)} \times \frac{7}{8} = 1$$

$$\frac{6}{5} - \frac{14}{(8x+25)} = 1$$

$$\frac{1}{5} = \frac{14}{(8x+25)}$$

$$8x + 25 = 70$$

$$8x = 45$$

$$x = 5\frac{5}{8}$$

19. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts decide which of the given conclusions logically follows (s) from the statements.

Statements:

1. All boys are chefs.

2. All chefs are villagers.

Conclusions:

1. All boys are villager.

2. All Chefs are boys.

(a) Only conclusion 2 follows
(b) Only conclusion 1 follows
(c) Neither conclusion 1 nor 2 follows
(d) Both the conclusions follows

Ans. (b) : On drawing a Venn diagram-

It is clear from the Venn diagram that only conclusion 1 follows. All statements logically.

20. X-band synthetic aperture radar has been used in which satellite?

(a) CARTOSAT-2B (b) INSAT-4B
(c) RISAT-2B (d) GSAT-12

Ans. (c) : RISAT-2B is an indigenously developed Synthetic Aperture Radar (SAR) imaging satellite operating in X Band with 3.6 m radial rib antenna. It was launched by ISRO through PSLV C46 (Core Alone) on 22 May 2019 from First Launch Pad of SDSC (SHAR). The satellite has the capability to operate in different modes including Very High Resolution RADAR imaging modes of 1m × 0.5m resolution and 0.5m × 0.3m resolution. It is a radar imaging satellite, it can image during day / night / all weather conditions. The Satellite will be utilized for high resolution spot imaging of locations of interest.

21. Select the option that will fill in the blank and complete the given series.

MU, KS, IQ, GO, ...

(a) DM (b) EL
(c) EM (d) IQ

Ans. (c) : The given series is as follows-

$$M \xrightarrow{-2} K \xrightarrow{-2} I \xrightarrow{-2} G \xrightarrow{-2} E$$

$$U \xrightarrow{-2} S \xrightarrow{-2} Q \xrightarrow{-2} O \xrightarrow{-2} M$$

Hence, the next term of the series will be EM.

22. Find the number of sides of a regular polygon if each interior angle is 165º.

(a) 24 (b) 20
(c) 22 (d) 26

Ans. (a) : Interior angle + Exterior angle = 180°

Exterior angle = 180° – 165°

= 15°

$$\text{Exterior angle of a polygon} = \frac{360^\circ}{\text{Sides of a polygon}}$$

$$\text{Sides of a polygon} = \frac{360^\circ}{15^\circ} = 24$$

23. Find the value of sin 15º ?

(a) $\frac{\sqrt{6}-\sqrt{2}}{4}$ (b) $\frac{\sqrt{6}-\sqrt{2}}{3}$

(c) $\frac{\sqrt{6}-\sqrt{2}}{2}$ (d) $\frac{\sqrt{3}-\sqrt{2}}{4}$

Ans. (a) : $\sin 15^\circ = \sin(60^\circ - 45^\circ)$

$= \sin 60^\circ \times \cos 45^\circ - \cos 60^\circ \times \sin 45^\circ$

$= \frac{\sqrt{3}}{2} \times \frac{1}{\sqrt{2}} - \frac{1}{2} \times \frac{1}{\sqrt{2}}$

$= \frac{\sqrt{3}-1}{2\sqrt{2}}$

$= \frac{\sqrt{6}-\sqrt{2}}{4}$

24. The Olympic Games of 2024 will be held in____.

(a) Los Angeles (b) Ghana

(c) Tokyo (d) Paris

Ans. (d) : The 2024 Summer Olympics officially the Games of the XXXIII Olympiad will take place from 26 July to 11 August 2024 in Paris, France. Having previously hosted in 1900 and 1924, Paris will become the second city to host the Summer Olympics three times after London (1908, 1948 and 2012). **Note:** On 21 February 2019, the Paris Organising Committee announced they would propose breakdancing as a new sport, along with surfing, sport climbing and skateboarding, which debuted at the 2020 Summer Olympics as optional sports.

25. Consider 4th march to be a Wednesday in 2018. What day of the week will it be on 7th march in 2019?

(a) Monday (b) Tuesday

(c) Sunday (d) Wednesday

Ans. (c) : If March 4, 2018 → Wednesday

Then March 4, 2019 → will be Thursday

Similarly, March 7, 2019 → Thursday + 3 = Sunday

26. Which of the following is NOT a GST rate slab in India?

(a) 28% (b) 10%

(c) 18% (d) 5%

Ans. (b) : Goods and Services Tax (GST) is an indirect tax (or consumption tax) used in India on the supply of goods and services. The tax came into effect from 1 July, 2017 through the implementation of the One Hundred and First Amendment of the Constitution of India by the Indian government. The GST replaced existing multiple taxes levied by the central and state governments. Goods and Services Tax (GST) are divided into five different tax slabs for collection of tax: 0%, 5%, 12%, 18% and 28%.
Hence, option (b) is NOT a rate slab in India.

27. The power of the President to promulgate ordinances during recess of the parliament is given in which article of the Indian Constitution?

(a) Article 52 (b) Article 63

(c) Article 352 (d) Article 123

Ans. (d) : Article 123 of the Constitution grants the President certain law-making powers to promulgate ordinances during the recess of Parliament. These ordinances have the same force and effect as an Act of Parliament but are in the nature of temporary laws.

28. 82% of a number is 738. What is 90% of that number?

(a) 820 (b) 802

(c) 810 (d) 900

Ans. (c) : Let number is x.

According to the question-

$x \times \frac{82}{100} = 738$

$x = \frac{738 \times 100}{82}$

90% of the number $= \frac{738 \times 100}{82} \times \frac{90}{100} = 810$

29. Find the second term in a sequence of numbers that leaves that remainders 1, 2 and 7 when divided by 2, 3 and 8 respectively.

(a) 37 (b) 38

(c) 48 (d) 47

Ans. (d) : LCM of number 2, 3 and 8 = 24

Required number = 24K–1

$(\because 2-1=1, 3-2=1, 8-7=1)$

(On putting K = 2)

$= 24 \times 2 - 1$

$= 47$

30. If today is a Tuesday, what will be the 64th day from today?

(a) Tuesday (b) Wednesday

(c) Thursday (d) Friday

Ans. (b) : If today is Tuesday

Number of odd days in 64 days $= \frac{64}{7} = 1$ odd day

So 64th day = Tuesday +1 = Wednesday

31. Find the area of a triangle whose sides are 5 cm, 7cm and 11 cm.

(a) 12.97 cm^2 (b) 12.27 cm^2

(c) 12.30 cm^2 (d) 12.50 cm^2

Ans. (a) : $S = \frac{a+b+c}{2} = \frac{5+7+11}{2} = 11.5$

Area of the triangle $= \sqrt{s(s-a)(s-b)(s-c)}$

$= \sqrt{11.5(11.5-5)(11.5-7)(11.5-11)}$

$= \sqrt{11.5 \times 6.5 \times 4.5 \times 0.5}$

$= \sqrt{168.18}$

$= 12.97 \ m^2$

32. The original name of Mahabharata is:

(a) Bhrigu samhita (b) Sushruta Samhita
(c) Jaya Samhita (d) Shiva Samhita

Ans. (c) : The Mahabharata in its original version was called Jaya Samhita, and it was written by Maharishi Ved Vyasa. The original epic had only 8800 shlokas and was called Jaya.

33. _____ was the largest producer of Uranium in the world in 2019

(a) Kazakhstan (b) Australia
(c) Namibia (d) Russia

Ans. (a) : Global Uranium Production stood at some 54,752 metric tons in 2019. With a production of approximately 22,808 metric tons, Kazakhstan is the largest producer of Uranium in the world. It accounts for approx 40% of world supply. Other top Uranium producers include Canada, Australia, and Namibia. Andhra Pradesh is the largest producer of Uranium in India.

34. A and B can complete a piece of work in 56 and 70 days respectively. They began the work together but A left after some days and B finished the remaining work in 34 days. After how many days did A leave?

(a) 16 (b) 12
(c) 15 (d) 9

Ans. (a) : Let A left the work after x days

According to the question,

$$\frac{x}{56}+\frac{x+34}{70}=1$$

$$5x+4x+136=280$$

$$9x=144$$

$$x=16 \text{ days.}$$

35. If 2x + y = 15, y + 2z = 17 and x + 2y = 9, then the value of 4x + 3y + z = ?

(a) 39 (b) 38
(c) 40 (d) 37

Ans. (a) : $2x + y = 15$ — (i)

$y + 2z = 17$ — (ii)

$x + 2y = 9$

On multiplying by 2 in both side,

$2x + 4y = 18$ — (iii)

From equation (iii) – equation (i)-

$y = 1$

On putting the value of y in the equation (i) and (ii)-

$x = 7, \quad z = 8$

$4x+3y+z = 4\times7+3\times1+8$

$= 28+3+8$

$= 39$

36. Which of the following option is NOT correctly matched?

(a) Ujjain – Kshipra River
(b) Surat–Tapti River
(c) Jabalpur– Jhelum River
(d) Lucknow–Gomti

Ans. (c) :

City	River
Ujjain	Kshipra River
Surat	Tapti River
Jabalpur	Narmada River
Lucknow	Gomti River

37. Who among the following was one of the finest Calligraphers at Akbar's court, who was honoured with the title 'Zarrin Qalam' (Golden Pen)

(a) Basawan
(b) Abul Fazal
(c) Daswant
(d) Muhammad Husain

Ans. (d) : Muhammad Husain came from Kashmir and was one of the most well known artists of calligraphy in Akbar's Court. He was honoured with the title "Zarrin Kalam" or Golden Pen.

38. Tulugama is a:

(a) Punishment given to criminals by Jahangir
(b) Water conservation method used by Akbar
(c) Military strategy used by Babur
(d) Tax imposed by Jahangir

Ans. (c) : The First Battle of Panipat was fought between the invading forces of Babur and the Lodi Empire, which took place on 21 April 1526. The Mughal Emperor Babur won in this battle.The new war tactics introduced by Babur known as tulugama was used in this battle. Tulugama meant dividing the whole army into various units, viz. the Left, the Right and the Centre. The Left and Right divisions were further subdivided into Forward and Rear divisions.

39. Which of the following is a 'Maharatna' company?

(a) Oil India Limited
(b) Bharat Electronics Limited (BEL)
(c) Bharat Petroleum Corporation Limited
(d) Hindustan Aeronautics Limited

Ans. (c) : The Government of India categorizes Central Public Sector Enterprises (CPSEs) under three different categories – Maharatna, Navratna, and Miniratna. As of January 2020, India has 10 Maharatna companies, 14 Navratna companies in India, and 73 Miniratna companies divided into Category 1 and Category 2.

- Bharat Heavy Electricals Limited (BHEL)
- Bharat Petroleum Corporation Limited (BPCL)
- Coal India Limited (CIL)
- Gas Authority of India Limited (GAIL)
- Hindustan Petroleum Corporation Limited (HPCL)
- Indian Oil Corporation Limited (IOCL)
- National Thermal Power Corporation (NTPC)
- Oil & Natural Gas Corporation Limited (ONGC)
- Power Grid Corporation of India Limited (PGCIL)
- Steel Authority of India Limited (SAIL)

40. Dholavira is in the State of:

(a) Gujarat (b) Jharkhand
(c) Rajasthan (d) Chhattisgarh

Ans. (a) : The ancient city of Dholavira, was the southern centre of the Harappan Civilization. It is situated in Runn of Kutch in Gujarat. It got UNESCO World Heritage Site tag in August 2021. The site was discovered in 1967-68 by J.P. Joshi and is the fifth largest of eight major Harappan sites.

41. If p : q = 9 : 2, then find the ratio of (4p + 7q) : (4p – 7q)

(a) 50 : 13 (b) 25 : 11
(c) 11 : 6 (d) 11 : 13

Ans. (b) : $p : q = 9 : 2$
$= (4p+7q) : (4p-7q)$
$= (4\times9+7\times2) : (4\times9-7\times2)$
$= 50 : 22$
$= 25 : 11$

42. Select the number that will come next in the following series.
4, 27, 16, 125, ?

(a) 36 (b) 24
(c) 18 (d) 216

Ans. (a) : The given series is as follows-

$$\underset{\Downarrow}{4}\ ,\ \underset{\Downarrow}{27},\ \underset{\Downarrow}{16},\ \underset{\Downarrow}{125},\ \boxed{36}$$
$$(2)^2\ (3)^3\ (4)^2\ (5)^3\ (6)^2$$

43. Mouse and _____ are also examples of input devices.

(a) Monitor (b) Scanner
(c) Printer (d) Speakers

Ans. (b) : In computing, an input device is an equipment used to provide data and control signals to an information processing system, such as a computer or information appliances. Examples of input devices include keyboard, mouse, scanner, camera, joystick, and microphone.

44. Calculate the mean of following set of values–
2.2, 4.2, 6.4, 8.3, 10.5

(a) 6.50 (b) 7
(c) 6.32 (d) 6.12

Ans. (c) : Mean value of the set

$$= \frac{2.2+4.2+6.4+8.3+10.5}{5}$$
$$= \frac{31.6}{5} = 6.32$$

45. Who won "All England Open Badminton Championships 2019" men's Singles Title?

(a) Kento Momota
(b) Hendra Setiawan
(c) Mohammad Ahsan
(d) Chen Yufei

Ans. (a) : Kento Momota had become the first Japanese man to win the All England Open Badminton Championships 2019 when he beat Denmark's Viktor Axelsen 2-1 in the men's singles final at the Birmingham Arena, England.

46. The values of the mode and the mean are 25.2 and 27.5 respectively in a moderately asymmetrical distribution. Find the value of the median of the distribution.

(a) 26.70 (b) 26.75
(c) 26.20 (d) 26.73

Ans. (d) : Mode = 3 Median – 2 Mode

$$\left(\because \text{Mode} = 25.2,\ \text{Mean} = 27.5\right)$$
$$25.2 = 3\ \text{Median} - 2\times27.5$$
$$\text{Median} = \frac{80.2}{3} = 26.73$$

47. .PNG file is a/an:

(a) Audio file (b) Batch file
(c) Video file (d) Image file

Ans. (d) : A .PNG file is an image saved in the Portable Network Graphic (PNG) format. It contains a bitmap compressed with lossless compression similar to a .GIF file .PNG files are commonly used to store web graphics, digital photographs, and images with transparent backgrounds.

48. The second schedule of the Indian constitution deals with:

(a) Allocation of seat in council of state
(b) Salary of President, Governors, Chief Judges, Judges of High court and Supreme Court
(c) Form of oaths and affirmations
(d) List of States & Union Territories

Ans. (b) : The second schedule of the constitution of India contains provisions of the oath and affirmations of President, Governors of States, Speaker and the Deputy Speaker of the House of the People and the Chairman and the Deputy Chairman of the Council of States and the Speaker and the Deputy Speaker of the Legislative Assembly and the Chairman and the Deputy Chairman of the Legislative Council of a State, Judges of the Supreme Court and High Courts and Comptroller and Auditor-General of India.

49. Which of the following Indian states has minimum area?

(a) Uttar Pradesh (b) Rajasthan
(c) Maharashtra (d) Madhya Pradesh

Ans. (a) :	
State	**Area (Sq.km)**
Rajasthan	342239
Madhya Pradesh	308245
Maharashtra	307713
Uttar Pradesh	240928

50. Kolkata Metro Rail was opened for commercial services in _____.

(a) 1984 (b) 1980
(c) 2004 (d) 1992

Ans. (a) : Kolkata Metro is the oldest operated metro in India. It is the only metro which functions directly under the Indian Railways. Kolkata Metro's foundation was laid in the year 1972 and it was first opened for commercial services on 24 October 1984. There are 24 stations and it is operational for 27.22 kilometres. On 29 December 2010, Metro Railway, Kolkata, became the 17th zone of the Indian Railways, completely owned and funded by the Ministry of Railways.

51. _____ is a sulphur containing amino acid.

(a) Serine (b) Tryptophan
(c) Histidine (d) Cysteine

Ans. (d) : Sulphur-containing amino acids includes methionine, cysteine, homocysteine, and taurine. Methionine and cysteine are classified as proteinogenic, canonic amino acids incorporated in protein structure.

52. The Kullu Valley with the Lahaul and Spiti Valleys in Himachal Pradesh is connected by the _____

(a) Rohtang Pass (b) Nathula Pass
(c) Bara-Lacha Pass (d) Mayali Pass

Ans. (a) : Rohtang Pass is located in the state of Himachal Pradesh. It is present on the Pir Panjal Range of Himalayas. It connects the Kullu Valley with Lahaul and Spiti Valley of Himachal Pradesh.

53. The system of scientific naming or nomenclature of organism which we used today was introduced by which of the following scientist?

(a) Carolus Linnaeus
(b) Marie Curie
(c) George Washington Carver
(d) Charles Darwin

Ans. (a) : Nomenclature, in biological classification, is the system of naming organisms. The species to which the organism belongs is indicated by two words, the genus and species names, which are latinized words derived from various sources. This system, which is called the Linnaean system of binomial nomenclature, was established in the 1750s by Carolus Linnaeus.

54. 10 nibbles are equal to _____ bits.

(a) 60 (b) 80
(c) 20 (d) 40

Ans. (d) : One nibble is equal to 4 bits. Hence, 10 nibbles is equal to 40 bits.

55. A sucrose molecule contains _____ carbon atoms.

(a) 6 (b) 18
(c) 15 (d) 12

Ans. (d) : Sucrose is a disaccharide (a molecule composed of two monosaccharide which are glucose and fructose). It is also known as common sugar. There are 12 Carbon atoms, 22 Hydrogen atoms and 11 Oxygen atoms in one molecule of sucrose.

56. National Highway Authority of India (NHAI) was set up in:

(a) 2014 (b) 1988
(c) 2002 (d) 1952

Ans. (b) : NHAI was set up in 1988. It's headquarter is situated in New Delhi. The National Highway Authority of India (NHAI) is responsible for managing the network of National highways in India. The National Highway Authority of India comes under the Ministry of Road Transport and Highways. NHAI was set up as an act of 1988, this act ensures the development, maintenance, and management of National highways.

57. Which transport aircraft of the Indian Air Force is certified to fly on blended aviation fuel?

(a) Sukhoi Su-30 (b) MiG-29
(c) AN-32 (d) Mirage 2000

Ans. (c) : Indian Airforce's AN-32 aircraft was formally fleet certified to fly on blended aviation fuel containing up to 10% of indigenous bio-jet fuel.The approval for use of bio-fuel to fly the Russian made fleet was given by the Centre for Military Airworthiness and Certification (CEMILAC).This will promote the 'Make in India' mission as this bio-fuel would be produced from Tree Borne Oils sourced from tribal areas and farmers.

58. Ozone layer thickness is measured in:

(a) Dobson Unit (b) Sievert Unit
(c) Decibels (d) Del Unit

Ans. (a) : Ozone concentrations are measured in Dobson Units (DU); this is number of molecules of ozone that would be required to create a layer of pure ozone 0.01 millimeters thick at a temperature of 0 degrees Celsius and a pressure of 1 atmosphere. Ozone layer is present in the stratosphere of the atmosphere.

59. What is the name of the engineer who brought to light the ruins at Hampi?

(a) Colonel Colin Mackenzie
(b) James Atkinson
(c) Matthew Boulton
(d) Edward Barlow

Ans. (a) : The ruins at Hampi were brought to light in 1800 by an engineer and antiquarian named Colonel Colin Mackenzie. An employee of the English East India Company, he prepared the first survey map of the site. Hampi also referred to as the Group of Monuments at Hampi, is a UNESCO World Heritage Site located in east-central Karnataka, India. It was the capital of the Vijayanagara Empire in the 14th century.

60. Damodar Valley Corporation operates:

(a) Cement Plant
(b) Fertilizer Plant
(c) Thermal power stations
(d) Pesticide plants

Ans. (c) : The Damodar Valley Corporation (DVC) was formed on 7 July 1948. The Damodar River has a basin area of 58,480 sq. km. of which 32,110 sq km is in Jharkhand (erstwhile Bihar). A comprehensive program of flood control, irrigation, and power generation were planned under a corporation with the participation of Bihar, West Bengal, and Govt of India. It is a government organization under the Ministry of Power, Govt of India. It operates power stations in the Damodar River areas in Jharkhand and the West Bengal. The corporation operates both thermal power stations and hydel power stations under the Ministry of Power, Govt of India. DVC is headquartered in the Kolkata city of West Bengal, India.

61. Which of the following is a membrane-bound sac, filled with digestive enzymes?

(a) Golgi apparatus (b) Mitochondria
(c) Lysosomes (d) Vacuoles

Ans. (c) : A lysosome is the membrane-bound cell organelles. Structurally and chemically, they are spherical vesicles containing digestive enzymes capable of breaking down all kinds of biomolecules, including proteins, nucleic acids, carbohydrates, lipids and cellular debris and foreign particles. They were discovered and named by Belgian biologist Christian de Duve, who eventually received the Nobel Prize in Physiology or Medicine in 1974.

62. If $\left(a^2+\frac{1}{a^2}\right)=18$, then $\left(a-\frac{1}{a}\right)=?$

(a) 3 (b) 5
(c) 2 (d) 4

Ans. (d) : $a^2+\frac{1}{a^2}=18$

On subtracting 2 from both the sides,

$$a^2+\frac{1}{a^2}-2=18-2$$

$$\left(a-\frac{1}{a}\right)^2=16=(4)^2$$

$$a-\frac{1}{a}=4$$

63. Find the value $\frac{1}{5\times8}+\frac{1}{8\times11}+\frac{1}{11\times14}+\frac{1}{14\times17}$

(a) $\frac{4}{17}$ (b) $\frac{4}{85}$
(c) $\frac{24}{85}$ (d) $\frac{2}{85}$

Ans. (b) :

$$\frac{1}{5\times8}+\frac{1}{8\times11}+\frac{1}{11\times14}+\frac{1}{14\times17}$$

$$=\frac{1}{3}\left[\frac{1}{5}-\frac{1}{8}+\frac{1}{8}-\frac{1}{11}+\frac{1}{11}-\frac{1}{14}+\frac{1}{14}-\frac{1}{17}\right]$$

$$=\frac{1}{3}\left[\frac{1}{5}-\frac{1}{17}\right]=\frac{4}{85}$$

64. If x = 25 and y = 13 then, $\sqrt{x^2-2xy+y^2}=?$

(a) 12 (b) 10
(c) 38 (d) 13

Ans. (a) : Given- x = 25, y = 13

$$\sqrt{x^2-2xy+y^2}$$

$$=\sqrt{(x-y)^2}$$

$$=x-y$$

$$=25-13$$

$$=12$$

65. The Ramsar Convention is for the:

(a) Conservation of soil fertility
(b) Conservation of wetlands
(c) Conservation of tropical forests
(d) Control of ozone layer depletion

Ans. (b) : The Ramsar Convention on Wetlands is an international treaty for "the conservation and sustainable use of wetlands". It is also known as the Convention on Wetlands. It is named after the city of Ramsar in Iran, where it was signed on 2nd of February 1971. The 2nd of February each year is World Wetlands Day. As of July 2021, there are 46 Ramsar Sites in India.

66. A car covers a distance of 600m in 5min. What is the speed of car?

(a) 7.2 km/h (b) 8.2 km/h
(c) 8.5 km/h (d) 9.2 km/h

Ans. (a) : Speed of car $=\frac{600}{5\times60}\times\frac{18}{5}=7.2$ km/h

67. In which country did the environment ministers of the G7 nations meet in 2019 to discuss alarming report on the state of the planet?

(a) Germany (b) France
(c) Canada (d) Italy

Ans. (b) : The Group of Seven (G7) is an inter-governmental political forum consisting of Canada, France, Germany, Italy, Japan, United Kingdom and United States. In 2019, Environment Ministers of the G7 nations met in France from 5-6 May, 2019. Ministers from Britain, Canada, France, Germany, Italy, Japan and the US gathered for the two-day meeting in the city of Metz. They discussed measures to tackle deforestation, plastic pollution and the degradation of coral reefs.

68. EMISAT is which type of satellite launched by ISRO?

(a) Navigation satellite
(b) Intelligence satellite
(c) Remote-sensing satellite
(d) Communications satellite

Ans. (b) : The Indian Space Research Organisation (ISRO) has launched the EMISAT satellite on board the PSLV-C45 from the Satish Dhawan Space Centre in Sriharikota, Andhra Pradesh on 1 April, 2019. The EMISAT satellite is aimed at electromagnetic spectrum measurement. It is an electronic intelligence satellite for the Defence Research and Development Organisation (DRDO).

69. Select the option that is related to the third term in the same way as the second there is related to the first term.

Music : Concert :: Acting :

(a) Song (b) Gymnastics
(c) Dance (d) Theater

Ans. (d) : Just as music is presented in the concert in the same way acting is presented in the theater.

70. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follows(s) from the statements.

Statements:

1. All goats are cats

2. All cats are rats.

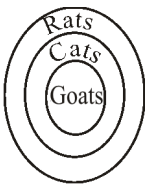
Conclusions:

1. Some rats are cats.

2. All rats are goat.

(a) Both conclusions follows
(b) Only conclusion 1 follows
(c) Neither conclusion 1 nor 2 follows
(d) Only conclusion 2 follows

Ans. (b) :



It is clear from the Venn diagram that only conclusion 1 follows.

71. Pick the odd one out.

Eastern Railway, Western Railway, West Coast Railway, East Coast Railway

(a) Eastern Railway (b) Western Railway
(c) West Coast Railway (d) East Coast Railway

Ans. (c) : Eastern Railway, Western Railway and East Coast Railway are related to the Railway Zone whereas West coast Railway is not a Zone.

72. If $a + b = 5$ and $a^2 - b^2 = 75$ then ab =?

(a) 50 (b) –50
(c) 25 (d) 10

Ans. (b) :

$a + b = 5$ — (i)

$a^2 - b^2 = 75$

$(a+b)(a-b) = 75$

$(a-b) = 15$ — (ii)

From equation (ii) + equation (i)-

$a = 10$

Put the value of a in equation (i)-

$b = -5$

$ab = 10 \times (-5) = -50$

73. If the difference between the compound interest and the simple interest on a certain sum of money for 2 years at 5% per annum is ₹16.32, find the sum (in ₹)?

(a) ₹6,526 (b) ₹6,538
(c) ₹6,528 (d) ₹6,529

Ans. (c) : Difference between simple interest and compound interest for 2 years-

$$D = \frac{PR^2}{(100)^2}$$

$$16.32 = \frac{P \times 25}{10000}$$

$$P = ₹\ 6528$$

74. Consider the given statements and decide which of the given assumptions is/are implicit in the statements.

Statements:

RTE has mandated compulsory enrolment of all children of the age 6 to 14 years in the schools.

Assumptions:

I. Enrollment needs to be made compulsory as children don't like education.

II: Each child of the country will get quality education.

(a) Neither assumption I nor assumption II is implicit.
(b) Either assumption I or assumption II is implicit
(c) Only assumption II is implicit
(d) Only assumption I is implicit

Ans. (a) : According to the statement Neither Assumption I nor Assumption II is implicit.

75. Article 17 of the Indian Constitution enforces the:

(a) Abolition of the practice of untouchability.
(b) Right to freedom of religion
(c) Right to education
(d) Joint sitting of both houses in certain cases.

Ans. (a) : Article 17 of the Indian Constitution mainly deals with the account of untouchability. This article puts restrictions and prohibitions the practice of untouchability. It ensures that untouchability is eradicated in all forms. Any kind of practice of untouchability will be considered as an offence.

76. Which of the following element has maximum density?

(a) Platinum (b) Osmium
(c) Mercury (d) Lead

Ans. (b) : Of all the metals, Osmium has the highest density of 22.59 gm/cm^3.
Hence, Option "b" is the correct answer.

77. A circle of radius of 8 cm circumscribed a square. The length of the side of the square is:

(a) $2\sqrt{2}$ cm (b) $8\sqrt{2}$ cm
(c) $4\sqrt{2}$ cm (d) $6\sqrt{2}$ cm

Ans. (b) :

$$\text{Radius of the circle} = \frac{\text{Diagonal of the square}}{2}$$

$$8 = \text{side}\sqrt{2}/2$$

$$8\times 2 = \text{side}\sqrt{2}$$

$$\text{side} = 8\sqrt{2}$$

78. Muhammad Yunus was awarded Nobel Peace Prize for pioneering work in the field of ____.

(a) Microfinance (b) Civil Right
(c) Water conservation (d) Afforestation

Ans. (a) : Yunus founded the Grameen Bank of Bangladesh in the 1980s .The Nobel Peace Prize 2006 was awarded jointly to Muhammad Yunus and Grameen Bank "for their efforts to create economic and social development from below." He is a Bangladeshi social entrepreneur, banker, economist, and civil society leader who was awarded the Nobel Peace Prize for founding the Grameen Bank and pioneering the concepts of microcredit and microfinance.

79. What would be the highest value of X in the given equation?
5Y6 + 6X7 + 3Z8 = 1511

(a) 6 (b) 5
(c) 7 (d) 9

Ans. (d) Equation = 5Y6 + 6X7 + 3Z8 = 1511

$$\begin{array}{r} 5Y6 \\ 6X7 \\ +\ 3Z8 \\ \hline (14)\ \ (21) \\ \hline 1511 \end{array}$$

($\because$ Y+X+Z = 9, Maximum Value of X = 9
So the value of Y and Z will be 0)

80. Pick the odd one out.
Cow, Goat, Rabbit, Cat

(a) Cow (b) Rabbit
(c) Goat (d) Cat

Ans. (d) : Cow, Goat and Rabbit are herbivorous, whereas Cat is a carnivorous.

81. Divide ₹20609 between A and B, such that the amount (in ₹) of A after 7 years is equal to the amount (in ₹) of B after 9 years, if the interest being compounded yearly at 3 % per annum.

(a) **A =** ₹10,601, B = ₹10,008
(b) A = ₹10,609, B = ₹10,000
(c) A = ₹10605, B = ₹10,004
(d) A = 10,509, B = ₹10,000

Ans. (b) : Let A → x
B → (20609–x)
According to the question-

$$x\left(1+\frac{3}{100}\right)^7 = (20609-x)\times\left(1+\frac{3}{100}\right)^9$$

$$x = (20609-x)\left(1+\frac{3}{100}\right)^2$$

$$x = 20609\times\frac{103}{100}\times\frac{103}{100} - \frac{103}{100}\times\frac{103}{100}\times x$$

$$\frac{(10609+10000)x}{10000} = 20609\times\frac{10609}{10000}$$

A = x = 10609
B = 20609 –10609 = 10000

82. Which Indian state shares borders with China, Nepal and Bhutan?

(a) Sikkim (b) Mizoram
(c) Arunachal Pradesh (d) Nagaland

Ans. (a) : Sikkim is a northeast state of India that shares its borders with three countries - Nepal, Bhutan, and China. Sikkim is located in the north-eastern part of the country and is one of the smallest states of India.

- To the north and north-east, it is bounded by the Tibet Autonomous Region of China.
- To the south-east, it is bounded by Bhutan.
- To the south, it is bounded by West Bengal.
- To the west, it is bounded by Nepal.

Gangtok is the capital of Sikkim.

83. Cobalt is present in which vitamin?

(a) Vitamin B12 (b) Vitamin B5

(c) Vitamin B3 (d) Vitamin B1

Ans. (a) : Cobalt forms part of the structure of vitamin B12. Vitamin B12 has several important functions including making red blood cells and releasing energy from the food you eat.

84. Durand cup is associated with which game?

(a) Football (b) Table Tennis

(c) Basket Ball (d) Hockey

Ans. (a) : The Durand Football Tournament, also known as Durand Cup, is an annual domestic football competition in India which was first held in 1888 in Annadale, Shimla. It is hosted by the Durand Football Tournament Society (DFTS). The tournament is named after its founder, Sir Mortimer Durand, Foreign Secretary of British India from 1884 to 1894.The tournament is the oldest existing football tournament in Asia.

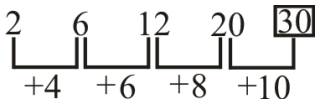
85. Select the number that will come next in the following series.

2, 6, 12, 20, ?

(a) 28 (b) 25

(c) 30 (d) 35

Ans. (c) :



Hence, there will be 30 in place of the question mark.

86. Eight friends F1, F2, F3, F4, F5, F6, F7 and F8 are sitting around a circular table facing towards the centre (not necessarily in the same order). F2 is not the neighbour of F1 or F8. Only F6 is between F2 and F5. F2 is second the the left of F7. F4 is second to the right of F3.

Which of the following could be correct position of F1?

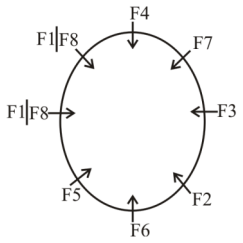
(a) Second to the left of F7

(b) Immediate left of F4

(c) Third to the left of F6

(d) Third to the left of F5

Ans. (c) :



It is clear from the diagram that F1 is sitting third to the left of F6.

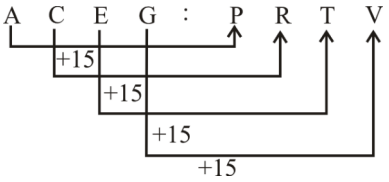
87. Select the option that is related to the third letter-cluster in the same way as the second letter-cluster is realted to the first letter-cluster.

ACEG : PRTV :: SUWY : ?

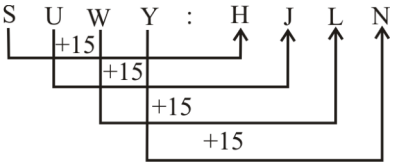
(a) HFDB (b) GIKM

(c) HJLN (d) HKLM

Ans. (c) : Just as,



Similarly,



88. A question is given, followed by two arguments. Decide which of the arguments is/are strong with respect to the question.

Question:

Should the sale and use of tobacco be completely banned in India?

Arguments:

I. Yes. Tobacco causes oral cancer and other diseases.

II. No. Millions of workers will lose their jobs.

(a) Only argument (II) is strong

(b) Both, (I) and (II) is strong

(c) Only argument (I) is strong

(d) neither (I) nor (II) is strong

Ans. (b) : According to the assumption, it is clear that arguments I and II follows.

89. Seven boxes S, P, L, Q, R, M and N are placed one above the other (not necessarily in the same order). Only three boxes are placed between M and L. M and L are placed neither at the bottom nor at the top. Only two boxes are placed between L and N. S is immediately below R. There is only one box between S and Q. M is placed above L. How many boxes are placed between P and N?

(a) Two (b) Three
(c) Four (d) One

Ans. (d) : The order of the boxes is as follows-

P •
M •
N •
R •
S •
L •
Q •

Hence, it is clear that box M is place between P and N.

90. Pick the odd one out.

Kathmandu, Thimphu, Dhaka, Karachi

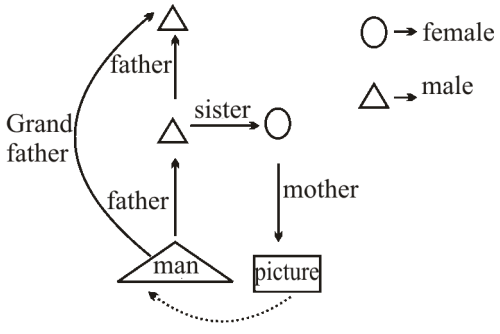
(a) Karachi (b) Kathmandu
(c) Dhaka (d) Thimphu

Ans. (a) : Kathmandu, Thimphu, Dhaka are the capital of Nepal, Bhutan and Bangladesh respectively, whereas Karachi is a city of Pakistan.

91. Pointing to a photograph, a woman said to a man, "She is the only child of the sister of the only son of your paternal grandfather". How is the man related to the person in the picture?

(a) Son of mother's brother
(b) Son of father's sister
(c) Brother
(d) Sister

Ans. (a) :



Hence, it is clear from the diagram that the man is the son of the mother's brother.

92. Pick the odd one out.

3-6, 4-8, 6-18, 8-32, 10-50

(a) 8-32 (b) 6-18
(c) 4-8 (d) 3-6

Ans. (d) :

$\boxed{3\times1\rightarrow3}$

$4\times2\rightarrow8$

$6\times3\rightarrow18$

$8\times4\rightarrow32$

$10\times5\rightarrow50$

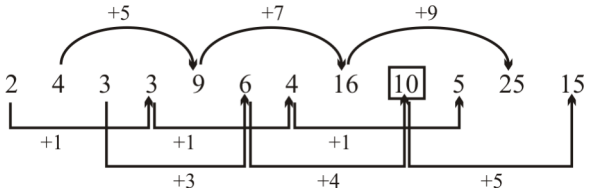
The difference of all the digits is an even number whereas the difference of 3-6 is a prime number.

93. Select the number from the given options that will replace the question mark in the given series.

2, 4, 3, 3, 9, 6, 4, 16, ?, 5, 25, 15

(a) 15 (b) 20
(c) 10 (d) 18

Ans. (c) :



Hence, it is clear that in place of the question mark will be 10.

94. Read the given information carefully and answer the question that follows.

Five children P, Q, R, S and T are wearing different coloured clothes red, yellow, pink, green and purple but not necessarily in the same order. Each one like only one fruit out mangoes, bananas, grapes, apples, and pears. R is in red clothes. Q does not like bananas and grapes. S likes apples and he is in purple clothes. The child in pink coloured clothes like bananas. T likes mangoes, but is not in green or pink clothes. R likes grapes. Who likes pears?

(a) S (b) R
(c) Q (d) P

Ans. (c) :

Children	Colour of clothes	Fruit of Choice
P	Pink	Banana
Q	Green	Pears
R	Red	Grapes
S	Purple	Apple
T	Yellow	Mango

It is clear from the table that Q likes Pears.

95. In a certain code language, 'QZDH' is written as '51', 'PLMQ' is written as '54'. What is the code for 'DNRB' in that code language?

(a) 37 (b) 33

(c) 34 (d) 36

Ans. (c) : Just as,

QZDH $\Rightarrow$ 17+26+4+8 = 55

and 55 – 4 = 51

and PLMQ $\Rightarrow$ (16+12+13+17)–4 = 54

Similarly, DNRB $\Rightarrow$ (4+14+18+2)–4 = 34

96. Select the option that is related to the third letter cluster in the same way as the second letter cluster is related to the first letter cluster.

ACE : 1925 :: BDF : ?

(a) 41635 (b) 42536

(c) 24661 (d) 41636

Ans. (d) : Just as,

$$\begin{array}{ccc} A & C & E \\ \Downarrow & \Downarrow & \Downarrow \\ (1)^2 & (3)^2 & (5)^2 \\ \Downarrow & \Downarrow & \Downarrow \\ 1 & 9 & 25 \end{array}$$

Similarly,

$$\begin{array}{ccc} B & D & F \\ \Downarrow & \Downarrow & \Downarrow \\ (2)^2 & (4)^2 & (6)^2 \\ \Downarrow & \Downarrow & \Downarrow \\ 4 & 16 & 36 \end{array}$$

97. If 24 B 6 B 12 = 42 and 31 B 7 B 13 = 51, then 64 B 9 B 4 = ?

(a) 77 (b) 78

(c) 76 (d) 79

Ans. (a) : Just as, 24 B 6 B 12 $\Rightarrow$ 24+6+12 = 42

and 31 B 7 B 13 $\Rightarrow$ 31+7+13 = 51

Similarly, 64 B 9 B 4 $\Rightarrow$ 64+9+4 = 77

98. Select the option that is related to the third term in the same way as the second term is related to the first term.

Bed : Pillow :: Sofa : ?

(a) Covers (b) Sheets

(c) Upholstery (d) Cushions

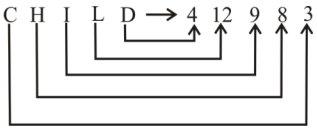
Ans. (d) : As pillow is related to the bed in the same way cushions is related to the sofa.

99. In a code language, CHILD is written as 412983. How would you write the word ADULT in the same code language?

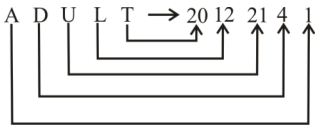
(a) 142112 (b) 124983

(c) 14211220 (d) 20122141

Ans. (d) : Just as.



Similarly,



Hence, ADULT will be written as 20122141.

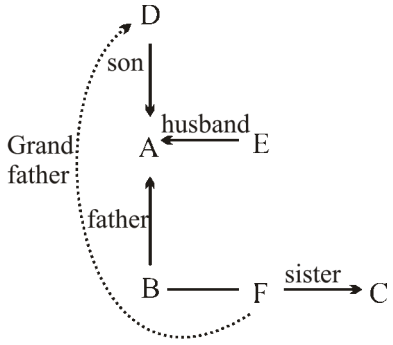
100. Read the given information carefully and answer the question

C is the sister of F. A is the Father of B, husband of E and only son of D. D is the paternal grandfather of F and A does not have any sisters. How many children do A have?

(a) 3 (b) 2

(c) 4 (d) 1

Ans. (a) : Given Venn diagram is as follows-



Hence, It is clear that A has three children B, F and C.

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 01.04.2021] **[Time : 10.30 am-12.00 pm]**

1. Which of the following does a Bandicoot refer to?

(a) A security robot
(b) A telerobot for heart surgery
(c) Humanoid
(d) A drainage-cleaning robot

Ans. (d) : 'BANDICOOT' is an automatic sewer cleaning robot which has been procured by the Guwahati Municipal. The BANDICOOT robot is also the first of its kind in the world that was developed by a Start-up India company called Genrobotics, based on Kerela under the Make in India initiative, funded by CSR of Indian Oil Corporation Limited (IOCL).

2. Select the option that is related to the third term in the same way as the second term is related to the first term.

Bat : Cricket : : Stick : _____

(a) Basketball (b) Badminton
(c) Tennis (d) Hockey

Ans. (d) : Just as, 'Hockey' is played with 'Stick' in the same way 'Cricket' is played with 'Bat'.

3. The name of the 1st electronic digital computer of the world is:

(a) ENIAC (b) PROLOG
(c) PARAM (d) UNIVAC

Ans. (a) : John William Mauchly and J. Presper Eckert are the scientists credited with the invention of the Electronic Numerical Integrator and Computer (ENIAC), the first general-purpose electronic digital computer, which was completed in 1946 at the Moore School of Electrical Engineering at the University of Pennsylvania.

4. If Cirumference and area of a circle are numerically equal then radius of the circle is

(a) 4 units (b) 2 units
(c) 1 units (d) 16 units

Ans. (b) : $\because$ Circumference of circle $= 2\pi r$
and area $= \pi r^2$
According to the question-
$2\pi r = \pi r^2$
Radius $(r) = 2$ units

5. Kings and Queens of black colour are taken out from a deck of 52 playing cards. A card is drawn from the remaining well-shuffled cards. Probability of getting a spade card is:

(a) $\frac{11}{13}$ (b) $\frac{11}{48}$
(c) $\frac{11}{52}$ (d) $\frac{1}{4}$

Ans. (b) : The total number of cards in a deck of cards $= 52$
The number of black cards $= 13+13 = 26$
Number of cards remaining after drawing the black colour of king and queen $= 48$
Number of spades in the remaining cards $= 11$
Probability of drawn cards being spades $= \frac{11}{48}$

6. Find the least multiple of 7 which when divided by 6, 8 and 12 leaves 1 as remainder.

(a) 25 (b) 73
(c) 169 (d) 49

Ans. (d) : L.C.M. of 6, 8 and 12 = 24
Required number $= 24K+1$
on putting $K=2$
Required number $= 24\times2+1$
$= 48+1$
$= 49$

7. Six years from now, Kirti's age will be twice the age of her brother Kunal, but 4 years ago she was four times as old as Kunal was then, Find the present age of Kunal.

(a) 30 years (b) 9 years
(c) 24 years (d) 15 years

Ans. (b) : Let 6 years ago Kunal's age $= X$ years
and Kirit's age $= 2X$ years
At present,
Kunal's age $= (X–6)$ years
and Kirti's age $= (2X–6)$ years
According to the question-
4 years ago
$(X–10)\times4 = 2X–10$
$4X–40 = 2X–10$
$2X = 30$
$X = 15$ years
Hence present age of Kunal $15–6 = 9$ years

8. Which hormone regulates the blood sugar level in the body?

(a) Thyroid (b) Adrenaline
(c) Insulin (d) Testosterone

Ans. (c) : Pancreas is a composite gland which acts as both exocrine and endocrine gland. The endocrine pancreas consists of 'Islets of Langerhans'. The two main types of cells in the Islet of Langerhans are called α-cells and β-cells. The α-cells secrete a hormone called glucagon, while the β-cells secrete insulin. Both hormones work in balance to play a vital role in regulating blood sugar levels. If the level of one hormone is higher or lower than the ideal range, blood sugar levels may spike or drop.

9. Who has produced the indigenous LCA fighter jets Tejas?

(a) India Aeronautics Limited
(b) Hindustan Dynamics Limited
(c) Hindustan Aeronautics Limited
(d) Bharat Dynamics Limited

Ans. (c) : The Light Combat Aircraft-Tejas is an Indian single-engine multirole light fighter designed by the Aeronautical Development Agency (ADA) in collaboration with Aircraft Research and Design Centre (ARDC) of Hindustan Aeronautics Limited (HAL) for the Indian Air Force and Indian Navy. It came from the Light Combat Aircraft (LCA) programme, which began in the 1980s to replace India's ageing MiG-21 fighters. In 2003, the LCA was officially named "Tejas".

10. A attempt to obtain sensitive information such as username, password and credit card details, etc. for malicious reason is termed as

(a) Surfing (b) Netting
(c) Phishing (d) Digging

Ans. (c) : Phishing is the attempt to acquire sensitive information such as usernames, passwords, and credit card details (and sometimes indirectly money), often for malicious reasons, by masquerading as a trustworthy entity in an electronic communication.

11. Simplify $5 + 2 \times 3 \div (3 \times 2) \times 3$

(a) 8 (b) $\frac{7}{6}$

(c) $\frac{16}{3}$ (d) 17

Ans. (a) : Given that, $5+2\times3 \div (3\times2)\times3$

$=5+2\times3\div(6)\times3$

$=5+2\times\frac{1}{2}\times3$

$=5+3$

$=8$

12. Which of the following is an incorrect pair of abbreviation and its full form?

(a) URL– Uniform Reserve Locator
(b) FAX– Facsimile
(c) RAM–Random Access Memory
(d) DBMS–Data Base Management System

Ans. (a) : A URL (Uniform Resource Locator) is a unique identifier used to locate a resource on the Internet. It is also referred to as a web address. URLs consist of multiple parts -- including a protocol and domain name -- that tell a web browser how and where to retrieve a resource.The URL contains the name of the protocol needed to access a resource, as well as a resource name. The first part of a URL identifies what protocol to use as the primary access medium. The second part identifies the IP address or domain name -- and possibly subdomain -- where the resource is located.Uniform Resource Locators were defined in RFC 1738 in 1994 by Tim Berners-Lee, the inventor of the World Wide Web.

13. Which among the following is NOT a property of Colloids

(a) Colloid cannot scatter a beam of light passing through it.
(b) Due to too small size, individual particles cannot be seen with naked eyes
(c) They do not settle down when left undisturbed
(d) A colloid is a heterogeneous mixture

Ans. (a) : A colloid is a heterogeneous mixture. The size of particles of a colloid are too small to be individually seen by naked eyes. Colloids are big enough to scatter a beam of light passing through it and make its path visible. They do not settle down when left undisturbed, that is, a colloid is quite stable. They cannot be separated from the mixture by the process of filtration. But, a special technique of separation known as centrifugation can be used to separate the colloidal particles.

14. The natural aging of a lake by nutrient enrichment of its water is termed as:

(a) Extraction
(b) Denutriphication
(c) Eutrophication
(d) Nutriphication

Ans. (c) : Eutrophication is the natural aging of a lake by nutrient enrichment of its water. Eutrophication is the process by which an entire body of water, or parts of it, becomes progressively enriched with minerals and nutrients. It is caused due to increase in the concentration of phosphorus, nitrogen, and other plant

nutrients in an aging aquatic ecosystem such as a lake. The productivity or fertility of such an ecosystem naturally increases as the amount of organic material that can be broken down into nutrients increases.

15. Two cars cover a certain distance by moving at speeds of 45 km/h and 50 km/h respectively. Find the distance travelled when one car takes 32 minutes more than the other to cover the distance?

(a) 240 km (b) $\frac{240}{19}$ km

(c) $\frac{8}{3}$ km (d) $\frac{152}{3}$ km

Ans. (a) : Let distance covered = d km

According to the question,

$$\frac{d}{45}-\frac{d}{50}=\frac{32}{60}$$

Or, $\frac{d}{9}-\frac{d}{10}=\frac{32}{12}$

$$\frac{10d-9d}{90}=\frac{32}{12}$$

$$\frac{d}{90}=\frac{32}{12}$$

$$d=\frac{90\times 32}{12}=240\,km$$

16. A team of 5 members is to be selected from 6 men A, B, C, D, E and F and 6 women P, Q, R, S, T and U. C and U have to be selected together. If B is selected, then neither U nor Q can be selected. Among A, B, S and T exactly two persons are to be selected. If E is selected. then neither S nor B can be selected. If A is selected, then B will be selected. Which of the following is the correct selection of the team?

(a) C, A, B, P, R (b) C, U, A, B, S

(c) P, R, S, T, D (d) P, R, A, B, S

Ans. (c) : According to the question-

C=U (will be selected together)

B ≠ U, Q

Two persons are to be selected from A,B, S, T

E ≠ S, B

A=B (will be selected together)

By option:

1. option (a) does not contain U with C and hence is wrong.

2. In option (b) 2 is to be selected out of A, B, S, T whereas it has 3 and hence is wrong.

3. In option (d), 2 is to be selected out of A, B, S, T whereas it has 3 and hence is wrong.

Hence, option (c) is correct.

17. Whose reign saw the largest extension of Delhi Sultanate?

(a) Muhammad bin Tughluq

(b) Gayasuddin Balban

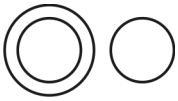
(c) Alauddin Khilji

(d) Sikandar Lodi

Ans. (a) : The five short-lived Muslim kingdoms that ruled the territory of Delhi from 1206 and 1526 CE is known as the Delhi Sultanate. The Sultan of Delhi, Muhammad Bin Tughlaq ruled from 1325-1351. It is during his rule that the Delhi Sultanate reached its farthest extent. It marched into a large part of the Indian subcontinent. He defeated his rivals and captured many cities. Muhammad Bin Tughlaq was the oldest son of Ghiyas-ud-din Tughlaq. Ghiyas-ud-din Tughlaq founded the Tughlaq dynasty.

18. Select the Venn diagram that best represents the relationship between the following classes: Oxygen, Hydrogen and Gases.

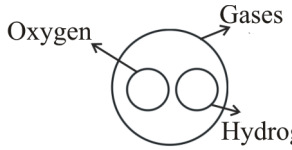
(a) 

(b) 

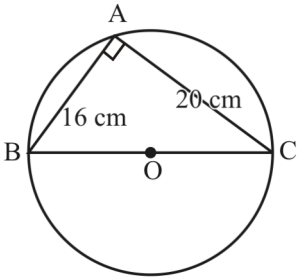
(c) 

(d) 

Ans. (d) : Suitable Venn diagram of Oxygen, Hydrogen and Gases.



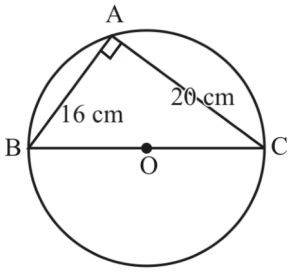
19. Find the area of ΔABC



(a) 32 cm^2 (b) 160 cm^2

(c) 320 cm^2 (d) 240 cm^2

Ans. (b) : Given that,



In ΔABC

$\angle BAC = 90°$ {Angle subtended by a diameter on any point of circumference of circle is 90º}

Area of $\Delta ABC = \frac{1}{2} AB.AC.\sin A$

$= \frac{1}{2} \times 16 \times 20 \times 1$ $[\sin 90° = 1]$

$= 160 \text{ cm}^2$

20. Which of the following is NOT a tributary of Krishna?

(a) Ghatprabha (b) Manjira
(c) Musi (d) Tungabhadra

Ans. (b) : Manjira River is a tributary of Godavari River not Krishna. The Krishna River rises from the Western Ghats near Jor village of Satara district of Maharashtra at an altitude of 1,337 m just north of Mahabaleshwar. The total length of river from origin to its outfall into the Bay of Bengal is 1,400 km. Its principal tributaries joining from right are the Ghatprabha, the Malprabha and the Tungabhadra whereas those joining from left are the Bhima, the Musi and the Munneru are joining the river from left etc.

21. Which river is associated with the Dhuandhar falls.

(a) Mahanadi (b) Tapi
(c) Kaveri (d) Narmada

Ans. (d) : The Dhuandhar Falls are located on Narmada River in Bhedaghat in the Jabalpur district of Madhya Pradesh.The name of the falls is derived from two words, "Dhuan", which means smoke, and "Dhar", which means flow. In 2021 it was included among the UNESCO World Heritage Sites.

22. Which of the following is an example of man-made fibre?

(a) Linen (b) Jute
(c) Rayon (d) Silk

Ans. (c) : The fibres that go into modern sewing threads come from three main sources: plant fibres; protein fibres; and manmade fibres. Examples of plant/natural fibres are: Linen, cotton, flax, jute, ramie and hemp. Examples of protein fibres are: wool, silk and cashmere. Manmade fibres are made from various chemicals, or are regenerated from plant fibres. Examples of manmade fibres are: polyester, polyamide – (nylon); acrylics, viscose, made from wood bark; Kevlar, a high performance fibre; and Nomex, a high-performance fibre other found with trade names rayon, nylon, and Dacron (trademark).

23. Two numbers are in the ratio 3 : 2. If 8 and 6 are subtracted from the first and the second number respectively, the ratio becomes 8 : 5. The numbers are

(a) 32, 24 (b) 24, 16
(c) 40, 30 (d) 3, 2

Ans. (b) : Let the numbers be 3x and 2x respectively.
According to the question-

$$\frac{3x-8}{2x-6} = \frac{8}{5}$$

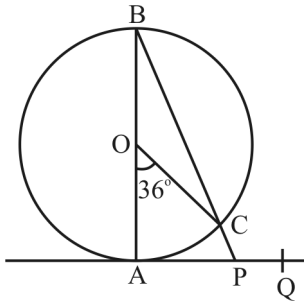
$15x - 40 = 16x - 48$

$\Rightarrow X = 8$

Hence the first number $= 3 \times 8 = 24$

And second number $= 2 \times 8 = 16$

24. In the given figure, AB is the diameter of the circle. AP is a tangent to circle at A. Extended BC meets the tangent at P. $\angle AOC = 36^o$. Find $\angle BPQ$.



(a) 72^o (b) 126^o
(c) 108^o (d) 54^o

Ans. (c) : From the given figure-

$\angle ABC = \frac{1}{2} \angle AOC$ {The angle subtended by the at the centre is twice the angle at same surd in samde segment the circumference.}

$\angle ABC = \frac{1}{2} \times 36°$

$\angle BAP = 90°$ {Perpendicular to the = AB}

A tangent to a circle is perpendicular to the radius through the point of contact.

In Δ ABP

$\therefore \angle ABP + \angle APB + \angle BAP = 180°$

$18° + \angle APB + 90° = 180°$

$\angle APB = 180 - 108°$

$\angle APB = 72°$

$\therefore \angle APB + \angle BPQ = 180°$

$72° + \angle BPQ = 180°$

$\angle BPQ = 180 - 72°$

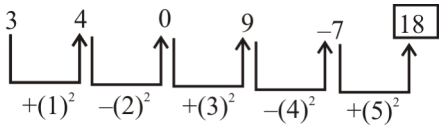
$= 108°$

25. Select the option that will fill the blank and complete the given series.

3, 4, 0, 9, –7, ...

(a) 8
(b) 18
(c) 7
(d) –32

Ans. (b) : The given number series is as follows-



$?=18$

26. A bag contains cards numbered between 33 and 92. If one card is drawn from the bag, the probability of the number on the drawn card is a perfect square is:

(a) $-\frac{1}{12}$ (b) $\frac{5}{59}$

(c) $\frac{1}{15}$ (d) $\frac{4}{59}$

Ans. (c) : Perfect square numbers between 33 and 92.
36, 49, 64 and 81
We know that,

$\text{Probability}\, P(E)=\frac{n(E)}{n(S)}$

$l=a+(n-1)d$

Where d = last term
a = First term
n = Total number
d = Difference
92 = 33+(n-1)1
92-33+1 = n
60 = n

$P(E)=\frac{4}{60}$

$\Rightarrow P(E)=\frac{1}{15}$

27. To neutralize the effect of formic acid injected by ant bite, which among the following can be used?

(a) Calcium Carbonate
(b) Potassium Carbonate
(c) Sodium Carbonate
(d) Sodium Bicarbonate

Ans. (d) : The effect of sting of an ant can be neutralized by rubbing with moist sodium bicarbonate (backing soda). Since baking soda is alkaline in nature when it is rubbed on skin the formic acid reacts with baking soda forming salt and water which is a neutralization reaction.

28. Which of the following is NOT a Kharif crop

(a) Bajra (b) Paddy
(c) Jowar (d) Wheat

Ans. (d) : The Indian cropping season is classified into two main seasons-(i) Kharif and (ii) Rabi, based on the monsoon. The Kharif cropping season is from July-October during the south-west monsoon and the Rabi cropping season is from October-March (winter).

- The Kharif crops include rice, maize, sorghum, pearl millet/bajra, finger millet/ragi (cereals), arhar (pulses), soyabean, groundnut (oilseeds), cotton etc.
- The rabi crops include wheat, barley, oats (cereals), chickpea/gram (pulses), linseed, mustard (oilseeds) etc.

29. Read the given statements and conclusions carefully and decide which of the conclusions logically follow(s) from the statements.

Statement

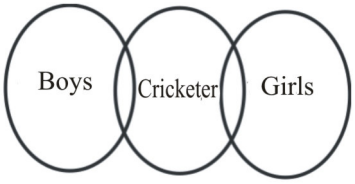
1. Some boys are cricketers
2. Some girls are cricketers.

Conclusions:

1. All girls are cricketers.
2. Some cricketers are girls.

(a) Neither conclusions 1 nor 2 follows
(b) Only conclusion 1 follows
(c) Both conclusions 1 and 2 follow
(d) Only conclusion 2 follows

Ans. (d) : According to the statement-



It is clear from the Venn diagram that only conclusion 2 logically follows the statement.

30. Who founded the Tattwabodhini Sabha to propagate Ram Mohan Roy's ideas?

(a) Debendranath Tagore
(b) Rabindranath Tagore
(c) Anandmohan Bose
(d) K.C. Sen

Ans. (a) : On 6 October 1839 Debendranath Tagore established Tatt wabodhini Sabha which was shortly thereafter renamed the Tattwabodhini (Truth-seekers) Sabha to propogate Raja Ram Mohan Roy's ideas. The objective of Sabha was to promote a rational and humanist form of Hinduism based on Vedanta and the Upanishads.The Tattwabodhini Sabha was a group, started in Calcutta.

Note: In 1828, Raja Ram Mohan Roy established Brahmo Samaj.In 1859, the Tattwabodhini Sabha were dissolved back into the Brāhmo Samaj by Debendranath Tagore.

31. The total number of ministers, including the Chief Minister, in the council of ministers in a state CANNOT exceed _____ of the total members of the legislative assembly of that state.

(a) 15% (b) 3%

(c) $\frac{1}{20}$ (d) $\frac{1}{10}$

Ans. (a) : The total number of ministers, including the Chief Minister, in the Council of Ministers in a state cannot be more than 15% of the total number of members of the Legislative Assembly of that state. Article 164 (1A) provides that the strength of a council of ministers headed by the CM cannot exceed 15% of the strength of the assembly (the total number of MLAs) but it can't be less than 12 members either. As a real executive authority, the Chief Minister is called the head of the government.

32. For a = –5 and b = 5, value of $a^2 - b^2$ is:

(a) –10 (b) 100

(c) 0 (d) –50

Ans. (c) : Given-

a= –5

b= 5

$a^2 - b^2 = (-5)^2 - (5)^2$

= 25–25

= 0

33. Two friend received a bonus of ₹2000 each in their bank accounts. They already have ₹47000 and ₹54000 in their respective bank account. Ratio of the amounts in their respective accounts will be:

(a) 47 : 54 (b) 47 : 56

(c) 7 : 8 (d) 49 : 54

Ans. (c) : According to the question-

Required ratio = (47000+2000) : (54000+2000)

= 49000 : 56000

= 7 : 7 : 8

34. By which number should $2\frac{1}{5}$ be multiplied to get $5\frac{2}{5}$?

(a) 3 (b) $\frac{11}{27}$

(c) $3\frac{1}{5}$ (d) $2\frac{5}{11}$

Ans. (d) : Let the number = x

$\frac{11}{5} \times x = \frac{27}{5}$

$x = \frac{27}{11}$ or $2\frac{5}{11}$

35. Select the letter cluster that will come next in the following series.

CHD, EJF, ...

(a) GNG (b) GLH

(c) GNH (d) GLG

Ans. (b) : The given series is as follows-

C $\xrightarrow{+2}$ E $\xrightarrow{+2}$ G

H $\xrightarrow{+2}$ J $\xrightarrow{+2}$ L

D $\xrightarrow{+2}$ F $\xrightarrow{+2}$ H

36. A, B and C together can do a piece of work in 14 days, whereas C alone can do the same work in 42 days. How long will A and B together take to finish it?

(a) 35 days (b) 21 days

(c) 28 days (d) 7 days

Ans. (b) : Work done by (A+B) in one day. $= \frac{1}{14} - \frac{1}{42}$

$= \frac{3-1}{42}$

$= \frac{2}{42}$ or $\frac{1}{21}$ part

Hence, both A and B together will do the work in 21 days.

37. P, Q, R, S, T, U and V are seven students in a class. They are compared on the basis of their height. T is shorter than S but taller than U. U is taller than P. R and Q are shorter than V but taller than S.

Which of the following sequence of their height can be possible?

(a) V > R > Q > S > T > U > P

(b) V > Q > R > T > S > U > P

(c) V > R > Q > U > T > S > P

(d) V > Q > R > S > T > P > U

Ans. (a) : According to the question, the sequence of height of the students is as follows-

V > R > Q > S > T > U > P

Hence option (a) is correct.

38. The device that uses ultrasonic waves to measure the distance, direction and speed of underwater objects is called:

(a) RADAR (b) MASER

(c) CRO (d) SONAR

Ans. (d) : SONAR stands for Sound Navigation and Ranging. It is a tool for determining the distance, direction, and speed of underwater artefacts such as water hills, valleys, icebergs, submarines, and sunken ships. It is made up of 2 parts transmitter and detector. Transmitter produces ultrasound waves and detector reflects it and converts it to the electrical signal. It is used to measure the depth of the sea and to locate underground objects.

39. A fruit seller buys oranges at the rate of ₹60 for 12. How many oranges should he sell for ₹60 so as to gain 20%.

(a) 8 (b) 10
(c) 11 (d) 9

Ans. (b) : Cost price of 12 oranges = ₹60

Cost price of 1 orange $= \frac{60}{12} = ₹5$

According to the question-

Selling price of 1 orange $= 5 \times \frac{120}{100} = ₹6$

Number of oranges $= \frac{60}{6} = 10$

40. An amount doubles itself on simple interest in 4 years. What is the percent per annum rate of interest?

(a) 100% (b) 25%
(c) 50% (d) 12.5%

Ans. (b) : Let amount = ₹P

And rate = r% yearly

$\therefore$ Simple interest = 2P–P = ₹P

Time = 4 years

$\therefore P = \frac{P \times r \times 4}{100}$

r = 25% per annum

41. Who has been named as the leader of Opposition in Rajya Sabha in Feb 2021?

(a) Rahul Gandhi
(b) Gulam Nabi Azad
(c) Anand sharma
(d) Mallikarjun Kharge

Ans. (d) : In Feb. 2021 Senior Congress leader Mallikarjun Kharge became the new leader of opposition in the Rajya Sabha following the retirement of Ghulam Nabi Azad.

42. Which among the following ports in India has been renamed as Deendayal Port.

(a) Kandla (b) Mormugao
(c) Tuticorin (d) Cochin

Ans. (a) : The Ministry of Shipping renamed Kandla Port Trust as Deendayal Port Trust with effect from 25th of September, 2017. Kandla Port, located on the Gulf of Kutch in Gujarat, is one of the twelve major ports in the country. It was constructed in 1950s as main seaport to serve in western India.

43. National Technology Day is observed every year to commemorate:

(a) Pokhran II
(b) Operation Blue Star
(c) Operation Meghdoot
(d) Mangalyaan

Ans. (a) : India observes its National Technology Day on 11th May every year.The day, which was first observed on 11th May, 1999, aims to commemorate the scientific and technological achievements of Indian scientists, engineers.It is the day India successfully tested nuclear bombs in Pokhran on 11th May, 1998. On this day India successfully test-fired its Shakti-1 nuclear missile in an operation called Pokhran-II, also codenamed as Operation Shakti, which was led by late president Dr APJ Abdul Kalam. The day was named by the former Prime Minister Atal Bihari Vajpayee. The 2021 theme of National Technology day was Science and Technology for a Sustainable Future.

44. What is the value of $8x^3 + 18xy + y^3 - 27$ when $2x + y - 3 = 0$.

(a) 27 (b) –27
(c) 0 (d) 1

Ans. (c) : Given that-

$2x + y - 3 = 0$

$(2x + y) = 3$…….. (i)

$(2x + y)^3 = (3)^3$

$8x^3 + y^3 + 3 \times 2x \times y(2x + y) = 27$

$8x^3 + y^3 + 3 \times 2 \times xy \times 3 = 27$

$[\because 2x + y = 3]$

$8x^3 + y^3 + 18xy - 27 = 0$

45. Find the value of

$$\frac{\cos^2 22^\circ + \cos^2 68^\circ}{2\left(\sin^2 22^\circ + \sin^2 68^\circ\right)} - \sin^2 16^\circ - \cos 16^\circ \sin 74^\circ$$

(a) $\frac{3}{2}$ (b) 2
(c) $-\frac{1}{2}$ (d) 0

Ans. (c) : Given that,

$$\frac{\cos^2 22^\circ + \cos^2 68^\circ}{2(\sin^2 22^\circ + \sin^2 68^\circ)} - \sin^2 16^\circ - \cos 16^\circ \sin 74^\circ$$

$$= \frac{\cos^2 22^\circ + \cos^2 (90 - 22^\circ)}{2\{\sin^2 22^\circ + \sin^2 (90 - 22^\circ)\}} - (\sin^2 16^\circ + \cos 16^\circ . \sin (90 - 16^\circ)$$

$$= \frac{\cos^2 22^\circ + \sin^2 22^\circ}{2(\sin^2 22^\circ + \cos^2 22^\circ)} - (\sin^2 16^\circ + \cos 16^\circ . \cos 16^\circ)$$

$$= \frac{1}{2 \times 1} - (\sin^2 16^\circ + \cos^2 16^\circ)$$

$$= \frac{1}{2} - 1$$

$$= -\frac{1}{2}$$

46. The government of India approved the National Policy for Farmers (NPF) in:

(a) 2007 (b) 2010

(c) 2018 (d) 2001

Ans. (a) : The National Commission on Farmers under the chairmanship of Prof. M.S. Swaminathan submitted its final report in October 2006. Based on the draft prepared by the National Commission on Farmers and after consultations with State Governments and the Central Ministries concerned, the Government of India approved the National Policy for Farmers, 2007.

47. Name the Punjabi Muslim, who was a student at Cambridge and who coined the term 'Pakistan' in 1933?

(a) Khan Rehmad Khan

(b) Amanat Ali

(c) Nusrat Fateh Ali

(d) Choudhary Rehmat Ali

Ans. (d) : Choudhary Rehmat Ali was a law student of the University of Cambridge. In 1933 The coined the name Pakistan. It was during the years 1930 that Choudhary Rahmat Ali seemed to have established the Pakistan National Movement, with its headquarter at Cambridge. He coined the word "Pakistan" for 30 million Muslims who live in the five northern units of India, Punjab, North West Frontier Province, Kashmir, Sindh and Baluchistan.

48. Below are fours pairs, each representing a state and a folk dance. Which pairing of state and folk dance in incorrect?

(a) Assam– Bihu

(b) Chhatisgarh – Dagla

(c) Gujarat– Garba

(d) Uttarakhand–Tapali

Ans. (d) :

Name of States	Folk Dances
Assam	Bihu, Bichhua, Natpuja, Maharas, Kaligopal, Bagurumba, Naga dance, Khel Gopal, Tabal Chongli, Canoe, Jhumura Hobjanai
Chhattisgarh	Tapali, Goudi, Karma, Jhumar, Dagla, Pali, Navrani, Diwari, Mundari
Gujarat	Garba, Dandiya Ras, Tippani Juriun, Bhavai.
Uttarakhand	Garhwali, Kumayuni, Kajari, Jhora, Raslila, Chappeli.

49. LCM of 30, 40 and 45 is.

(a) 360 (b) 5

(c) 54000 (d) 115

Ans. (a) : LCM of 30, 40 and 45-

2	30,40,45
2	15,20,45
2	15,10,45
3	15,5,45
3	5,5,15
5	5,5,5
	1,1,1

$= 2\times2\times2\times3\times3\times5 = 360$

50. Who mentioned Adhyakshas as the superintendents of different departments in the Mauryan administration.

(a) Kautilya (b) Pliny

(c) Megasthenes (d) Strabo

Ans. (a) : Kautilya's Arthashastra has a detailed description of the Mauryan administration. This was considered to be the authentic source to draw an account about the Mauryan administration.Along with Arthashastra, Megasthenes Indica throws light at the administration, economy, trade, and society of the Mauryan times.The Central administration was conducted by a highly skilled Superintendents or Adhyakshas who looked after various departments. Kautilya in the second book of his Arthasastra, Adhyakshaprachara, gives an account of the working of nearly 27 adhyaksas.

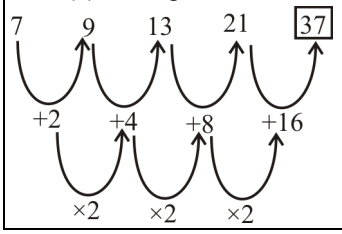
51. Select the option that will fill the blank's and complete the given series.

7, 9, 13, 21 .....

(a) 37 (b) 36

(c) 30 (d) 27

Ans. (a) : The given number series is as follows-



52. If $\tan\theta = 1$ (θ is an acute angle) then the value of $2\sin\theta\cos\theta - \text{cosec}^2\theta$ is:

(a) $1-\sqrt{2}$ (b) 1

(c) –1 (d) –3

Ans. (c) : $\tan\theta = 1$

$\tan\theta = \tan 45^\circ$

$\theta = 45^\circ$

$2\sin\theta\cos\theta - \text{cosec}^2\theta = 2\sin 45^\circ\cos 45^\circ - \text{cosec}^2 45^\circ$

$= 2\times\frac{1}{\sqrt{2}}\times\frac{1}{\sqrt{2}} - \left(\sqrt{2}\right)^2$

$= 2\times\frac{1}{2} - 2 = 1-2 = -1$

53. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be different at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statement.

Statements:

Some boys are birds.

All birds are animals.

Conclusions:

I. Some boys are animals.

II. Some animals are boys.

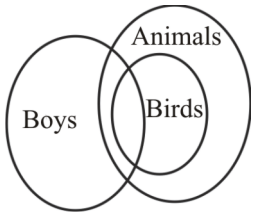
(a) Only conclusion II follows

(b) Only conclusion I follows

(c) Both conclusions I and II follows

(d) Neither conclusions I and II follows

Ans. (c) : According to the statements-



It is clear from the venn diagram that both conclusion I and II logically follow from the statements.

54. Which of the following functions cannot be performed by NBFCs

(a) Accepting demand deposits

(b) Providing loans

(c) Making investments

(d) Acquisition of shares

Ans. (a) : Non-Banking Financial Company (NBFC) is a company registered under the Companies Act, 1956. It engaged in the business of loans and advances, acquisition of shares, stocks, bonds, debentures, securities issued by the Government, or local authority. NBFC cannot accept demand deposits; NBFCs do not form part of the payment and settlement system and cannot issue cheques drawn on itself; deposit insurance facility of Deposit Insurance and Credit Guarantee Corporation is not available to depositors of NBFCs, unlike in case of banks.

55. Who was the author of "The General Theory of Employment, Interest and Money" that laid the foundation of macroeconomics as a separate branch of economics?

(a) Adam Smith

(b) Dr. Philip Kotler

(c) Dr. Keegen Alen

(d) John Maynard Keynes

Ans. (d) : "The General Theory of Employment, Interest, and Money" was a book written by John Maynard Keynes.John Maynard Keynes is an English economist, journalist, and financier, best known for his economic theories (Keynesian economics) on the causes of prolonged unemployment. His most important work is 'The General Theory of Employment, Interest, and Money' (1936), in which he advocated a remedy for economic recession based on a government-sponsored policy of full employment. It transformed economics and changed the face of modern macroeconomics.

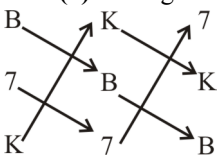
56. Select the alphanumeric term that will come next in the following series.

B7K, KB7, ...

(a) 7KB (b) BK7

(c) 7BK (d) K7B

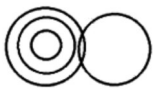
Ans. (a) : The given series is as follows-

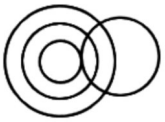


Hence, the next term will be 7KB

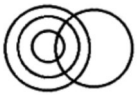
57. Select the Venn diagram that best represents the relationship between the following classes.

Parallelogram, Rhombus, Square, Trapezoid.

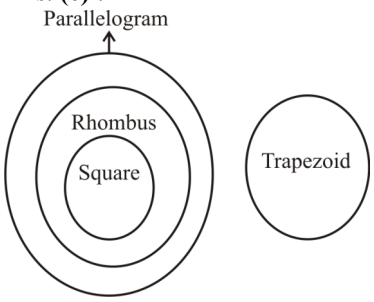
(a) 

(b) 

(c) 

(d) 

Ans. (c) :



58. Find the value of x if, 20% of 75 = 225 –x% of 420?

(a) 50 (b) 1535

(c) 20 (d) 3

Ans. (a) : 20% of 75 = 225 – (x % of 420)

$$\frac{20}{100}\times 75 = 225 - (x\% \text{ of } 420)$$

$15 = 225 – 4.2\,x$

$4.2\,x = 210$

$x = 50$

59. A sells an article to B at a profit of 20% and B sells it to C at a profit of 20%. If C pays ₹360 for its, what was the cost price for A?

(a) ₹ 308 (b) ₹ 250

(c) ₹ 144 (d) ₹ 120

Ans. (b) : Let the cost price for A = ₹ X

According to the question-

$$X \times \frac{120}{100} \times \frac{120}{100} = 360$$

X×12=30×100

X=₹ 250

60. Against which act Mahatma Gandhi asked people to observe 6 April 1919 as a day of non – violence opposition?

(a) Arms Act.

(b) Vernacular Press Act.

(c) Rowlatt Act

(d) Charter Act, 1813

Ans. (c) : The Gorakhpur Haryana atomic power project, also know as the Gorakhpur Haryana Anu Vidyut Pariyojana (GHAVP), is located at Gorakhpur, in Fatehabad district, Maryana, Inida. The power station is planned to be developed with four indigenously developed 700 MW pressurised heavy water reactor (PHWR) units by the state owned Nuclear Power Corporation of India (NPCIL).

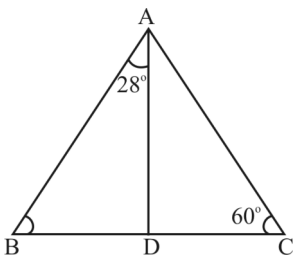
61. Which district in Haryana has a nuclear power plant

(a) Karnal (b) Rohatak

(c) Fatehabad (d) Sonipat

Ans. (c) : The Gorakhpur Nuclear Power Plant or the Gorakhpur Haryana Anu Vidyut Pariyojana (GHAVP) is a nuclear power plant built on a 560 hectares (1,400 acres) area west of Gorakhpur village of Fatehabad district of Haryana.The foundation stone of the 2800 Megawatt nuclear power plant was laid on 13 January 2014. The first phase of the project will have an installed capacity of 1400 MW and is expected to be completed by 2025. The second phase will start after that which will double the capacity to 2800 MW.

62. If, $\frac{AB}{AC} = \frac{BD}{DC}$ them ∠ABC is:



(a) 32° (b) 74°

(c) 92° (d) 64°

Ans. (d) : In ΔABC,

By angle bisector theorem-

$\therefore \angle BAD = \angle DAC$

$\Rightarrow \angle DAC = 28°$

Now, In ΔABC,

$\angle ABC + \angle BAC + \angle ACB = 180°$

$\angle ABC + 56° + 60 = 180°$

$\angle ABC = 180 - 116°$

$\angle ABC = 64°$

63. Which constitutional amendment, known as 'Mini Constitution', gave effect to the recommendations of Swaran Singh.

(a) 42nd constitutional amendment

(b) 43rd constitutional amendment

(c) 41st constitutional amendment

(d) 44th constitutional amendment

Ans. (a) : 42nd Amendment Act, 1976 is one of the most important amendments to the Indian Constitution. It was enacted by the Indian National Congress headed by Indira Gandhi then. Due to the large number of amendments this act has brought to the Indian Constitution, it is also known as 'Mini-Constitution. In the same amendment the Fundamental Duties of citizens were added upon the recommendations of the Swaran Singh Committee that was constituted by the government in 1976.

64. Out of the four words listed, three are alike in some manner and one is different select the odd one

(a) India (b) Australia

(c) Africa (d) Europe

Ans. (a) : Australia, Africa and Europe are the three continents while India is a country which comes under the continent of Asia.

65. A can complete a piece of work in 24 days. He worked for 21 days and then B finished the remaining work in 5 days. In how many days can A and B together finish the work?

(a) 24 days (b) 40 days

(c) 15 days (d) 45 days

Ans. (c) : Work done by A in 1 day = $\frac{1}{24}$ part

Work done by A in 21 days = $\frac{21}{24} = \frac{7}{8}$ part

Remaing work = $1 - \frac{7}{8} = \frac{1}{8}$

$\therefore$ Time taken by 'B' to complete the total work $= 5\times8 =$ 40 days

B's one day work $= \frac{1}{40}$ part

Work done by A and B in one day $= \frac{1}{24}+\frac{1}{40}$

$$\frac{5+3}{120}=\frac{8}{120}=\frac{1}{15}\text{ part}$$

Hence, the time taken by A and B to complete the work $= \frac{1}{\frac{1}{15}} = 15$ days.

66. What is the difference between $\frac{3}{5}$ of 200 and $\frac{1}{2}$ of 300?

(a) 30 (b) 100

(c) 60 (d) 200

Ans. (a) : $\frac{3}{5}$ of $200 = 200\times\frac{3}{5}=120$

$\frac{1}{2}$ of $300 = 300\times\frac{1}{2}=150$

Required difference $= 150–120 = 30$

67. In what time will ₹3,200 invested at 10% per annum compounded quarterly become ₹3,362?

(a) $2\frac{1}{2}$ years (b) 2 years

(c) $\frac{1}{4}$ years (d) $\frac{1}{2}$ year

Ans. (d) : Given-

Principal (P)= ₹ 3200

Amount (A)= ₹ 3362

Rate (r) =10% per annum of $\frac{10}{4}=\frac{5}{2}$ quarterly

Let- time = n quarterly

then $A = P\left(1+\frac{r}{100}\right)^n$

$$3362 = 3200\left(1+\frac{5}{200}\right)^n$$

$$\frac{3362}{3200}=\left(1+\frac{1}{40}\right)^n$$

$$\frac{1681}{1600}=\left(1+\frac{1}{40}\right)^n$$

$$\left(\frac{41}{40}\right)^2=\left(\frac{41}{40}\right)^n$$

On comparing the powers

n =2 quarterly = 6 Months

or $n=\frac{1}{2}$ years

68. Which of the following is used for calculating dearness allowance to government employees for increase in prices in India?

(a) Bank Rate

(b) Consumer Price Index Number for Industrial workers (CPI-IW)

(c) Statutory Liquidity Ratio (SLR)

(d) Interest Rate

Ans. (b) : The Dearness Allowance (DA) is a calculation on inflation and allowance paid to government employees (including public sector unit employees are also government employees) and pensioners in India. Dearness Allowance is calculated with reference to the Consumer Price Index Number for Industrial workers(CPI-IW).

69. Select the option that given decimal numbers 0.25, 1.24, 0.0882 and 2.67 are arranged in ascending order.

(a) 2.67, 1.24, 0.25, 0.0882

(b) 0.25, 1.24, 0.08821, 2.67

(c) 1.24, 0.25, 2.67, 0.0882

(d) 0.0882, 0.25, 1.24, 2.67

Ans. (d) : On arranging the given decimal numbers in assending order-

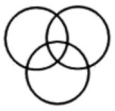
$0.0882 \rightarrow 0.25 \rightarrow 1.24 \rightarrow 2.67$

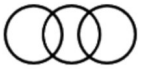
Hence, option (d) is correct.

70. Select the Venn diagram that best represents the relationship among the given set of classes.

Earth, Country, State.

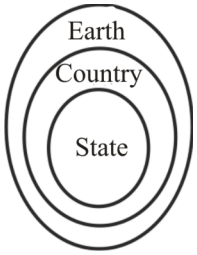
(a) 

(b) 

(c) 

(d) 

Ans. (a) : Suitable Venn diagram Earth, State and country-



71. Simplify.

$4\sqrt{0.000081}$

(a) 0.36 (b) 0.036
(c) 0.0036 (d) 0.0018

Ans. (b) : $4\sqrt{0.000081} = 4 \times 0.009$
$= 0.036$

72. Equatorial plane and Orbital plane are inclined to each other at which angle?

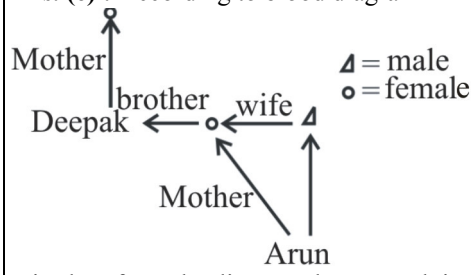
(a) 67.5^o (b) 66.5^o
(c) 23.5^o (d) 13.5^o

Ans. (c) : Equatorial plane and Orbital plane are inclined to each other at 23.5^o angle.

73. Arun said "Deepak's mother is the mother of my father's wife". How is Deepak related to Arun?

(a) Grandfather (b) Brother
(c) Mother's Brother (d) Father's Brother

Ans. (c) : According to blood diagram-



It is clear from the diagram that Deepak is the brother of Arun's mother.

74. The concept of Bodhisattva is associated with:

(a) Jainism
(b) Hinyana Buddhism
(c) Sikhism
(d) Mahayana Buddhism

Ans. (d) : A person who has attained prajna or enlightenment, but who postpones Nirvana in order to help others to attain enlightenment. The concept of Bodhisattva is associated with Mahayana Buddhism.

75. Vinaya and Sutta Pitaka are the compilations of whose teachings?

(a) Gautam Buddha
(b) Rishabhadev
(c) Mahavira Jaina
(d) Guru Gobind Singh

Ans. (a) : The teachings of Gautam Buddha came to be known as Buddhism. The teachings of Buddha and his followers have been compiled in three collections (Thripitikas) called the Sutta Pitaka, the Abhidhamma Pitaka and Vinaya Pitaka. Tripitaka or Three Baskets is a traditional term used for various Buddhist scriptures. It is also known as Pali Canon in English.

76. Pradhan Mantri Shram Yogi Maan-dhan (PM–SYM) Yojana which was launched on 5th March 2019 is aimed at benefitting:

(a) Unorganized sector workers
(b) Private sector employees
(c) Organized sector workers
(d) Government and public sector employees

Ans. (a) : The Pradhan Mantri Shram Yogi Maan-dhan Yojana was launched by Prime Minister Narendra Modi on 5 March 2019 in Ahmedabad for unorganized sector workers. It is a voluntary and contributory pension scheme, under which the subscriber would receive a minimum assured pension of ₹ 3000/- per month after attaining the age of 60 years and if the subscriber dies, the spouse of the beneficiary shall be entitled to receive 50% of the pension as family pension. Family pension is applicable only to spouse. The subscriber should be an unorganised worker (UW), the age should be in between 18 and 40 years and having monthly Income ₹ 15000 or below.

77. Name the type of nutrition in which the organism takes in nutrients in solution form from dead and decaying matters.

(a) Heterotrophic nutrition
(b) Autotrophic nutrition
(c) Insectivorous nutrition
(d) Saprophytic nutrition

Ans. (d) : In Saprophytic nutrition the living organisms live and feed on dead and decaying organisms called Saprophytes. They break down the complex organic matter into simpler substances that are taken up by the plants for various metabolic activities. Thus, saprophytes play a significant role in the ecosystem. Fungi and a few bacteria are saprophytes. The saprophytes secrete digestive juices and breakdown the organic matter around them. Following are a few examples of saprophytes:Mucor, Yeast, Penicillium etc.

78. Select the option that shows the correct match of an organization and its headquarters.

(a) WHO– Paris
(b) GATT– Geneva
(c) INTERPOL– Washington D.C.
(d) ESRO– Brussels

Ans. (b) :

Organization	Headquarters	Established
World Health Organization (WHO)	Geneva, Switzerland	1948
General Agreement on Tariffs and Trade(GATT)	Geneva,Switzerland	1948
The International Criminal Police Organization(INTERPOL)	Lyon, France	1923
European Space Research Organisation(ESRO)	Paris, France	1964

79. BuyUcoin has introduced the first Indian platform regarding wholesale trading for:

(a) Crypto Currency (b) Paper Currency
(c) Gilt Currency (d) Plastic Currency

Ans. (a) : BuyUcoin has launched a new and unique platform for wholesale cryptocurrency trading. This wholesale platform works on 'free trading model' which means it charges zero fee on any trade. The platform also known as OTC (Over-the-counter) desk, allows users to trade on a large scale with low price fluctuations. It will also improve the problem of liquidity of cryptocurrency in Indian market. BuyUcoin is the second oldest Cryptocurrency Exchange in India.

80. Who was the fourth President of India?

(a) Dr Zakir Hussain
(b) Varahagiri Venkata Giri
(c) B.D. Jatti
(d) Giani Zail Singh

Ans. (b) : The first fourth and last four president are as follows:
1. Dr. Rajendra Prasad – 26.01.1950 to 13.05.1962
2. Dr. S. Radhakrishan – 13.05.1962 to 13.05.1967
3. Dr. Zakhir Hussain – 13.05.1967 to 03.05.1969
4. V.V. Giri, – 03.05.1969 to 20.07.1969
14. Dr. A.P.J. Abdul Kalam – 25.07.2002 to 25.07.2007
15. Mrs. Pratibha Patil – 25.07.2007 to 25.07.2012
16. Mr.Pranab Mukherjee – 25.07.2012 to 25.07.2017
17. Shri Ram Nath Kovind – 25.07.2017 to till date

81. If in a code language PRIME is written as KIRNV, then SPORT would be written as _____ in the same language.

(a) HKLIG (b) GJLHF
(c) GJKHF (d) HLLIG

Ans. (a) :

Just as, Similarly,

P $\xrightarrow{\text{Opposite letter}}$ K S $\xrightarrow{\text{Opposite letter}}$ H
R $\xrightarrow{\text{Opposite letter}}$ I P $\xrightarrow{\text{Opposite letter}}$ K
I $\xrightarrow{\text{Opposite letter}}$ R O $\xrightarrow{\text{Opposite letter}}$ L
M $\xrightarrow{\text{Opposite letter}}$ N R $\xrightarrow{\text{Opposite letter}}$ I
E $\xrightarrow{\text{Opposite letter}}$ V T $\xrightarrow{\text{Opposite letter}}$ G

82. What is the name of Ganga cleanup program launched in 2014?

(a) Namami Gange
(b) Ganga Action Plan
(c) Ganga Cleanup Program
(d) Clean Ganga Plan

Ans. (a) : 'Namami Gange Programme', is an Integrated Conservation Mission, approved as 'Flagship Programme', by the Union Government in June 2014 with budget outlay of Rs. 20,000 Crore to accomplish the twin objectives of effective abatement of pollution, conservation and rejuvenation of National River Ganga.

83. Simplify $\dfrac{1800\div(24\div8\times3)+16}{\frac{3}{4}\times(32\div2)}$

(a) $\frac{150}{17}$ (b) 18
(c) $\frac{454}{3}$ (d) $\frac{39}{4}$

Ans. (b) : $\dfrac{1800\div(24\div8\times3)+16}{\frac{3}{4}\times(32\div2)}$

$=\dfrac{1800\div(3\times3)+16}{\frac{3}{4}\times16}$

$=\dfrac{1800\div9+16}{3\times4}$

$=\dfrac{200+16}{12}$

$=\dfrac{216}{12}=18$

84. The reserve Bank of India was established in:

(a) 1947 (b) 1919
(c) 1935 (d) 1950

Ans. (c) : The Reserve Bank of India (RBI) is the central bank of India whose primary functions is to manage and govern the financial system of the country. It is a statutary body established in the year 1935 under the Reserve Bank of India Act, 1934. Presently Shaktikanata Das is the Governor of RBI, who assumed charge as the 25th Governar of the Reserve Bank of India (RBI).

85. If (4y – 1) and (y + 4) both are factors of py^2 + 15y – q then:

(a) p = 4q (b) $p=\frac{q}{4}$
(c) p = q (d) p = –q

Ans. (c) : Given-
(4y–1) and (y+4) both the factors of $py^2+15y-q$.
4y–1 = 0 y+4 = 0
4y =1 y = –4
$y=\frac{1}{4}$

On putting $y=\frac{1}{4}$ in the expression

$p\times\left(\frac{1}{4}\right)^2+15\times\left(\frac{1}{4}\right)-q=0$

$\frac{p}{16}+\frac{15}{4}-q=0$

$\frac{p+60-16q}{16}=0$

16q – p = 60 ……(i)
On putting y = – 4 in the expression
$p\times(-4)^2+15(-4)-q=0$
16p – 60 – q = 0 ……..(ii)
From equations (i) and (ii)
16q–p = 16p–q
17q = 17p
q = p
Hence option (c) is true.

Direction (Question No. 86 to 89)

86. The given table shows the marks of various students in a class. Study the table and answer the question that follows.

	Marks (Out of 50)				
Name of students	**Physics**	**Chemistry**	**Math**	**English**	**Sanskrit**
A	**48**	**47**	**49**	**46**	**44**
B	**29**	**33**	**22**	**15**	**30**
C	**35**	**36**	**42**	**40**	**29**
D	**46**	**49**	**48**	**48**	**40**
E	**32**	**30**	**25**	**21**	**22**

(Reference – Marks (out of 50) – Name of Students physics –Chemistry – Math – English – Sanskrit)

Which student got the lowest overall percentage of marks?

(a) D (b) C
(c) B (d) E

Ans. (c) :
Total marks of student A = 48+47+49+46+44 = 234

Percentage of total marks of student

$$A = \frac{234}{250} \times 100 = 93.6\%$$

Total marks of student B = 29+33+22+15+30 =129
Percentage of total marks of student

$$B = \frac{129}{250} \times 100 = 51.6\%$$

Total marks of student C = 35+36+42+40+29 = 182
Percentage of total marks of student

$$C = \frac{182}{250} \times 100 = 72.8\%$$

Total marks of student D = 46+49+48+48+40 = 231
Percentage of total marks of student

$$D = \frac{231}{250} \times 100 = 92.4\%$$

Total marks of student E = 32+30+25+21+22=130
Percentage of total marks of student

$$E = \frac{130}{250} \times 100 = 52\%$$

It is clear that the percentage of total marks of student B is minimum.

87. What is the maximum overall percentage (average of percentages obtained in all subjects by any student) of marks obtained by any student among A, B, C, D and E.

(a) 93.40% (b) 92.40%
(c) 93.60% (d) 92.60%

Ans. (c) : It is clear from the explanation of the above question that the maximum percentage of marks scored by student A is 93.60%.

88. Which two students have the least difference of marks between them?

(a) B and C (b) B and E
(c) E and D (d) A and D

Ans. (b) : Total marks of student A = 234
Total marks of student B = 129
Total marks of student C = 182
Total marks of student D = 231
Total marks of student E = 130
The difference of marks between students B and C = 182 – 129 = 53
The difference of marks between students B and E =130 – 129 = 1
The difference of marks between students E and D = 231 – 130 = 101
The difference of marks between students A and D = 234 – 231 = 3
It is clear that the difference of marks between student B and E is minimum.

89. If we rank students on the basis of all five subjects and then we rank them only on the basis of physics, chemistry and Math then what will happen to the arrangement of ranks in both cases?

(a) Only the Bottom two ranks will be different.
(b) All ranks will be different.
(c) Only the top two ranks will be different
(d) The ranks will remain the same in both case.

Ans. (d) : Rank of Students on the basis of subjects-
A > D > C > E > B
Marks obtained only in Physics, Chemistry and Mathematics subjects respectively.
Marks of A = 48+47+49 = 144
Marks of B = 29+33+22 = 84
Marks of C = 35+36+42 = 113
Marks of D = 46+49+48 = 143
Marks of E = 32+30+25 = 87
Ranks-
A > D > C > E > B
Hence, the ranks will remain the same in both case.

90. Select the option that is related to the third term in the same way as the second term is related to the first term.

Kilogram : Mass : : Kilometre : _____

(a) Speed (b) Length
(c) Time (d) Force

Ans. (b) : Just as Kilogram is the SI unit of mass in the same way kilometer is the SI unit of Length.

91. Select the letter cluster that will come next in the following series?

MNOP, HIJK, ...

(a) CDEF (b) BCDE
(c) DEFC (d) DEFG

Ans. (a) : The given series is as follows-

M $\xrightarrow{-5}$ H $\xrightarrow{-5}$ C
N $\xrightarrow{-5}$ I $\xrightarrow{-5}$ D
O $\xrightarrow{-5}$ J $\xrightarrow{-5}$ E
P $\xrightarrow{-5}$ K $\xrightarrow{-5}$ F

Hence, next term will be CDEF.

92. Select the option that is related to the third term in the same way as the second term is related to the first term.

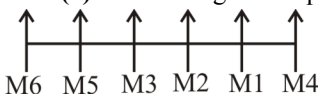
Srilanka : Island : : India.

(a) Asia (b) Ocean
(c) Peninsula (d) Plateau

Ans. (c) : Just as Sri Lanka is an Island country, in the same way India is a peninsula country.

93. Six members M1, M2, M3, M4, M5 and M6 of a family are sitting in a row facing towards the north (not necessarily in the same order). M3 sits to the immediate right of M5 and second to the left of M1. M4 is second to the right of M2, M5 is not sitting at the ends of the row.
Who are sitting at the ends of the row?.
(a) M6 and M4 (b) M6 and M3
(c) M6 and M1 (d) M3 and M4

Ans. (a) : According to the question-



It is clear from the diagram that M6 and M4 are sitting at the extreme ends of the row.

94. 6 Women W1, W2, W3, W4, W5 and W6 lives in different hotel P, Q, R, S, T and W (not necessarily in the same order). No two women live in same hotel. One woman live in only one hotel. W4 does not live in hotel P or R. W3 and W6 live in S and W respectively. W1 does not live in T or R. W5 does not live in R or P.
Which of the following combination of woman and hotel in definitely true
(a) W4 - T (b) W2 - P
(c) W5 - T (d) W1 – P

Ans. (d) :

	W_1	W_2	W_3	W_4	W_5	W_6
P	✓	×	×	×	×	×
Q	×	×	×	✓	×	×
R	×	✓	×	×	×	×
S	×	×	✓	×	×	×
T	×	×	×	×	✓	×
W	×	×	×	×	×	✓

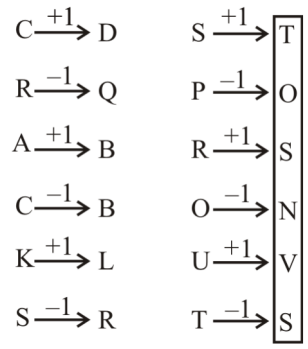
It is clear that W_4 and W_5 will sit in either Q or T, so it is certain that W_1 will sit in P.

95. How will you write 4.14 hours in hours, minutes and seconds.
(a) 4 hours, 8 minutes, 4 seconds
(b) 4 hours, 14 minutes
(c) 4 hours, 10 minutes, 4 seconds
(d) 4 hours, 8 minutes, 24 seconds

Ans. (d) : 4.14 hours = 4 hours +0.14 ×60 minutes
= 4 hours + 8 minutes + 0.4 minutes
= 4 hours +8 minutes + 0.4×60 second
= 4 hours + 8 minutes + 24 second

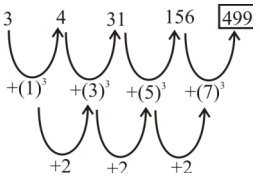
96. If in a code language CRACKS is written as DQBBLR, then how would SPROUT be written in that same code language.
(a) TQSNVS (b) TOSNVS
(c) TQSPVU (d) TOSNVU

Ans. (b) :
Just as, Similarly,



97. Select the option that will fill the blanks and complete the given series.
3, 4, 31, 156, ...
(a) 373 (b) 372
(c) 500 (d) 499

Ans. (d) : The given number series is as follows-



98. Pick the odd one out.
(a) Nitrogen (b) Oxygen
(c) Iron (d) Fluorine

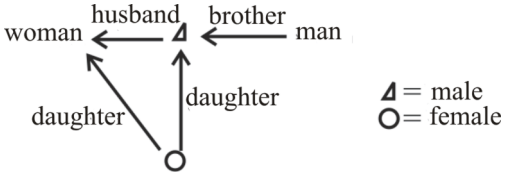
Ans. (c) : Iron is a solid element while Nitrogen, Oxygen and Fluorine are gases.
Hence option (c) is odd.

99. Pick the odd one out:
(a) Kilometer (b) Centimeter
(c) Mile (d) Meter

Ans. (c) : Kilometer, Centimeter and Meter are related to each other while mile is not.

100. A man said to a woman, "Your husband's daughter is the daughter of my brother". How is the man related of the woman's daughter?
(a) Brother
(b) Father's Brother
(c) Father
(d) Mother's brother

Ans. (b) : According to question the blood relation diagram is as follows-



It is clear from the diagram the man is the brother of the father of the woman's daughter.

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

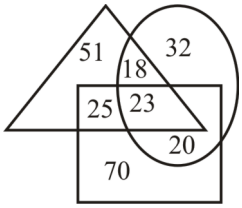
Exam Date : 05.04.2021] **[Time : 3.00 pm-4.30 pm]**

1. Find four consecutive numbers such that the sum of value of twice the first number, three times the second number, four times the third number and five times the fourth number is 236.

(a) 15, 16, 17, 18 (b) 17, 18, 19, 20
(c) 18, 19, 20, 21 (d) 19, 20, 21, 22

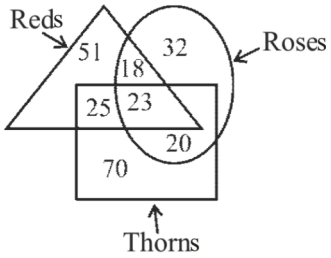
Ans. (a) Let the first number be x
then 4 consecutive numbers $\Rightarrow$ x, x+1, x+2, x+3
According to the question,
$2x+3(x+1)+4(x+2)+5(x+3)=236$
$14x+26=236$
$X=15$
Hence, numbers = 15, 16, 17, 18

2. In the given diagram the triangle denotes red, the circle denotes roses and the rectangle denotes the thorns. How many red roses do not have thorns?



(a) 43 (b) 23
(c) 18 (d) 61

Ans. (c) : It is clear from the figure that total numbers of red rose which do not have thorns =18



3. If x+y+z = 5 and xy+yz+zx = 8 then find the value of $x^3+y^3+z^3-3xyz$.

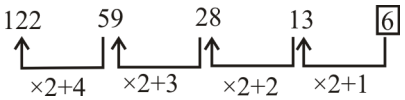
(a) 11 (b) 5
(c) 9 (d) 7

Ans. (b) : $x^3+y^3+z^3-3xyz=(x+y+z)\left[(x+y+z)^2-3(xy+yz+zx)\right]$
$=5\left[5^2-3\times8\right]$
$=5[25-24]=5\times1=5$

4. Select the number which is in the following range that can come in place of question mark?
122, 59, 28, 13, ?

(a) 7 (b) 8
(c) 9 (d) 6

Ans. (d) : Series is as follow-



?×2+1 = 13
?×2 = 12
? = 6

5. Select the alphabets, which can come in place of question mark in series.
MURV, JVOW, GWLX, ?

(a) DXIY (b) DUIU
(c) EZJA (d) EUJV

Ans. (a) : Series is as follows-

M $\xrightarrow{-3}$ J $\xrightarrow{-3}$ G $\xrightarrow{-3}$ D
U $\xrightarrow{+1}$ V $\xrightarrow{+1}$ W $\xrightarrow{+1}$ X
R $\xrightarrow{-3}$ O $\xrightarrow{-3}$ L $\xrightarrow{-3}$ I
V $\xrightarrow{+1}$ W $\xrightarrow{+1}$ X $\xrightarrow{+1}$ Y

So DXIY will come in place of the question mark.

6. Which of these spacecraft was used to orbit the planet Venus from 1990 to 1994?

(a) Magellan spacecraft
(b) Atlantis spacecraft
(c) Dawn space Craft
(d) Hayabusa

Ans. (a) : Magellan, U.S. Spacecraft (from 1990 to 1994) used radar to create a high-resolution maps of the surface of Venus. The Magellan spacecraft was launched by the National Aeronautics and Space Administration from the space shuttle on 4 May, 1989. It arrived at Venus on 10 August 1990. On 12 October 1994, Magellan was sent to a crash landing on Venus. The spacecraft began returning high-quality radar images of the Venusian terrain that showed evidences of volcanism, tectonic movement, turbulent surface winds.

7. If $\cos^4\theta - \sin^4\theta = \frac{3}{5}$, then find the value

$1 - 2\sin^2\theta + 2\sin\theta\cos\theta$

(a) 0 (b) $\frac{8}{5}$

(c) $\frac{9}{5}$ (d) $\frac{7}{5}$

Ans. (d) : $\cos^4\theta - \sin^4\theta = \frac{3}{5}$

$(\cos^2\theta + \sin^2\theta)(\cos^2\theta - \sin^2\theta) = \frac{3}{5}$

$\cos^2\theta - \sin^2\theta = \frac{3}{5}$

$\cos 2\theta = \frac{3}{5}$ $(\because \cos^2\theta - \sin^2\theta = \cos 2\theta)$

then, $(1 - 2\sin^2\theta) + 2\sin\theta.\cos\theta$

$\cos 2\theta + \sin 2\theta$ $\left[\because \begin{matrix}\cos 2\theta = 1 - 2\sin^2\theta \\ \sin 2\theta = 2\sin\theta.\cos\theta\end{matrix}\right]$

$\cos 2\theta + \sqrt{1 - \cos^2 2\theta}$

$\frac{3}{5} + \sqrt{1 - \frac{9}{25}}$

$\frac{3}{5} + \frac{4}{5} = \frac{7}{5}$

8. The famous musician Mrs. N. Rajam is associated with which musical instrument?

(a) Violin (b) Tanpura

(c) Flute (d) Sitar

Ans. (a) : Mrs. N. Rajam is associated with Violin. In 2021, she was conferred the Pt. Bhimsen Joshi Lifetime Achievement Award. She has also received the prestigious titles of Padmashri and Padmabhushan from the Government of India. People often refer her music as the "singing Violin".

9. The Indian standard meridian passes through five states. Which of the following is not one of those five states?

(a) Andhra Pradesh (b) Chhatisgarh

(c) Odisha (d) Bihar

Ans. (d) : Indian Standard Time (IST) is based on longitude of 82°.30', which passes through Uttar Pradesh, Madhya Pradesh, Chattisgargh, Odisha and Andhra Pradesh. The Standard Meridian of Indian passes through Mirzapur in Uttar Pradesh is considered as the standard time for the whole country.

10. If θ is acute angle and $\tan\theta + \cot\theta = 2$, then find the value of the following?

$\tan^{15}\theta + \cot^{20}\theta + 2\tan^{20}\theta + \cot^{15}\theta$

(a) 6 (b) 3

(c) 5 (d) 4

Ans. (d) : $\tan\theta + \cot\theta = 2 \Rightarrow \tan\theta + \frac{1}{\tan\theta} = 2$

$\therefore \tan\theta = 1$ and $\cot\theta = 1$

$\tan^{15}\theta + \cot^{20}\theta + 2\tan^{20}\theta.\cot^{15}\theta$

then, $(1)^{15} + (1)^{20} + 2 \times 1^{20} \times 1^{15}$

1+1+2=4

11. The ratio of the incomes of two persons is 7:5 and the ratio of their corresponding expenses is 9:7. If they save 1700 Rs. and 1100 Rs. consecutively then find the corresponding income of each person?

(a) ₹ 5,000, ₹ 5,000, (b) ₹ 4,500, ₹ 3,500,

(c) ₹ 5,500, ₹ 4,500, (d) ₹ 3,500, ₹ 2,500,

Ans. (d) : Let,

Their income are 7x and 5x

and expenditure =9y, 7y

∵ Income = Expenditure + Savings

∴ According to the question,

7x–9y=1700 ……..(i)

5x–7y=1100 ……..(ii)

From equation (i) and (ii)-

$$\begin{array}{r} 49x - 63y = 11900 \\ -\ 45x + 63y = 9900 \\ \hline 4x = 2000 \end{array}$$

$\Rightarrow x = 500$

Then corresponding income of each person

$= 7x = 7 \times 500 = 3500$

$5x = 5 \times 500 = 2500$

12. Which is the largest joint found in the human body.

(a) Scoulder joint (b) Knee joint

(c) Neck joint (d) Pelvic joint

Ans. (b) : The largest joint in the human body is the knee. It attaches the upper leg (femur) to the lower leg (tibia and fibula).

13. Amritsar shatabdi express departs from Delhi at 4:30 PM and reaches Amritsar at 10:30 PM. The average speed of the train is 75km/h. What is the distance between Delhi to Amritsar?

(a) 450 km (b) 550 km

(c) 500 km (d) 400 km

Ans. (a) : Distance = speed × Time

Total Time = 6h

Then distance = 75×6=450 km

14. If n is a natural number then $n^3 - n$ is always divisible by……

(a) 8 (b) 6

(c) 5 (d) 4

Ans. (b) : $\because$ n is a natural number.

$\therefore n^3 - n = n(n^2 - 1) = n(n+1)(n-1)$

On putting the value of n = 2

$2 \times 3 \times 1 = 6$

Hence, it will always divisible by 6.

n factors numbers are always divisible by n.

$\because (n+1) \times n \times (n-1)$ is a 3 factorial numbers.

It will be divisible by $6 = 3 \times 2 \times 1 = 6$.

15. Who was the Deputy Chairman of the constituent Assembly, which wrote the Indian constitution?

(a) Jaypal Singh (b) G. durga deshmukh

(c) H.C. Mookerjee (d) Rajendra Prasad

Ans. (c) : The idea of Constituent Assembly was first proposed in 1934 by M.N. Roy. Constituent Assembly first met on 9 December, 1946. Dr. Sachchidananda Sinha was the first Chairman of the constituent Assembly. Later on, Dr. Rajendra Prasad was elected as its president and HC Mookherjee as its Vice President.

16. Find the smallest five digit number which is exactly divisible by 12, 16, 24 and 28?

(a) 10080 (b) 10090

(c) 10060 (d) 10070

Ans. (a) : L.C.M. of 12, 16, 24 and 28

L.C.M.= 16 × 3 × 7 = 336

The smallest five digit number = 10000

$$336\overline{)10000}\,(29$$
$$\underline{672}$$
$$3280$$
$$\underline{3024}$$
$$256$$

So, required number =10000+(336 – 256)

10000+80 =10080

17. If $(15)^{300}$ divided by 16, then find the remainder?

(a) 1 (b) 3

(c) 4 (d) 2

Ans. (a) : $\frac{(15)^{300}}{16} = \frac{(16-1)^{300}}{16} = (-1)^{300} = 1$ (Remainder)

18. A cuboid of 6 cm long, 4 cm width and 4 cm height melted. How many cubes of each 2 cm side can be made?

(a) 14 (b) 16

(c) 12 (d) 18

Ans. (c) : Volume of Cuboid = $l \times b \times h$

$= 6 \times 4 \times 4 = 96$

Volume of a cube = $a^3 = 2^3 = 8$

Then, the number of cubes = $\frac{\text{Volume of cuboid}}{\text{Volume of a cube}}$

$= \frac{96}{8} = 12$ cubes

19. The difference of interior angles and exterior angles on the vertices of a quadrilateral is 160°. Find the sides of a polygon?

(a) 36 (b) 42

(c) 40 (d) 38

Ans. (a) :

Interior angle+Exterior = 180º (by theorem)

Interior angle-Exterior = 160º

$2 \times \text{Exterior angle} = 20^\circ$

$\text{Exterior} = 10^\circ$

Number of sides of a polygon $= \frac{360^\circ}{10^\circ} = 36^\circ$

20. Who among the following became the third cricketer to hit six sixes in an over in international cricket?

(a) Herschelle Gibbs (b) Virendra Sehwag

(c) Yuvraj Singh (d) Kieron Pollard

Ans. (d) : Kieron Pollard became the third International cricketer after South Africa's Herschelles Gibbs and India's Yuvraj Singh to achieve the rare feat of hitting six sixes in an over in International Cricket against Sri Lanka.

21. What is the source of energy of the sun and other stars?

(a) Combustion of Helium gas

(b) Nuclear fusion

(c) Nuclear fission

(d) Combustion of Hydrogen gas

Ans. (b) : Energy in the Sun and stars is generated by nuclear fusion. In nuclear fusion, two or more light nuclei join to form a heavy nucleus along with release of an extremely high amount of energy.

22. National waterways (NW 1) is already operated for waterways transport between which two cities of the country?

(a) Kottapuram-kollam (b) Kakinad-Puducheri

(c) Haldia-Prayagraj (d) Dhubri- sadiya

Ans. (c) : National waterway 1 or (NW-1) starts from Prayagraj (Allahabad) to Haldia with a distance of 1620 km. It run through the Ganga at fixed terminals at Haldia, Farrakka and Patna and floating terminals at most of the riverside cities like Kolkata, Bhagalpur, Varanasi and Prayagraj. It is the longest national waterways in India.

23. Who was the first person to discuss the concept of poverty in India before independence?

(a) Surendranath banarjee

(b) G.V. joshi

(c) D. vacha

(d) Dadabhai Naoroji

Ans. (d) : In Pre- Independent India, Dadabhai Naoroji was the first to discuss the concept of a poverty line. The poverty line proposed by him was based on the cost of a subsistence or minimum basic diet (rice or flour, dal, mutton, vegetables, ghee vegetable oil and salt).

24. The first secretary-General of the United Nations was related to which of these countries?

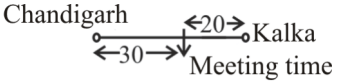
(a) Finland (b) Swedan
(c) Portugal (d) Norway

Ans. (d) : On 1 February 1946, Mr. Trygve Halvdan lie was elected as the first secretary General of the United Nations. He was a Norwegian politician, labour leader, government official and author. He was born on 16 July, 1896 in Oslo Norway.
Portuguese politician Antonio Gutterres is current (9th) Secretary General of United Nations.

25. Sachin and Anil started walking at the same time towards kalka which is 50 km away from Chandigarh. The speed of sachin is 6 km/h less than that of Anil. Anil reaches Kalka and immediately starts walking back to Chandigarh. On the way he meets Sachin at a distance of 20 km from kalka find the speed of sachin?

(a) 4.5 km/h (b) 5.1 km/h
(c) 4.9 km/h (d) 5.0 km/h

Ans. (a) : Let Speed of Sachin = V km/h
So speed of Anil = V + 6 km/h
And distance covered by Anil = 70 km
Distance covered by Sachin = 30 km



$\therefore$ Time is same for both in the whole journey.

$$\text{Time} = \frac{\text{Distance}}{\text{Speed}} \Rightarrow \frac{D_1}{V_1} = \frac{D_2}{V_2}$$

$$\Rightarrow \frac{30}{V} = \frac{70}{V+6}$$
$$\Rightarrow 3V + 18 = 7V$$
$$\Rightarrow 4V = 18$$
$$\Rightarrow V = \frac{18}{4} = \frac{9}{2}$$
$$\Rightarrow \boxed{V = 4.5 \text{ km/h}}$$

26. If a : b = c : d = e : f = g : h = 1 : 3 then find out the name of following
(pa + qc + re + sg) : (pb + qd + rf + sh)

(a) 1:3 (b) 1:2
(c) 1:5 (d) 1:4

Ans. (a) : $\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = \frac{g}{h} = \frac{1}{3}$

$$\frac{Pa}{Pb} = \frac{qc}{qd} = \frac{re}{rf} = \frac{sg}{sh} = \frac{1}{3}$$

$$\frac{a}{b} = \frac{c}{d} = k \Rightarrow k = \frac{a+c}{b+d}$$

$$\therefore \frac{Pa + qc + re + sg}{Pb + qd + rf + sh} = \frac{1}{3}$$

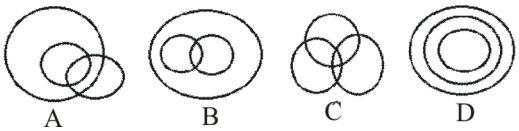
(Pa+qc+re+sg):(Pb+qd+rf+sh)=1:3

27. Which of these cities, freedom fighter chandrashekhar Azad shot himself after being surrounded by British policemen?

(a) Kanpur (b) Bhopal
(c) Allahabad (d) Jabalpur

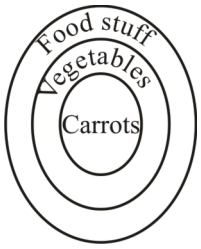
Ans. (c) : Great revolutionary freedom fighter Chandra Shekhar Azad shot himself dead when he had one last bullet left in a shootout with the police at the Alfred Park in Allahabad (Prayagraj).

28. Select the venn diagram that best represents the relationship between the given classes vegetables, carrots, food stuff?



(a) A (b) D
(c) B (d) C

Ans. (b) : Best represents the relationship between the given classes vegetables, carrots, food stuff has been represented by option (b).



29. Homogenous mixture of a solute and a solvent is called:

(a) Suspension (b) Solution
(c) Electrolyte (d) Emulsion

Ans. (b) : The homogenous mixture of solute and solvent is called a solution. The substance, which is dissolved, is called a solute. The substance in which the solute is dissolved is called a solvent.

30. The idea of Rule of law in the Indian constitution has been taken from which of these constitution?

(a) France (b) German
(c) British (d) Canadian

Ans. (c) : The parliamentary System of the government, rule of law, law-making procedure and single citizenship were borrowed from the British Constitution. The provisions of a federation with centre, residuary power of the centre and the appointment of state governors by the centre etc are borrowed from Canadian Constitution. The Indian Preamble borrowed its ideals of liberty, equality and fraternity from French Constitution. Suspension of fundamental right during emergency is taken from German constitution.

31. Which of these rivers meet at Triveni sangam in Uttar Pradesh?

(a) Ganga, Yamuna, Saraswati
(b) Ganga, Yamuna, Trapti
(c) Ganga, Yamuna, Narmada
(d) Ganga, Yamuna, Sindh

Ans. (a) : In Indian tradition, Triveni Sangam is the confluence of three rivers:- The Ganga, Yamuna and Saraswati (a mythical river which is supposed to have dried up thousands of year ago) at Prayagraj, U.P.

32. Where is the headquarters of international civil Aviation Organization located?

(a) Amsterdam (b) Geneva
(c) London (d) Montreal

Ans. (d) : International Civil Aviation Organisation is an intergovernmental specialized agency, associated with the United Nation. It was established in 1947 by the convention on Internation Civil Aviation 1944 in Chicago. It is dedicated for developing safe and efficient international air transport for peaceful purposes and ensuring a reasonable opportunity for every state to operate international airline. It's permanent headquarter is in Montreal, Canada.

33. Rafting is related to water as Skiing is related to

(a) Ice (b) Surface
(c) Sceeze (d) Sky

Ans. (a) : Just as rafting is done in water, in the same way Skiing is done in Ice/Snow.

34. Tsomgo lake is located in which state of India?

(a) Nagaland
(b) Sikkim
(c) Arunachal Pradesh
(d) Goa

Ans. (b) : Tsomgo lake or Changgu Lake, is a glacial lake in the East Sikkim district of Sikkim. It remains frozen during the winter season, and is surrounded by steep mountains. The Lake is the venue for the Guru Purnima festival.

35. Find the simplified value of

$\frac{4}{21} \times \frac{7}{8} \times 6 + 17 - 12$

(a) 7 (b) 6
(c) 5 (d) 8

Ans. (b) : $\frac{4}{21} \times \frac{7}{8} \times 6 + 17 - 12$

$\frac{1}{3} \times \frac{1}{2} \times 6 + 17 - 12$

$1+17-12 = 6$

36. Which of the following pass connects Sikkim with china?

(a) Bara Lachha Darra
(b) Nathula darra
(c) Mana darra
(d) Debasa darra

Ans. (b) : The Nathula Pass is located on the old Silk Route which connects Sikkim to China's Tibet Autonomous Region.

Passes	State (Location)
Nathula, Jelep La	Sikkim
Bara-Lacha La, Changla, thangLa	Leh and Laddakh
Mana pass, Lipulekh, Traill;s pass	Uttarakhand
Debasa pass, Borsa pass, Bohar pass	Himachal Pradesh

37. Read the given statement and decisions carefully and decide which of the two decision logically follow(s) from the statement.

Statement:

Students are confused regarding the choice of appropriate course/stream for higher education.

Decisions:

I. Consider their interests, aptitudes and competencies while deciding on their choice.

II. Seek guidance from an education and career counsellor.

(a) Only decision I follows.
(b) Only decision II follows.
(c) Both decisions I and II follow
(d) None of the given decisions follow

Ans. (c) : According to the statement both decision I and II follow the statements.

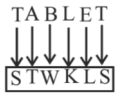
38. In a certain code BATTLE is written as WTSSKL then how TABLET will be written in that code language?

(a) LSKTWL (b) STWKLS
(c) SWTLKS (d) TSWKLT

Ans. (b) :

Just as,

Similarly,



39. Two workers X and Y do a piece of work. X working alone takes 12 hours more to complete the work than the time taken by both of them together to complete the same work. If Y works alone, he will take 27 hours more to complete the work than the time taken by both of them together to complete the same mark. How much time they will take together to complete the work?

(a) 20 hour (b) 18 hour
(c) 16 hour (d) 15 hour

Ans. (b) : According to the question,

$X_{time} = (X+Y)_{time} + 12$

$Y_{time} = (X+Y)_{time} + 27$

$(X+Y)_{time} = \sqrt{12 \times 27}$

$= \sqrt{36 \times 9} = 6 \times 3 = 18\text{h}.$

40. What will be the remainder when $11^8 - 13$ is divided by '10'?

(a) 9 (b) 8
(c) 6 (d) 7

Ans. (b) : $\frac{11^8 - 13}{10} \Rightarrow \frac{(10+1)^8}{10} - \frac{13}{10}$

$\Rightarrow 1^8 - 3 \Rightarrow 1 - 3 = -2$

Remainder =10–2=8

41. Inca ruins of machu Picchu are which country located.

(a) Guatemala (b) Greece
(c) Mexico (d) Peru

Ans. (d) : Machu Picchu is a 15th century site located on a ridge between the Huayna Picchu and Machu Picchu mountain in Peru. In 1911, explorer Hiran Bingham III visited the site and published its existence for the first time. Machu Picchu is belived to have been built by Pachacuti Inca Yupanqui, the 9th ruler of the Inca dynasty.

42. The record of being India's youngest cemetery (chess grandmaster is recorded in which of the following?

(a) D. Gukesh (b) V. anand
(c) G.N. Gopal (d) Parimarjan Negi

Ans. (a) : At the time when question was asked D. Gukesh at the age of 12 year 7 month and 17 days became the second youngest Grand master of the world & India's youngest Grandmaster. At present Abhimanyu Mishra in the World's youngest Grandmaster at the age of 12 year 4 months and 25 days.

43. If the value of a:b is 3:4 and b:c is 7:9 then c:a is equal to which

(a) 11 : 7 (b) 7 : 12
(c) 12 : 7 (d) 7 : 11

Ans. (c) : a:b=3:4, b:C=7:9

a	b	c
3	4	
	7	9

a:b:c = 21:28:36

Then, c:a = 36:21=12:7

44. Find the value of the angle subtended between the graph of linear equation 35x–35y+15=0 and X-axis.

(a) 35º (b) 50º
(c) 45º (d) 55 º

Ans. (c) : 35X–35Y+15=0

$\Rightarrow 35Y = 35X + 15$

$\Rightarrow Y = \frac{35X}{35} + \frac{15}{35}$

$\Rightarrow Y = X + \frac{15}{35}$

Comparing with Y= mx + c m = $\tan\theta = 1 \Rightarrow \boxed{\theta = 45°}$

45. The shortcut key 'Ctrl +X' used for which of the following?

(a) To copy the selecte text
(b) To skew the selected text
(c) To paste the copied text
(d) Selected text to cut

Ans. (d) :	
Ctrl+X	Cut the selected content to clipboard
Ctrl+C	Copy the selected content to clipboard
Ctrl+V	Paste the content of the clipboard
Ctrl+I	Apply Italic formatting to text
Ctrl+A	Select all document content
Ctrl+B	Apply bold formatting to text.

46. Either 10 paisa or 5 paisa demonation of 100 coin makes an amount of 7.25 what is the number of coins of each type respectively?

(a) 25, 75 (b) 15, 85
(c) 45, 55 (d) 35, 65

Ans. (c) : Let the number of coins of 10 paise $= x$

then the number of coins of 5 paise $= (100 - x)$

According to the question,

$$\frac{x}{10} + \frac{(100-x)}{20} = 7.25$$

$$\Rightarrow \frac{2x + (100-x)}{20} = 7.25$$

$$\Rightarrow x + 100 = 145$$

$$\Rightarrow \boxed{x = 45}$$

$$\therefore 100 - x = 100 - 45 = \boxed{55}$$

So the number of coins of 10 paise $= x = \boxed{45}$

And the number of coins of 5 paise $= \boxed{55}$

47. Read the given statements and conclusions carefully. Considering the information given in the statements to be true, even if it is usually seems to be variance from commonly known facts and find which of these conclusions logically follows the statements.

Statement:

1. Some bunk are table.

2. No table is chair

Conclusion:

I. Only some bunk are chair

II. No chair is bunk

III. No bunk is chair.

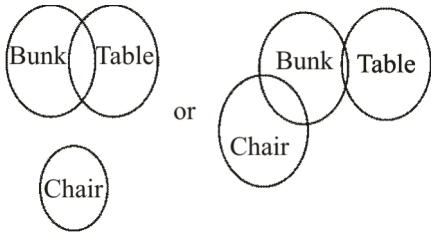
(a) Only conclusion I follow

(b) Only conclusion I follows

(c) Neither conclusion follows

(d) Either conclusion II or III follows

Ans. (c) : According to the Venn diagram-



It is clear that no conclusion follows.

48. Which one of the following pairs is not correrctly matched (with important foreign travellrs and the ruler of dynasty during whose they come to india).

(a) Ralph fish-Akbar

(b) Abdur Razzak-Dev Rai II

(c) John Judan-Shah Jahan

(d) Marco polo-Pandya Empire

Ans. (c) : John Fryer, Peter Mundy, Tavernier & John Loyalt came to India during the reign of Shah Jahan. Rest all the options are correctly matched.

49. $(53)^{15} - 1$, is exactly divisible by which of the following numbers?

(a) 13 (b) 11

(c) 19 (d) 14

Ans. (a) : $53^{15} - 1 \Rightarrow 53^{15} - 1^{15}$

$a^n - b^n$ will always be divisible by (a-b) if n is an odd number.

So, $53^{15} - 1^{15}$ will always be divisible by (53–1) =52.

If a number is divisible by 52, then it must be divisible by 13 because 52 is a multiple of 13.

50. Sarva shiksha abhiyan is an important step to provide elementary education to all the children in the age group of ……years.

(a) 6-14 (b) 7-15

(c) 6-15 (d) 8-15

Ans. (a) : Sarva Shiksha Abhiyan (SSA) is a flagship programme of the government of India that was started in 2001, to achieve the universalisation of Elementary Education. The legal backing of SSA was provided when free and compulsory education for the children in the age group of 6-14 was made a fundamental right in the Indian constitution under Article 21A.

51. Which of the following can be used to connect to the phone line your computer in dial-up connection?

(a) Etharnet (b) Hub

(c) Multiplexer (d) Modem

Ans. (d) : Dial up connection uses telephone line to connect through internet. Modem (Modulator-Demmodulator) is a device, which allows a computer or terminal to transmit data over a standard dial up telephone line. Modem send data by converting it into audio signals and receive it by converting audio signals back into initial form.

52. Arrange in a meaningful sequence of the following words.

A. Selection

B. Practice

C. Audition/Trial

D. Stage performance

E. Rehearsal

(a) B, A, C, E, D (b) C, A, B, E, D

(c) C, A, E, B, D (d) B, D, A, D, E

Ans. (b) : The meaningful order of the word is as follows-

Audition / Trial → Selection → Practice → Rehearsal → Stage performance

C A B E D

53. Who appoints the state election commissioner?

(a) Chief Commissioner (b) Chief Minister

(c) President (d) Governor

Ans. (d) : The constitution of India vests in the State Election Commission, consisting of a state Election Commissioner, the superintendece, direction and control of the preparation of electoral roll for and the conduct of election to the Panchayats and the Municipalities. (Article 243K, 243ZA) the State Election Commissioner is appointed by the Governor of the State.

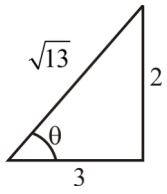
54. If $3\tan\theta = 2$ then find the value of the following.

$$\frac{\left(\sqrt{13}\sin\theta - 3\tan\theta\right)}{\left(3\tan\theta + \sqrt{13}\cos\theta\right)}$$

(a) 0 (b) $\frac{1}{\sqrt{13}}$

(c) $\frac{2}{\sqrt{13}}$ (d) $\frac{2}{3}$

Ans. (a) :



Then, $\frac{\sqrt{13}\sin\theta - 3\tan\theta}{3\tan\theta + \sqrt{13}\cos\theta}$

$= \frac{\sqrt{13}\sin\theta - 2}{2 + \sqrt{13}\cos\theta}$ ..... $(3\tan\theta = 2)$

$= \frac{\sqrt{13} \times \frac{2}{\sqrt{13}} - 2}{2 + \sqrt{13} \times \frac{3}{\sqrt{13}}}$

$= \frac{2-2}{2+3} = \frac{0}{5}$

$= \boxed{0}$

55. Generator is a device which converts____.

(a) Thermal energy into mechanical energy

(b) Mechanical Energy into electrical eneregy

(c) Electrical Energy into thermal Energy

(d) Electrical energy into mechanical Energy

Ans. (b) : The generator converts the mechanical energy into electrical energy. Electric Generator was invented by Michael Faraday. Heat engines is used to convert thermal energy to mechanical energy. An electric heater converts electrical energy into heat. Electric motor converts electrical energy into mechanical energy.

56. Which of the following represents the prime factorization of 54?

(a) 9×6 (b) 5.4×10

(c) 3×3×6 (d) 3×3×3×2

Ans. (d) : $54 = 2\times3\times3\times3$

57. Which of the following is an example of a primary storage device?

(a) Magnetic tape

(b) Hard disk

(c) Optical disk

(d) Random access memory

Ans. (d) : A primary storage device is any storage device or component that can store non-volatile data in computers, servers and other computing devices there are several types of primary storage devices, Random Access Memory (RAM), Read Only Memory (ROM) and Cache memory and common examples of Primary Storage devices. RAM is considered the fastest storage 4 can achieve very high transfer rate of data.

58. Find the volume of a cuboid, if its length is 2 times more than its width and the width is 12 cm which is twice its height.

(a) 2592 cm^3 (b) 2692 cm^3

(c) 2295 cm^3 (d) 2952 cm^3

Ans. (a) : ∵

Width of cuboid =12 cm

Then height of the cuboid = 6 cm

Length = 2×12+12=36 cm

Then the volume of the cuboid = l×b×h

$= 36 \times 12 \times 6 = 2592\ cm^3$

59. In which city the forest survey of India is located under the ministry of environment of India?

(a) New delhi (b) Dehradun

(c) Bhopal (d) Guwahati

Ans. (b) : Forest Survey of India is the chief organization for surveying forest cover in the country. It functions under the Ministry of Environment and forest. It is headquartered in Dehradun, Uttarakhand and was founded in 1981. It prepares the State of forest report.

60. The ratio of five numbers are 1:2:3:4:5 and their sum is 30. Find the sum of second and fifth number?

(a) 15 (b) 14

(c) 13 (d) 12

Ans. (b) : According to the question,

$x+2x+3x+4x+5x=30$

$15x=30 \Rightarrow x = 2$

then the sum of (second+fifth)= $2x+5x=7x$

$= 7\times2=14$

61. Dr. Bindeswar Pathak is related to.

(a) Bachapan Bachao movement
(b) Women movement
(c) Agriculture society
(d) Sulabh toilet movement

Ans. (d) : Dr. Bindeswar Pathak is an Indian Sociologist & Social entrepreuneur. He is related to Sulabh toilet movement. He is the founder of Sulabh International. In 2018, he was honoured with Japan's Prestigious Nikkei Asia Prize for his contribution to Asia development.

62. Which one of the following is NOT an objective of the Paramparagat Krishi Vikas Yojana (PKVY)?

(a) To optimally utilise available natural resources for input production
(b) To launch eco-friendly concept of cultivation reducing the dependency on agro-chemicals and fertilizers
(c) To create employment opportunities in the rural as well as urban sector
(d) To promote export of organic farm produce

Ans. (c) : Paramparagat Krishi Vikas Yojana (PKVY) was launched in 2015. It is an extended component of soil Health Management under the National Mission on Sustainable Agriculture with the help of this scheme the government aims to support and promote:- (a) Organic farming (b) Reduce chemicals (c) Improvement of the soil health while increasing the yields (d) Organic food. Thus produced will be linked with modern marketing tools and local markets.

63. In the following list of digits, how many 3 are immediately followed by 3 but not proceded by 3?

2 9 6 3 3 4 5 7 8 3 3 3 4 6 2 3 3 3 3 8 6 2 3

(a) 1 (b) 4
(c) 2 (d) 3

Ans. (d) :
2 9 6 3 3 4 5 7 8 3 3 3 4 6 2 3 3 3 3 8 6 2 3
So the required number = 3

64. Gross Domestic Product is the total value of which of the following

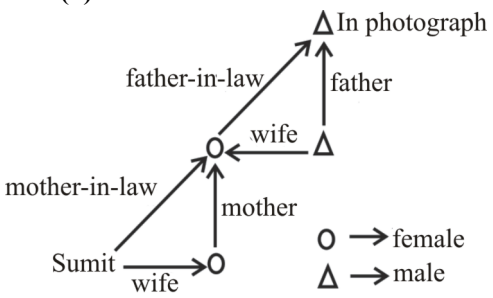
(a) All the products produced during a particular year
(b) All intermediate produced during a particular year and final products and services.
(c) All intermediate products and services produced during a particular year
(d) All final produced services during a particular year services.

Ans. (d) : Gross Domestic Product (GDP) is the total monetary or market value of all the finished goods and services produced within a country's borders in a specific time period. GDP is the most commonly used measure of economic activity.

65. Pointing to a photograph, sumit said, "The man in the picture is the father-in-law of my mother-in law" How is the man in the picture related to sumit's wife.

(a) Father (b) Grand Father
(c) Husband's Father (d) Grand Father

Ans. (d) :



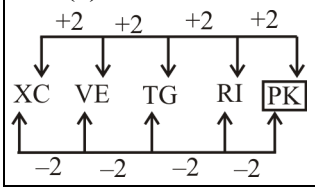
It is clear that the man in the picture is the grand father of Sumit's wife.

66. Select the letter pair which come in place of question mark (?) in the following series.

XC, VE, TG, RI, ?

(a) NL (b) QL
(c) OL (d) PK

Ans. (d) :



67. Where is the Physical Research Laboratory (PRL) which is national researeh institute for space and allied sciences located?

(a) Thiruvananthapuram (b) Banglore
(c) Ahmedabad (d) Hyderabad

Ans. (c) : The Physical Research Laboratory is also known as cradle of space sciences in India. It was founded in 1947 by Dr. Vikram Sarabhai. It is located in Ahmedabad, Gujarat.

68. In which year the trade Union Act was passed in India?

(a) 1964 (b) 1926
(c) 1911 (d) 1947

Ans. (b) : Trade Union Act came into force in 1926. The Primary function of Trade Union Act 1926 was to protect the interests of workers against discrimination and unfair labour practices and also provide them a blanket cover to stand up for their interests through the formation of trade unions.

69. The difference of two numbers is equal to 30% of their sum find the ratio of the larger number and the smaller number.

(a) 15 : 7 (b) 13 : 7
(c) 2 : 1 (d) 17 : 15

Ans. (b) : Let the number are X and Y.
According to the question-

$$(x-y)=(x+y)\times\frac{30}{100}$$

$10(x-y)=3(x+y)$
$10x-10y=3x+3y$
$7x=13y$
$\Rightarrow x:Y=13:7$

70. What is the meaning of 'Mohenjodaro'?

(a) Living place (b) Market place
(c) Mound of dead (d) like country

Ans. (c) : The meaning of Mohenjodaro is "Mound of the Dead". It is located in Sindh, Pakistan here the Great Bath, uniform building & weights, hidden drainage other hallmarks of the Indus civilization were discovered in 1920's. It was discovered by RD Banerjee.

71. Who among the following during the reign of Harsvardhan came to India?

(a) Fa-hien (b) Alberuni
(c) Itsing (d) Hiuen Tsang

Ans. (d) : Hiuen Tsang was a Chinese Buddhist Monk who travelled over land from China to India during the reign of king Harshavardhana to obtain buddhist scriptures. Fa-hien came India during the reign of Chandragupta II. Alberuni came to India with Mahmud of Ghazni in 1017.

72. If $\sec\theta+\tan\theta=2-\sqrt{3}$ then find the value $\sqrt{3}\sin\theta+\cos\theta$?

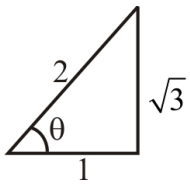
(a) 4 (b) 2
(c) 3 (d) 1

Ans. (b) : $\sec\theta+\tan\theta=2-\sqrt{3}$

$\therefore \sec\theta-\tan\theta=2+\sqrt{3}$

$2\sec\theta=4\Rightarrow\sec\theta=2$

$\Rightarrow\cos\theta=\frac{1}{2}$



$\sqrt{3}\sin\theta+\cos\theta$

Then, $\sqrt{3}\times\frac{\sqrt{3}}{2}+\frac{1}{2}$

$\frac{3}{2}+\frac{1}{2}=2$

73. If the length width and height of a room are 30m, 20m and 40m respectively, then find the area of the four walls of the room?

(a) 3600 m^2 (b) 4000 m^2
(c) 1800 m^2 (d) 4500 m^2

Ans. (b) : Area of the four walls of the room = $2(l+b)\times h$
$=2(30+20)\times40$
$=2\times50\times40$
$=4000\ m^2$

74. The ratio of present ages of Ram and Shyam is 7:8. After nine years this ratio will be 8:9 what is the present ages of Ram and Shyam (in years respectively)?

(a) 64, 73 (b) 63, 72
(c) 72, 63 (d) 73, 64

Ans. (b) : Let the present ages of Ram and Shyam be 7X and 8X respectively.
According to the question-

$$\frac{7x+9}{8x+9}=\frac{8}{9}$$

$64x+72=63x+81$
$X=9$
Then the present age respectively $7x=7\times9=63$ years
$8x=8\times9=72$ years

75. Which of the following is stored in the body as glycogen?

(a) Carbohydrate (b) Protin
(c) Lipid (d) Vitamine

Ans. (a) : Glucose is the main source of fuel for our cells. When the body does not need to use the glucose for energy, it stores it in liver and muscles. This stored form of glucose is made up of many connected glucose molecules and is called glycogen. Glycogen in a polysaccharide, which is absored in human body. It serves as a reserve carbohydrate to animals.

76. Four words are given, out of which three are alike in some way and one is inconsistent. Select the inconsistent one.

(a) Chair (b) Desk
(c) Table (d) Fan

Ans. (d) : Chair, desk and table are furniture related items, where as a fan is an electronic item.
So the fan is different from the other three.

77. If '>' meaning'+', '<'meaning '–', '+' meaning '÷', '$\wedge$' meaning '×' and '–' meaning '=' then find the true given equations?

(a) $6<18+3>10\wedge3-32$
(b) $10<9+3\wedge6>5-47$
(c) $6<18+3>12\wedge3-48$
(d) $7<18+2\wedge12>3-2<100$

Ans. (d) : From option (d)-
$7 < 18 + 2 \wedge 12 > 3 - 2 < 100$
$7 - 18 \div 2 \times 12 + 3 = 2 - 100$
$7 - 9 \times 12 + 3 = -98$
$-108 + 10 = -98$
$-98 = -98$
L.H.S = R.H.S
So, option (d) is correct on interchange of signs.

78. A saw is related to wood in the same way as a knife_____ ?
(a) Vegetables (b) Steel
(c) Clother (d) Cutter

Ans. (a) : Just as wood is cut with a saw, in the same way vegetables are cut with a knife.

79. Which of these programs was launched by the Ministry of sports and youth affairs in the year 2018 to revive the sports culture at the grassroots level in India?
(a) Urban sports infrastructure scheme
(b) National Sport talent search scheme
(c) Rajiv Gandhi khel Abhiyan
(d) Khelo India Program

Ans. (d) : Khelo India Program was launched in 2018 under the Ministry of Youth Affairs and Sports. It is a national programme, which aims to develop grassroots level talent by providing them with a national level platform. It has been formed after the marger of Rajiv Gandhi Khel Abhiyan, Urban Sports Infrastructure Scheme and National Sports Talent Search Scheme.

80. Find the square root $\frac{((0.091)(0.11))}{((0.91)(1.331))}$
(a) $\frac{1}{11}$ (b) $\frac{2}{11}$
(c) $\frac{4}{11}$ (d) $\frac{3}{11}$

Ans. (a) : $x = \frac{0.091 \times 0.11}{0.91 \times 1.331} = \frac{91 \times 11}{91 \times 1331} = \frac{1}{121}$
$\sqrt{x} = \sqrt{\frac{1}{121}} = \frac{1}{11}$

81. The member of Khudai khidmatgar organization was famous as name of-
(a) Red kurti (b) Blue kurti
(c) Green kurti (d) Black kurti

Ans. (a) : Khan Abdul Ghaffar Khal, also known as Badshah Khan had founded 'Khudai Khidmatgar' (Servants of God) movement in 1929. This movement was also known as Red Shirt during the 1920s. It was non-violent movement against British occupation of the Indian subcontinent. In 1929, the movement formally joined the Indian National Congress.

82. If the income of the Sachin exceeds the income of Sohan with 50/7% then Sohan's income is approximately what percentage less than Sachin income
(a) 6.67% (b) 8.67%
(c) 5.67% (d) 7.67%

Ans. (a) : Let the income of Sohan = 100
So the income of Sachin $= 100 + 100 \times \frac{50}{7 \times 100}$
$= 100 + \frac{50}{7} = \frac{750}{7}$
Income of Sachin – Income of Sohan $= \frac{750}{7} - 100$
$= \frac{50}{7}$
Required percentage $= \frac{\frac{50}{7}}{750/7} \times 100$
$= \frac{50}{7} \times \frac{7}{750} \times 100 = \frac{100}{15} = \frac{20}{3}$
$= \boxed{6.67\%}$

83. Which of the following resource is a fossil fuel?
(a) Water power (Hydropower)
(b) Nuclear power
(c) Coal
(d) Wind power

Ans. (c) : Coal is called fossil fuel because it was made from plants that were once alive. Coal is material usually found in sedimentary rock deposits where rock and plant and animal matters are piled up in layers.

84. Hydrogen ion concentration of which of the following solution is Highest?
(a) pH = 8 (b) pH = 5
(c) pH = 10 (d) pH = 4

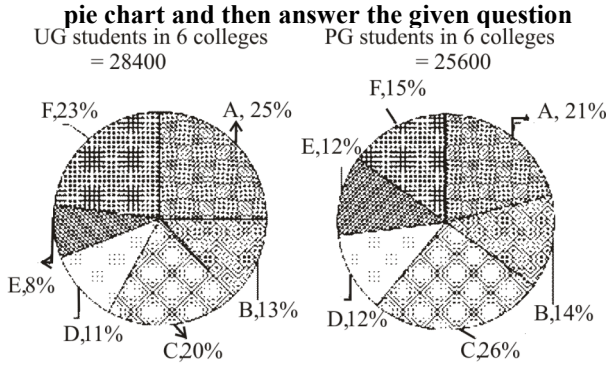
Ans. (d) : Since the concentration of hydrogen ions H^+ is more than that of pure water, the solution is acidic. Hence the substance with a pH of 4 is called an acidic substance .

85. Which one of the following pair of continents and the largest countries located in them (in terms of area) is matched?
(a) Southern America : Brazil
(b) Northern America: USA
(c) Asia:India
(d) Africa: DRC

Ans. (a) :

Continent	Largest Country (by Area)
Asia	Russia
Africa	Algeria
S. America	Brazil
N. America	Canada
Oceania	Australia

86. Direction. (Qus no. 86-87): Study the following pie chart and then answer the given question



what is the difference between the number of graduate(UG) students and the number of post-graduate (PG) students in college F?

(a) 2048 (b) 2272
(c) 2692 (d) 1481

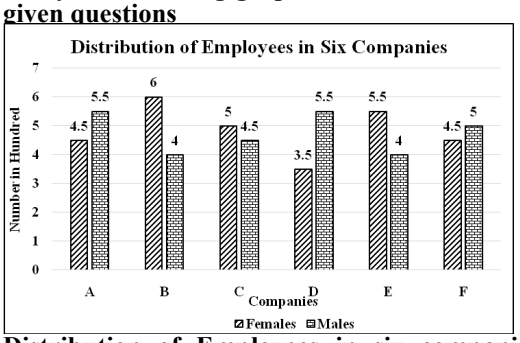
Ans. (c) : Required difference in college F
$28400\times23\% - 25600\times15\%$
$= 284\times23 - 256\times15$
$= 6532 - 3840$
$= 2692$

87. What is the ratio of the number of postgraduate (PG) students to that of undergraduate (UG) student in college C ?

(a) 416:355 (b) 71:64
(c) 12:10 (d) 13:10

Ans. (a) : Number of Post-Graduate (PG) Students in college C $= 25600\times\frac{26}{100}$
Number of Graduate (UG) students in College C
$28400\times\frac{20}{100}$
Required ratio $= 256\times26 : 284\times20$
$= 416 : 355$

88. Study the following graph and then answer the given questions



Distribution of Employees in six companies, Number in Hundreds, females, males. Find the appoximate ratio of the difference between the number of women and men working in company B and the difference between the number of women and men working in company E.

(a) 5:3 (b) 4:3
(c) 3:2 (d) 5:4

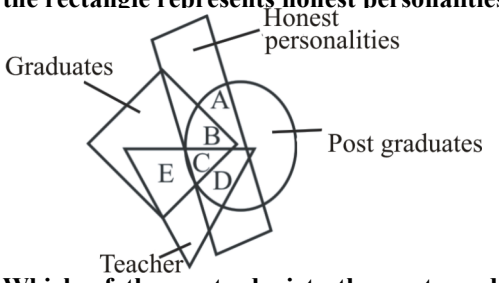
Ans. (b) : Difference between the number of women and men working in company B = (6–4) = 200
Difference between the number of women and men working in company E = (5.5–4) = 1.5 hundred = 150
Ratio = 200 : 150 = 4 : 3

89. Which of the following statements is true?

(a) Total number of male employees in six company in more than total number of female employees six companies
(b) In 3 out of the given 6 companies the number of female employees is more than that of male employees.
(c) In all the 6 companies the total number of female employees is less than the total number of male employees.
(d) In 4 of the given 6 companies the number of male employees is more than that of female employees.

Ans. (b) : According to the question-
(a) (5.5+4+4.5+5.5+4+5) > (4.5+6+5+3.5+5.5+4.5)
28.5 > 29 (×)
(b) (B+C+E) female > Male (√)

90. In the following figure the circle represents the post graduates The square represents graduates the triangle represents teachers and the rectangle represents honest personalities.



Which of the parts depicts the post graduate teachers, who are honest?

(a) A (b) B
(c) C (d) D

Ans. (d) : It is clear from the given figure that the number of post graduate teachers who are honest. = D

91. Four words are given, out of which three are related in some way and one is odd. Select the odd one.

(a) Sadness (b) Angry
(c) Thought (d) Fear

Ans. (c) : Sadness, Anger and Fear represents emotions whereas thought is different from the other three, so third is odd one.

92. If Q means addition, J means multiplication, T means Subtraction and K means division, then find the value
18K 6J 7Q 5T 2

(a) 30 (b) 34
(c) 26 (d) 24

Ans. (d) : 18K 6J 7Q 5T 2
According to the question, on changing sign-
$18\div6\times7+5-2$
$3\times7+3=24$

93. Select the number which can come in place of question mark (?) in the following series.
9, 11, 14, 18, ?, 29, 36

(a) 24 (b) 25
(c) 26 (d) 23

Ans. (d) : The given series is as follows-
9 11 14 18 ? 29 36
+2 +3 +4 +5 +6 +7
? = 18 + 5 = 23

94. In a certain code language 'RQN' is coded as 53 'DLP' is coded as 36 how will 'SRF' be written in that code language?

(a) 47 (b) 51
(c) 53 (d) 49

Ans. (a) : Just as,
RQN=18+17+14=49
49+4=53
DLP=04+12+16=32
32+4=36
Similarly,
SRF=19+18+6=43
43+4= 47

95. Among the six management professors O, P, Q, R, S and T each teaches two subjects one major and one minor. R teaches finance as a secondary subjects while three other professor teach it as a major subjects. T teaches operation as a major subject while Q and S teach it as a minor subject. O and R teach the same subject finance and IT. S and T teaches Marketing. Only one professor teaches strategy as a secondary subject. Which secondary subject does P teach?

(a) Finance (b) Strategy
(c) Oprations (d) It

Ans. (b) : According to the question-

	Major Subject	Minor Subject
O →	Finance	IT
P →	Finance	Strategy
Q →	Finance	Operation
R →	IT	Finance
S →	Marketing	Operation
T →	Operation	Marketing

96. Consider the given statements and state which of the given assumptions are implicit in the statement?
Statement:
People are getting addicted to social media.
Assumption.
I. Being addicted on social media is enjoyable
II. Social media is becoming easier to access.

(a) Assumption I and II both are implicit
(b) Only assumption I is implicit
(c) Only assumption II is implicit
(d) Neither I nor II is implicit

Ans. (a) : According to the statement both assumption (i) and (ii) are implicit.

97. Seven friends P, Q, R, S, T, U and V were born in seven different months March, April June, July, August, September and December their being in the same order is not mandatory. R was born in a month which has less than 31 days but before August. Only three friends were born After T, U was born immediately before V but after T than, more than three friends were born between P and S. R was not born immediately before T and T was born before S, How many friends were born between Q and S ?

(a) Five (b) Three
(c) Two (d) Four

Ans. (b) :

P	–	March	–	31
R	–	April	–	30
Q	–	June	–	30
T	–	July	–	31
U	–	August	–	31
V	–	September	–	30
S	–	December	–	31

From diagram it is clear that in between Q & S three other friends took birth.

98. Read the given Statement and conclusion carefully assuming that the option given in the statement to be true even if it seems to be at variance from commonly known facts and state which of the following conclusion follows from the given statements.

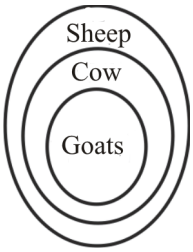
I. All goats are cow.
II. All cow are sheep

Conclusion

I. All sheep are goats.
II. All goats are sheep.

(a) Neither of the conclusion follows
(b) Both Conclusion I and II follows
(c) Only I follow
(d) Only II follows

Ans. (d) :



It is clear that only conclusion II follows.

99. Four words are given, out of which three are related in some way and one is inconsistent one.

(a) Nose (b) Foot
(c) Tongue (d) Eyes

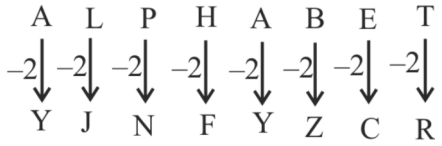
Ans. (b) : In the given options eyes, nose and tongue are the parts of our senses while the feet are not.

100. In a certain language ALPHABET is coded as YJNFYZCR then which word will be coded as RCBGMSQ in that code language?

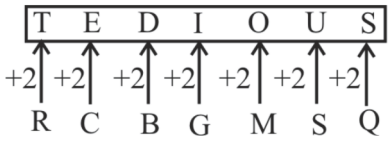
(a) TEDIOUS (b) STUDIES
(c) OUTSIDE (d) PAZEKQO

Ans. (a) :

Just as,



Similarly,



Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 07.04.2021] **[Time : 3pm-4.30 pm]**

1. Select the option that is related to the third term in the same way as the second term is related to the first term.

Dog : Puppy :: Man : ?

(a) Child (b) Male

(c) Daughter (d) Son

Ans. (a) : Just as a Dog's offspring is called puppy. Similarly, a man's offspring is called child.

2. Under the Pradhan Mantri Shram Yogi Maan-Dhan (PM-SYM) Yojana, a monthly pension of _____ rupees will be provided to the employees of unorganized sector after 60 years of age.

(a) 3000 (b) 4000

(c) 5000 (d) 2000

Ans. (a) : Pradhan Mantri Shram Yogi Maandhan Yojana is a government scheme meant for old age protection and social security of Unorganised workers launched in feb, 2019.

Eligibility: For Unorganised workers (UW), entry age between 18 to 40 years, monthly income up to Rs. 15000/-

Features: • Assured pension of Rs. 3000/- month

• Voluntary and Contributory pension scheme

• Matching contribution by the Government of India.

3. The Hasdeo Valley in Chhattisgarh is famous for _____ mines.

(a) Silver (b) Panna

(c) Coal (d) Silicon

Ans. (c) : The Hasdeo valley in Chhattisgarh is famous for coal mines. The largest coal producing countries in the world are - China (3.7 billion tonnes), (India 783 million tonnes), Indonesia - 616 million tonnes. Top coal producing states are Jharkhand, Odisha, Chhattisgarh, West Bengal, Madhya Pradesh.

4. From among the options, select the Venn diagram which correctly depicts the relationship between the following three classes.

Animal, fish, Plant.

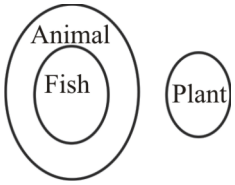
(a) 

(b) 

(c) 

(d) 

Ans. (d) : Suitable Venn diagram for Animal, Fish and Plants-



So, it is clear that option (d) is correct.

5. Find the median and the mode for the following set of numbers.

2, 2, 3, 5, 5, 5, 6, 8, 9

(a) Median = 2, Mode = 5

(b) Median = 5, Mode = 2

(c) Median = 0, Mode = 9

(d) Median = 5, Mode = 5

Ans. (d) : Set of numbers $\rightarrow$ 2, 2, 3, 5, 5, 5, 6, 8, 9

Number of term $\rightarrow$ 9 (odd)

$$\text{Median} = \frac{n+1}{2}^{th} \text{ term}$$

$$= \frac{9+1}{2}$$

$$= 5^{th} \text{ term}$$

Hence, median = 5

2, 2, 3, $\underline{5}$, $\underline{5}$, $\underline{5}$, 6, 8, 9

$\because$ Mode the value that occurs most often.

$\therefore$ Mode = 5

6. The area of a rectangle with a length of 121 m is the same as that of a square with a side of 44 m. Find the width of the rectangle.

(a) 15 m (b) 16 m

(c) 14 m (d) 17 m

Ans. (b) : According to the question,

121 m Area of rectangle = 44 m Area of square

$\Rightarrow$ Length $\times$ Width = $(\text{side})^2$

$\Rightarrow 121 \times \text{Width} = (44)^2$

$$\Rightarrow \text{Width} = \frac{1936}{121}$$

$\Rightarrow \boxed{\text{Width} = 16\,\text{m}}$

7. If 69 - 26 = 66; 86 - 34 = 60; 35 - 28 = 31, then 77 - 21 = ?

(a) 56 (b) 35
(c) 51 (d) 47

Ans. (c) : Just as,
$69 - 26 = 66$, $86 - 34 = 60$
$6 \times 9 + 2 \times 6 = 66$ $8 \times 6 + 3 \times 4 = 60$
$54 + 12 = 66$ $48 + 12 = 60$
and $35 - 28 = 31$
$3 \times 5 + 2 \times 8 = 31$
$(15 + 16) = 31$
Similarly, $77 - 21 = ?$
$7 \times 7 + 2 \times 1 = ?$
$49 + 2 = ?$
$\boxed{?=51}$

8. Who among the following persuaded Gandhiji not to restrict the protest of salt march to men alone?
(a) Kasturba Gandhi
(b) Kamladevi Chattopadhyay
(c) Kamla Nehru
(d) Sarojni Naidu

Ans. (b) : Kamladevi Chattopadhyay was a strong advocate of Salt Satyagraha, she differed with Gandhi's decision of excluding women in the March and agreed Gandhiji to allow women in salt Dandi March. Salt Satyagraha was a major non violent protest action in India led by Mahatma Gandhi in (12 March-6April) 1930.

9. Sabiha purchased 240 cups for her shop at ₹8 each. During transportation, 24 cups got damaged, and she sold the remaining cups at ₹12 each. Find her overall percentage profit.
(a) 45% (b) 30%
(c) 40% (d) 35%

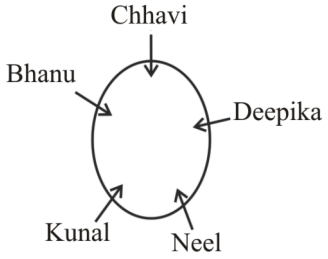
Ans. (d) : Cost price of 240 cups at the rate of ₹8 per cup
$= 240 \times 8$
$= ₹1920$
$\because$ 24 cups were damaged
Remaining cups $= 240 - 24 = 216$
Selling price of 216 cups at the rate of ₹12 per cup
$= 216 \times 12$
$= ₹2592$
Hence, Profit % $= \frac{2592 - 1920}{1920} \times 100\%$
$= \frac{67200}{1920}$
$= 35\%$

10. ISRO launched a Satellite named as _____ developed by DRDO to monitor Indian Ocean region in Feb, 2021.
(a) Sindhu Kawach (b) Sindhu Prahari
(c) Sindhu Darshi (d) Sindhu Netra

Ans. (d) : Sindhu Netra Satellite developed by DRDO will boost India's surveillance capabilities to monitor activities of both military warships and merchant shipping in the Indian Ocean Region. The satellite was launched aboard Indian Space Research Organisation's, PSLV-C51 from Satish Dhawan Space Centre in Sriharikota, Andhra Pradesh.

11. Five persons Bhanu, Chhavi, Neel, Kunal and Deepika are sitting around a circular table. All are facing the centre. Bhanu is to the right of Chhavi. Neel is to the left of Deepika and between Kunal and Deepika. Who is to the left of Kunal?
(a) Deepika (b) Chhavi
(c) Bhanu (d) Neel

Ans. (c) : According to the question-



It is clear from the diagram that Bhanu is sitting to the left of Kunal.

12. In Feb, 2021, ISRO launched a satellite Amazonia-1 of ____ on board PSLV-C51 rocket from Sriharikota.
(a) Peru (b) Brazil
(c) Sri Lanka (d) Argentina

Ans. (b) : Amazonia-1 or SSR-1`, is the first Earth Observation Satellite of Brazil and developed by Brazil. It will send remote-sensing data for observation and monitoring of deforestation in the Amazon rainforests and the state of Agriculture in Brazil. The Amazonia-1 was launched by India's PSLV-C51.

13. Which of the following equation is INCORRECT?
(a) $13 - 7 + 8 \times 9 + 63 \div 7 = 86$
(b) $8 \times 3 + 63 \div 9 - 6 = 25$
(c) $9 \times 4 + (12 + 2) - 30 \div 3 = 40$
(d) $42 \div 6 + (2 \times 5) \times 1 + 9 = 26$

Ans. (a) : In the given equation-

(a) $13 - 7 + 8 \times 9 + 63 \div 7 = 86$

$13 - 7 + 8 \times 9 + 9 = 86$

$13 - 7 + 72 + 9 = 86$

$94 - 7 = 86$

$87 \neq 86$

$L \cdot H \cdot S \neq R \cdot H \cdot S$

(b) $8 \times 3 + 63 \div 9 - 6 = 25$

$8 \times 3 + 7 - 6 = 25$

$24 + 7 - 6 = 25$

$31 - 6 = 25$

$25 = 25$

$L \cdot H \cdot S = R \cdot H \cdot S$

(c) $9 \times 4 + (12 + 2) - 30 \div 3 = 40$

$9 \times 4 + 14 - 30 \div 3 = 40$

$9 \times 4 + 14 - 10 = 40$

$36 + 14 - 10 = 40$

$50 - 10 = 40$

$40 = 40$

(d) $42 \div 6 + (2 \times 5) \times 1 + 9 = 26$

$42 \div 6 + 10 \times 1 + 9 = 26$

$7 + 10 + 9 = 26$

$26 = 26$

$L \cdot H \cdot S = R \cdot H \cdot S$

Hence it is clear that option (a) is incorrect.

14. Who was the first Indian native ruler to accept the system of Subsidiary Alliance?

(a) Scindia of Gwalior

(b) Nizam of Hyderabad

(c) Dalip Singh of Punjab

(d) Gaikwad of Baroda

Ans. (b) : Subsidiary Alliance was basically a treaty between the British Eash India Company and the Indian Princely states, by virtue of which the Indian kingdoms lost their sovereignty to English. It was framed by French governor general Dupleix, but was made famous by Lord Wellesley. Order in which the Indian states entered into Subsidiary Alliances-

1. Hyderabad (1798)
2. Mysore (1799)
3. Tanjore (1799)
4. Awadh (1801)
5. Peshwa (1802)
6. Scindia (1803)

15. Global weather forecasting is done by using.

(a) Minicomputers

(b) Hybrid computers

(c) Microcomputers

(d) Super computers

Ans. (d) : Global weather forecasting is done by using super computer. The CDC 6600 is generally recognized as the first supercomputer, built in 1964 by Seymour Cray. India's Ist supercomputer was PARAM 8000, was developed by Prof. Vijay Bhatkar.

16. The word CORPORATION has been coded using 4 different codes.

Code 1 : XLIKLINGRLM

Code 2: DNSOPQBSJNO

Code 3: XJMKJMVODJI

Code 4 : BPQQNSBSJNO

Which of the following codes is used to write the word ROUTES as SNVSFR?

(a) Code 1 (b) Code 2

(c) Code 3 (d) Code 4

Ans. (b) :

Just as from code 2,

C $\xrightarrow{+1}$ D

O $\xrightarrow{-1}$ N

R $\xrightarrow{+1}$ S

P $\xrightarrow{-1}$ O

O $\xrightarrow{+1}$ P

R $\xrightarrow{-1}$ Q

A $\xrightarrow{+1}$ B

T $\xrightarrow{-1}$ S

I $\xrightarrow{+1}$ J

O $\xrightarrow{-1}$ N

N $\xrightarrow{+1}$ O

Similarly,

R $\xrightarrow{+1}$ S

O $\xrightarrow{-1}$ N

U $\xrightarrow{+1}$ V

T $\xrightarrow{-1}$ S

E $\xrightarrow{+1}$ F

S $\xrightarrow{-1}$ R

Hence code 2 will be the answer.

17. By selling a table for ₹330, a trader gains 10%. Find the cost price of the table.

(a) ₹100 (b) ₹300

(c) ₹400 (d) ₹200

Ans. (b) : Selling price of the table = ₹ 330

Profit = 10%

$$\text{Cost price} = \frac{\text{Selling price}}{(100 + \text{Profit})} \times 100$$

$$= \frac{330}{110} \times 100$$

$$= ₹300$$

18. If pq is a two-digit number, then pq – qp will be completely divisible by:

(a) 9 (b) 7

(c) 6 (d) 5

Ans. (a) : Let the two digit number (pq) = 10x + y

According to the question,

$pq - qp$

$= 10x + y - (10y + x)$

$= 10x + y - 10y - x$

$= 9x - 9y$

$= 9 (x - y)$

Hence pq – qp will be divisibly by 9.

19. Who was the UNO's first Secretary-General from the African continent?

(a) Kurt Waldheim
(b) Winston Churchill
(c) Boutros Boutros- Ghali
(d) Dag Hammarskjold

Ans. (c) : Boutros Boutros- Ghali, was an Egyptian scholar and statesman, Secretary General of the UN from January 1, 1992 to December 31, 1996. Gladwyn Jebb was UN's first secretary general (1945-46).

20. Which of the following statements is correct?

1. The angle between two tangents to a circle may be 0º

2. If a transversal intersects two line such that a pair of alternate interior angles is equal, then the two lines are parallel.

3. The tangents at the end points of a diameter of a circle are perpendicular.

(a) Only 1
(b) Both 1 and 2, but not 3
(c) Only 3
(d) Only 2

Ans. (b) : Hence it is clear that statement 1 and 2 both are correct but statement 3 is not correct.

21. A shopkeeper divided a sum of ₹250,000 between his three sons in a proportion of 30%, 45% and 25% respectively. How much did each son inherit?

(a) ₹75, 000, ₹1,14,500 and ₹60,500
(b) ₹75,000, ₹1,13,500 and ₹61,500
(c) ₹75,000, ₹1,12,000 and ₹63,000
(d) ₹75,000, ₹1,12,500 and ₹62,500

Ans. (d) : Ratio of amount-

30% : 45% : 25%

6 : 9 : 5

$\because (6+9+5) \rightarrow 250000$

$20 \rightarrow 250000$

$1 \rightarrow 12500$

$\therefore$ The amount received by the first son $= 6 \times 12500$

$= ₹75000$

The amount received by the second son $= 9 \times 12500$

$= ₹112500$

The amount received by the third son $= 5 \times 12500$

$= ₹62500$

22. $119^2 - 111^2$ is a/an:

(a) Perfect number (b) Square number
(c) Composite number (d) Prime number

Ans. (c) : $119^2 - 111^2$

$= (119 + 111)(119 - 111)$

$= 230 \times 8$

$= 1840$

It is clear that 1840 is a composite number.

23. A can finish a task in 20 days and B can finish the same task in half the time taken by A. Working together, what part of the task can they finish in a day?

(a) $\frac{2}{6}$ (b) $\frac{3}{20}$
(c) $\frac{1}{18}$ (d) $\frac{1}{2}$

Ans. (b) : A can do a piece of work in 20 days.

B will do the same work in 10 days.

Work done by A in 1 day = $\frac{1}{20}^{th}$ part

Work done by B in 1 day = $\frac{1}{10}^{th}$ part

Work done by A and B in 1 day $= \frac{1}{20} + \frac{1}{10}$

$= \frac{3}{20}^{th}$ part

24. Select the number that can replace both the instances of '*' in the following equation to make it correct.

$$\left(\frac{*}{21}\right) \times \left(\frac{*}{189}\right) = 1$$

(a) 147 (b) 21
(c) 4848 (d) 63

Ans. (d) : Let- * = x

$\frac{x}{21} \times \frac{x}{189} = 1$

$x^2 = 21 \times 189$

$x^2 = 3969$

$x = \sqrt{3969}$

$x = 63$

25. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known fact, decide which of the given conclusions logically follows from the statements.

Statements:

Some boys are horses.

Some horses are flowers

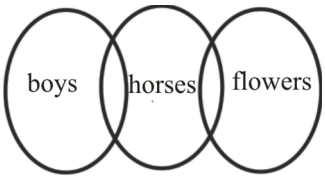
Conclusions:

I. Some boys are flowers

Ii. No flower is a horse.

(a) Only conclusion I follows
(b) Both I and II follows
(c) Only conclusion II follows
(d) Neither I nor II follows

Ans. (d) : According to the statement-



It is clear from the diagram that neither conclusion (I) nor (II) follows.

26. The SI unit of 'magnetic flux' is:

(a) Pascal (b) Farad
(c) Henry (d) Weber

Ans. (d) : The SI unit of magnetic flux is the Weber, SI unit of pressure is Pascal, Farad is unit of capacitance, unit of inductance is Henry.

27. International Fund for Agricultural Development (IFAD) was created in _____ for rural poverty reduction in developing Countries.

(a) 1990 (b) 1977
(c) 1995 (d) 1980

Ans. (b) : The International Fund for Agricultural Development (IFAD), is an international financial institution and specialized agency of UN that works to address poverty and hunger in rural areas of developing countries. It focuses solely on rural economies and food security. It was established in December 1977. Its headquarter is in Rome, Italy.

28. The Swadeshi Movement started in India during the:

(a) Champaran Satyagraha of Gandhi ji
(b) Anti-Bengal partition agitation
(c) Protest against Rowlatt Act
(d) First Non-Co-operation Movement of 1919-22

Ans. (b) : The Swadeshi Movement started in India during the Anti-Bengal Partition agitation. The partition of Bengal was announced on 19 July 1905 by Lord Curzon the Viceroy of India, and implemented on 16 October, 1905.

29. Which among the following organizations is the best example of an agreement between oligopolists?

(a) WHO (b) UNESCO
(c) UNO (d) OPEC

Ans. (d) : The Organisation of the Petroleum Exporting Countries (OPEC) is an inter governmental Organisation of 13 oil producing countries made up of Algeria, Angola, Saudi Arabia, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the UAE Venezuela. It was established in 1960 during Baghdad Conference. OPEC is a cartel that aims to manage the supply of oil in the world market in an effort to set the price of oil in the world market.

30. Which of the following plants has specialized tissue for the conduction of water and other substances from one part of the plant body to another?

(a) Chara (b) Moss
(c) Riccia (d) Marsilea

Ans. (d) : Marsilea has specialized tissues for the conduction of water and other substances from one part of the plant body to another. The Marsilea consist of rooted, aquatic herbs with emergent leaves.

31. Select the word from the options that is similar to the given set of words in a certain way.
Bokaro, Bhilai, Rourkela?

(a) Baroda (b) Kanpur
(c) Lucknow (d) Durgapur

Ans. (d) : As like Bokaro, Bhilai, Rourkela are steel plants. Similarly, Durgapur is a steel plant.

32. Himalayas are divided into:

(a) Himachal, Sahyadri and Shivalik
(b) Himachal, Himadri and Shivalik
(c) Himadri, Vindhyas and Shivalik
(d) Satpura, Sahyadri and Himadri

Ans. (b) : The Himalayas are divided into three major parallel ranges. The northernmost is the "Great Himalayas" or Himadri. The world's highest peaks are located in this range. Middle Himalaya or Himachal lies to the south of Himadri. The Shivalik is the southernmost range.

33. The Gatimaan Express connects Jhansi to:

(a) Agra Cant (b) Anand Vihar
(c) New Delhi (d) Hazrat Nizamuddin

Ans. (d) : Gatimaan Express connects Jhansi to Hazrat Nizamuddin. It is India's first semi high speed train. Its operating speed is 160 km/h.

34. Name the person who had a major influence in the field of Algebra in India.

(a) Charaka (b) Brahmagupta
(c) Varahamihira (d) Aryabhatta

Ans. (d) : Aryabhatta was the first of the major mathematician-astronomers from the classical age of Indian mathematics and Indian astronomy. His contribution in mathematics - place value system and zero, Approximation of π, Trigonometry, Indeterminate equations.

35. A man travelling in a train notices that he can count 21 telephone posts in 1 min. If the poles are 50 m apart, then at what speed is the train travelling?

(a) 60 km/h (b) 21 km/h
(c) 50 km/h (d) 65 km/h

Ans. (a) : The distance between 21 telephones poles = $20 \times 50 = 1000$ m

Time taken to cross the poles = 1 min

= 60 sec

$\therefore$ Speed of train $= \frac{1000}{60}\frac{\text{m}}{\text{s}}$

$= \frac{1000}{60} \times \frac{18}{5}$ km/h

= 60 km/h

36. Parichakali is a popular folk dance of _____

(a) Lakshadweep (b) Tamilnadu

(c) Andhra Pradesh (d) Karnataka

Ans. (a) : Place Folk dance

(1) Lakshadweep $\rightarrow$ Parichakali. etc.

(2) Tamil Nadu $\rightarrow$ Kuravanji, Karagattam Koothu, Puliyattam (Tiger dance) etc.

(3) Andhra Pradesh $\rightarrow$ Burrakatha, Vilasini Natyam, Butta bommalu etc.

(4) Karnataka $\rightarrow$ Yakshagaan, Dollu Kunitha, Komb aat etc.

37. Select the option that is related to the third term in the same way as the second term is related to the first term.

Man : Mammals :: Snake : ?

(a) Birds (b) Reptiles

(c) Python (d) Poisonous

Ans. (b) : Just as man comes under the mammals. Similarly snake comes under the reptile class.

38. Which of the following is INCORRECT?

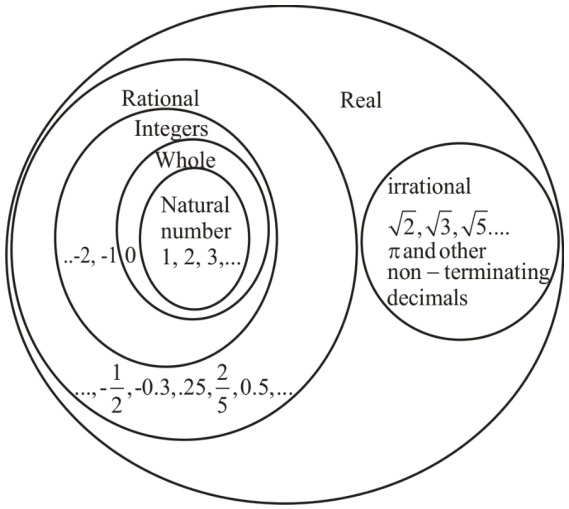
(a) Every rational number is a whole number.

(b) Commutative property holds in the set of natural numbers under addition.

(c) Reciprocal of 1 is 1

(d) 1 is the multiplicative identity of rational numbers.

Ans. (a) :



Every whole number cannot be a rational number.

Commutative property

- $a+b = b+a$, for all $a, b \varepsilon N$
- $a \times b = b \times a$, for all $a, b \varepsilon N$

Property of Reciprocal

$y = \frac{1}{x}$

If y = 1, reciprocal of 1 is always 1.

Hence option (a) is incorrect.

39. Which of the following parts/ provisions of the Constitution of India CANNOT be amended?

(a) Judicial Review

(b) Directive principles of State Policy

(c) Fundamental right

(d) Preamble to the Constitution

Ans. (a) : Judicial Review is a fundamental provision of Indian Constitution and hence, is not subjected to amendment. Under Article 13 of Indian Constitution, the compulsion of Judicial Review was described in fundamental right in Part III. It is a type of proceeding in which a court- observes the constitutionalisation of a legislation made by a public body.

40. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known fact, decide which of the given conclusions logically follows(s) from the statements.

Statements:

I. Some P are Q.

II. No Q is R.

Conclusions:

I. No P is R

II. Some P are not R.

III. Some Q are P.

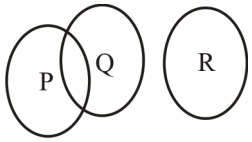
(a) Both conclusions I and III follow.

(b) Only conclusion I follow.

(c) All conclusions follow

(d) Both conclusion II and III follows

Ans. (d) : According to the statements-



It is clear that both conclusion II and III follows.

41. Who was the first Indian to win the Pulitzer Prize?

(a) Gobind Behari Lal

(b) Siddhartha Mukherjee

(c) Geeta Anand

(d) Jhumpa Lahiri

Ans. (a) : Gobind Behari Lal was an Indian - American Journalist and independence activist. He became the first Indian to win the Pulitzer Prize in 1937. Pulitzer Prize for reporting started in 1917.

42. The greatest number that divides 155 and 307 leaving remainders 5 and 7, respectively is:

(a) 15 (b) 25
(c) 150 (d) 30

Ans. (c) : 155 – 5 = 150
307 – 7 = 300
Hence, Required number = HCF of 150 and 300
= 150

43. Vijaya Bank and Dena Bank are merged with which of the following banks?

(a) Canara Bank
(b) Punjab National bank
(c) State Bank of India
(d) Bank of Baroda

Ans. (d) : Vijaya Bank and Dena Bank were merged with Bank of Baroda with effect from 1 April 2019.

44. Which amendment converted the right to property from a fundamental right to a simple legal right under article 300A?

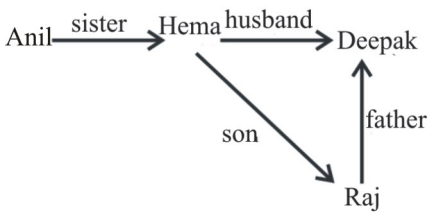
(a) 42nd Amendment (b) 44th Amendment
(c) 46th Amendment (d) 40th Amendment

Ans. (b) : The Forty Fourth constitutional amendment, 1978 deprived the right to property of its fundamental right status. In original Constitution of India there were 7 fundamental right - Right to equality, Right to freedom, Right against exploitation, Right to freedom of religion, Cultural and educational right, Right to constitutional remedies and the right to a property.

45. Deepak is the father of Raj. Hema is the sister of Anil. Raj is the son of Hema. How is Deepak related to Hema?

(a) Father (b) Brother
(c) Son (d) Husband

Ans. (d) : Blood relation diagram is as follows-



It is clear from the diagram that Deepak is Hema's husband.

46. Kumar lent an amount to Arif at a simple interest rate of 20% p.a. for 3 years. If the interest Arif received was ₹1,560 after 3 years, then what was the amount that Kumar had lent to Arif?

(a) ₹5,400 (b) ₹5,600
(c) ₹6,200 (d) ₹5,200

Ans. (d) : Let the principal = ₹P
According to the question,

$$\frac{P\times 20\times 3}{100}-\frac{P\times 10\times 3}{100}=1560$$

$60P - 30P = 1560 \times 100$

$30P = 156000$

$$P=\frac{156000}{30}$$

$$\boxed{P = ₹\ 5200}$$

47. The Indian wild ass is found in:

(a) Gujarat (b) Kerala
(c) Odisha (d) Rajasthan

Ans. (a) : The Indian Wild Ass is found in the little Rann of Kutch, Gujarat. The little Rann of Kutch, which covers an area of roughly 5000 square km, is primarily known as the Indian Wild Ass Sanctuary.

48. If + means –, – means ÷, ÷ means ×, × means +, then what is the value of 125–5×10÷13+28 = ?

(a) 133 (b) 140
(c) 127 (d) 129

Ans. (c) : 125 – 5 × 10 ÷ 13 + 28 according to the question,

$125 \div 5 + 10 \times 13 - 28$
$= 25 + 10 \times 13 - 28$
$= 25 + 130 - 28$
$= 155 - 28$
$= 127$

49. If $\frac{\sqrt{5}-1}{\sqrt{5}+1}=a+b\sqrt{5}$, then find the value of a and b.

(a) $a=\frac{3}{2}, b=\left(-\frac{1}{2}\right)$
(b) $a = 0, b = 0$
(c) $a=\frac{-\sqrt{5}}{2}, b=0$
(d) $a=0, b=\frac{-\sqrt{5}}{2}$

Ans. (a) : $\frac{\sqrt{5}-1}{\sqrt{5}+1}=a+b\sqrt{5}$

$$\frac{\left(\sqrt{5}-1\right)}{\left(\sqrt{5}+1\right)}\times\frac{\left(\sqrt{5}-1\right)}{\left(\sqrt{5}-1\right)}=a+b\sqrt{5}$$

$$\frac{\left(\sqrt{5}-1\right)^2}{\left(\sqrt{5}\right)^2-(1)^2}=a+b\sqrt{5}$$

$$\frac{5+1-2\sqrt{5}}{5-1}=a+b\sqrt{5}$$

$$\frac{6-2\sqrt{5}}{4}=a+b\sqrt{5}$$

$$\frac{3-\sqrt{5}}{2}=a+b\sqrt{5}$$

$$\frac{3}{2}+\left(\frac{-1}{2}\right)\sqrt{5}=a+b\sqrt{5}$$

On comparing both sides-

$$a=\frac{3}{2} \text{ and } b=\left(\frac{-1}{2}\right)$$

50. Who is appointed as CEO of newly formed SANSAD TV after merging the Lok Sabha TV and Rajya Sabha TV?

(a) Om Birla
(b) Shashi Shekhar Vempati
(c) Suyra Prakash
(d) Ravi Kapoor

Ans. (d) : Ravi Kapoor a retired IAS Officer, was appointed as CEO of the channel on 1 March, 2021. Sansad TV is an Indian government TV service, which broadcasts the programming of two Houses (Lok Sabha and Rajya Sabha) of parliament.

51. The deepest lake of the world is _____.

(a) Baikal (b) Nyasa
(c) Crater (d) Tanganyika

Ans. (a) : Lake Baikal in Siberia, holds the distinction of being both the deepest lake in the world and the largest fresh water lake, holding more than 20% of the unfrozen fresh water on the surface of Earth.

52. As per estimates by NSO, India's GDP is estimated to grow by _____ in FY21.

(a) 2.5**%** (b) 4.5%
(c) -5.5% (d) -7.7%

Ans. (d) : As per estimates by NSO, India's GDP is estimated to grow by -7.7% in FY21.

53. Which of the following is the location of the asthenosphere?

(a) Below the atmosphere
(b) Below the lithosphere
(c) Above the lithosphere
(d) Above the atmosphere

Ans. (b) : The Asthenosphere is the highly viscous, mechanically weak, and ductile region of the upper mantle of Earth. It lies below lithosphere, between 80 and 200 km below the surface. The main source of magma is atmosphere

54. The mean of x and y is 400, and the ratio of x to y is 3 : 7. What is the value of y –x?

(a) 230 (b) 800
(c) 320 (d) 130

Ans. (c) : According to the question,

$$\frac{x+y}{2}=400$$

$$x+y=800$$

$$x=\frac{3\times800}{10}$$

$$=240$$

$$y=\frac{7\times800}{10}$$

$$=560$$

Hence, $y-x=560-240$

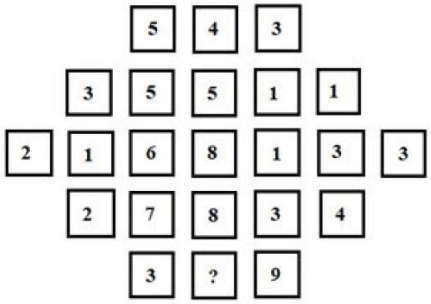
$=320$

55. The Headquarter of International Renewable Energy Agency is situated at _____.

(a) Abu Dhabi (b) Singapore
(c) Jakarta (d) Jeddah

Ans. (a) : The International Renewable Energy Ageney (IRENA) is an intergovernmental organisation mandated to facilitate co-operation, advance knowledge and promote the adoption and sustainable use of renewable energy. It was founded in 2009 and it's headquarter is in Masdar, AbuDhabi.

56. Select the number that can replace the question mark (?) in the following figure.



(a) 4 (b) 9
(c) 5 (d) 6

Ans. (d) : Just as,

$$\frac{5+3}{2}=4 \text{ (Middle number)}$$

and $\frac{5+3+1+1}{2}=5$ (Middle number)

and $\frac{2+1+6+1+3+3}{2}=8$ (Middle number)

and $\frac{2+7+3+4}{2}=8$ (Middle number)

Similarly, $\frac{3+9}{2}=6$

57. The sum of two numbers is 15. If the sum of their reciprocals is $\frac{3}{10}$, then find the two numbers?

(a) 5, 10 (b) 6, 9

(c) -5, 20 (d) 7, 8

Ans. (a) : Given-

$x + y = 15$

$x = 15 - y$ —(i)

and $\frac{1}{x}+\frac{1}{y}=\frac{3}{10}$

$\frac{y+x}{xy}=\frac{3}{10}$

$\frac{15}{xy}=\frac{3}{10}$

$xy = 50$

$\Rightarrow x=\frac{50}{y}$

On putting the value of X from equation (i)-

$(15 - y)y = 50$

$15y - y^2 = 50$

$y^2 - 15y + 50 = 0$

$y^2 - 5y - 10y + 50 = 0$

$y(y - 5) - 10(y - 5) = 0$

$(y - 5)(y - 10) = 0$

$y = 5$ or 10

From equation (i) If $y = 5$ then $x = 10$

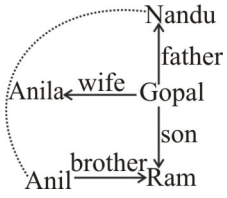
If $y = 10$ then $x = 5$

58. Ram has a brother of Anil, Ram is the son of Gopal. Anila is Gopal's wife. Nandu is Gopal's father. How is Anil related to Nandu?

(a) Father's Bother (b) Father's Father

(c) Brother's Son (d) Son's Son

Ans. (d) : According to question, the blood relation diagram is as follows-



It is clear from the diagram that Anil is the son of Nandu's son.

59. Which committee was related to the policies and programme for agriculture?

(a) Bhanu Pratap Singh Committee

(b) Charan Singh Committee

(c) Yashpal Committee

(d) Rammurthy Committee

Ans. (a) : Bhanu Pratap Singh Committee was related to the policies and programmes for agriculture. The committee was set up in 1991.

60. What is the densest substance on Earth?

(a) Osmium (b) Platinum

(c) Copper (d) Steel

Ans. (a) : The densest known material is the metallic element Osmium, which packs 22 grams into 1 cubic cm or more than 100 grams into a teaspoonful. Even Osmium is full of fluft, however, in the form of electron clouds that seperates the dense atomic nuclei.

61. A man rides his bicycle for 10 km at an average speed of 12 km/h and further travels 12 km at an average speed of 10 km/h. What is his approximate average speed for the entire trip?

(a) 8 km/h (b) 8.19 km/h

(c) 10.8 km/h (d) 8.10 km/ h

Ans. (c) : Time taken to cover a distance of 10 km with a speed of 12km/h = $\frac{10}{12}$ h

Time taken to cover a distance of 12 km with a speed of 10 km/h

$$\text{Average speed} = \frac{\text{Total distance}}{\text{Total time}}$$

$$= \frac{10+12}{\frac{10}{12}+\frac{12}{10}}$$

$$= \frac{22}{\frac{100+144}{120}}$$

$$= \frac{22}{244/120}$$

$$= \frac{22}{244}\times 120$$

$$= 10 \cdot 8196$$

$= 10 \cdot 8$ km/h (Approx)

62. Which earthquake waves involve transverse displacement?

(a) P-Waves

(b) L- Waves

(c) S-Waves

(d) Rayleigh Surface Waves

Ans. (c) : S-wave is a seismic body waves that shakes the ground back and forth Perpendicular to the direction the wave during Earthquake S-wave involves transverse displacement.

63. Find the cost of carpeting a 15-m-long and 11-m-wide room with a 75cm-wide carpet, if the price of the carpet is ₹13 per meter (Not considering the cost of Labour)

(a) ₹2,960 (b) ₹2,660
(c) ₹2,860 (d) ₹2,760

Ans. (c) : Area of the room $= 15 \times 11$
$= 165\ m^2$
Width of the carpet $= 75$ cm
$= \frac{75}{100}$
$= \frac{3}{4}$m
Width of the carpet = Area of the room
$\text{Length} \times \frac{3}{4} = 165$
$\text{Length} = \frac{165}{3} \times 4$
$= 220$m
Hence, cost of laying a carpet 220 m long at the rate of ₹13 per meter = 220 × 13 = ₹ 2860

64. Histogram is used to find:
(a) Median graphically
(b) Arithmetic mean graphically
(c) Mode graphically
(d) Median, Mode and mean graphically

Ans. (c) : Histogram allows you to see the frequency distribution of a data set. It offers an "at a glance" picture of a distribution pattern charted in specific categories. Histogram are one of the most frequently used methods for charting Historical data.
Histogram is used to find mode graphically.

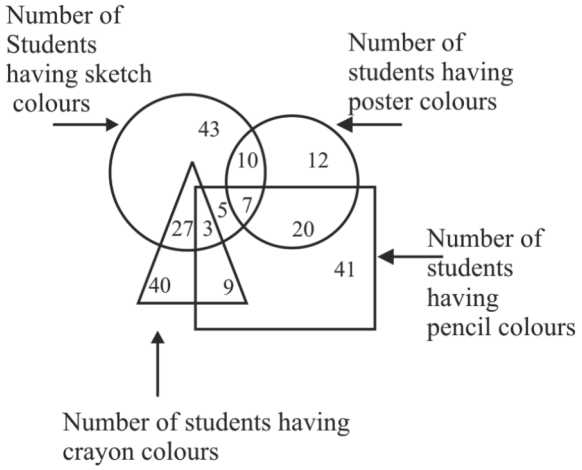
65. Which of the following State government approved the bill that will provide 75% reservation in the private sector jobs with a gross salary of upto ₹50000 per month to the people of the state in March, 2021?
(a) Uttar Pradesh
(b) Tamil Nadu
(c) Punjab
(d) Haryana

Ans. (d) : Haryana State government approved the bill that will provide 75% reservation in the private sector jobs with a gross salary of upto ₹50000 per month to the people of state in March 2021.

66. In which of the following districts of Uttarakhand, Glacier burst took place on 7th Feb, 2021 which damaged the Rishiganga dam on Alaknanda River?
(a) Chamoli (b) Urrarkashi
(c) Rudraprayag (d) Tehri Garhwal

Ans. (a) : Chamoli, Uttarakhand, glacier burst took place on 7th Febuary, 2021 which damaged the Rishiganga dam on Alaknanda River.

67. Study the diagram given below and answer the question that follows.
What number of students have sketch colours, crayons as well as pencil colours?



(a) 9 (b) 5
(c) 7 (d) 3

Ans. (d) : It is clear from the above diagram that 3 students have sketch colour, crayon as well as pencil colour.

68. The number of balls of radius 2 cm that can be made from a solid sphere of radius 4 cm is:
(a) 8 (b) 36
(c) 64 (d) 16

Ans.(a): Number of balls
$= \frac{\text{volume of a solid sphere of radius 4 cm}}{\text{volume of balls of radius 2 cm}}$
$= \frac{\frac{4}{3}\pi(4)^3}{\frac{4}{3}\pi(2)^3}$
$= \frac{4 \times 4 \times 4}{2 \times 2 \times 2}$
$= 2 \times 2 \times 2$
$= 8$ balls

69. Who advised Gandhiji to travel around British India, getting to know the land and its people?
(a) Bipin Chandra Pal
(b) Womesh Chandra Bonnerjee
(c) Bal gangadhar Tilak
(d) Gopal Krishna Gokhale

Ans. (d) : Gopal Krishna Gokhale advised Gandhiji to travel around British India, getting to know the land and its people. Gandhiji called Gokhle his mentor and guide. Gokhale was the founder of the servants of India societies.

70. If the letters of an English alphabet are written in the reverse order, which letter will be the 5th to the right of the 13th letter from the left?

(a) K (b) J
(c) L (d) I

Ans. (d) : If the letters of the Engligh alphabet are written in the reverse order then the 13th letter from the left will be N and the 5th letter to the right of N will be I.

71. Who among the following was the Speaker of the Second Lok Sabha?

(a) Bali Ram Bhagat
(b) M. Ananthasayanam Ayyangar
(c) Balram Jakhar
(d) K.S. Hegde

Ans. (b) : M. Ananthasayanam Ayyangar was the speaker of the second Lok Sabha (1956-62). Ganesh Vasudev Mavlankar was the first speaker of Lok Sabha (15 may 1952 to 2nd Feb 1956.)

72. Who laid the foundation stone of the world-famous Swarna Mandir (Golden Temple)?

(a) Muhammad Iqbal (b) Hazrat Mian Mir Ji
(c) Ashraf Ali Thanvi (d) Mahmud-ul-Hasan

Ans. (b) : The foundation stone was laid by Hazrat Mian Mir a muslim divine of Lahore (Pakistan). The temple was destroyed several times by Afghan invaders and was finally rebuilt of marble and copper overlain with gold foil during the kingship of Maharaja Ranjit Singh.

73. ENIAC, the first general-purpose electronic computer, stands for:

(a) Electronic Numerical Integrator and Computer
(b) Electronic Numerical Integrated Automatic Computer
(c) Electronic Network Integrated Analytical Computer
(d) Electronic Network Interactive analytic Computer

Ans. (a) : ENIAC, the first general-purpose electronic computer, stands for: Electronic Numerical Integrator and Computer.

74. Three pieces of aluminium rod of different length, 44 cm, 22 cm and 55 cm respectively, are given to a boy. He has to cut them into rods of same length such that no aluminium waste is left. The maximum length (in cm) of such rod will be:

(a) 11 cm (b) 22 cm
(c) 5.5 cm (d) 16.5 cm

Ans. (a) : HCF of 44 cm , 22 cm and 55 cm = 11 cm.

75. The Helmand province of Afghanistan is famous for cultivation of:

(a) Opium (b) Tea
(c) Rice (d) Wheat

Ans. (a) : Helmand is believed to be one of the world's largest opium producing regions, responsible for around 4% of the world's total production. This is believed to be more than the whole of Burma, which is the second largest producing nation after Afghanistan.

76. Which of the following rational numbers have a non-terminating decimal expansion?

(a) $\frac{23}{2^3 5^2}$ (b) $\frac{11}{1000}$
(c) $\frac{4^2}{3^2 5^2}$ (d) $\frac{19}{2^3 5^7 7^5}$

Ans. (d) : From the given option-

(a) $\frac{23}{2^3 5^2} = \frac{23}{200} = 0 \cdot 115$

(b) $\frac{11}{1000} = 0 \cdot 011$

(c) $\frac{4^2}{3^2 5^2} = \frac{16}{225} = 0 \cdot 071111....$

(d) $\frac{19}{2^3 5^7 7^5} = \frac{19}{8 \times 78125 \times 16807}$

$= \frac{19}{10504375000}$

$= 0 \cdot 00018087830 .....$

Hence it is clear from the given options that the decimal expansion of option (d) is non – tenminating.

77. Read the given data and answer the question that follows.

2, 5, 15, 25, 20, 12, 8, 7, 6, 16, 21, 17, 30, 32, 23, 40, 51, 15, 2, 9, 57, 19, 25

If the given data is grouped in the classes 0–5, 5–10, 10–15, and so on, then what will be the frequency of class 20–25?

(a) 3 (b) 2
(c) 5 (d) 4

Ans. (a) :

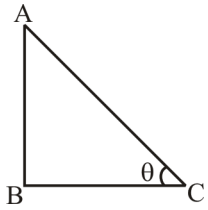
Class – Interval	Data	Frequency
0 – 5	2,2	2
5 – 10	5,8,7,6,9	5
10 – 15	12	1
15 – 20	16,17,15,19	4
20 – 25	20,21,23	3
25 – 30	25.25	2
30 – 35	30,32	2
35 – 40	0	0
40 – 45	40	1
45 – 50	0	0
50 – 55	51	1
55 – 60	57	1

So, the frequency of class = 20 – 25 = 3

78. The ratio of the length of a tree to its shadow is $1:\frac{1}{\sqrt{3}}$. The angle of the sun's elevation is:

(a) 30° (b) 45°
(c) 75° (d) 60°

Ans. (d) : Let the length of the tree is AB and its shadow is BC.



According to the question,

$$\frac{AB}{BC}=\frac{1}{1/\sqrt{3}}$$

$$\frac{AB}{BC}=\sqrt{3}$$

$$\tan\theta=\sqrt{3}$$

$$\tan\theta=\tan 60°$$

$$\boxed{\theta=60°}$$

79. In mixture A, there is 5 L of syrup in 6 L of water. In mixture B, there is 3.5 L of syrup in 5.5 L of water. In which of the two mixtures is the concentration of syrup greater?

(a) B
(b) More information is required to be able to determine where the concentration of syrup is more
(c) A
(d) The Concentration of syrup is same in both A and B

Ans. (c) : Mixture A contains 5 liters of syrup in 6 liters of water, So it is clear that the concentration of syrup in mixture A is greater.

80. Subhash Chandra Bose was re-elected as the President of INC at the Tripuri Session in 1939 by defeating Gandhiji's candidate:

(a) Lal Bahadur Shastri
(b) Pattabhi Sitaramayya
(c) Sardar Vallabhbhai Patel
(d) S Radhakrishnan

Ans. (b) : Subhash Chandra Bose was re-elected for the president of INC (Indian National Congress). He won the election by securing 1580 votes defeating Sitaramayya who secured 1377 votes. Ist president of INC was W.C. Banerjee.

81. The first undersea tunnel of India will be built in _____ by the year 2023.

(a) Mumbai (b) Kochi
(c) Chennai (d) Kanyakumari

Ans. (a) : Mumbai will be home to India's first undersea tunnel, which will be part of the city's coastal Road Project to get completed in 2023.

82. The ratio of the sums of money Arun and Ahaan had is 9 : 5. If Arun gives ₹12 from his share to Ahaan, then the ratio will change to 4 : 3. How much money did Arun have initially?

(a) ₹144 (b) ₹126
(c) ₹108 (d) ₹90

Ans. (c) : Let the sums of money Arun and Ahaan be ₹9x and ₹5x respectively.

According to the question,

$$\frac{9x-12}{5x+12}=\frac{4}{3}$$

$$27x - 36 = 20x + 48$$

$$7x = 48 + 36$$

$$7x = 84$$

$$x=\frac{84}{7}$$

$$\boxed{x=12}$$

Hence the money with Arun = 9x
= 9 × 12
= ₹108

83. Two numbers are in the ratio of 4 : 5. If the sum of numbers is 63, find the numbers?

(a) 28 and 35 (b) 30 and 33
(c) 18 and 45 (d) 27 and 36

Ans. (a) : Let the two numbers be 4x and 5x.

According to the question,

$$4x + 5x = 63$$

$$9x = 63$$

$$\boxed{x=7}$$

Hence the numbers → 4x = 4 × 7 = 28 and
5x = 5 × 7 = 35

84. ROM is composed of:

(a) Photoelectric cells (b) Magnetic tapes
(c) Semiconductors (d) Integrated circuits

Ans. (d) : ROM is made up of intergrated circuits. The full name of ROM is read only memory. Its a kind of memory which may be used to read existing data and the removal of data is not possible on general basis in such kind of memories.

85. How many kilometers are there in 1 mm?

(a) $\frac{1}{100000}$

(b) 0.0000001

(c) 0.000001

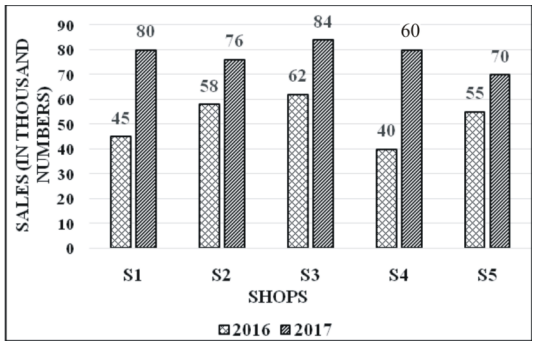
(d) $\frac{1}{100000}$ and 0.000001 both

Ans. (c) : 1 Kilometers = 1000000 Milimeters

$$1 \text{ Milimeters} = \frac{1}{1000000} \text{ Kilometers}$$

$$= 0{\cdot}000001 \text{ Kilometers}$$

86. The given graph shows the sales of hard drives (in thousand numbers) from five different shops S1, S2, S3, S4, S5 in the years 2016 and 2017



What is the ratio of total sales in all the shops in 2016 to that of the total sales in all the shopes in 2017?

(a) 74 : 52 (b) 31 : 42

(c) 45 : 80 (d) 26 : 37

Ans. (d) : Total sells of all the shops in 2016

= 45 + 58 + 62 + 40 + 55

= 260

Total sells of all the shops in 2017

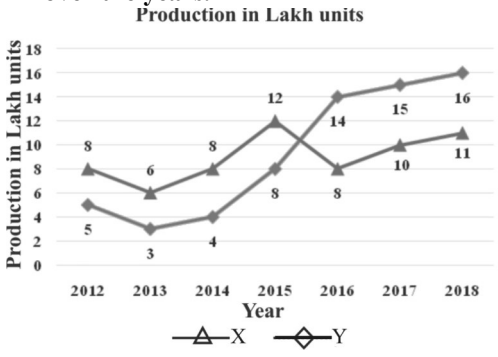
= 80 + 76 + 84 + 60 + 70

= 370

So, Required Ratio = $\frac{260}{370}$

$$= \frac{26}{37} = 26 : 37$$

87. Study the following line graph carefully which shows the production of two companies X and Y over the years.



In 2016, the production of company X is approximately what percent of that in 2013?

(a) 133% (b) 130%

(c) 75% (d) 112%

Ans. (a) : Production of company X in 2016 = 8

Production of company X in 2013 = 6

Hence, Required % = $\frac{8}{6} \times 100$

$$= \frac{400}{3}$$

$$= 133 \cdot 33$$

$$= 133\% \text{ (Approx)}$$

88. The following table shows the number of students that appeared and were selected in the entrance exam of the department of engineering of a certain university from 5 different cities A, B, C, D and E.

City	Appeared	Selected
A	2800	1900
B	3000	1800
C	2800	1950
D	2400	2000
E	2600	1700

In which of the following cities has there been the minimum percentage of selection in the entrance exam of the university.

(a) A (b) B

(c) E (d) C

Ans. (b) : Percentage of students from different cities who got selected in the entrance examination of the university.

From the city A = $\frac{1900}{2800} \times 100$

$$= 67 \cdot 86\ \%$$

From the city B = $\frac{1800}{3000} \times 100$

$$= 60\ \%$$

From the city C = $\frac{1950}{2800} \times 100$

$$= 69 \cdot 64\ \%$$

From the city D = $\frac{2000}{2400} \times 100$

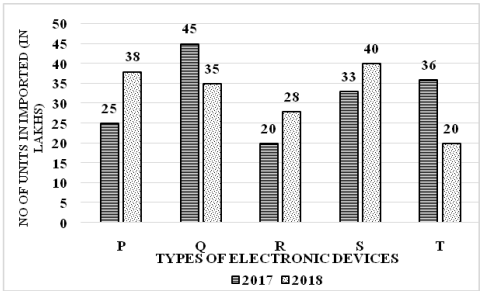
$$= 83 \cdot 33\%$$

From the city E = $\frac{1700}{2600} \times 100$

$$= 65 \cdot 38\ \%$$

So, it is clear that the percentage of students who got selected in the university entrance examination from city B is minimum.

89. The given bar graph shows the total number of different types of electronic device P, Q, R, S, T (in lakh) imported by the government of India in 2017 and 2018. Study the graph carefully and answer the following question.



The average import of P and R types of electronic devices in 2018 was equal to the import of which type in 2017?

(a) P and Q (b) Only Q
(c) Only S (d) Only P

Ans. (c) : Average import of P and R types of electronic devices in 2018 $= \frac{38+28}{2}$

$= \frac{66}{2}$

$= 33$ Lakhs

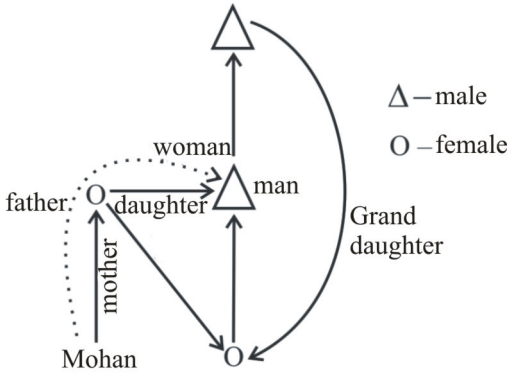
Import of S type of electronic devices $= 33$ Lakhs

It is clear that the average import of P and R types of electronic devices in 2018 was equal to the import of S type of electronic devices in 2017.

90. Pointing to a man standing in front of Mohan, Mohan said, "He is the father of my mother's daughter, his daughter is the granddaughter of my grandfather." How is that man related to Mohan?

(a) Father (b) Uncle
(c) Grandfather (d) Brother

Ans. (a) : According to the question, the blood relation on diagram is as follows-



It is clear that the man is Mohan's father.

91. In certain code language, PETAL is coded as 11-22-7-26-15. How will UNDER be coded in that language?

(a) 6-14-4-22-9 (b) 6-14-4-22-18
(c) 6-13-23-5-18 (d) 6-13-23-22-9

Ans. (d) : Just as,

P	→	11		U	→ 6
E	→	22		N	→ 13
T	→	7	Similarly,	D	→ 23
A	→	26		E	→ 22
L	→	15		R	→ 9

Note- Consonant letters are written in its number of place value but vowel letters are written in the place value of its opposite letter.

92. How will you write 1.11 hours in hours, minutes and seconds?

(a) 1 hour, 10 minutes, 1 seconds
(b) 1 hour, 10 minutes, 10 seconds
(c) 1 hour, 11 minutes
(d) 1 hour, 6 minutes, 36 seconds

Ans. (d) : 1· 11 hours

$= 1$ hour, $\frac{11}{100} \times 60$ minutes

$= 1$ hour, 6.6 minutes

$= 1$ hour, 6 minute, $\frac{6}{10} \times 60$

$= 1$ hour, 6 minutes, 36 seconds

93. Select the option that is related to the third term in the same way as the second term is related to the first term.
Madhya Pradesh : Bhopal :: Rajasthan : ?

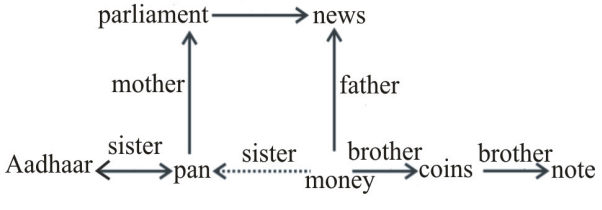
(a) Kota (b) Jaipur
(c) Jodhpur (d) Udaipur

Ans. (b) : Just as the capital of Madhya Pradesh is Bhopal, Silimlarly the capital of Rajasthan is Jaipur. Hence option (b) will be the required answer.

94. Adhaar and Pan are sisters who have Parliament as their mother. Money has two brothers, Coin and Notes. Parliament's husband News is also the father of Money. How is Pan related to Money?

(a) Paternal aunt (b) Maternal aunt
(c) Brother (d) Sister

Ans. (d) : According to the question, the blood relation diagram is as follows-



It is clear that pan is the sister of money.

95. If ÷ means +, – means ÷, × means – and + means ×, then what is the value of 62 ÷ 8 – 4 × 12 + 4 = ?

(a) $\frac{1}{16}$ (b) 6

(c) 26 (d) 16

Ans. (d) : 62 ÷ 8 – 4 × 12 + 4 According to the question-

$62 + 8 \div 4 - 12 \times 4$

$= 62 + 2 - 12 \times 4$

$= 62 + 2 - 48$

$= 64 - 48$

$= 16$

96. From among the option, select the Venn diagram which correctly depicts the relationship between the following three classes.

Walk, Crawl, Movement.

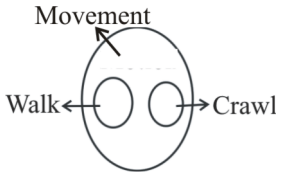
(a) 

(b) 

(c) 

(d) 

Ans. (b) : Walking and crawling are both types of movement-

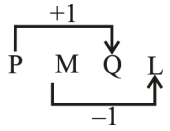


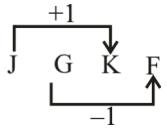
97. Out of the four letter-clusters listed, three are alike in some manner and one is different. Select the odd one.

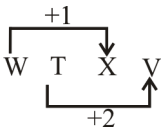
(a) PMQL (b) JGKF

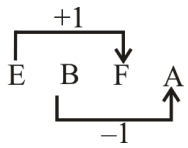
(c) WTXV (d) EBFA

Ans. (c) : From the given options-

(a) 

(b) 

(c) 

(d) 

It is clear that option (c) is odd.

98. Arrange the following words in the order in which they would appear in an English language dictionary.

1. Scenery, 2. Science, 3. Scandal, 4. School, 5. Scatter

(a) 3, 5, 1, 4, 2

(b) 5, 3, 4, 2, 1

(c) 5, 3, 2, 1, 4

(d) 3, 5, 4, 1, 2

Ans. (a) : According to the question-

(3) Scandal → (5) → Scatter → (1) Scenery → (4) School → (2) Science

Hence, arrange order → 3, 5, 1, 4, 2

99. Out of the four letter- clusters listed, three are alike in some manner and one is different. Select the odd one.

(a) QA

(b) GD

(c) NK

(d) XU

Ans. (a) : From the given option-

(a) Q $\xrightarrow{-16}$ A

(b) G $\xrightarrow{-3}$ D

(c) N $\xrightarrow{-3}$ K

(d) X $\xrightarrow{-3}$ U

It is clear that option (a) is odd.

100. Select the number that can replace the question mark (?) in the following series.

3, 6, 12, 21, 33, 48, ?

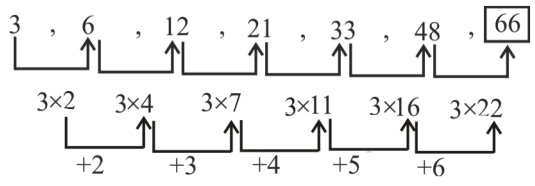
(a) 53

(b) 65

(c) 56

(d) 66

Ans. (d) : The given series is as follows-



Hence, ? = 66

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 08.04.2021] **[Time : 10.30 am-12.00 pm]**

1. If X's income is 40% less than that of Y, then Y's income is approximately what percentage more than that of X?

(a) 66.33% (b) 66.67%
(c) 67.67% (d) 67.33%

Ans. (b) :
Let- Y = 100 unit
X = 60 unit
Required percentage $= \frac{40}{60} \times 100$
$= \frac{200}{3} = 66.67\%$

2. Find the value of

$$\frac{(0.01)^2+(0.22)^2+(0.333)^2+(0.4444)^2}{(0.001)^2+(0.022)^2+(0.0333)^2+(0.04444)^2}$$

(a) 50 (b) 75
(c) 125 (d) 100

Ans. (d) : On solving the given equation-

$$= \frac{(0.01)^2+(0.22)^2+(0.333)^2+(0.4444)^2}{(0.001)^2+(0.022)^2+(0.0333)^2+(0.04444)^2}$$

$$= (10)^2\left[\frac{\left((1)^2+(22)^2+(333)^2+(4444)^2\right)}{(1)^2+(22)^2+(333)^2+(4444)^2}\right]$$

$= 100$

3. In which year was the Satyagraha against the Rowlatt Act called by Mahatma Gandhi?

(a) 1922 (b) 1920
(c) 1919 (d) 1921

Ans. (c) : On 6 April 1919, Mahatma Gandhi started a non-violent Satyagraha against the unjust Rowlatt Act passed by the British government. This Act was termed as the 'Black Act' by the Indian public because of its unjust and restrictive nature.

4. Consider the given statement and decide which of the given assumption(s) is/are implicit in the statement.

Statement:

The government has instructed all private colleges in the city to not increase the current fees for at least 3 years.

Assumptions:

1. The authorities of private colleges may not follow the government's instruction since they are not dependent on the government funds.

2. The parents of the students from the city's private colleges are still be eager to pay higher fees.

(a) Only Assumption 2 is implicit
(b) Only Assumption 1 is implicit
(c) Neither assumption 1 and nor 2 is implicit
(d) Either assumption 1 or 2 is implicit.

Ans. (c) : From the given statement it is clear that Neither assumption 1 and nor 2 is implicit.

5. Which among the following is NOT open source software?

(a) Microsoft Office (b) Linux
(c) Android (d) Mozilla Firefox

Ans. (a) : Open-source software is a type of computer software in which source code is released under a license in which the copyright holder grants users the rights to use, study, change, and distribute the software to anyone and for any purpose. Open-source software may be developed in a collaborative public manner. In this question except Microsoft office all other are open software.

6. A piece of wire is bent to form a circle with a radius of 70 cm. If the same piece of wire is bent to form a square, the length of the side of the square will be _____. $\left[\pi = \frac{22}{7}\right]$

(a) 110 cm (b) 140 cm
(c) 160 cm (d) 120 cm

Ans. (a) : r = 70 cm
Circumference of circle = 2πr
$= 2 \times \frac{22}{7} \times 70$
= 440cm
Perimeter of square = Circumference of circle = 440
Perimeter of circle = 440
4a = 440 (where a is the side of square)
a = 110 cm.

7. The sum and difference of the LCM and HCF of two numbers are 682 and 638 respectively. If the sum of the two numbers is 286, find the numbers.

(a) 246 and 40 (b) 226 and 60
(c) 220 and 66 (d) 242 and 44

Ans. (c) : LCM + HCF = 682 ……(i)
LCM – HCF = 638 ……(ii)
By adding eq^{n} (i) and (ii)
2 LCM = 1320
LCM = 660
Putting the value of LCM in eqn (i)-
660 + HCF = 682
HCF = 22
According to the question-
LCM × HCF = x × y
660 × 22 = (286 – y) × y (Given: x + y =286)
660 ×22 = 286y – y^2
y^2 – 286y + 14520 = 0
y^2 – (220 + 66)y + 14520 = 0
y^2 – 220y – 66y + 14250 = 0
y (y – 220) – 66 (y – 220) = 0
(y – 220)(y – 66) = 0
So the numbers are 220 and 66.

8. Which article of the Indian constitution talks about 'right to life'?

(a) Article 21 (b) Article 22
(c) Article 24 (d) Article 23

Ans. (a) : Article 21 of the Indian Constitution states that "No person shall be deprived of his life or personal liberty except according to a procedure established by law". Thus, article 21 secures two rights:
1. Right to life
2. Right to personal liberty.

9. An officer appointed by the Reserve Bank of India to redress customer complaints against deficiency in banking service is known as:

(a) Banking Commissioner
(b) Central vigilance officer
(c) Banking Ombudsman
(d) Banking Lokayukt

Ans. (c) : The Banking Ombudsman is a senior official appointed by the Reserve Bank of India to address customer complaints against deficiency in certain banking services covered under the grounds of complaint specified under Clause 8 of the Banking Ombudsman Scheme 2006 (As amended upto July 1, 2017). The Banking Ombudsman Scheme is introduced under Section 35A of the Banking Regulation Act, 1949 by RBI with effect from 1995.

10. 'Make-In-India's' symbol is a lion made of _____.

(a) Nails (b) Hammers
(c) Cogs (d) Bows

Ans. (c) : The logo of Make-in-India is the silhouette of a lion on the prowl, made entirely of cogs, symbolising manufacturing, strength and national pride. 'Make in India' initiative was launched globally on 25 September, 2014 as a part of India's renewed focus on Manufacturing.

11. Chronologically, which of the following events happened fiirst in course of the India freedom struggle?

(a) Civil Disobedience Movement
(b) Quit India Movement
(c) Non-Cooperation Movement
(d) Jallianwala Bagh Massacre

Ans. (d) :	
Events	**Year**
Jallianwala Bagh Massacre	13 April 1919
Non Cooperation Movement	1 August 1920
Civil Disobedience Movement	6 April 1930
Quit India Movement	8 August 1942

12. If A can complete a task in 10 days and B can complete it in 4 days, then in how many days will both of them together complete the task?

(a) $\frac{19}{7}$ (b) $\frac{20}{7}$
(c) $\frac{26}{7}$ (d) $\frac{27}{7}$

Ans. (b) : A's one day work $= \frac{1}{10}$ part

B's one day work $= \frac{1}{4}$ part

(A+B)'s one day work $= \frac{1}{10} + \frac{1}{4}$

$= \frac{2+5}{20}$

$= \frac{7}{20}$

Time taken by (A+B) to finish the work $= \frac{20}{7}$ day

13. The law of Octaves' was proposed by:

(a) Johann Dobereiner
(b) Alexander Newlands
(c) Lothar Meyer
(d) Dmitri Mendeleev

Ans. (b) : The Law of Octaves was proposed by John Alexander Newlands in 1865. He arranged all the elements known at that time into a table in order of relative atomic mass. When he did this, he found a pattern among the early elements. The pattern showed that each element was similar to the element eight places ahead of it. Newland's law of Octaves was formulated as a result of this discovery.

14. Skill Development Centre (SDC) for fire safety training of DRDO was inaugurated in ____ on Feb, 2021.

(a) Uttar Pradesh (b) Maharashtra
(c) Telangana (d) Karnataka

Ans. (a) : Skill Development Centre (SDC) for Fire Safety Training of Defence Research and Development Organisation (DRDO) was inaugurated at Pilkhuwa in Uttar Pradesh through virtual mode on 22 February 2021. The facility, created by Delhi based DRDO laboratory Centre for Fire, Explosive and Environment Safety (CFEES); is aimed at developing trained human resources, fire safety technology and products to save precious human lives and valued assets.

15. Education is kept under which list of the Indian Constitution?

(a) Government List (b) Concurrent List
(c) State List (d) Union List

Ans. (b) : The Indian Constitution has provisions to ensure that the state provides education to all its citizens. The Indian Constitution in its original enactment defined education as state subject. Under Article 42 of the constitution, an amendment was added in 1976 and education became the subject of concurrent list which enables the central government to legislate it in the manner suited to it.

16. If the standard deviation of a set of numbers is 3 and the arithmetic mean of these numbers is 6, what is the coefficient of variation of these numbers?

(a) 75 (b) 125
(c) 100 (d) 50

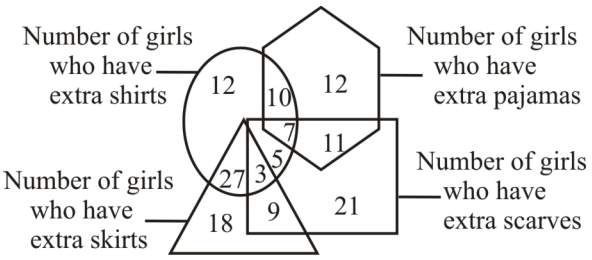
Ans. (d) :

$$\text{coefficient of variation} = \frac{\text{Standard deviation}}{\text{mean}} \times 100$$

$$= \frac{3}{6} \times 100$$

Coefficient of Variation = 50

17. Study the following diagram carefully and answer the given question.



How many girls have extra shirts, scarves and pajamas?

(a) 17 (b) 10
(c) 5 (d) 7

Ans. (d) : In the given diagram 7 girls have extre shirts, scarves and pajamas.

18. One-third of the sum of all the prime numbers greater than 5 but less than 18 is the square of:

(a) 3 (b) 5
(c) 6 (d) 4

Ans. (d) :

Prime numbers greater than 5 but smaller than 18 = 7, 11,13, 17

According to the question-

$$= \frac{7+11+13+17}{3}$$

$$= \frac{48}{3} = 16$$

So 16 is equal to the square of 4.

19. If the selling price of an article is $\frac{5}{4}$ of its cost price, then the profit percentage obtained in the transaction is:

(a) 35% (b) 30%
(c) 25% (d) 40%

Ans. (c) : $\text{Selling price} = \frac{5}{4} \times \text{Cost price}$

$$\frac{\text{Selling price}}{\text{Cost price}} = \frac{5}{4}$$

Let Selling price = 5k

Cost price = 4k

Profit = 5k – 4k = 1k

$$\text{Profit\%} = \frac{1k}{4k} \times 100$$

$$= \boxed{25\%}$$

20. To which season, the kajri folk dance associated?

(a) Spring (b) Autumn
(c) Winter (d) Monsoon

Ans. (d) : Kajri Folk Dance is related to India's largest state Uttar Pradesh as well as Bihar. Kajri Folk dance is traditionally performed in the villages and towns of Uttar Pradesh around Banaras, Mirzapur, Mathura, Allahabad, and the Bhojpur regions of Bihar. Kajri folk song is often used to describe the longing of a maiden for her lover as the black monsoon cloud arrives in the summer sky, and the style is notably sung during the rainy season.

21. The 'Sustainable Action for transforming Human capital (SATH)' programme plans to focus on which two sectors?

(a) Education and Health
(b) Employment and Education
(c) Agriculture and Growth
(d) Health and Sanitation

Ans. (a) : NITI Aayog has launched a program 'Sustainable Action for Transforming Human Capital (SATH)' with the State Governments for cooperative federalism. The vision of the program is to initiate transformation in the education and health sectors. It was launched in 2017 to identify and build three role model' States for the school education sector. After an elaborate selection process, Jharkhand, Odisha and Madhya Pradesh were chosen.

22. Find the least number that when divided by 9, 8, 10 and 12 leaves a remainder 3 in each case.

(a) 365 (b) 361
(c) 363 (d) 367

Ans. (c) : L.C.M. of 9, 8, 10 and 12 = 360
According to question, in each case the remainder is 3
Number = 360 + 3
So, number will be 363.

23. When was the option of NOTA introduced as part of the Indian voting system?

(a) 2014 (b) 2013
(c) 2015 (d) 2019

Ans. (b) : On 27th September 2013, the right to register a 'None of the above' vote in elections was applied by the Supreme Court of India, which then ordered the Election Commission that all voting machines should be provided with a NOTA button so as to give voters the option to choose 'none of the above'. Thus, India became the 14th country to institute negative voting.

24. Which scheme has the government launched to support organic farming in India?

(a) Pradhan Mantri Gram Sinchai Yojana
(b) Paramparagat Krishi Vikas Yojana
(c) Soil Health Card Scheme
(d) Pradhan Mantri Fasal Bima Yojana

Ans. (b) : "Paramparagat Krishi Vikas Yojana (PKVY)" a sub-component of Soil Health Management (SHM) scheme under National Mission of Sustainable Agriculture (NMSA) aims at development of sustainable models of organic farming through a mix of traditional wisdom and modern science to ensure long term soil fertility buildup, resource conservation and helps in climate change adaptation and mitigation. It was launched in 2015.

25. The Tuticorin Thermal Power Station is situated in the state of:

(a) Tamil Nadu (b) Karnataka
(c) Maharashtra (d) Telangana

Ans. (a) : Tuticorin Thermal Power Station(TTPS) is located in Thoothukudi harbour Estate, 8 Km away from Thoothukudi Town on 160 hectares of land leased from Port trust Tamil Nadu. TTPS has 5 units having capacity of 210 MW each. The coal required for the boilers is transported from coal fields of Odisha, West Bengal & Bihar.

26. A gold ring is sold for ₹17500 at a loss of 30%. Find the cost price of the gold ring?

(a) ₹25,000 (b) ₹26,500
(c) ₹26,000 (d) ₹25,500

Ans. (a) : Selling price = ₹17,500
Loss = 30%

$$\text{Cost price} = \frac{\text{Selling Price} \times 100}{(100 - \text{Loss}\%)}$$

$$\text{Cost price} = \frac{17500}{70} \times 100 = ₹25,000$$

27. WTO sets the rules for:

(a) Terrorism (b) Global trade
(c) Global tour & travel (d) Environment

Ans. (b) : World Trade Organization (WTO) is the only international organization dealing with the global rules of trade. Its main function is to ensure that trade flows as smoothly, predictably and freely as possible.
- Headquarters: Geneva, Switzerland
- Founded: 1 January 1995
- Current Membership: 164 member states

28. Which of the following is NOT electromagnetic wave?

(a) Radio (b) Infra-red
(c) Microwave (d) Ultrasound

Ans. (d) : Electromagnetic spectrum consists of radio waves, microwaves, infrared waves, visible spectrum, ultraviolet waves, X-rays and Gamma rays. It does not include Ultrsound. Sound wave is not an electromagnetic wave. It is a mechanical wave. When sound wave propagates, particles of the medium oscillate along the direction of propagation of the wave.

29. In the fourteenth century India who used token currency of cheap metals in place of regular currencies of gold and silver?

(a) Firoz Shah Tughlaq
(b) Muhammad Bin Tughlaq
(c) Jalaluddin Khilji
(d) Alauddin Khilji

Ans. (b) : The token currency in India was introduced for the first time by Muhammad Bin Tughlaq. Muhammad Bin Tughlaq issued token money in 1330. From 1325 to 1351, he was the Sultan of Delhi. He was the eldest son of the founder of the Tughlaq dynasty, Ghiyas-ud-Din-Tughlaq.

30. The report of which committee recommended a three-tier Panchayati Raj System in India?

(a) Shah Nawaz Committee
(b) Sachar Committee
(c) Ashok Mehta Committee
(d) Balwant Rai Mehta Committee

Ans. (d) : In 1957, Balwant Rai Mehta Committee recommended three tier Panchayats Gram Panchayat at village level, Panchayat committee at block level and thereafter Zilla Parishad. The Committee had also made a number of suggestions in this respect.

31. Which among the following is NOT database software in computers?

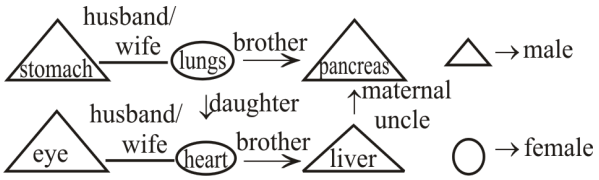
(a) Oracle (b) FoxPro
(c) MS Word (d) MS Access

Ans. (c) : Microsoft Word is NOT a database software. Microsoft Word is a word processor developed by Microsoft. It was first released on October 25, 1983. A database is a collection of related data which represents some aspect of the real world. A database system is designed to be built and populated with data for a certain task. Database Management System (DBMS) is a software for storing and retrieving users' data while considering appropriate security measures. Some DBMS examples include MySQL, PostgreSQL, Microsoft Access, SQL Server, FileMaker, Oracle, RDBMS, DBASE, Clipper and FoxPro.

32. Heart is the daughter of Lungs. Also, she has only one sibling, a brother named Kidney. Stomach is the husband of Lungs. Eye and Heart are married to one another. Pancreas is the maternal uncle of Kidney. How is Pancreas related to Lungs?

(a) Wife's Brother (b) Mother's Brother
(c) Father (d) Brother

Ans. (d) :



Therefore, there is brother relation with the pancreas and lungs.

33. Which letter in the alphabet is as far from H as U is far from N?

(a) N (b) O
(c) P (d) M

Ans. (b) : H I J K L M N O P Q R S T U. It is clear from the above that, the distance from N to U is of 7 letters.

34. Who is the first batsman in the history of cricket to score 3 ODI double centuries?

(a) Sachin Tendulkar (b) Virender Sehwag
(c) Virat Kohli (d) Rohit Sharma

Ans. (d) : Rohit Sharma is the only player to have scored three One-day International(ODI) matches double centuries including 209, 264 and 208. Sachin Tendulkar was the first male cricketer who scored the first double century (200) in the ODI against South Africa in 2010.

35. What is the median of the following data?
78, 56, 22, 34, 45, 54, 39, 68, 54, 84

(a) 54 (b) 53
(c) 55 (d) 51

Ans. (a) : For the median of data-
78, 56, 22, 34, 45, 54, 39, 68, 54, 84
Number of term = 10 (even)
Arrange in the ascending order-
22, 34, 39, 45, 54, 54, 56, 68, 78, 84

$$\text{Median} = \frac{\left(\frac{n}{2}\right)\text{th term} + \left(\frac{n}{2}+1\right)\text{th term}}{2}$$

$$= \frac{\left(\frac{10}{2}\right)\text{th term} + \left(\frac{10}{2}+1\right)\text{th term}}{2}$$

$$= \frac{5\text{th term} + 6\text{th term}}{2} = \frac{54+54}{2} = 54$$

36. How many payloads are carried by India's second lunar mission Chandrayaan-2?

(a) 10 (b) 12
(c) 13 (d) 11

Ans. (c) : The indigenously developed Chandrayaan-2 spacecraft consisting of Orbiter, Lander and Rover was successfully launched on-board indigenous GSLV MK III-M1 Mission on 22nd July, 2019. It carried 13 payloads.

37. Where is the headquarters of the North Atlantic Treaty Organization (NATO) situated?

(a) Lisbon (b) Madrid
(c) Brussels (d) Ottawa

Ans. (c) : NATO is the political and administrative centre of the Alliance. It is located at Boulevard Leopold III in Brussels, Belgium. North Atlantic Treaty Organization (NATO), military alliance established by the North Atlantic Treaty (also called the Washington Treaty) on April 4, 1949.

38. X can do a certain job in 14 days. Y is 40% more efficient than X. How many days will Y alone take to do the same job?

(a) 3 (b) 12
(c) 7 (d) 10

Ans. (d) :

	X	:	Y
Efficiency	100	:	140
Time	7	:	5
	×2↓		×2↓
	14	:	10

Hence, Y alone will do the work in 10 days.

39. Which of the following Nawabs of Awadh built the Bara Imambara in Lucknow?

(a) Asaf-ud-Daula (b) Asif jah Mriza
(c) Shuja -ud-Daula (d) Yamin-ud-Daula

Ans. (a) : The Bara Imambara of Lucknow is one of the most famous monuments of the city. Also known as Asafi Imambara, after the name of the Nawab of Lucknow who got it constructed .The Bara Imambara in Lucknow was built by Asaf-ud-daula in 1784. (It is believed that the construction of this grand building was started when a devastating famine had hit Awadh, and the nawab's objective was to provide employment for people in the region for almost a decade while the famine lasted).

40. If x is any positive even number, then $x^{65} - x$ will always be divisible by:

(a) 8 (b) 12
(c) 10 (d) 6

Ans. (d) : $x^{65} - x$

$x(x^{64} - 1)$

$x\,(x^{32} - 1)\,(x^{32} + 1)$

$x(x^{16} - 1)\,(x^{16} + 1)\,(x^{32} + 1)$

$x\,(x^{8} - 1)\,(x^{8} + 1)\,(x^{16} + 1)\,(x^{32} + 1)$

$x\,(x^{4} - 1)\,(x^{4} + 1)\,(x^{8} + 1)\,(x^{16} + 1)\,(x^{32} + 1)$

$x(x^{2} - 1)\,(x^{2} + 1)\,(x^{4} + 1)\,(x^{8} + 1)\,(x^{16} + 1)\,(x^{32} + 1)$

$x(x - 1)\,(x + 1)\,(x^{2} + 1)\,(x^{4} + 1)\,(x^{8} + 1)\,(x^{16} + 1)(x^{32} + 1)$

Taking a positive number x = 2,

$2\,(2 - 1)\,(2 + 1)\,(2^{2} + 1)\,(2^{4} + 1)\,(2^{8} + 1)\,(2^{16} + 1)\,(2^{32} + 1)$

$2 \times 3 \times 5 \times 17$

Hence, it is divisible by 6.

41. Which of the following is NOT part of a neuron?

(a) Cell body (b) Axon
(c) Dendrite (d) Cone

Ans. (d) : A Neuron is a nerve cell that is the basic building block of the Nervous System. Neurons are specialized to transmit information throughout the body. There are three basic parts of a neuron: the dendrites, the cell body or soma, and the axon. Cone is not a part of neuron.

42. In an examination, 90% of the students passed and 600 students failed. How many students appeared for the examination?

(a) 6000 (b) 5750
(c) 5250 (d) 5500

Ans. (a) :

Let, the total number of students appeared in the examination = 100x

Percentage of students passed in the examination = 90%

Percentage of failed students = 100% – 90% = 10%

Total number of failed students = 10% of 100x

$$600 = \frac{10 \times 100x}{100}$$

$x = 60$

Hence, total number of students appeared in the examination = 100 x

$= 100 \times 60$

$= 6000$

43. The word RESERVATION has been coded using 4 different codes:

Code 1: SGVIWBHBRYY

Code 2: SCVAWPHLREY

Code 3: TGUGTXCVKQP

Code 4: PCQCPTYRGML

Which of the following codes is used to write the word ENQUIRY as FLTQNLF?

(a) Code 2 (b) Code 3
(c) Code 1 (d) Code 4

Ans. (a) : Just as,

R	E	S	E	R	V	A	T	I	O	N
+1	-2	+3	-4	+5	-6	+6	-8	-4	+3	+11
S	C	V	A	W	P	H	L	E	R	Y

Similarly,

E	N	Q	U	I	R	Y
+1	-2	+3	-4	+5	-6	+6
F	L	T	Q	N	L	F

44. Study the given pattern carefully and select the number that can replace the question mark (?) in it.

(The same relationship exists among the numbers in each row.)

A. 25, 39, 14

B. 18, 51, ?

C. 63, 72, 9

(a) 33 (b) 42

(c) 29 (d) 38

Ans. (a) : Just as,

(A) $25 = 39 - 14$

$25 = 25$

(C) $63 = 72 - 9$

$63 = 63$

Similarly,

$18 = 51 - ?$

$? = 51 - 18$

Hence, $\boxed{? = 33}$

45. Which of the following fractions does NOT lie between $\frac{7}{18}$ and $\frac{3}{5}$?

(a) $\frac{1}{2}$ (b) $\frac{2}{5}$

(c) $\frac{5}{12}$ (d) $\frac{1}{3}$

Ans. (d) : Number between $\frac{7}{18}$ and $\frac{3}{5}$

$\frac{7}{18} = 0.39$ and $\frac{3}{5} = 0.6$

Hence, option (d) does not lie between 0.39 and 0.6.

46. Which of the following number is closest to zero?

(a) $(1-0.09)^2$ (b) $1-(0.09)^2$

(c) 0.009 (d) $(0.09)^2$

Ans. (d) : From the given options-

(a) $(1 - 0.09)^2$

$1 + 0.0081 - 0.18$

$= 0.8281$

(b) $1 - (0.09)^2$

$1 - 0.0081$

$= 0.9919$

(c) 0.009

(d) $(0.09)^2$

$= 0.0081$

Hence, option (d) is closest to zero.

47. P, Q, R, S, T and U are friends who work at a BPO organization. P earns more than T. R earns more than Q but less than U. P does not earn as much as Q but earns more than S. Who among these six friends earns the most?

(a) S (b) U

(c) Q (d) R

Ans. (b) : From the question-

$U > R > Q > P > T > S$

Hence, U earns the highest among 6 friends.

48. Maruni dance is associated with which state of India.

(a) Sikkim (b) Uttrakhand

(c) Tripura (d) Arunachal Pradesh

Ans. (a) : Maruni dance form is associated with Sikkim. It is also performed in Nepal and Darjeeling, India. This dance is related to the festival of Tihar, which is the same as Diwali in North India. Maruni is performed by both men and women. Maruni dance is performed accompanied by the nine instrument orchestra called "Naumati Baja".

49. Three containers contain 72 litres, 90 litres and 144 litres of milk respectively. What should be the biggest 'measuring -can', which can measure all the different quantities exactly (Without a remainder)?

(a) 17 litres (b) 18 litres

(c) 11 litres (d) 13 litres

Ans. (b) : Capacity of the largest 'Measuring Can' = HCF of 72, 90 and 144 litres.

$72 = 2\times2\times2\times3\times3$

$90 = 2\times3\times3\times5$

$144 = 2\times2\times2\times2\times3\times3$

HCF = 18

Hence, the capacity of the largest 'Measuring Can' is 18 litres.

50. Who is appointed as the new Chairman of National Commission for Scheduled Castes (NCSC) in February, 2021?

(a) Chirag Paswan

(b) Ramdas Athawale

(c) Vijay Sampla

(d) Thawar Chand Gehlot

Ans. (c) : Vijay Sampla assumed the charge of Chairman of National Commission for Scheduled Castes (NCSC) in New Delhi on 24 Feb 2021. He was the former Union Minister of State for Social Justice & Empowerment from 2014-19.

51. The area of a rectangle is 396 cm^2, and its length and breadth are in the ratio of 11:9. Find its perimerter?

(a) 80 cm (b) 50 cm
(c) 60 cm (d) 70 cm

Ans. (a) : Let,

Lengh of rectangle = 11x cm

Breadth of rectangle = 9x cm

Area of rectangle = Length×Breadth

$396 = 11x \times 9x$

$396 = 99 \times x^2$

$4 = x^2$

$x = 2$

Length = $11x = 11 \times 2 = 22$

Breadth = $9x = 9 \times 2 = 18$

Perimerter of rectangle = $2(L \times B)$

$= 2(22+18)$

$= 2 \times 40$

$= 80$ cm.

52. A sum of ₹1000 amounts to ₹1140 in 2 years at simple interest. If the interest rate is increased by 4%, the original sum would amount to:

(a) ₹1,160 (b) ₹1,180
(c) ₹1,220 (d) ₹1,200

Ans. (c) : Principal amount = ₹1000

Time = 2 years

Interest = 1140 – 1000 = 140

Rate = ?

$$\text{Simple Interest} = \frac{P \times T \times R}{100}$$

$$140 = \frac{1000 \times 2 \times R}{100}$$

Rate = 7%

After the inerease of 4% in rate-

$$\text{Simple Interest} = \frac{1000 \times 2 \times 11}{100} = 220$$

Principal amount = 1000+220 = ₹1220

53. Where is Mahatma Gandhi Marine National Park located?

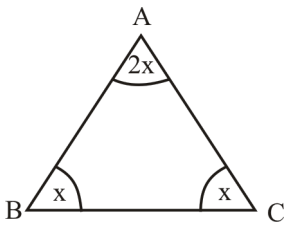
(a) Lakshadweep Islands
(b) Andaman and Nicobar Islands
(c) Chandigarh
(d) Daman and Diu

Ans. (b) : Mahatma Gandhi Marine National Park is a national park of India near Wandoor on the Andaman Islands. It belongs to the South Andaman administrative district, part of the Indian union territory of Andaman and Nicobar Islands. It is situated 29 km away from Port Blair. Total area of the park is 281.50 Km^2. Mahatma Gandhi Marine National Park was established in the year of 1983. The park is home of birds like white-bellied Sea eagle, parakeets, Andaman teal, heron, terns, waders and swifts.

54. In an isosceles ΔABC, if the measure of ∠A is twice that of the base ∠B, then what will be the measure of ∠C:

(a) 30^0 (b) 33^0
(c) 45^0 (d) 90^0

Ans. (c) : Let $\angle B = x^\circ$, According to the question



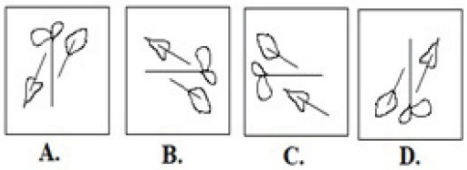
$A + B + C = 180^0$

$4x = 180^0$

$x = 45^0$

Hence, the measure of ∠C is 45°

55. Four figures have been given, out of which three are alike in some manner and one is different. Select the odd one.



(a) C (b) A
(c) D (d) B

Ans. (a) : Figure 'C' is different from other figure. So option (a) is correct.

56. All of the following are Kharif crops, EXCEPT _____.

(a) Millet (b) Ragi
(c) Maize (d) Wheat

Ans. (d) : Based on the climatic conditions, crops in India are broadly classified into three categories:
(i) Kharif Crops: The crops which are grown in the rainy season are called Kharif crops. The rainy season in India is generally from June to September. Paddy, maize, soyabean, groundnut and cotton are kharif crops.

(ii) Rabi Crops: The crops grown in the winter season (October to March) are called Rabi crops.Examples of rabi crops are wheat, gram, pea, mustard and linseed.
(iii) Zaid Crops: Zaid Crops are summer season crops. They grow for short time period between Kharif and Rabi crops, mainly from March to June. Zaid crops are - water melon, fodder, pumpkin etc.

57. Four letter-clusters have been given, out of which three are alike in some manner and one is different. Select the odd one.

(a) SRVT (b) HGKI
(c) ONRP (d) MLPO

Ans. (d) : From Given options-

(a) $S \xrightarrow{-1} R \xrightarrow{+4} V \xrightarrow{-2} T$

(b) $H \xrightarrow{-1} G \xrightarrow{+4} K \xrightarrow{-2} I$

(c) $O \xrightarrow{-1} N \xrightarrow{+4} R \xrightarrow{-2} P$

(d) $M \xrightarrow{-1} L \xrightarrow{+4} P \xrightarrow{-1} O$

Hence, from the above it is clear that option (d) is odd one.

58. Which of the following is NOT a form of Calcium Carbonate?

(a) Chalk (b) Gypsum
(c) Limestone (d) Marble

Ans. (b) : Calcium carbonate, or CaCO3, comprises more than 4% of the earth's crust and is found throughout the world. Its most common natural forms are chalk, limestone, and marble, produced by the sedimentation of the shells of small fossilized snails, shellfish, and coral over millions of years. Gypsum (CaSo4.2 H2O) also known as plaster of Paris is not a form of Calcium Carbonate, it is obtained from calcium sulphate.

59. 44% of a number is 798.6. What is 63% of that number?

(a) 1143.8 (b) 1143.45
(c) 1143.46 (d) 1143.47

Ans. (b) : Let the number be x
According to the question
44% of x = 798.6

$$\frac{x \times 44}{100} = 798.6$$

x = 1815
Now, 63% of 1815

$$\frac{1815 \times 63}{100} = 1143.45$$

60. The Sundarbans National Park in India is adjacent to the Sundarbans Reserve Forest in:

(a) Myanmar (b) Bangladesh
(c) Bhutan (d) Tibet

Ans. (b) : The Sundarbans cover 10,000 km^2 of land and water (more than half of it in India, the rest in Bangladesh) in the Ganges delta. It contains the world's largest area of mangrove forests. A number of rare or endangered species live in the park, including tigers, aquatic mammals, birds and reptiles. The Sundarban National Park is a national park, tiger reserve, and biosphere reserve in West Bengal, India. It was declared a UNESCO World Heritage Site in 1987.It is part of the Sundarbans on the Ganges Delta, and adjacent to the Sundarban Reserve Forest in Bangladesh.

61. The Chauri Chaura incident resulted in the abrupt closure of the:

(a) Dandi Satyagraha
(b) Quit India Movement
(c) Civil Disobedience Movement
(d) Non-Cooperation Movement

Ans. (d) : Non-Cooperation Movement was abruptly called off on 11 February 1922 by Gandhi following the Chauri Chaura incident in the Gorakhpur district of UP held on 4 February 1922 resulting in the deaths of about 22 policemen and 3 civilians.

62. Ram covers a certain distance on a toy train. Had the train moved 8 km/h faster, it would have taken 20 min less. If it had moved 4 km/h slower, it would have taken 40 min more. Find the distance.

(a) $\frac{16}{3}$ km (b) $\frac{17}{3}$ km
(c) $\frac{20}{3}$ km (d) $\frac{19}{3}$ km

Ans. (a) : Let speed v km/h and time be t hour.

v + 8 $t^{-1/2}$
v – 4 t+2/3

$$(v+8)(t-1/3) = (v-4)(t+2/3)$$

$$v/3 + 8t - 8/3 = 2v/3 - 4t - 8/3$$

$$v = 12t$$

$$t = \frac{v}{12} -----(i)$$

$$\frac{n}{v-4} - \frac{n}{v+8} = 1$$

$$12n = v^2 + 4v - 32$$

$$12vt = v^2 + 4v - 32$$

$$v^2 = v^2 + 4v - 32$$

v = 8 km Distance (n) = v×t

$$8 \times \frac{8}{12} = \frac{16}{3} \text{km}$$

63. If Addition means Division, Subtraction means Multiplication, Multiplication means Addition and Division means Subtraction, then what will be the value of $13 - 2 \times 4 \div 9 + 3$?

(a) 27 (b) 19
(c) 30 (d) 33

Ans. (a) : $13 - 2 \times 4 \div 9 + 3$
On interchanging the sign-
$= 13 \times 2 + 4 - 9 \div 3$
$= 26 + 4 - 3$
$= 30 - 3$
$= 27$

64. The Sum of the consecutive angles of a parallelogram is equal to:

(a) 90^0 (b) 120^0
(c) 180^0 (d) 360^0

Ans. (c) : The sum of consecutive angles of a parallelogram is equal to 180º.

65. The International Bank for Reconstruction and Development, and the world Bank, was established in which years?

(a) 1945 (b) 1943
(c) 1944 (d) 1946

Ans. (c) : The International Bank for Reconstruction and Development (IBRD) is a global development cooperative owned by 189 member countries. As the largest development bank in the world, it supports the World Bank Group's mission by providing loans, guarantees, risk management products, and advisory services to middle-income and credit worthy low-income countries, as well as by coordinating responses to regional and global challenges. It was created in 1944. It is headquartered in Washington D.C., United States of America.

66. What does WORM stand for?

(a) World open, receive many
(b) Wireless once, receive many
(c) Write others, read me
(d) Write once, read many

Ans. (d) : Write once read many (WORM) stands for a data storage device in which information, once written, cannot be modified.

67. Four words have been given, out of which three are alike in some manner and one, is different. Select the odd one.

(a) Car (b) Motorcycle
(c) Van (d) Bus

Ans. (b) : Car, Van and bus are all four wheelers whereas Motorcycle is a two wheeler which is different from others.

68. Ram bought five bananas for ₹20 and sold them at the rate of three for ₹15. Find his gain percentage.

(a) 15% (b) 30%
(c) 25% (d) 20%

Ans. (c) : Cost price of 5 banana = ₹20
Cost price of 1 banana = $₹\frac{20}{5}$
Cost price of 1 banana = ₹4
Selling price of 3 bananas = ₹15
Selling price of 1 banana = $₹\frac{15}{3}$
Selling price of 1 banana = ₹5
Profit = 5 – 4 = 1
Profit% = $\frac{1}{4} \times 100 = 25\%$

69. The word LOCOMOTIVE has been coded 4 different codes?
Code 1: KMZKHIMAMU
Code 2: MNDNNNUHWD
Code 3: KPBPLPSJUF
Code 4: MQFSRUAQEO
In which of the following code languages the word STATION is written as RUZUHPM.

(a) Code 2 (b) Code 1
(c) Code 3 (d) Code 4

Ans. (c) : Just as,

$S \xrightarrow{-1} R$
$T \xrightarrow{+1} U$
$A \xrightarrow{-1} Z$
$T \xrightarrow{+1} U$
$I \xrightarrow{-1} H$
$O \xrightarrow{+1} P$
$N \xrightarrow{-1} M$

Similarly, from code (3)-

$L \xrightarrow{-1} K$
$O \xrightarrow{+1} P$
$C \xrightarrow{-1} B$
$O \xrightarrow{+1} P$
$M \xrightarrow{-1} L$
$O \xrightarrow{+1} P$
$T \xrightarrow{-1} S$
$I \xrightarrow{+1} J$
$V \xrightarrow{-1} U$
$E \xrightarrow{+1} F$

Hence code 3 has been used write the word STATION as RUZUHPM.

70. Find the mean of x + 77, x + 7, x + 5, x + 3 and x – 2.

(a) x + 18 (b) x + 8
(c) x – 3 (d) x – 8

Ans. (a) : Mean $= \dfrac{\text{Sum of terms}}{\text{No. of terms}}$

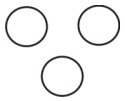
$$= \frac{(x-2)+(x+3)+(x+5)+(x+7)+(x+77)}{5}$$

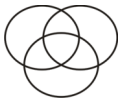
$$= \frac{5x+90}{5}$$

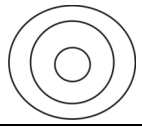
$$= \frac{5(x+18)}{5} = (x+18)$$

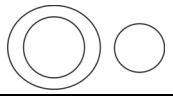
71. Select the Venn diagram that best represents the relationship among the following three classes.

Fruit, coffee, Drink

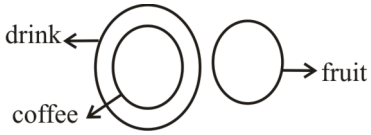
(a) 

(b) 

(c) 

(d) 

Ans. (d) : Coffee is drink but fruit is not.



Hence, the Venn diagram of option (d) represents the relationship between the given classes.

72. With which musical instrument was the noted musician Ustad Bismillah Khan associated?

(a) Flute (b) Tabla

(c) Flageolet (d) Sitar

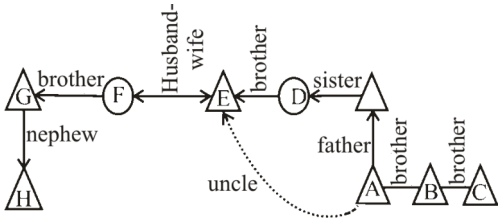
Ans. (c) : Shehnai Maestro, Ustad Bismillah Khan is the legend of Indian classical music. He was born on 21st March 1916 to a Muslim family of musicians in Bihar's Dumraon. His real name was Quamruddin Khan. In 2001 he was awarded the Bharat Ratna, India's highest civilian honour for his contribution to Indian Music.

73. Three brothers A, B and C have a paternal aunt D. D is the brother of E. E is married to F. F has an only sibling, an unmarried brother G. H is the only nephew of G. How is E related to A?

(a) Maternal uncle (b) Brother

(c) Father (d) Paternal uncle

Ans. (d) : The blood relation diagram is as follows-



Hence, E is uncle of A.

74. Find the value of $\cos^2 3^\circ + \cos^2 4^\circ + \cos^2 5^\circ +$ ..... $+ \cos^2 87^\circ$

(a) $\dfrac{65}{2}$ (b) $\dfrac{85}{2}$

(c) $\dfrac{75}{2}$ (d) $\dfrac{55}{2}$

Ans. (b) : $\cos^2 A + \cos^2 B = 1 \quad (\text{If } A + B = 90^\circ)$

$\cos^2 3^\circ + \cos^2 4^\circ + \cos^2 5^\circ ..... \cos^2 86^\circ + \cos^2 87^\circ$

No. of terms $= \dfrac{\text{Last term - First term}}{\text{Common difference}} + 1$

$$= \frac{87-3}{1} + 1$$

$$= 85$$

42 pairs of $\cos^2 A + \cos^2 B$ $(A + B = 90^\circ)$ will be formed but $\cos^2 45^\circ$ will not form.

So, sum of total terms $= 42 + \cos^2 45^\circ$

$$= 42 + \frac{1}{2}$$

$$= \frac{85}{2}$$

75. In which of the following cities, United Nations subsidiary regional headquarters is NOT opened?

(a) Geneva (b) Nairobi

(c) Rome (d) Vienna

Ans. (c) : The UN is headquartered in New York City and has other subsidiary regional offices in Geneva,Nairobi, Vienna, and The Hague.

So, the option (c) is correct answer.

76. The perimeter of a rectangle is 120 m. if its length is twice its breadth, then its area is:

(a) 600 m^2 (b) 500 m^2

(c) 800 m^2 (d) 700 m^2

Ans. (c) : Let- Breadth of rectangle = x m.

Length of rectangle = 2x m.

Perimeter = 2(l + b)

120 = 2 (2x + x)

60 = 3x

$\boxed{x = 20}$

Breadth of rectangle = x = 20 m

Length of rectangle = 2x = 40 m

Area of rectangle = l × b

= 40 × 20

= 800 m^2

77. A dialyser, a machine used to clean a patient's blood, is also known as an artificial:

(a) Intestine (b) Heart
(c) Kidney (d) Lung

Ans. (c) : Hemodialysis is a treatment to filter wastes and water from blood, as kidneys did when they were healthy. Hemodialysis helps control blood pressure and balance important minerals, such as potassium, sodium, and calcium, in blood. During hemodialysis, blood goes through a filter, called a dialyzer, outside body. A dialyzer is also called as "Artificial Kidney."

78. India's First Digital University is inaugurated in _____.

(a) Maharashtra (b) Kerala
(c) Karnataka (d) New Delhi

Ans. (b) : On 20 February 2021 Governor of Kerala, Arif Mohammed Khan had inaugurated India's first Digital University named Kerala University of Digital Sciences, Innovation and Technology. A Digital University has been set up in Kerala's Technocity, Mangalapuram. It offer postgraduate programmes and research in various fields of digital technologies.

79. Four alphanumeric-clusters have been given, out of which three are alike in some manner and one is different. Select the odd one.

(a) U21 (b) A12
(c) P16 (d) M13

Ans. (b) : In the given question, the letters of alternatives (a), (c) and (d) are shown with alphabetical order. Whereas in option (b) 12 is not a alphabetical order of A.

Hence, option (a) is odd one.

80. Which of the following the correct order of the roman numerals C, D, L, X and M?

(a) M > C > D > L >X
(b) D > M > C > L > X
(c) X > M > C > D > L
(d) M > D > C > L > X

Ans. (d) : On arranging roman numerals in the correct order.

M > D > C > L > X

1000 > 500 > 100 > 50 > 10

81. Which of the following minerals is obtained from cracks and lavers?

(a) Sodium salt (b) Potash salt
(c) Gypsum (d) Copper

Ans. (b) : Potash Salt is a potassium-rich salt that is mined from underground deposits formed from evaporated sea beds millions of years ago. Potassium is an essential element for all plant, animal and human life. It is obtained from cracks and layers of igneous and metamorphic rocks.

82. Two numbers are in the ratio of 3 : 2 and their LCM is 96. Find the numbers.

(a) 48 and 32 (b) 46 and 32
(c) 46 and 31 (d) 47 and 32

Ans. (a) : Let the number be 3x and 2x

LCM of 3x and 2x = 6x

6x = 96

x = 16

Number = 3x = 3 × 16 = 48

= 2x = 2 × 16 = 32

83. In which of the following is not a Navaratna company:

(a) Hindustan Petroleum Corporation Limited
(b) Rural Electrification Corporation Limited
(c) Oil India Limited
(d) Oil & Natural Gas Corporation Limited

Ans. (d) : The Government of India categorizes Central Public Sector Enterprises (CPSEs) under three different categories-Maharatna, Navratna, and Miniratna. Overall, there are 14 Central Public Sector Enterprises which have been categorized as Navratna Companies based on criteria put out by the Government of India. List of Navratna Companies in India.

1. Bharat Electronics Limited
2. Container Corporation of India Limited
3. Engineers India Limited
4. Hindustan Aeronautics Limited
5. Mahanagar Telephone Nigam Limited
6. National Aluminium Company Limited
7. NBCC (India) Limited
8. NMDC Limited
9. NLC India Limited
10. Oil India Limited
11. Power Finance Corporation Limited
12. Rashtriya Ispat Nigam Limited
13. Rural Electrification Corporation Limited.
14. Shipping Corporation of India Limited List of Navratna Companies in India

Recently the goverment has accorded the Maharatna status to State-owned power finance corporation (PFC). PFC has bacome the 11^{th} public sector enterprises to get the Maharatna status in the country and joins the ranks of other such companies- like ONGC, IOC, SAIL and BHEL among other.

84. If p is the length of a rectangle and its width is one-third of its length, then the area of the rectangle will be:

(a) p^2 (b) $\frac{p^2}{3}$
(c) $\frac{p^2}{4}$ (d) $\frac{p^2}{5}$

Ans. (b) : Length of rectangle = p

Width of rectangle = $\frac{p}{3}$

Area of rectangle = $l \times b$

$= p \times \frac{p}{3}$

$= \frac{p^2}{3}$

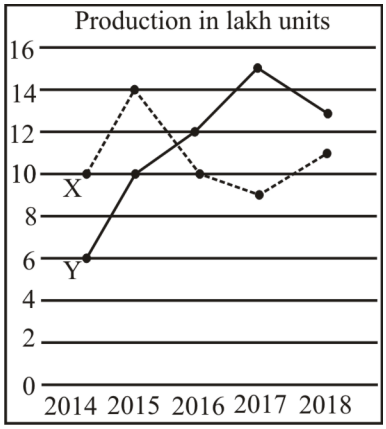
85. Which of the following is the highest non-Asian mountain peak?

(a) Mount Elbrus (b) Mount McKinley

(c) Mount Aconcagua (d) Mount Kilimanjaro

Ans. (c) : Aconcagua has a summit elevation of 6,960.8 meters (22,837 ft). It is Located in the Andes mountain range in Mendoza Province, Argentina. It is the highest mountain outside Asia.

86. The following line graph shows of production of engines (in lakh units) of various for two companies X and Y over 5 years (from 2014 to 2018). Answer the given question based on the line graph.



For company Y, What is the approximate percentage increase in the production of engines from 2015 to 2017?

(a) 33% (b) 150%

(c) 66% (d) 50

Ans. (d) : The engine production in the year 2015 for company Y is 10.

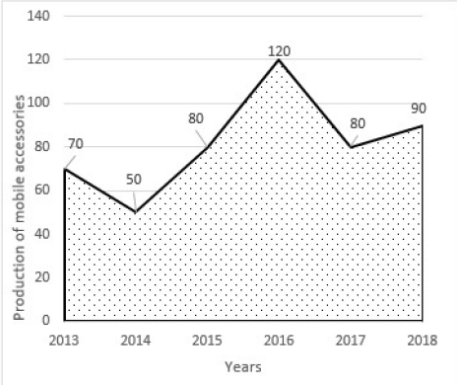
The engine production in the year 2017 for company Y is 15.

Increase = 15 – 10 = 5

Increase % = $\frac{5}{10} \times 100 = 50\,\%$

87. The following chart shows the production of mobile accessories (in lakh units) by a company Z over 6 years (from 2013 to 2018). Answer the given quesiton based on the chart.

Find the Percentage decrease in the production of mobile accessories from the years 2016 to 2018.



(a) 50% (b) 40%

(c) 25% (d) 20%

Ans. (c) : The production of mobile accessories in the year 2016 is 120.

The production of mobile accessories in the year 2018 is 90.

Decrease = 120 – 90 = 30

Decrease % = $\frac{30}{120} \times 100 = 25\,\%$

88. The following table shows the production of red lentil (in tons) from four states A, B, C and D for the years 2017 and 2018. Answer the given question based on the table.

Years / States	Production of red lentil in tons	
	2017	2018
A	260	220
B	210	230
C	180	200
D	210	240

What is the ratio of the production of red lentil in state B in 2017 to that in state D in 2018?

(a) 9 : 8 (b) 4 : 5

(c) 8 : 9 (d) 7 : 8

Ans. (d) : The production of red lentil in state B in the year 2017 is 210.

The production of red lentils in state D in the year 2018 is 240.

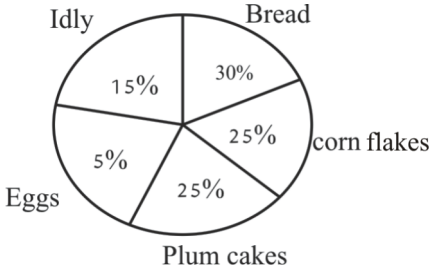
2017 (B) : 2018 (D)

210 : 240

7 : 8

89. The following pie diagram shows information about the number of students who like a particular type of breakfast items cooked by hostel chef. The number of total students in the hostel 3200.

Which of these statements is NOT true?



(Reference-Idly, Bread, Corn Flakes, Plum cakes, Eggs)

(a) The difference between the number of students liking Cornflakes and Plum Cakes and the number of students liking Bread and Eggs is greater than the number of students who like Idly.

(b) Only 160 students like Eggs for Breakfast

(c) The number of students liking Plum Cake for Breakfast is the same as the number of students liking Cornflakes.

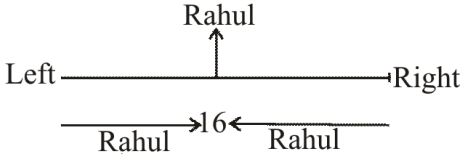
(d) The ratio of the number of students liking Idly to the number of students liking Eggs is 3 :1

Ans.(a) : Students who like cornflakes+plum cake
= 25% + 25% = 50 %
Students who like Bread + Eggs = 30 % + 5% = 35%
Difference of both = 50 % – 35 % = 15 %
Students who like Idly = 15 %
Hence, the difference between the students who like cornflakes + Plum cake and Bread + Eggs will be equal to that of both the students who like Idly and not more.

90. In a row of children during morning assembly, Rahul is 16th from both ends. How many children are there in the row?

(a) 31 (b) 36
(c) 35 (d) 32

Ans. (a) :



Total number of children in the row = (16 + 16) – 1
= 31

91. Select the figure from the given options that when replaced with the question mark (?) will complete the series.

(a) 
(b) 
(c) 
(d) 

Ans. (a) : In the given question figure, 90º counterclockwise from the first figure to the second figure and 180º counterclockwise from the second figure to the third figure, similarly the figure of option (a) will fill the blank.

92. Consider the given statement and decide which of the given assumption(s) is/are implicit in the statement.

Statement:

'Smoking is injurious to health' is a warning printed on cigarette packets

Assumption:

I. People read the printed matter on cigarette packets.

II. People take note of the warning.

(a) Neither assumption I nor II is implicit

(b) Both assumption I and II are implicit

(c) Only assumption II is implicit

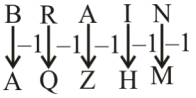
(d) Only assumption I is implicit

Ans. (b) : There is a warning on the given cigarette packs that smoking is injurious to health, people read and pay attention to the warning, so both assumptios I ana II are implicit in the given statement.

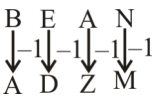
93. In a certain code language, BRAIN is written as AQZHM. How will BEAN be written as in that code language?

(a) ADZM (b) OPSU
(c) SNED (d) NSDE

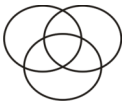
Ans. (a) : Just as,



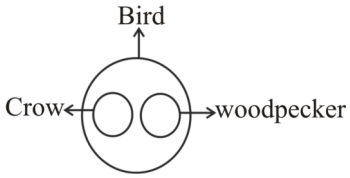
Similarly,



94. Select the Venn diagram that best represents the relationship among the following three classes.
Bird, Crow, Woodpecker.

(a) 
(b) 
(c) 
(d) 

Ans. (d) : From the given Venn diagram-

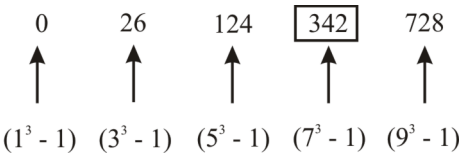


Hence, the Venn diagram of option (d) is the correct answer.

95. Select the number that can replace the qustion mark (?) in the following series.
0, 26,124, ?,718

(a) 215 (b) 342
(c) 510 (d) 456

Ans. (b) : The given series is as follows-



Hence, ? = 342

96. Select the option that is related to the third term in the same way as the second term is related to the first term.
Fracture : Bone :: Sprain : ?

(a) Ankle (b) Skin
(c) Ligament (d) Tissue

Ans. (c) : Just as fracture occurs in bone, likewise sprain occurs in muscle.

97. How will you write 9.11 hours in hours, minutes and seconds?

(a) 9 hours, 11 minutes
(b) 9 hours, 49 minutes
(c) 9 hours, 6 minutes, 36 seconds
(d) 9 hours, 10 minutes, 10 seconds

Ans. (c) : 9.11 hrs. =

$= 9 \text{ hours} + 0.11 \times 60 \text{ minutes}$

$= 9 \text{ hours} + \frac{66}{10} \text{ minutes}$

$= 9 \text{ hours} + 6 \text{ minutes} + 0.6 \times 60 \text{ seconds}$

$= 9 \text{ hours} + 6 \text{ minutes} + 36 \text{ seconds}$

Hence, 9.11 hours = 9 hours, 6 minutes, 36 seconds

98. Select the option in which the words share the same relationship as that shared by the given pair of words.
Chef : Restaurant

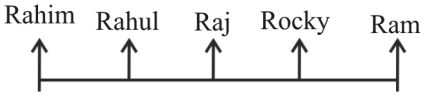
(a) Physician : Patient
(b) Librarian : Catalogue
(c) Carpenter : Wood
(d) Druggist : Pharmacy

Ans. (d) : Just as a Chef works in a restaurant, Similarly a druggist works in a Pharmacy.

99. Five friends Ram, Rahim, Rahul, Rocky and Raj are sitting against a wall. All of them are facing to the north. Ram is sitting second to the right of Raj, who is not sitting on the extreme end. Ram and Rahim are sitting on extreme ends. Rahul is not sitting next to Ram.
Who is sitting third to the left of Rocky?

(a) Rahul (b) Rahim
(c) Ram (d) Raj

Ans. (b) : According to the question,

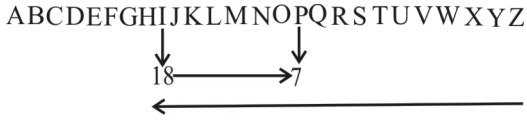


Raheem is sitting third to the left of Rocky.

100. Which letter is seventh to the right of the eighteenth letter from the right end of the alphabet?

(a) K (b) O
(c) R (d) P

Ans. (d) :



Hence, the seventh letter will be 'P'.

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 23.07.2021] **[Time : 3pm-4.30 pm]**

1. If $2(\cos\theta + \sec\theta) = 5$, then find the value $\sec^2\theta + \cos^2\theta$.

(a) $\frac{4}{17}$ (b) $\frac{17}{4}$

(c) $\frac{25}{2}$ (d) $\frac{25}{2}$

Ans. (b) : Given that,

$2(\cos\theta + \sec\theta) = 5$

$\cos\theta + \sec\theta = \frac{5}{2}$

On squaring both sides-

$(\cos\theta + \sec\theta)^2 = \left(\frac{5}{2}\right)^2$

$\cos^2\theta + \sec^2\theta + 2\cos\theta.\sec\theta = \frac{25}{4}$

$\cos^2\theta + \sec^2\theta + 2 = \frac{25}{4}$

$\cos^2\theta + \sec^2\theta = \frac{25}{4} - 2$

$\cos^2\theta + \sec^2\theta = \frac{17}{4}$

2. Find the length of the tangent drawn from the point (2, 3) to the circle $x^2 + y^2 = 4$.

(a) 2 (b) 3

(c) 1 (d) 4

Ans. (b) : The equation of the given circle is

$x^2 + y^2 = 4$

$x^2 + y^2 - 4 = 0$

On comparing with the general equation of the circle

$x_1^2 + y_1^2 + 2gx_1 + 2hy_1 + k = 0$

For the length of the tangent drawn from the point (2, 3) to the given circle,

$x_1 = 2$, $y_1 = 3$, $g = 0$, $h = 0$, $k = -4$

Length of the tangent $= \sqrt{x_1^2 + y_1^2 + 2gx_1 + 2hy_1 + k}$

$= \sqrt{2^2 + 3^2 - 4}$

$= \sqrt{4 + 9 - 4}$

$= \sqrt{9}$

$= 3$

3. A place where animals are protected in their natural habitat is called a:

(a) National park (b) Wildlife Sanctuary

(c) Zoo (d) Biosphere reserve

Ans. (b) : A Wildlife Sanctuary in an area where animals habitats and their surroundings and are protected from any sort of disturbances. The capturing, killing and poaching of animals is strictly prohibited in these regions.

4. Find the value of $\sin^2 5° + \sin^2 10° + \sin^2 80° + \sin^2 85°$?

(a) 0 (b) 1

(c) 2 (d) 3

Ans. (c) : According to the question,

$\sin^2 5^\circ + \sin^2 10^\circ + \sin^2 80^\circ + \sin^2 85^\circ$

$= \sin^2 5^\circ + \sin^2 10^\circ + \sin^2(90^\circ - 10^\circ) + \sin^2(90^\circ - 5^\circ)$

$= \sin^2 5^\circ + \sin^2 10^\circ + \cos^2 10^\circ + \cos^2 5^\circ$

$= (\sin^2 5^\circ + \cos^2 5^\circ) + (\sin^2 10^\circ + \cos^2 10^\circ)$

$= 1 + 1$

$= 2$

5. Which of these two fraction is placed between $\frac{5}{7}$ and $\frac{3}{4}$?

(a) $\frac{2}{3}, \frac{5}{6}$ (b) $\frac{1}{2}, \frac{2}{5}$

(c) $\frac{7}{9}, \frac{8}{9}$ (d) $\frac{8}{11}, \frac{11}{15}$

Ans. (d) :

$\frac{5}{7} = 0.714$ $\frac{3}{4} = 0.75$

From option (d)-

$\frac{8}{11} = 0.727$ and $\frac{11}{15} = 0.733$

It is clear that the fraction $\frac{8}{11}$ and $\frac{11}{15}$ can be placed between $\frac{3}{4}$ and $\frac{5}{7}$.

6. Find the greatest number out of $-\frac{3}{2}, \frac{3}{2}, \frac{11}{4}, \frac{5}{2}$?

(a) $\frac{3}{2}$ (b) $\frac{11}{4}$

(c) $\frac{5}{2}$ (d) $-\frac{3}{2}$

Ans. (b) :

$-\frac{3}{2} = -1.5$

$\frac{3}{2} = 1.5$

$\frac{11}{4} = 2.75$

$\frac{5}{2} = 2.5$

Greatest number = $\frac{11}{4}$

7. Express $\frac{-40}{56}$ as a rational number whose numerator is –5.

(a) $-\frac{5}{6}$ (b) $-\frac{5}{8}$

(c) $-\frac{5}{7}$ (d) $-\frac{5}{18}$

Ans. (c) : $-\frac{40}{56} = -\frac{5}{7}$

It is clear that option (c) is the required rational number.

8. K is shorter than N but taller than M, J is taller than K but shorter than N. Who is the youngest among K, N, M and J?

(a) M (b) N

(c) J (d) K

Ans. (a) : According to the question, the descending order of their height is as follows-

N > J > K > M

It is clear that 'M' is the youngest.

9. A and B started a business with capital investments of ₹7500 and ₹8000. If they leave the business after 8 months and 10 months respectively, then find the ratio of profit they get?

(a) 3:5 (b) 3:8

(c) 3:4 (d) 3:7

Ans. (c) : Capital of A = ₹7500

Capital of B = ₹8000

Required ratio = 7500×8 : 8000×10

= 3 : 4

10. Select the option that is related to the third term in the same way as the second term is related to the first term.

Mason : Builds :: Mechanic : ?

(a) Cars (b) Tools

(c) Factory (d) Repairs

Ans. (d) : Just as a Mason builds home, similarly a Mechanic repairs mechanical equipments.

11. In 1928, the Hindustan Socialist Republican Army was established in Delhi .....

(a) Nirankari ground

(b) India Gate

(c) Firozshah Kotla ground

(d) Red Fort

Ans. (c) : Hindustan Socialist Republican Association earlier it was known as Hindustan Republican Association, was established in 1928 at Firoz Shah Kotla ground in New Delhi by Chandra Shekher Azad, Ashfaqulla Khan, Bhagat Singh, Sukhdev and Jogesh Chandra Chatterjee.

12. In the Battle of Plassey in 1757 who led the army of the East India Company?

(a) Charles Boys (b) William Babington

(c) Robert Clive (d) Robert Boyle

Ans. (c) : Battle of Plassey was fought between the East India Company headed by Robert Clive and Siraj-ud-Daulah along with his French Troop in 1757. Mughal emperor Alamgir-II was ruling the empire when Battle of Plassey took place.

13. Which of the following central public sector enterprises (as per information received till January 2021) does not have 'Maharatna' status?

(a) Gail (India) limited

(b) Oil India limited

(c) Coal India limited

(d) Steel Authority of India limited

Ans. (b) : The Govt. of India categorizes central public sector enterprises under three different categories:- Maharatna, Navratna & Miniratna. At present, there are total 10 Maharatna companies. They are:- NTPC, ONGC, SAIL, IOCL, HPCL, CIL, GAIL, BPCL PGCIL & BHEL.

14. The Rajasthan Atomic Power station was constructed with the help of.....?

(a) Germany (b) Canada

(c) Australia (d) Japan

Ans. (b) : The Rajasthan Atomic Power Project (RAPP) located in Rawatbhata in the north Indian state Rajasthan, currently six Pressurised Heavy Water Reactor (PHWR) units, operating with a total capacity of 1180 MW. The construction of Douglas Point Nuclear generating station, Canada began in 1961 with (Canada Deuterium Uranium) Pressurised Heavy Water Reactor (PHWR) capable of producing 220 MW of electricity.

15. In 1987, The South Asian Association of Regional Cooperation (SAARC) was established Secretariat in .....?

(a) Dhaka (b) New Delhi
(c) Kathmandu (d) Islamabad

Ans. (c) : The SAARC Secretariat was established in Kathmandu on 16 January, 1987 by Bangladeshi diplomat Abul Ahsan, who was its first Secretary General. The SAARC was founded in Dhaka on 8 December, 1985. Its Secretariat is based in Kathmandu, Nepal. Its member states are Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.

16. Which of the following rivers is a part of National waterway 5 (NW-5)?

(a) Krishna (b) Brahmani
(c) Damodar (d) Godavari

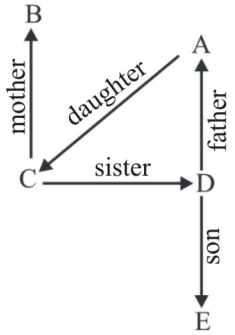
Ans. (b) :

National Waterway	Related River	Length
National Waterway-1	Ganga, Bhagirathi, Hooghly Rivers (Prayagraj to Haldia)	1620 km
National Waterway-2	Brahmaputra (Sadiya-Dhubri)	891 km
National Waterway-3	West Coast Canal is located in Kerala from Kollam to Kottapuram	205 km
National Waterway-4	Krishna and Godawari (Kakinada Puducherry Canal System)	1095 km
National Waterway-5	Brahmani River (From Geonkhali to Talcher)	623 km
National Waterway-6 (proposed)	Barak River (Lakhipur to Bhanga)	121 km

17. If B is the mother of C, D is the sister of C. C is the daughter of A and E is the son of D, then how is A related to E?

(a) Mother's father (b) Father's brother
(c) Mother's brother (d) Father

Ans. (a) : According to the question blood relation diagram is as follows-



It is clear from the diagram that A is the father of E's mother.

18. COVAXIN is India's indigenous COVID-19 Vaccine developed by .....

(a) Bharat Biotech and ICMR - National Institute of Virology (NIV).
(b) Indian Medicines Pharmaceutical Corporation Limited and Rajasthan Drugs and Pharmaceutical Limited
(c) ICMR and Indian Medicines Pharmaceutical Corporation Limited
(d) Bharat Biotech and National Pharmaceutical Pricing Authority

Ans. (a) : Covaxin is India's first indigenous COVID-19 vaccine developed by Bharat Biotech in collaboration with Indian Council of Medical Research (ICMR)-National Institute of Virology (NIV). Serum Institute of India's COVID-19 vaccine called Covishield is a version of the Oxford-Astrazeneca Vaccine.

19. Bangladesh celebrates its Independence day on .....?

(a) 26 February (b) 26 March
(c) 12 March (d) 20 April

Ans. (b) : On 26 March 1971 Bangladesh got independence from Pakistan. Thus Independence Day of Bangladesh is celebrated every year on 26 March. This day is a memorial to the deaths of millions of civilians and valient freedom fighters who died in the Bangladesh Liberation war. this day is a memorial to the deaths of millions of civilians and valian freedom fighters who died in the Bangladesh liberationh war.

20. HDFC lent ₹1 million to HUDCO at 10% p.a. simple interest for three years and HUDCO lent the same amount to Sahara State Housing Corporation for three years at 10% p.a. compound interest. Find the profit earned by HUDCO in this transaction.

(a) ₹31,000 (b) ₹33,100
(c) ₹1,33,100 (d) ₹32,100

Ans. (a) : Given that,

Principal (P) = ₹10,00,000

Rate (r) = 10% yearly

Time (t) = 3 years

Required profit =

$$1000000\left[\left(1+\frac{10}{100}\right)^3-1\right]-\frac{1000000\times10\times3}{100}$$

$$=1000000\left[\frac{11}{10}\times\frac{11}{10}\times\frac{11}{10}-1\right]-100000\times3$$

$$=1000000\left[\frac{1331-1000}{1000}\right]-300000$$

$$=1000\times331-300000$$

$$=331{,}000-300{,}000$$

$$=₹31{,}000$$

21. If '+' means multiplication '÷' means addition '–' means division and '×' means subtraction, then what will be the value of the following expression?

17 + 7 ÷ 27 – 3 × 13

(a) 31.7 (b) 21.7

(c) 117 (d) 115

Ans. (d) : Given that,

$17 + 7 \div 27 - 3 \times 13$

According to the question, on interchanging the signs–

$17 \times 7 + 27 \div 3 - 13$

$= 17 \times 7 + 9 - 13$

$= 119 + 9 - 13$

$= 128 - 13$

$= 115$

22. A person starts walking from his house and covers a certain distance at a speed of 15 km/h and returns to the starting point with a speed of 10 km/h. Find his average speed during the whole journey?

(a) $12\frac{1}{2}$ km/hr (b) 11 km/hr

(c) 13 km/hr (d) 12 km/hr

Ans. (d) : When the distance is constant

$$\text{Average speed} = \frac{2xy}{x+y}$$

Where $x \rightarrow$ First speed

$y \rightarrow$ Second speed

$$\text{Hence, Average speed} = \frac{2\times15\times10}{15+10}$$

$$= \frac{2\times15\times10}{25}$$

$= 12$ km/h.

23. When 43 is divided by x, then remainder is x – 5. If x is a natural number, then the possible value of x is–

(a) 4 (b) 6

(c) 3 (d) 5

Ans. (b) : Let the quotient = q

Dividend = Divisor ×Quotient + Remainder

$43 = x \times q + x - 5$

$48 = x(q + 1)$

$$\frac{48}{q+1} = x$$

Possible values of q = 1, 2, 3, 5, 7, 11, 15, 23, 47

The value of q must be greater than 5 and equal to 5.

So, the number of possible values of q = 5, 7, 11, 15, 23, 47 = 6

24. Which satellite was launched by PSLV- C51 on February 28, 2021?

(a) SROSS-C (b) Landsat-3

(c) IRS-2 (d) Amazonia-1

Ans. (d) : India's Polar Satellite Launch Vehicle C51 had successfully launched Amazonia-1 along with 18 other small satellite on 28 Feb, 2021 from Satish Dhawan Space Centre, Sriharikota.

25. In which state is the iron-ore mine Badampahar located?

(a) Madhya Pradesh (b) Odisha

(c) Karnataka (d) Maharashtra

Ans. (b) :

(Iron ore mine)	**(State)**
Badampahar, Mayurbhanj	Odisha
Dalli Rajhara, Bailadila	Chhattisgarh
West Singhbhum, Palamu	Jharkhand
Kudremukh	Karnataka

26. Which of the following green house gas is not included under the Kyoto Protocol?

(a) Co_2 (Corbon dioxide)

(b) O_3 (Ozone)

(c) CH_4 (Methane)

(d) N2O (Nitrous oxide)

Ans. (b) : Ozone gas (O_3) was not included under Kyoto Protocol. Kyoto Protocol is an international treaty to reduce green house gas emissions. It was adopted in Kyoto, Japan on 11 December 1997. It applies to 6 green house gases:- Carbon dioxide, Methan, Nitrous oxide, Hydrofluorocarbons, Fluoro-carbons and Sulfur hexafluoride.

27. A milkman adds 10% water to pure milk but he is not satisfied with it. Therefore he again adds 10% more water to the previous mixture. If he sells it at cost price, then find the profit percentage?

(a) 21% (b) 12.1%

(c) 11.11% (d) 20%

Ans. (a) : Let the quantity of milk = x units

Quantity after adding 10% water =

$$x + \frac{x\times10}{100} = \frac{11}{10}x \text{ units}$$

Quantity after adding 10% water again =

$$\frac{11x}{10} + \frac{11x}{10} \times \frac{10}{100}$$

$$= \frac{110x + 11x}{100}$$

$$= \frac{121x}{100}$$

$$\text{Required profit \%} = \frac{\frac{121x}{100} - x}{x} \times 100\%$$

$$= \frac{21x}{100x} \times 100\%$$

$$= 21\%$$

28. Match the following gases and their Formulas?

Gas	Formula
A. Methane	1. CH_4
B. Ethane	2. C_3H_8
C. Propane	3. C_4H_{10}
D. Butane	4. C_2H_6

(a) A-4, B-1, C-3, D-2 (b) A-3, B-4, C-2, D-1
(c) A-1, B-2, C-4, D-3 (d) A-1, B-4, C-2, D-3

Ans. (d) : A-1, B-4, C-2, D-3

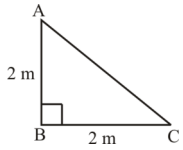
Gas		Formula
Methane	−	CH_4
Ethane	−	C_2H_6
Propane	−	C_3H_8
Butane	−	C_4H_{10}

29. Four numbers have been given, out of which three are alike in some manner and one number is different select the odd one.
169, 289, 144, 356
(a) 289 (b) 169
(c) 144 (d) 356

Ans. (d) : Except the number 356, all the given numbers are perfect square.
$289 = (17)^2$
$169 = (13)^2$
$144 = (12)^2$
Hence, 356 is odd one.

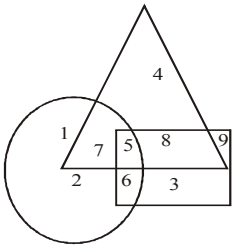
30. If one side of a right angled isosceles triangle is 2m, then find the length of its hypotenuse.
(a) $8\sqrt{2}$ m (b) $2\sqrt{2}$ m
(c) $2\sqrt{8}$ m (d) $2\sqrt{4}$ m

Ans. (b) : In an Isosceles right-angled triangle ABC-



From the pythagoras Theorem,
Hypotenuse (AC) $= \sqrt{(2)^2 + (2)^2}$
$AC = \sqrt{4+4}$
$AC = \sqrt{8}$m
$AC = 2\sqrt{2}$m

31. In the given diagram triangle represents graduate women, rectangle represents self-employed women and circle represents self-employed persons with bank loan facilities. On the basis of the numbers shown in the different sections of the diagram answer the following questions.



How many graduate women are self-employed?
(a) 15 (b) 13
(c) 20 (d) 12

Ans. (b) : It is clear from the above diagram that the number of graduate women who are self-employed is 5 + 8 = 13.

32. Traditional weaving of Gujarat is known as.....?
(a) Tushar (b) Kanjivarm
(c) Jamdani (d) Patola

Ans. (d) :

Traditional Weaving	States
Kanjivaram	Tamil Nadu
Patola	Gujarat
Jamdani	West Bengal
Zardozi	Lucknow (U.P.)

33. Select the wrong pair of bone and related part of the human body from the given alternatives.
(a) Maxilla - Jaw (b) Patella bone - Leg
(c) Carpal bone - Neck (d) Ulna bone - Hand

Ans. (c) :

Bones in Human body	Related Part
Maxilla	Jaw
Patella bone	Leg
Carpal bone	Wrist
Ulna bone	Hand

34. A man travels a distance of 30 km at a speed of 6 km/h and completes the remaining distance 40 km in 5 hours. Find his average speed during the whole journey?
(a) 7 km/hr (b) 8 km/hr
(c) $6\frac{4}{11}$ km/hr (d) 5 km/hr

Ans. (a) : Time taken to cover a distance of 30 km at a Speed of 6 km/h = $\frac{30}{6} = 5$ hours

$$\text{Average speed} = \frac{\text{Total distance}}{\text{Total time}}$$

$$= \frac{30+40}{5+5}$$

$$= \frac{70}{10}$$

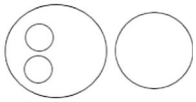
$$= 7 \text{ km/hr.}$$

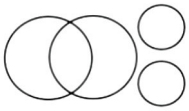
35. Which one of the following facts is not true regarding to the 'Dandi March'?

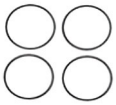
(a) Volunteers used to travel miles per day
(b) It started with 78 Volunteers
(c) It was led by Mahatma Gandhi
(d) This Journey lasted for 24 days

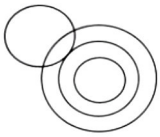
Ans. (a) : Dandi March also known as salt March was the 24 day March from 12 March to 6 April, 1930. It was a tax resistance campaign against the British salt monopoly. On 12 March, Gandhiji set out from Sabarmati with 78 followers on 240 mile March to the Coastal town of Dandi.

36. Select the Venn diagram that best represents the relationship between the following classes. Rivers, Lakes, Mountains, Water bodies.

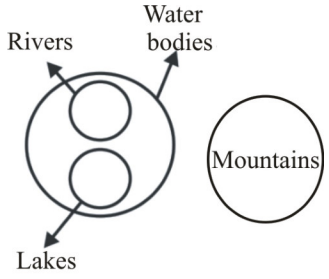
(a) 

(b) 

(c) 

(d) 

Ans. (a) : Lakes and Rivers comes under Water body whereas Mountains are different from them.



Hence, the venn diagram of option (a) best represents the relationship between the given classes.

37. Which of the following book has not written by Dr. A.P.J. Abdul Kalam?

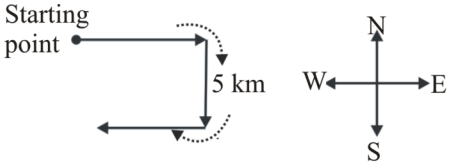
(a) Wings of Fire: An Autobiography
(b) India 2020: A Vision for the New Millennium
(c) The Discovery of India
(d) Ignited Minds: Unleashing the Power Within India

Ans. (c) : 'The Discovery of India' book was written by Pt. Jawahar Lal Nehru during his at the Ahmednagar Fort for participating in the Quit India Movement (1942-45).

38. During his morning walk Vidyanshu walks some kilometer towards the sun, after some time, he turns to his right and walks 5 km. He turns right again and continue to walking, finally in which direction is Vidyanshu walking?

(a) East (b) South
(c) North (d) West

Ans. (d) :



It is clear from the diagram that Vidyanshu is walking towards 'West' direction at the end.

39. Initially the ratio of sand and cement in a mixture was 9 : 2. After adding 20 kg of sand and 10 kg of cement to the mixture, the ratio of sand and cement becomes 4 : 1. What was the maximum amount of cement in the mixture?

(a) 50 kg (b) 40 kg
(c) 20 kg (d) 30 kg

Ans. (b) : Let the initial quantity of cement = 2x kg
and quantity of sand = 9x kg

According to the question-

$$\frac{9x+20}{2x+10} = \frac{4}{1}$$

$$9x + 20 = 8x + 40$$

$$x = 20 \text{ kg}$$

So, the initial quantity of cement = $2x = 2 \times 20 = 40$ kg

40. Who was honoured with the Best Actress award at the 67th National film Awards 2020 announced in March 2021?

(a) Deepika Padukone (b) Kangna Ranaut
(c) Taapsee pannu (d) Alia bhatt

Ans. (b) : The 67 th National Awards were announced at a press meet on 22 March, 2021. Kangana Ranaut was honoured with the Best Actress Award for her performance in the 2019 Hindi period drama film Manikarnika The Queen of Jhansi and the 2020 Hindi sports drama film Panga Best Actor Award was honoured to Manoj Bajpayee and Dhanush.

41. 'Pen Drive' was invented by IBM in the year .....

(a) 1990 (b) 1988
(c) 2003 (d) 1998

Ans. (d) : The Pen drive was invented by IBM in 1998, with the intention of replacing the floppy drive in its thinkpad line of products. The first flash drive was manufactured by M-systems under contract with IBM and was called the disgo.

42. If $\tan\theta = \frac{p}{q}$ then, find the value $\frac{p\sin\theta - q\cos\theta}{p\sin\theta + q\cos\theta}$?

(a) $\frac{2pq}{p^2+q^2}$ (b) $\frac{p^2-q^2}{p^2+q^2}$
(c) $\frac{q^2-p^2}{p^2+q^2}$ (d) $\frac{2p}{p^2+q^2}$

Ans. (b) : Given that,

We know that $\left[\tan\theta = \frac{\sin\theta}{\cos\theta}\right]$

$\tan\theta = \frac{p}{q}$

Or, $\frac{\sin\theta}{\cos\theta} = \frac{p}{q}$

Substituting $\sin\theta = P$ and $\cos\theta = q$ in the given expression,

$$\frac{p\sin\theta - q\cos\theta}{p\sin\theta + q\cos\theta} = \frac{p\times p - q\times q}{p\times p + q\times q}$$

$$= \frac{p^2-q^2}{p^2+q^2}$$

43. According to the Union Budget of 2021-2022 how much is the budget of India?

(a) 10.52 lakhs crore (b) 34.83 lakhs crore
(c) 16.95 lakhs crore (d) 44.56 lakhs crore

Ans. (b) : The Union Government proposes to spend ₹ 34,83,236 crore in Union Budget 2021-22. It was the first ever digital Union Budget. This Budget is based on 6 pillars.

44. Who was the Governor General of India between 1848 and 1856?

(a) Lord Dalhousie
(b) Lord Warren Hastings
(c) Lord William Bentinck
(d) Lord Minto

Ans. (a) :

Governor General	Term of office
Lord Dalhousie	1848-1856
Lord Warren Hastings	1773-1785
Lord William Bentinck	1828-1835
Lord Minto	1807-1813

45. If 92×32 = 10, 73×41 = 7 and 26×78 = 9 then, find the value of 33×28?

(a) 30 (b) 4
(c) 60 (d) 12

Ans. (d) : Just as,

$92\times32 = 10 \quad \Rightarrow (9+2)-(3-2) = 10$

$73\times41 = 7 \quad \Rightarrow (7+3)-(4-1) = 7$

$26\times78 = 9 \quad \Rightarrow (2+6)-(7-8) = 9$

Similarly,

$33\times28 = 12 \quad \Rightarrow (3+3)-(2-8) = 12$

46. The cost price of 12 oranges is equal to the selling price of 9 oranges and the discount offered on 10 oranges is equal to the profit earned on 5 oranges. Find the discount percentage (up to 2 digits after the decimal).

(a) 33.33 (b) 44.44
(c) 11.11 (d) 16.67

Ans. (c) : According to the question,

12CP = 9SP

$\frac{CP}{SP} = \frac{9}{12} = \frac{3\times2}{4\times2} = \frac{6}{8}$

10 Discount = 5 Profit

$\frac{\text{discount}}{\text{profit}} = \frac{5}{10} = \frac{1}{2}$

CP : SP = 6 : 8 & D : P = 1: 2

Let the cost price = ₹6x

andSelling price = ₹8x

Profit = 8x – 6x = 2x

Then discount = x $\left[\because \frac{D}{P} = \frac{1}{2}\right]$

Marked price = 8x + x = ₹9x

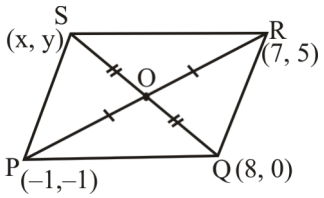
$\text{Discount\%} = \frac{x}{9x}\times100$

= 11.11%

47. In a parallelogram PQRS, P = (–1,–1), Q = (8,0) and R = (7, 5) find the coordinates of 'S' ?

(a) (–2, 4) (b) $\left(-2,\frac{7}{2}\right)$
(c) $\left(-\frac{3}{2},4\right)$ (d) (–1,4)

Ans. (a) : Let the coordinates of the point S = (x, y)



Coordinates of midpoint = $\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$

Coordinates of the midpoint of point P (-1, -1) and R (7, 5)-

$\frac{-1+7}{2}, \frac{-1+5}{2}$

= (3, 2).....(i)

Coordinates of the midpoint of point Q (8,0) and S (x, y) -

$\frac{8+x}{2}, \frac{y+0}{2}$

$=\left(\frac{8+x}{2}, \frac{y}{2}\right)$

On compairing with equation (i),

$(3, 2) = \left(\frac{8+x}{2}, \frac{y}{2}\right)$

$3 = \frac{8+x}{2} \qquad 2 = \frac{y}{2}$

$x = -2 \qquad y = 4$

$(x, y) = (-2, 4)$

48. Pittsburgh Industrial Area located in ..... ?

(a) USA (b) England

(c) Japan (d) Germany

Ans. (a) : Pittsburgh is a city in the state of Pennsylvania in the United States. Pittsburgh Industrial Area is famous for the iron and steel industry.

49. Crocodiles have ..... in the heart?

(a) Two chamber (b) Four chamber

(c) One chamber (d) Six chamber

Ans. (b) : The Crocodiles are only the reptile that has a four-chambered heart (two atrium and two ventricles) because of most complicated blood circulation of all vertebrates.

50. A and B together can do a piece of work in 6 days and A alone can do the same work in 9 days. In how many days will B alone complete the same work?

(a) 16 (b) 20

(c) 12 (d) 18

Ans. (d) : Work done by A in one day $= \frac{1}{9}$ part

Work done by (A+B) in one day $= \frac{1}{6}$ part

Work done by B in one day $= \frac{1}{6} - \frac{1}{9}$

$= \frac{3-2}{18}$

$= \frac{1}{18}$ parts

Hence, B alone can complete the same work in 18 days.

51. The Highest common factor (HCF) of the two numbers is 18 and its least common factor (LCM) is 378, then find the pair of such numbers?

(a) 18, 252 (b) 27, 252

(c) 54, 252 (d) 54, 126

Ans. (d) : HCF of two numbers = 18

And LCM = 378

Product of two numbers = LCM×HCF

= 378 ×18

= 6804

From Option (d),

54×126 = 6804

So, the required pair of numbers = 54,126

52. If the volume of a cube is equal to the volume of a cuboid of dimensions 54 cm, 18 cm and 6 cm, then find the length of the side of the cube?

(a) 18 cm (b) 24 cm

(c) 12 cm (d) 16 cm

Ans. (a) : Volume of Cuboid = $\ell \times b \times h$

$= 54 \times 18 \times 6\ cm^3$

$\because$ Volume of Cube = Volume of Cuboid

$(side)^3 = 18 \times 3 \times 18 \times 6$

$= 18 \times 18 \times 18$

Hence the length of the side of the cube = 18 cm

53. If $a+b+c = 5$ and $a^2+b^2+c^2 = 29$ then find the value of ab+bc+ca.

(a) 1 (b) –1

(c) 2 (d) –2

Ans. (d) : Given-

$a^2 + b^2 + c^2 = 29$

$a + b + c = 5$

On squaring both sides-

$(a+b+c)^2 = 5^2$

$a^2 + b^2 + c^2 + 2(ab + bc + ca) = 25$

$29 + 2(ab + bc + ca) = 25$

$2(ab + bc + ca) = 25 - 29$

or, $ab + bc + ca = \frac{-4}{2} = -2$

54. In a certain code language, MORE is written as NRWL, then how will FOUR be written a in that code language?

(a) GZRY (b) GPYZ

(c) GRYZ (d) GRZY

Ans. (d) : Just as,

M $\xrightarrow{+1}$ N

O $\xrightarrow{+3}$ R

R $\xrightarrow{+5}$ W

E $\xrightarrow{+7}$ L

Similarly,

F $\xrightarrow{+1}$ G

O $\xrightarrow{+3}$ R

U $\xrightarrow{+5}$ Z

R $\xrightarrow{+7}$ Y

55. Which of the following pairs of numbers are co-prime?

(a) 28, 81 (b) 12, 27

(c) 21, 56 (d) 36, 20

Ans. (a) : Co-prime numbers are the numbers whose common factor is only 1.
So 28, 81 are co-prime numbers.

56. The 100th Amendment (2015) of the Indian constitution deals with.....

(a) 10% reservation for economically weaker Sections.

(b) Land reform agreement between India and Bangladesh

(c) Started GST

(d) NJAC was founded

Ans. (b) :

Constitution Amendment	Subject
100th Amendment Act	Gave effect to the acquiring of certain territories by India and transfer of certain territories to Bangladesh
101st Amendment Act	G.S.T.
102 nd Amendment Act	Deals with the structure duties & power of the national commission for backward classes (NCBC).
103rd Amendment Act	Introduce 10% reservation for economically weaker sections of society (EWS).

57. 'Pradhan Mantri Aawas Yojana' Urban (PMAY-U) started of the year ..... by the Gov. of India?

(a) 2018 (b) 2012

(c) 2019 (d) 2015

Ans. (d) : Pradhan Mantri Awas Yojana' - Urban was launched on 25th June 2015, intends to provide housing for all in urban areas by year 2022. This scheme is being implemented by Ministry of Housing and Urban Affairs.

58. (–3)×(–7)=(–7)×(–3) is a property of____.

(a) Associative (b) Distributive

(c) Commutative (d) Closure

Ans. (c) : (–3)×(–7) = (–7) ×(–3)
The commutative property of multiplication says that the order in which we multiply the numbers does not change the product. Hence, this order of multiplication is a commutative property

59. Under which of the following act, the plantation workers were not allowed to leave the tea gardens without permission?

(a) Transfer of Property Act, 1882

(b) Indian Contract Act, 1872

(c) Inland Emigration Act, 1859

(d) Indian Slavery Act, 1843

Ans. (c) : Plantation workers were not permitted to leave the tea gardens without permission under the Inland Emigration Act of 1859.

60. The best-known pastoral and hunter-gatherer tribes, the 'Mongols', inhabited _____.

(a) South Asia (b) Arabian Peninsula

(c) South-East Asia (d) Central Asia

Ans. (d) : There are many tribes under the umbrella of Mongol Empire, established by Temujin (later Genghis Khan) in 13th century. They currently lived in Mongolia, China and Russia. They were skilled in hunting, archery and horse riding.

61. From the following alternatives select the wrong pair of the state and its chief Minister (as per information received till March 2021)?

(a) Mr. Manohar Lal Khattar - Haryana

(b) Shri Bhupesh Baghel - Jharkhand

(c) Shri Promod Sawant - Goa

(d) Shri Pinarayi Vijayan -Kerala

Ans. (b) :

State	Chief Minister
Haryana	Manohar Lal Khattar
Jharkhand	Hemant Soren
Goa	Pramod Sawant
Punjab	Charanjit Singh Channi
Chhattisgarh	Bhupesh Baghel

62. Anemometer instrument is used to ..... measure?

(a) Cloud height (b) Wind speed

(c) Air pressure (d) Water quality

Ans. (b) :

Instrument	Measurement
Anemometer	Used for measureing wind speed and direction.

Ammeter	Used to measure the current in a circuit
Hygrometer	Used to measure the amount of water vapour in air (humidity)
Barometer	Used to measure atmospheric pressure

63. $\sqrt[5]{\frac{32}{243}}$ **value is equal.....?**

(a) $\frac{5}{3}$ (b) $\frac{3}{2}$

(c) $\frac{5}{2}$ (d) $\frac{2}{3}$

Ans. (d) : We know that-

$$\sqrt[5]{\frac{32}{243}} = \sqrt[5]{\left(\frac{2}{3}\right)^5}$$

$$= \left(\frac{2}{3}\right)^{5\times\frac{1}{5}} = \frac{2}{3}$$

64. Find the smallest three digit prime number?

(a) 107 (b) 109

(c) 103 (d) 101

Ans. (d) : Prime numbers are the numbers that have only two factors, that are 1 and the number itself.
Hence, the smallest 3-digit prime number = 101

65. Which of the following options is a volcanic mountain?

(a) Appchachiyan (b) Himalyan

(c) Ural (d) Fujiyama

Ans. (d) : The movement of tectonic plates creates volcanoes along the edges of the plates and when volcanoes erupt they form mountains known as volcanic mountain. Examples of volcanic mountains are:- Mt. Fujiyama, is a volcanic mountain located on the Japanees island of Honshu in one of the world's oldest example of stratovolcano

66. Select the combination of letters that, when placed consecutively at the blanks in the following series to form a repetition pattern.
QR_Q_R_Q_RRQ

(a) QQRQ (b) RQQR

(c) RQRQ (d) QRQR

Ans. (c) : Combination of letters is as follows-
Q R R Q/Q R R Q/Q R R Q
So, the combination of option (c) is correct.

67. Give the correct sequences of the following ranges of the Himalayas from north to south.
1. Ladakh 2. Zaskar 3. Karakoram 4. Pir Panjal.

(a) 4,2,1,3 (b) 1,3,2,4

(c) 3,1,2,4 (d) 1,2,3,4

Ans. (c) : The correct sequence of the following ranges of the Himalayas from north to south.
Karakoram → Ladakh → Zaskar → Pir panjal

68. Solve the following 79 + [37 – {45 – (1 – 36 ÷ 6 × 8)}]=?

(a) 33 (b) 24

(c) 59 (d) 41

Ans. (b) : 79 + [37 – {45 – (1 – 36 ÷ 6 × 8)}]
According to the BODMAS rule-
= 79 + [37 – {45 – (1 – 6 × 8)}]
= 79 + [37 – {45 – (1 – 48)}]
= 79 + [37 – {45 + 47}]
= 79 + [37 –92]
= 116 –92
= 24

69. Express 48% as a fraction?

(a) $\frac{10}{25}$ (b) $\frac{11}{25}$

(c) $\frac{1}{25}$ (d) $\frac{12}{25}$

Ans. (d) : $48\% = \frac{48}{100}$

$= \frac{12}{25}$

70. Which of the following alternatives is an extension of Microsoft word file?

(a) .dcox (b) .docx

(c) .docd (d) .mwd

Ans. (b) :

Extension	Format
.docx	Microsoft Word document
.html	Hyper text Markup Language
.pptx	Microsoft Power Point
.bmp	Bitmap File

71. In which year did the Government of India pass the water (prevention and control of pollution) Act to protect over water resources?

(a) 1976 (b) 1975

(c) 1973 (d) 1974

Ans. (d) : The Water (Prevention and Control of Pollution) Act was enacted in 1974 to provide for prevention & control of water pollution and for the maintaining or restoring of wholesome of water in the country. Other than this, Environment Protection Act was enacted in 1986. Wildlife Protection Act was enacted in 1972. Air Prevention & Control of Pollution Act was enacted in 1981.

72. Raja started a vegetable business with a capital of ₹4400. After a few months Ranga joined this business with a capital of ₹2400. Out of the total annual profit of ₹1200. Raja's share is ₹800. When did Ranga join this business as a partner?

(a) 2 Months before the end of the year
(b) 2 Months after Raja started the business
(c) 1 Month after Raja started the business
(d) 1 Month after the year ended

Ans. (c) : Let Ranga join the business after x months.
Ratio of profit of both in business = 4400×12 :2400×(12–x)

$$= 22: (12 - x)$$

According to the question,

$$\text{Raja's share} = 800 = 1200 \times \frac{22}{22 + 12 - x}$$

$$22 + 12 - x = 33$$

$$34 - x = 33$$

$$x = 1 \text{ month}$$

So, Ranga joined the business 1 month after Raja started the business.

73. Which of the following is not a part of our solar system?

(a) Europa (b) Sun
(c) Moon (d) Dhruv Star

Ans. (d) : Dhruv Star is not a part of our solar system. The pole star is north in the sky which is about 434 light years away from Earth. Our solar system includes 8 planets, many satellites, asteroids and meteorites. Moon is the satellite of Earth and Europa is a satellite of Jupiter.

74. Select the Venn diagram that best depicts the relationship between the given classes.
Parasites, Lice, Deer

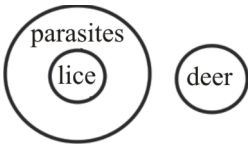
(a) 

(b) 

(C) 

(d) 

Ans. (c) : According to the question the venn diagram is as follows–



Lice comes under parasite whereas deer is a separate organism. Hence option (c) will be required answer.

75. Select the option that is related to the fourth term in the same way as the first term is related to the second term.
Weighing Scales : Weight :: ? : Length

(a) Centimeter (b) Horizontal distance
(c) Ribbon (d) Gram

Ans. (c) : Just as, Weight is measured by Weighing Scales. Similarly Length is measured by Ribbon.

76. Who among the following is called 'Meera of modern India"?

(a) Kamala Das (b) Mahasweta Devi
(c) Aashapurna Devi (d) Mahadevi Verma

Ans. (d) : Mahadevi Verma is widely regared as the "Modern Meera". She is considered one of the four major pillars of Chhayawadi era in Hindi literature. Her creations are as:- Nihar, Rashmi, Neerja, Sandhyageet & Path ke Sathi etc.

77. Microsoft Corporation was established in the year 1975.....?

(a) Bellevuess, Washington, United States of America.
(b) Cupertino, California, United States of America.
(c) Albuquerque, New Mexico, United States of America.
(d) Nihonbashi, Tokyo, Japan.

Ans. (c) : Microsoft was founded by Bill Gates and Paul Allen on 4 April, 1975 in Albuquerque, New Mexico, USA. Microsoft is a multinational computer technology corporation.

78. 'Amar Jawan Jyoti' was established under ..... in January 1972.

(a) Gateway of India
(b) Wagah Border
(c) India Gate
(d) Jaisalmer war Memorial

Ans. (c) : The Amar Jawan Jyoti is an Indian memorial constructed after the Indo-Pak War of December 1971. It burns day & night under the arc of India Gate as a tribute to the Indian martyrs. Prime Minister Indira Gandhi first paid homage to Indian Soldiers at India Gate on the eve of 23rd Republic Day on 26 January 1972.

79. In which of the following elections, one- third of the seats are reserved for women?

(a) Panchayati Raj
(b) Rajya Sabh
(c) Lok Sabha
(d) Legislative Assembly

Ans. (a) : Article 243 D of Indian Constitution ensures participation of women in Panchayati Raj Institutions by mandating not less than one-third reservation for women out of the total number of seats to be filled by direct election and number of offices of chair-persons of Panchayats. The 73rd Constitutional Amendment Act 1992 has added a new part IX consisting of 16 Article and 11th Schedule to the constitution.

80. Select the INCORRECT pair of railway zone and its headquarters.

(a) West Central – Jabalpur
(b) East Central – Hajipur
(c) North Central – Gorakhpur
(d) South Central – Secunderabad

Ans. (c) :

Railway Zone	Zonal headquater
Central Railway	Mumbai
Eastern Railway	Kolkata
North Central Railway	Prayagraj
North Eastern Railway	Gorakhpur
North Western Railway	Jaipur
Western Railway	Churchgate
West Central Railway	Jabalpur
East Coast Railway	Bhubneshwar
Northern Railway	Baroda House, New Delhi

81. If $\frac{c}{d} = 1 \div \frac{3}{4}$, then find the value of $\frac{c+d}{c-d}$?

(a) $\frac{4}{3}$ (b) 7
(c) –7 (d) $\frac{7}{4}$

Ans. (b) :

$$\frac{c}{d} = 1 \div \frac{3}{4}$$

$$\frac{c}{d} = 1 \times \frac{4}{3} = \frac{4}{3}$$

$$\therefore \quad \frac{c+d}{c-d} = \frac{4+3}{4-3} = \frac{7}{1} = 7$$

82. In which country is the Wimbledon Tennis Tournament organized?

(a) USA (b) Australia
(c) England (d) France

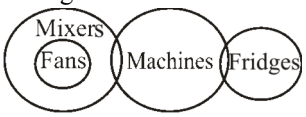
Ans. (c) : Wimbledon Tennis Tournament is one of the oldest and the most prestigious tennis event in the World. Since 1877, The England Club in Wimbledon, London has been hosting the event. Australian Open tennis tournament is managed by Tennis Austalian since 1905. French Open officially known as Roland Garros held at the state Roland- Garros in Paris, France since 1891. US Open is organized by USA since 1881. Wimbledon 2021 men's single title winner was Novak Djokovic and women's singles title winner was Ashleigh Barty.

83. Read the given statements and conclusions carefully. You have to take the given statements to be true even if they seem to be at variance with commonly known facts and then decide which of the given conclusions logically follows from the given statements.

Statements:
Some fridges are machines.
Some mixers are machines.
No mixer is fridge.
All fans are mixers.
Conclusions:
I. Some fans are fridges.
II. Some machines are not mixers.
III. No fan is fridge.

(a) Either conclusion I or III conclusion follows.
(b) Only conclusion I follows.
(c) Only conclusion II and III follows.
(d) Only conclusion III follows.

Ans. (c) : According to the statements-



It is clear from the above Venn diagram that only conclusion II and III logically follows from the statement.

84. If x = 3cosAcosB, y = 3cosAsinB and z = 3sinA, then find the value of $x^2 + y^2 + z^2$

(a) 9 (b) 6
(c) 12 (d) 3

Ans. (a) : Given-

$$x = 3\cos A \cos B$$

$$y = 3\cos A \sin B$$

$$z = 3\sin A$$

$$\therefore x^2 + y^2 + z^2$$

$$= 9\cos^2 A \cos^2 B + 9\cos^2 A \sin^2 B + 9\sin^2 A$$

$$= 9\cos^2 A\left(\cos^2 B + \sin^2 B\right) + 9\sin^2 A$$

$$= 9\cos^2 A \times 1 + 9\sin^2 A \qquad \left(\because \sin^2\theta + \cos^2\theta = 1\right)$$

$$= 9\left(\cos^2 A + \sin^2 A\right)$$

$$= 9 \times 1$$

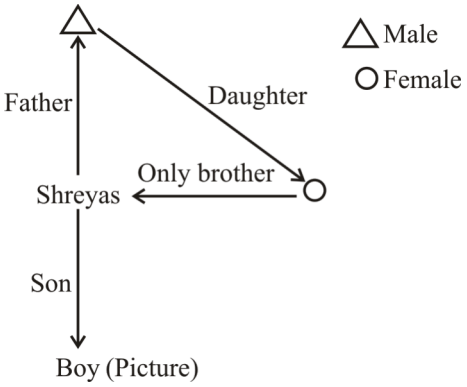
$$= 9$$

85. Pointing to the picture of a boy, Shreyas said, " He is the son of the only brother of my father's daughter", How is Shreyas related to the boy.

(a) Uncle (b) Father

(c) Maternal Uncle (d) Brother

Ans. (b) : According to the question, blood relation diagram is as follows-



It is clear from the diagram that shreyas is the father of the boy.

86. Study the following table and answer the question.

Rate of employment at different levels in 4 years (In percentage)

Years	Primary Level	Secondary Level	Higher Level	Total
1995	15	12	15	42
2000	20	18	20	58
2005	25	20	10	55
2010	30	25	15	70

Which of the following statement is not correct regarding the rate of employment at different levels.

(a) In year 1995 and 2010, the ratio of the higher level employment rate to the total employment rate was the same.

(b) In year 2005 higher level employment rate was lowest.

(c) In year 1995 primary level employment rate was lowest.

(d) In year 2010 secondary level employment rate was highest.

Ans. (a) : From the given table-

In year 1995,

$$\frac{\text{Employment rate of higher level}}{\text{Total employment rate}} = \frac{15}{42} = \frac{5}{14}$$

In year 2010,

$$\frac{\text{Employment rate of higher level}}{\text{Total employment rate}} = \frac{15}{70} = \frac{3}{14}$$

$$\frac{5}{14} \neq \frac{3}{14}$$

So, the statement of option (a) is not correct while the statements of other options are correct.

87. The given table shows the marks obtained by a student in different subjects in the first and second sessions. The total score of each test was one hundred.

Subject	Eng.	Hindi	Maths	Science	Social Science
Obtained Marks of first Session	65	70	88	82	71
Obtained Marks of Second Session	67	68	94	85	75

In which subject does the student improve his performance the least.

(a) English (b) Hindi

(c) Science (d) Social Science

Ans. (a) : Marks improved by the student in various subjects-

In English $\rightarrow$ 67 – 65 = 2 marks

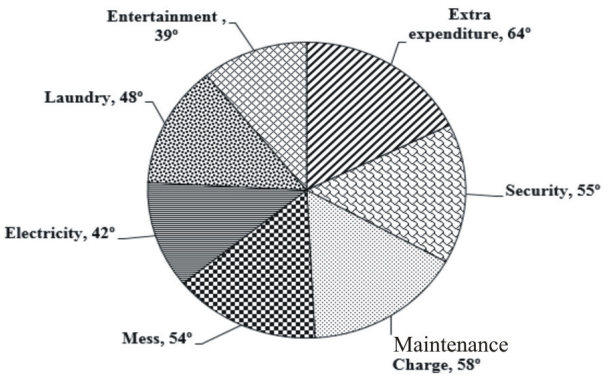
In Math $\rightarrow$ 94 – 88 = 6 marks

In Science $\rightarrow$ 85 – 82 = 3 marks

In Social science $\rightarrow$ 75 – 71 = 4 marks

It is clear that the student improves his performance the least in English subject.

88. The given Pie chart shows the expenditure (in lakh rupees) made by the private hostel on various items during a year. Answer the given question on the basis of the Pie chart.



If the total expenditure incurred by the hostel during this year was 50 lakhs then what was the total expenditure (approx) on the maintenance charge and security?

(a) 41 lakhs (b) 16 lakhs
(c) 8 lakhs (d) 21 lakhs

Ans. (b) : According to the question,

$360^\circ = 50$ Lakhs

Total central angle of security and maintenance charge $= 55^\circ+58^\circ$

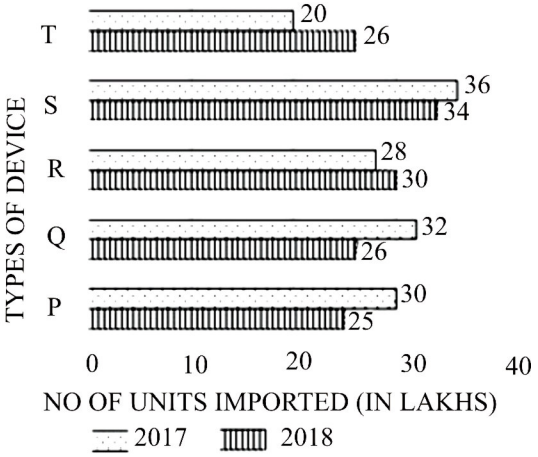
$= 113^\circ$

$\therefore$ Total required expenditure $= \frac{5000000\times113}{360}$

$= ₹1,569,444.44$

$= ₹16$ lakhs(Approx)

89. Study the following bar graph showing the total number (in lakhs) of various types of electronic devices P,Q, R, S and T imported by a company in the years 2017 and 2018 and answer to the given question.



Which of the following types of imported devices recorded the maximum percentage change (increase or decrease) from 2017 to 2018?

(a) P (b) S
(c) T (d) R

Ans. (c) : From the given options-

% Decrease in device P $= \frac{5}{30}\times100 = 16.66\%$

% Decrease in device S $= \frac{2}{36}\times100 = 5.55\%$

% Increase in device T $= \frac{6}{20}\times100 = 30\%$

% Increase in device R $= \frac{2}{28}\times100 = 7.14\%$

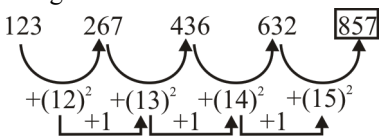
It is clear that the maximum percentage change (increase) was recorded in the number of T type devices from year 2017 to 2018.

90. Select the number from the given alternatives that can replace of the question mark (?) in the following series.

123, 267, 436, 632, ?

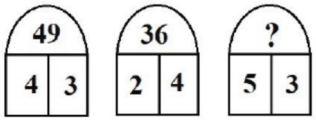
(a) 857 (b) 923
(c) 797 (d) 913

Ans. (a) : The given series is as follows-



Hence $\boxed{?=857}$

91. Study the given pattern carefully and select the number that can replace the question mark (?) from the given options?



(a) 16 (b) 81
(c) 64 (d) 36

Ans. (c) : Just as, Similarly,

From pattern-I	From pattern-II	From pattern-III
$(4+3)^2 = 49$	$(2+4)^2 = 36$	$(5+3)^2 = ?$
$(7)^2 = 49$	$(6)^2 = 36$	$(8)^2 = \boxed{64}$

92. Without considering anything other than the given information, select the correct relationship between incidents A and B.

<u>Incident A</u> : Phillips recently joined a gym.

<u>Incident B</u> : Phillips now looks a lot tighter than ever.

(a) B is the effect but A can never be its immediate and major cause.
(b) B is the effect and A is its immediate and major cause.
(c) A is effect and B is its immediate and major cause.
(d) A is the effect but B is not its immediate and major cause.

Ans. (b) : It is clear that B is the effect and A is its immediate and major cause.

93. Study the given pattern carefully and select the letter that can replace the question mark (?) from the given alternatives?

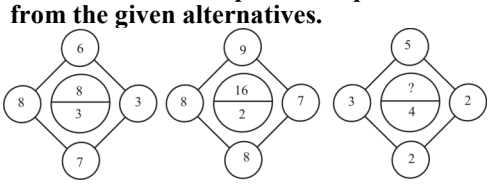
(a) X (b) W
(c) P (d) N

Ans. (d) : In the given pattern–

$E \xrightarrow{+2} G \xrightarrow{+3} J \xrightarrow{+4} N \xrightarrow{+5} S \xrightarrow{+6} Y \xrightarrow{+7} F \xrightarrow{+8} \boxed{N}$

Hence $\boxed{?=N}$

94. Study the given pattern carefully and select the number that can replace the question mark (?) from the given alternatives.



(a) 10 (b) 6
(c) 3 (d) 12

Ans. (c) : Just as,

From pattern-I: $(6 + 3 + 7 + 8) = 8 \times 3$, $24 = 24$

From pattern-II: $(9 + 7 + 8 + 8) = 16 \times 2$, $32 = 32$

Similarly,

From pattern-III: $(5 + 2 + 2 + 3) = ? \times 4$, $12 = ? \times 4$

or $? = \frac{12}{4} = 3$

95. Based on the results of the five highest scoring students the class teacher concludes that Lokesh and Sumit are good at Insurance and Banking, Arun and Lokesh are good at Accounts and Banking. Arun, Pankaj and Surendra are good at Economics and Accounts. Surendra and Arun are good at Geography and Accounts and Pankaj and Sumit are good at Economics and Insurance. Who is good at Insurance Accounts and Economics.

(a) Sumit (b) Surendra
(c) Pankaj (d) Arun

Ans. (c) :

Subject / Student	Insurance	Banking	Accounts	Economics	Geography
Lokesh	√	√	√		
Sumit	√	√		√	
Arun		√	√	√	√
Pankaj	√		√	√	
Surendra			√	√	√

It is clear from the table that Pankaj is good at Insurance, Accounts and Economics.

96. Four letter pairs are given three of which are same in a certain way and one is odd. Select the letter- pair which is odd with the others.

(a) JO (b) NS
(c) ZE (d) WC

Ans. (d) : From the given options-

(a) $J \xrightarrow{+5} O$

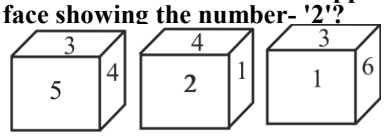
(b) $N \xrightarrow{+5} S$

(c) $Z \xrightarrow{+5} E$

(d) $W \xrightarrow{+6} C$

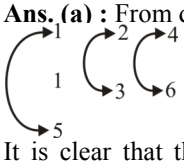
It is clear that the letter-cluster of option (d) is odd.

97. Three different positions of a dice are shown. Which number will be on the opposite face to the face showing the number- '2'?



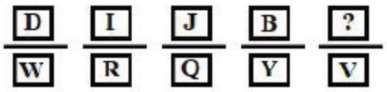
(a) 3 (b) 6
(c) 4 (d) 5

Ans. (a) : From dice - II and III



It is clear that the number '3' will be on the opposite face to the number '2'.

98. Study the given pattern carefully and from the given alternatives select the letter which can come in place of the question mark (?)



(a) A (b) M
(c) F (d) E

Ans. (d) : In the given pattern-

Just as,

D $\xrightarrow{\text{Opposite letter}}$ W

I $\xrightarrow{\text{Opposite letter}}$ R

J $\xrightarrow{\text{Opposite letter}}$ Q

B $\xrightarrow{\text{Opposite letter}}$ Y

Similarly as,

V $\xrightarrow{\text{Opposite letter}}$ E

Hence, there will be E in the place of the question mark(?).

99. If in a certain code language A is written as 1 and AIR is written as 28 then how will AIRCRAFT be written in that language?

(a) 76 (b) 78
(c) 82 (d) 80

Ans. (a) : Just as, and

A → 1 (Alphabetical order)

A I R → 1 + 9 + 18 = 28

Similarly,

A I R C R A F T → 1 + 9 + 18 + 3 + 18 + 1 + 6 + 20 = 76

100. In a certain code language 'FEATURE' is written as 'HICXWVG'. How will 'ALMOST' be written in the same code language?

(a) CPOSWX (b) CNQQWX
(c) CPOSUX (d) CNQSWX

Ans. (c) : Just as,

$F \xrightarrow{+2} H$, $E \xrightarrow{+4} I$, $A \xrightarrow{+2} C$, $T \xrightarrow{+4} X$, $U \xrightarrow{+2} W$, $R \xrightarrow{+4} V$, $E \xrightarrow{+2} G$

Similarly,

$A \xrightarrow{+2} C$, $L \xrightarrow{+4} P$, $M \xrightarrow{+2} O$, $O \xrightarrow{+4} S$, $S \xrightarrow{+2} U$, $T \xrightarrow{+4} X$

Railway Non-Technical Popular Categories Exam - 2019
Graduate and Under-Graduate Level
[Ist Stage Computer Based Test]

Exam Date : 26.07.2021] **[Time : 3pm-4.30 pm]**

1. Find the perimeter of the rectangle whose length is 5 m more than its breadth, and the value of the perimeter is one thrice of its area.

(a) 60 m (b) 50 m

(c) 40 m (d) 45 m

Ans. (b) : Let-

Width of the rectangle = x m

Length = (x + 5) m

Perimeter of rectangle = $2(l \times b)$

$= 2 (x + x + 5)$

$= 2 (2x + 5)$

$= 4x + 10$

According to the question,

Perimeter of the rectangle $= \frac{1}{3} \times$ Area of the rectangle

Hence, $4x + 10 = \frac{1}{3} \times (l + b)$

$(4x + 10) \times 3 = x \times (x + 5)$

$12x + 30 = x^2 + 5x$

$x^2 - 7x - 30 = 0$

$x^2 - 10x + 3x - 30 = 0$

$x (x - 10) + 3 (x - 10) = 0$

$(x - 10)(x + 3) = 0$

$x - 10 = 0$

$\boxed{x = 10}$

Perimeter of the rectangle $= 2 (10 + 15)$

$= 50$ m

2. A can do $\frac{1}{3}$th part of work in 5 days and B can do $\frac{2}{5}$th of that work in 10 days. In how many days the work will be completed if they work together?

(a) $9\frac{3}{8}$ days (b) $8\frac{31}{8}$ days

(c) $7\frac{1}{8}$ days (d) $4\frac{1}{4}$ days

Ans. (a) : A completes $\frac{1}{3}$ of work in 5 days.

A completes full work = $3 \times 5 = 15$ days

B completes $\frac{2}{5}$ of work in 10 days.

B completes full work $= \frac{5}{2} \times 10 = 25$ days

Work done by A and B in one day $= \frac{1}{15} + \frac{1}{25}$

$= \frac{5+3}{75}$

$= \frac{8}{75}$ part

So, the time taken by A and B to complete the work

$= \frac{75}{8}$ days

$= 9\frac{3}{8}$ days

3. If the HCF of two numbers is 2 and their product is 120. Find the LCM of the number.

(a) 120 (b) 90

(c) 30 (d) 60

Ans. (d) : Product of two numbers = LCM×HCF

$120 = 2 \times$ LCM

LCM = 60

4. A, B, C, D, E and F get different marks in an exam. B obtained highest third place. E obtained greater than C only. A obtained greater than D but less than F. If F gets 94 marks and the person at third place gets 80 marks, then marks obtained by is:

(a) 75 (b) 91

(c) 96 (d) 60

Ans. (b) : According to the question-

F > A > B > D > E > C

↓ ↓

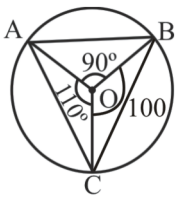
94 80

It is clear that A got lesss than 94 and more than 80 marks.

5. A, B & C are the points on a circle in such a manner that chord AB and AC make angle of 90º & 110º respectively with centre O And ∠BAC > ∠BAO - Find value of ∠BAC.

(a) 55º (b) 45º
(c) 100º (d) 80º

Ans. (d) : Given-



$\angle AB = 90^\circ$

$\angle AC = 110^\circ$

$\because$ The sum of the angles at the centre of the circle $= 360^\circ$

$\therefore \angle AOB + \angle AOC + \angle BOC = 360^\circ$

$90^\circ + 110^\circ + \angle BOC = 360^\circ$

$\angle BOC = 360^\circ - 200^\circ = 160^\circ$

$$\angle BAC = \frac{\angle BOC}{2} = \frac{160}{2} = 80^\circ$$

6. The speed of a boat in still water is 30 km/h and in running water is 6 km/h. Find the relative distance if it moves for 5 min in the direction of running water and after that in opposite direction of running water.

(a) 3 km in the direct of stream/opposite to stream
(b) 3 km in direction of stream/4 km in opposite to stream
(c) 2 km in direction of stream/2 km in opposite of stream
(d) 3 km in direction of stream, 2 km opposite of that

Ans. (d) : Speed of boat in downstream = 30+6 = 36km/hr and speed of boat in upstream = 30–6= 24 km/hr

Distance in downstream in 5 minutes $= 36 \times \frac{5}{60} = 3\,\text{km}$

Distance travelled in upstream $= 24 \times \frac{5}{60} = 2\,\text{km}$

7. Find the number of factors of 4200.

(a) 48 (b) 56
(c) 64 (d) 46

Ans. (a) : $4200 = 2\times2\times2\times5\times5\times3\times7$

$= 2^3 \times 5^2 \times 3^1 \times 7^1$

Number of factors $= (3+1)\times(2+1)\times(1+1)\times(1+1)$

$= 4\times3\times2\times2 = 48$

8. According to chola Mock edicts, the land grants made to Gurukula's was known as _____.

(a) Brahmadeya (b) Vellanvagai
(c) Pallichchhandam (d) Shalabhoga

Ans. (d) : According to chola Mock edicts the land grants made to Gurukula's was known as Shalabhoga. Brahmadeya was tax free land gift to Brahmans in the early medieval India. Vellanvagai, land of non-Brahmandeya or peasant property. Pallichchandam lands are those lands that are donated to Jain Institution.

9. In order to deploy satellite based Internet of Things (IoT). Which of the following statement is wrong among for an Indian government owned telecom provider.

(a) Started on 10th March 2021
(b) Skylo is in partnership with BSNL
(c) Will connect space with lakhs of Sensors and Machines
(d) World's first satellite Based Narrow band - IoT Network

Ans. (a) : BSNL make a partnership to Skylo to launch World's first satellite based Internet of Things network in India. It will connect billions of sensors and machines in maritime, agriculture, railway, logistics and disaster management. It was started on December 10, 2020.

10. A man crosses 600 m street in 24 min. Find its speed in km/hr.

(a) 2.5 km/h (b) 3 km/h
(c) 2 km/h (d) 1.5 km/h

Ans. (d) : Distance = 600 m = 0.6 km

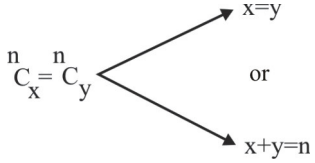
$$\text{Time} = 24 \text{ minute} = \frac{24}{60} = \frac{2}{5}\text{hr}$$

$$\text{Speed of the man} = \frac{0.6\times5}{2} = \frac{3}{2}\ \text{km/hr}$$

11. If $n_{C_3} = n_{C_8}$ then find the value of n.

(a) 11 (b) 12
(c) 14 (d) 10

Ans. (a) :



$\therefore {}^nC_3 = {}^nC_8$

Comparing by-

$x = 3$, $y = 8$

$\Rightarrow x \neq y$

then, second according to the question,

$x + y = n$

$3 + 8 = n$

$n = 11$

12. When electric current passes though a wire, everytime a deflection occurs in the measuring needle. Whom among the following firstly observed this carefully.

(a) William Sturgeon
(b) Hans Christian Oersted
(c) Thomas Alva Edison
(d) C V Raman

Ans. (b) : Hans Christian Oersted, one of the leading scientists of the 19th century play a crucial role in under standing electromagnetism. He discovered that a compass needle got deflected when an electric current passed through a wire.

13. Warangal's queen Rudrama Devi (Part of morden Andhra Pradesh) is associated with which of the following dynasties.

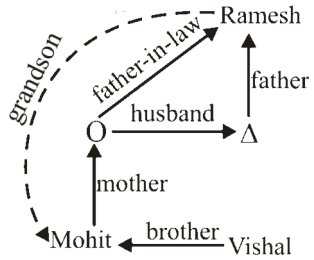
(a) Chalukya dynasty (b) Eastgang dynasty
(c) Kakatiya dynasty (d) Chol dynasty

Ans. (c) : Rudrama Devi was a monarch of the Kakatiya dynasty in the Deccan plateau from 1263-1289. She was daughter of Ganapatideva. She married to Virabhadra (Chalukya dynasty).

14. Ramesh is the father- in- law of Mohit's mother. Mohit is the only brother of Vishal. How is Mohit related to Ramesh.

(a) Son (b) Son's son
(c) Son-in-law (d) Daughter's son

Ans. (b) : According to the diagram blood relation is as follows-



So, it is clear that Mohit is son of Ramesh's son.

15. What was the sudden cause of the 1857 Revolt?

(a) Tipu sultan's defeat
(b) Boycott of English goods
(c) Allotment of land to the rich
(d) Cartridges of fats

Ans. (d) : The sudden cause of 1857 revolt was the introduction of the 'Enfield rifle.' It was of the opinion that the cartridge of the Enfield rifle had to be bitten before using it. The cartridge was made up or pork and beef's fat which had hurt the emotional sentiment of both Hindus and Muslims.

16. What will be the value of 0.9% of 10?

(a) $\frac{9}{1000}$ (b) $\frac{90}{1000}$
(c) $\frac{9}{10}$ (d) $\frac{9}{100}$

Ans. (d) : 0.9% of 10

$= 10 \times \frac{0.9}{100}$

$= \frac{9}{100}$

17. What is India's ranking in Intellectual Property Index 2021. Issued by Global Innovation Policy centre of US chamber of commerce.

(a) 38th (b) 40th
(c) 39th (d) 41th

Ans. (b) : The annual index of International Intellectual Property released by the US Chamber of commerce global innovation policy centre. India ranked 40th among 53 global economics. US, Japan, Europe are the topped ranker in Intellectual Property Index 2021.

18. Clean Development Mechanism programme is used to Diminish _____?

(a) Deficiency of water
(b) Sound pollution
(c) Deforestation
(d) Green house gas production

Ans. (d) : The Kyoto Protocol was adopted in 1997. Under Kyoto Protocol clean development mechanism was designed to meet a dual objective to help developed countries fulfill their commitment to reduce emission and to assist developing countries in achieving sustainable development CDM programme is used to diminish Green house gas emission.

19. A square shaped ground has an area of 10,000 m^2. Find the perimeter of a square which sides are as long as the length of diagonals of initial ground.

(a) $400\sqrt{2}$ m (b) 40,000 m
(c) 20,000 m (d) 10,000 m

Ans. (a) : Area of the square shaped ground $= 10{,}000\ m^2$

$$\text{Side} = \sqrt{10{,}000} = 100\text{m}$$

$$\text{Diagonal of the square} = \text{side}\sqrt{2}$$

$$= 100\sqrt{2}\,\text{m}$$

Perimeter of a square whose side is equal to the diagonal of a square shaped ground $= 4 \times$ side

$$= 4 \times 100\sqrt{2}$$

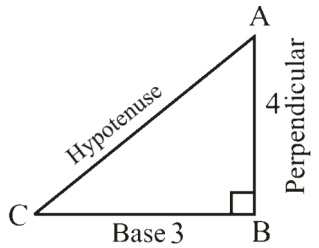
$$= 400\sqrt{2}\,\text{m}$$

20. If $\tan\theta = -\frac{4}{3}$, then $\sin\theta$ is :

(a) $\frac{-4}{5}$ or $\frac{4}{5}$ (b) $\frac{-4}{5}$ but not $\frac{4}{5}$

(c) $\frac{5}{6}$ or $\frac{6}{5}$ (d) $\frac{4}{5}$ but not $\frac{-4}{5}$

Ans. (a) :



$$\because \tan\theta = -\frac{4}{3}\left(\frac{\text{Perpendicular}(p)}{\text{Base}(b)}\right)$$

According to Pythagorean Theorem

$$\therefore \text{Hypotenuse} = \sqrt{(-4)^2 + (3)^2}$$

$$\text{Hypotenuse} = \sqrt{25}$$

$$\text{Hypotenuse} = 5$$

$$\therefore \sin\theta = \left(\frac{\text{Perpendicular}(p)}{\text{Hypotenues}(h)}\right)$$

$$\therefore \sin\theta = \frac{-4}{5} \text{ or } \frac{4}{5}$$

21. Which among the following ruler built the city "Siri" for military deployment?

(a) Mohammad Tuglak (b) Giyasuddin Tuglak

(c) Alauddin Khilji (d) Qutubuddin Aibak

Ans. (c) : Siri city, in the city of New Delhi, was built during the rule of Alauddin Khilji, the ruler of the Delhi Sultanate, to defend the city from the on slaught of the monglos. Siri fort was built around 1303.

22. Rahul subtracts 5 from every complete square numbers less than 101. Find the average of the numbers, obtained by Rahul.

(a) 38 (b) -11.5

(c) 33.5 (d) 37.5

Ans. (c) : Perfect square numbers less than 101-

100, 81, 64, 49, 36, 25, 16, 9, 4, 1

Total numbers = 10

sum of the total numbers = 385

$$\text{Required average} = \frac{385 - (10 \times 5)}{10}$$

$$= \frac{385 - 50}{10}$$

$$= \frac{335}{10}$$

$$= 33.5$$

23. Find the smallest whole number which when in the ratio 12 : 17 is subtracted from both the terms, the ratio obtained is less than $\frac{11}{20}$.

(a) 6 (b) 3

(c) 4 (d) 2

Ans. (a) Let-

Number is x

According to the quesion,

$$\frac{12 - x}{17 - x} < \frac{11}{20}$$

$$\Rightarrow \quad 240 - 20x < 187 - 11x$$

$$\Rightarrow \quad 53 < 9x$$

$$\Rightarrow \quad \frac{53}{9} < x$$

$$\Rightarrow \quad 5.88 < x$$

$$x \simeq 6$$

24. Which of the following is a computer programming language?

(a) UNIX (b) Scratch

(c) Norton (d) BOSS

Ans. (b) : Scratch as high level block based visual programming language and website targeted primarily at children 8-16 years as an educational tool for programming. Users on the side called scratchers can create projects on the website using a block-like interface.

25. The process of extraction of wool from sheep with a thin layer of skin is known as.

(a) Rolling (b) Shearing

(c) Scouring (d) Sorting

Ans. (b) : Sheep shearing is the process by which the woollen fleece of a sheep is cut off. The person who removes the sheep's wool is called a shearer.

26. For which of these novels Professor Sharad Pagare was honored with the prestigious Vyas Samman 2020.

(a) Gandharvsen
(b) Begam Jainabadi
(c) Patliputra ki Samragi
(d) Chandra mukhi ka devdas

Ans. (c) : Professor Shared Pagare has been selected for the prestious Vyas Samman-2020 for his novel Patliputra ki Samragi. The Vyas Samman is given by K.K. Birla foundation and the award started in the year 1991. The samman is conferred or outstanding work in hindi literature authored by an Indian citizen. The recognized work must be in the Hindi language.

27. As per March 2021, In order to strengthen the road Infrastructure project in Terai region of Nepal, how much amount of money has been granted in Nepal by Indian government?

(a) 800 Crore (b) 850 Crore
(c) 750 Crore (d) 875 Crore

Ans. (a) : The Indian government had committed (INR 800 Crore) for the construction of roads in the Tarai region of Nepal.

28. Three years ago, the average age of A & B was 28 years. After Including, C their present average age is 42 years. Find the current age of C.

(a) 73 years (b) 64 years
(c) 68 years (d) 77 years

Ans. (b) : Three years ago the average age of A and B = 28 years
$\therefore$ Sum of ages of A and B = 28×2 =56 year
Sum of present ages of A and B = $56+2\times3$= 62 years
Sum of present ages of A, B and C = 42×3= 126 years
Present age of C = 126 – 62 = 64 years

29. Which of the following is the highest plateau of world?

(a) East African plateau (b) Western plateau
(c) Tibbati plateau (d) Deccan's plateau

Ans. (c) : The Tibbati plateau is known as the roof of the world as it's highest and largest plateau on Earth. It's average height 4500 m and it is the birth place of several of the world's major rivers in South Asia and East Asia.

30. On providing heat, the decomposition of calcium carbonate into calcium oxide and carbon di-oxide, is example of _____?

(a) Electrolytic De-composition reaction
(b) Thermal De-composition reaction
(c) Exothermic reaction
(d) Light De-composition reaction

Ans. (b) : Thermal reduction prove/thermal decomposition or thermolysis is a chemical decomposition caused by heat.

$$CaCo_3 \xrightarrow{Heat} CaO + CO_2$$

In the thermal reduction reaction, when a simple substance is heated, it breaks into two or more simple substance.

31. Read the statement and conclusions carefully. Take the details of the statement as true, even if it is not factually true and state whether which of the conclusion follows the statements logically.

Statement:-

1- All the silky clothes are woolen clothes.

2- No any woolen cloth is a nylon cloth

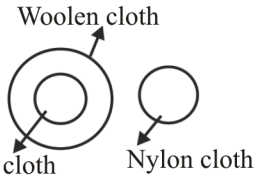
Conclusion:-

I- No any silk cloth, is a nylon cloth

II- Every woolen cloth is a silk cloth.

(a) Neither Conclusion I nor II follows
(b) Both Conclusion I and II follow
(c) Only Conclusion II follows
(d) Only conclusion I follows

Ans. (d) : According to the question-



It is clear from the diagram that only conclusion I follows.

32. As per March 2021, in order to strengthen the capacity of rice export of India, which of the following countries received "Red Rice" from Assam.

(a) France (b) US
(c) China (d) Russia

Ans. (b) : The first consignment of red rice, sourced from Assam, was shopped from India to USA. The increased export of the iron rich red rice locally known as Bao-dhaan would enhance incomes of farming families of the Brahmaputa flood plains.

33. Read the pattern carefully and select the appropriate number which may replace question mark (?).

37	468	13
41	680	17
43	?	19

(a) 836 (b) 817
(c) 731 (d) 798

Ans. (d) : Just as-

$37\times13=481-13=468$

and $41\times17=697-17=680$

Similarly $43\times19=817-19=798$

Hence $\boxed{?=798}$

34. If $\frac{x}{a}+\frac{y}{b}+\frac{z}{c}=\sqrt{3}$ and $\frac{a}{x}+\frac{b}{y}+\frac{c}{z}=0$ then, find the value of $\frac{x^2}{a^2}+\frac{y^2}{b^2}+\frac{z^2}{c^2}$?

(a) 0 (b) $\sqrt{3}$
(c) 3 (d) 6

Ans. (c) : Given-

$$\frac{a}{x}+\frac{b}{y}+\frac{c}{z}=0$$

$$\Rightarrow \frac{1}{\frac{x}{a}}+\frac{1}{\frac{y}{b}}+\frac{1}{\frac{z}{c}}=0 \qquad \text{Let-}\ \left(\frac{x}{a}=p,\frac{y}{b}=q,\frac{z}{c}=r\right)$$

$$\Rightarrow \frac{1}{p}+\frac{1}{q}+\frac{1}{r}=0$$

$$\Rightarrow \frac{qr+pr+pq}{pqr}=0$$

$$(qr+pr+pq)=0 \text{.....(i)}$$

$\frac{x}{a}+\frac{y}{b}+\frac{z}{c}=\sqrt{3}$ Given

Put the value-

$\Rightarrow p+q+r=\sqrt{3}$

$\Rightarrow p^2+q^2+r^2+2(pq+qr+pr)=\left(\sqrt{3}\right)^2$

$\Rightarrow p^2+q^2+r^2+2\times0=3$ ..... from equation (i)-

$\Rightarrow p^2+q^2+r^2=3$

$\Rightarrow \frac{x^2}{a^2}+\frac{y^2}{b^2}+\frac{z^2}{c^2}=3$

35. Which of the following Indian states got the digital India award 2020 (under the category of innovation in pandemic), for its initiatives during covid-19 lockdowns.

(a) Haryana (b) West Bengal
(c) Bihar (d) Tamil Nadu

Ans. (c) : The Bihar government's initiative to transfer financial assistance directly to the account of beneficiaries during the COVID-19 pandemic has made its department winner of digital India Award instituted by the central government.

36. The respiratory organ in a cockroach is ____?

(a) Lungs (b) Gills
(c) Skin (d) Respiratory senses

Ans. (d) : In Cockroach, respiration occurs through spirackles respiratory sense a small opening on the sides of its body. When air through external openings, enters into its respiratory system, spiracles serve as muscular valves paving way to the internal respiratory system. The respiratory organ of cockroach is referred to as tracheae.

37. At what rate of compound interest per annum will a sum of Rs. 1,250 become Rs. 1,488.77 in 3 years?

(a) 6% (b) 6.5%
(c) 7.5% (d) 7%

Ans. (a) : Let- Rate = x% per annum

$$\therefore \quad 1488.77=1250\left(1+\frac{r}{100}\right)^3$$

$$\frac{148877}{125000}=\left(1+\frac{r}{100}\right)^3$$

$$\left(\frac{53}{50}\right)^3=\left(1+\frac{r}{100}\right)^3$$

$$\frac{53}{50}=1+\frac{r}{100}$$

Or, $\frac{r}{100}=\frac{53}{50}-1$

$$\frac{r}{100}=\frac{3}{50}$$

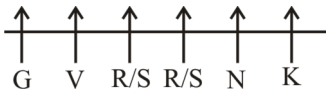
$$r=3\times2$$

$\boxed{r=6\%}$ per annum

38. K, G, N, V, R & S are sitting at equal distance facing north. R and S are sitting in middle. G and K have been sitting along head sides.N is immediate left of K. Who is sitting next to the right of G?

(a) V (b) N
(c) R (d) S

Ans. (a) : According to the question-



It is clear from the diagram that 'V' is sitting next to the right of 'G'.

39. By which of the following constitutional amendments, the 8th schedule was amended to recognize Bodo, Dogri, Maithili and Santhali languages as the official language of India.

(a) 92 amendment Act (b) 90 amendment Act
(c) 91 amendment Act (d) 93 amendment Act

Ans. (a) : The Ninety second amendment of the constitution of India 2003. Amended the eighth schedule of constitution so as to include Bodo, Dogri, Maithili, Santhali language. The eighth schedule to the constitution originally included 14 languages. Sindhi was included by the 21st amendment, enacted in 1967.

40. What is the speed of Falcon bird?

(a) 215 km/h (b) 105 km/h
(c) 410 km/h (d) 320 km/h

Ans. (d) : The peregrine falcon is best known for its diving speed during flight which can reach more than 300 km/hour. The peregrine has been listed as a species of least concern by IUCN since 2015.

41. In the given options, find the word group which may perfectly be fit in place of question mark (?).

AAB, BDE, CIJ, DPQ, ?

(a) EXY (b) EST
(c) EZA (d) EYZ

Ans. (d) : Given series is as follows-

$A \xrightarrow{+1} B \xrightarrow{+1} C \xrightarrow{+1} D \xrightarrow{+1} E$

$A \xrightarrow{+3} D \xrightarrow{+5} I \xrightarrow{+7} P \xrightarrow{+9} Y$

$B \xrightarrow{+3} E \xrightarrow{+5} J \xrightarrow{+7} Q \xrightarrow{+9} Z$

Hence $\boxed{? = EYZ}$

42. Find the value of $\sqrt{\frac{576}{625}}$?

(a) 0.96 (b) 0.9
(c) 0.99 (d) 10

Ans. (a) :

$$\sqrt{\frac{576}{625}} = \frac{24}{25}$$
$$= 0.96$$

43. Find the value of:
5 [9 – 6 { 3 – 2 (– 1 – 6)}]

(a) -85 (b) 465
(c) -285 (d) -465

Ans. (d) : 5 [9 – 6 { 3 – 2 (– 1 – 6)}]
= 5 [9 – 6 { 3 – 2 (–7)}]
= 5 [9 – 6 { 3 + 14}]
= 5 [9 – 6 { 17}]
= 5 [9 – 102]
= 5 [–93]
= – 465

44. Which of the following rivers flows in Andaman and Nicobar Islands?

(a) Simsang (b) Someswari
(c) Kalpong (d) Umkhrah

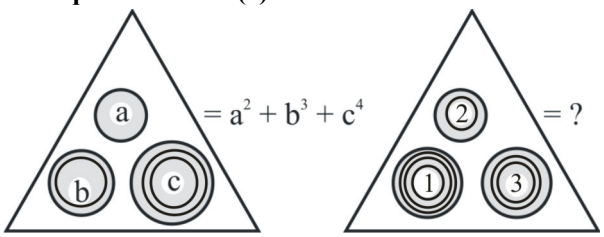
Ans. (c) : Kalpong river is a river in North Andaman Island in the Andaman and Nicobar Islands. It originates from the saddle peak. Kalpong Hydro-electric project having on the river.

45. Which of the following is not a computer Input device.

(a) Light pen
(b) Plotter
(c) Joystick
(d) Optical mark Recognition

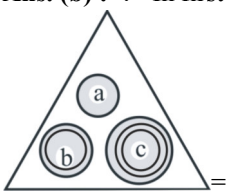
Ans. (b) : A Plotter is one or more aluminium , glass or ceramic disk coated in a magnetic media is located within a hard drive to store all your computer's data permanently. Computer input devices are:- Joystick, Light pen, Keyboard, Mouse, Track ball scanner, Graphic tablet, Optical Mark reader etc.

46. Read the pattern carefully and choose an appropriate option which may substitute the question mark (?)



(a) 100 (b) 90
(c) 746 (d) 231

Ans. (b) : ∵ In first triangle-



$= a^2 + b^3 + c^4$

In second Δ a, b and c substitute 1, 2, 3

$(1)^2 + 2^3 + 3^4 = ?$

$1 + 8 + 81 = ?$

$\boxed{90 = ?}$

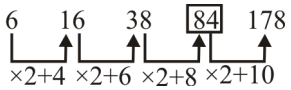
47. In the given options choose a number which can come in place of the question mark (?) in the following series.

6, 16, 38, ?, 178

(a) 78 (b) 56

(c) 88 (d) 84

Ans. (d) : The given series is as follows-



Hence $\boxed{?=84}$

48. Find out the value of 1.5% of ₹36.

(a) ₹0.54 (b) ₹5.4

(c) ₹3.40 (d) ₹3.75

Ans. (a) : 1.5% of ₹36

$$=36\times\frac{1.5}{100}$$

$$=36\times\frac{15}{1000}$$

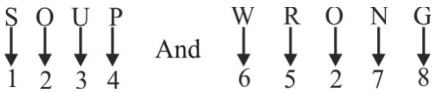
$$=₹\ 0.54$$

49. In a certain code language SOUP has been written as 1234 and WRONG as 65278. Then in same language how the PUNG will be written?

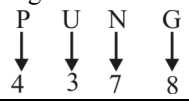
(a) 3473 (b) 4377

(c) 4734 (d) 4378

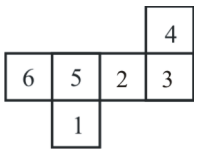
Ans. (d) : Given-

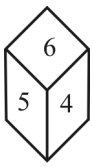


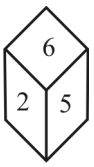
Using the given codes-

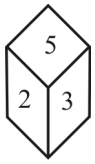


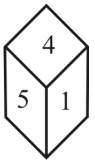
50. On folding the following sheets In accordance with the line which of the following dice will be formed?



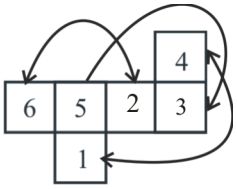
(a) 

(b) 

(c) 

(d) 

Ans. (a) :



The opposite surfaces in the given sheet are as follows-

$6\rightarrow2$

$5\rightarrow3$

$4\rightarrow1$

Two opposite surfaces are not visible together in a cube. Hence option (a) will be the correct answer.

51. According to Indian constitution, which of the following is not a fundamental duties.

(a) To increase harmony and brotherhood

(b) To preserve the culture

(c) To develop scientific behaviors

(d) Prohibition of human trafficking and child labour

Ans. (d) : Art. 23 to 24 of Indian constitution is deals with rights against exploitation under fundamental right (Art. 12-35). Art. 23 prohibits the traffic in human beings and forced labour. Remaining options are part of fundamental duties.

52. The two sides of a triangle have length of 24 cm & 7 cm. Find the radius of circumcircle of the triangle.

(a) 12.5 cm (b) 12 cm

(c) 16 cm (d) 15.5 cm

Ans. (a) : Given-

The lengths of the two sides of a right angle triangle are 7 cm and 24 cm respectively.

∵ The hypotenuse is the longer side of a right angled triangle.

$$\therefore \text{ Hypotenuse} = \sqrt{(24)^2+(7)^2}$$

$$=\sqrt{576+49}$$

$$=\sqrt{625}$$

Hypotenuse = 25 cm

∵ Radius of the circumcircle of the right angled triangle

$$=\frac{\text{Hypotenuse}}{2}$$

$$=\frac{25}{2}$$

$$=12.5\text{ cm}$$

53. If 40% of 50 = x% of 80 then find the value of 'x'

(a) 40 (b) 30

(c) 25 (d) 20

Ans. (c) : According to the question,

$$50 \times \frac{40}{100} = 80 \times \frac{x}{100}$$

$$50 \times 40 = 80x$$

$$20 \times 5 = 4x$$

$$x = \frac{20 \times 5}{4}$$

$$\boxed{x = 25}$$

54. Which of the following cell organelles are responsible for transfer packaging, and modification of protein and lipids in vesicles.

(a) Rough endoplasmic reticulum

(b) Smooth endoplasmic reticulum

(c) Ribosome

(d) Golgi apparatus

Ans. (d) : The Golgi apparatus, functions as a factory in which proteins received from the ER are further processed and sorted for transport to their eventual destinations: The Golgi apparatus Functions in lipid Metabolism.

55. Which of the following states has not got the special status under article 371 in part XXI of the Indian constitution, in which some special provisions related to temporary councils and etc.

(a) Maharashtra (b) Andhra Pradesh

(c) Karnataka (d) Himachal Pradesh

Ans. (d) : Part XXI of the constitution of India is a compilation of laws pertaining to the constitution of India as a country so the Union of States that it is made of

Article 371 - Provision with respect to the states of Maharashtra to Gujarat.

Article 371A, 371B, 371C, 371D, 371E, 371F, 371G, 371H, 371I, 371J are special provision with respect to Nagaland, Assam, Manipur, Andhra Pradesh, Sikkim, Mizoram, Arunachal Pradesh, Goa, Karnataka respectively.

56. Who has been conferred with Gandhi Peace Prize 2020.

(a) Dr. Julius Nyere

(b) Sheikh Mujibur Rahman

(c) Yohei Sasakawa

(d) Dr. Gerhard Fischer

Ans. (b) : The Gandhi Peace Prize for the year 2020 is being conferred on Bangbandhu Sheikh Mujibur Rahman. The prize instituted by GOI since 1995. The award is open to all persons regardless of nationality, race, language, caste, creed or sex.

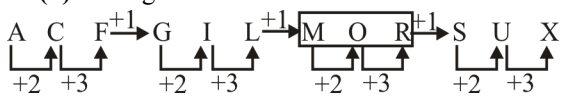
57. In the given options, choose the word group which may be put in the place of (?)

ACF, GIL, ?, SUX

(a) NPS (b) MOR

(c) NPR (d) MOS

Ans. (b) : The given series is as follows-



Hence $\boxed{? = MOR}$

58. Ministry of schedule Tribes has launched the "Shram Shakti" portal to collect the data of?

(a) Tribal people

(b) Tribal bonded Laboures

(c) Tribal Migrated Laboures

(d) Laboures

Ans. (c) : The Ministry of Tribal Affairs has launched "Shram Shakti" - A National Migration collect data related to tribal migrant worker and link them with the existing welfare schemes.

59. As per January 2020, which of the following colonial architecture has been re-tribute to Kolkata by prime Minister, earliest In which Reserve Bank of India operated was till 1937?

(a) Belvedere House

(b) Metcalfe House

(c) Victoria Memorial Hall

(d) The Currency Building

Ans. (d) : The currency building used as I^{st} central office of RBI from 1935 to 1937. PM Modi respond it as a museum.

60. Two line making right angles in a right angled triangle are of length 8 cm & 15 cm. Find the length of its diagonal.

(a) 25 cm (b) 23 cm

(c) $\sqrt{161}$ cm (d) 17 cm

Ans. (d) : The lengths of two adjacent side of a right angled triangle are 8 cm and 5 cm repectively.

$$\therefore \text{ Hypotenuse } = \sqrt{(8)^2 + (15)^2}$$

$$= \sqrt{64 + 225}$$

$$= \sqrt{289}$$

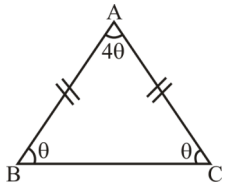
Hypotenuse = 17 cm

61. Find the number of non-similar acute angled isosceles triangles whose on angle is 4 times of the second angle.

(a) 3 (b) 4

(c) 1 (d) 2

Ans. (c) : Note - If both are equal angles in acute angled isosceles triangle θ and the remaining angle is 4θ-



So,

$$\theta + \theta + 4\theta = 180^\circ$$
$$6\theta = 180^\circ$$
$$\theta = 30^\circ$$

So, equal angle = 30º, 30º

And remaining third angle = 4θ = 4×30º = 120º I (Obtuse angle)

Which is invalid triangle as per question.

(ii) If both equal angle is 4θ and third angle is θ-

$$4\theta + 4\theta + \theta = 180^\circ$$
$$9\theta = 180^\circ$$
$$\theta = 20^\circ$$

So, equal angle = 80º, 80º

And the remaining 3rd angle is 20º which is an acute angled isosceles is a triangle. Thus only 1 triangle is possible.

62. Find the HCF of $\frac{6}{7}$ & $\frac{16}{210}$.

(a) $\frac{7}{16}$ (b) $\frac{16}{105}$

(c) $\frac{16}{210}$ (d) $\frac{1}{105}$

Ans. (d) : $\text{HCF of fraction} = \frac{\text{HCF of Numerator}}{\text{LCM of Denominator}}$

$$\text{HCF of } \frac{6}{7} \text{ and } \frac{16}{210} = \frac{\text{HCF of 6 and 16}}{\text{LCM of 7 and 210}}$$
$$= \frac{2}{210}$$
$$= \frac{1}{105}$$

63. On 21st March, to 23rd September sun rays are perpendicular on the Equator, due to which length of days and nights are equal. It is known as_____.

(a) Equinox (b) Rotation

(c) Winter Solstice (d) Summer Solstice

Ans. (a) : Equinox either of the two moments in the year when Sun is exactly above on the equator days and nights are of equal length. Summer solstice happens in June 21 and winter solstice happens on December 21.

64. In 2020, In a Virtual event the exact height of Mt. Everest was declared by Nepal and China. What was the height?

(a) 29,028.12 feet (b) 29,031.69 feet

(c) 29,035.15 feet (d) 29,017.12 feet

Ans. (b) : Nepal and China jointly announced that the revised height of the world's highest peak Mount Everest was 8848.86 meters (29,031.69 feet) about 86 centimetres more than the previous measurement done by India in 1954.

65. As per 2020, the physical property cards were distributed by the PM for opening of which schemes, which may be used to get loan and other profits?

(a) Atmanirbhar Bharat Yojana

(b) Swamitva

(c) Garib Kalyan Rojgar Abhiyaan

(d) Production Based Protsahan Yojana

Ans. (b) : PM to launch distribution of e-property cards under SWAMITVA scheme on 24th April (Panchayati Raj day) SWAMITVA scheme (survey of villages to mapping with improvised technology in village areas) is a central sector scheme to promote a socio-economically empowered and self reliant rural India.

66. Find the value of

0.99 × 0.999 ÷ 0.9999

(a) 10 (b) 0.9

(c) 0.99 (d) 0.09

Ans. (c) : $0.99 \times 0.999 \div 0.9999$

$$= \frac{99}{100} \times \frac{999}{1000} \times \frac{10000}{9999}$$
$$= \frac{999}{10 \times 101} = \frac{999}{1010}$$
$$= 0.989$$
$$\simeq 0.99$$

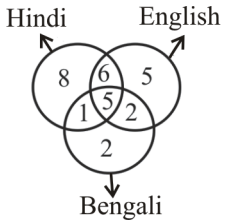
67. In an event, 18 people speak English, 20 persons may speak Hindi. 10 people may speak Bengali. 11 people may speak Hindi and English both, 6 people may speak Hindi & Bengali both, 7 peoples may speak Bengali and English 5 persons may speak all languages.

How many people are in group?

(a) 33 (b) 60

(c) 29 (d) 48

Ans. (c) :



Total number of people in the group = 8+6+5+1+5+2+2 = 29

68. Which of the following is not related with sustainable development goals, which aim to improve the world.

(a) Pure water & purity

(b) Good health and welfare

(c) Poverty elimination

(d) Loss of death rate

Ans. (d) : Sustainable development goals are 17 goals and 169 targets. The 2030 Agenda for sustainable development, adopted by al UN member states in 2015.

SDG - 6 → clear water and sanitation

SDG - 3 → Good health and well being

SDG - 1 → No poverty.

69. As per March 2021, which of the following Malayalam movies got to "Best Feature film award in 67th National Film Awards?

(a) Marakkar: Arabikadalinte Simham

(b) Arabiyum Ottakavum P Madhavan Nairum

(c) Kilichundan Mambazham

(d) Aamayum Muyalum

Ans. (a) : Malayalam film Marakkar: Lion of the Arabian sea won the best feature film award and the director Priyadarshan and Producer Antony Perumbavoor received the awards.

70. If 15% of x = 25% of y = 50% of z Then find the value of x : y : z.

(a) 3:5:10 (b) 10:6:3

(c) 10:5:3 (d) 3:2:1

Ans. (b) : According to the question,

$$x \times \frac{15}{100} = y \times \frac{25}{100} = z \times \frac{50}{100}$$

$3x = 5y = 10z = k$ (value)

$$3x = k$$

$$x = \frac{k}{3}$$

Similarly,

$$y = \frac{k}{5}$$

$$z = \frac{k}{10}$$

$$x : y : z = \frac{k}{3} : \frac{k}{5} : \frac{k}{10}$$

$$x : y : z = \frac{10k : 6k : 3k}{30}$$

$$\boxed{x : y : z = 10 : 6 : 3}$$

71. Find the value of $\frac{\tan 73^\circ}{\cot 17^\circ}$ = ?

(a) 1 (b) $\sqrt{3}$

(c) $\frac{\sqrt{3}}{3}$ (d) 2

Ans. (a) :

$$\frac{\tan 73^\circ}{\cot 17^\circ} = \frac{\tan 73^\circ}{\cot(90^\circ - 73^\circ)}$$

$$= \frac{\tan 73^\circ}{\tan 73^\circ} = 1 \qquad \left[\because \cot(90 - \theta) = \tan\theta\right]$$

72. Anupama sold a book at 10% profit. If she would have sold the book for ₹20 more her profit % would have been 15%. Find the cost price of book?

(a) ₹450 (b) ₹400

(c) ₹500 (d) ₹375

Ans. (b) : Let the cost price of the book = ₹x

$$\text{Selling price} = x \times \frac{110}{100}$$

$$= ₹\frac{11}{10}x$$

According to the question-

$$\frac{11x}{10} + 20 = x\frac{115}{100}$$

$$\frac{11x}{10} + 20 = \frac{23}{20}x$$

$$\frac{23x}{20} - \frac{11x}{10} = 20$$

$$\frac{23x - 22x}{20} = 20$$

$$\boxed{x = ₹400}$$

73. Below the four number pair are given in which three are same in a way and other one is different. Find the different pair.

(a) 38, 54 (b) 92, 18
(c) 27, 14 (d) 56, 45

Ans. (a) :

(a) 38 , 54
$(3\times8) - (5\times4)$
$24 - 20 = 4$

(b) 92 , 18
$(9\times2) - (1\times8)$
$18 - 8 = 10$

(c) 27 , 14
$(2\times7) - (1\times4)$
$14 - 4 = 10$

(d) 56 , 45
$(5\times6) - (4\times5)$
$30 - 20 = 10$

Hence, It is clear that the number pair of option (a) is different.

74. Which of the following is a computer utility programme?

(a) Inventory control system
(b) Shareware
(c) Package software
(d) Disk defragmenter

Ans. (d) : Disk defragmentar is a computer utility programme in Microsoft Windows designed 100 increase data access speed by rearranging files stored on a disk to occupy contiguous storage locations.

75. In the given series, choose the correct option which may replace (?)
B8, H27, N64, T125, ?

(a) Y215 (b) Z216
(c) Y216 (d) Z215

Ans. (b) : The given series is as follows-

+6 +6 +6 +6
B8 , H27 , N64 , T125 , Z216
$(2)^3$ $(3)^3$ $(4)^3$ $(5)^3$ $(6)^3$

Hence ? = Z216

76. The PSLV C-51 was launched from Satish Dhawan Space Center located in Sri Harikota Andhra Pradesh. It didn't contained satellites which country?

(a) Brazil (b) Russia
(c) U.S. (d) India

Ans. (b) : India's Polar satellite launch vehicle PSLC - C-51 successfully launched Amazonia - 1 along with 18 co-passenger satellites from Satish Dhawan Space Centre, Sriharikota. PSLV-C-51 launched American (spacebee), Brazilian (Amazonia - 1), Indian satellite.

77. Who has been the first Indian woman and second in the world to complete 10,000 International crickets runs.

(a) Harmanpreet Kaur (b) Smriti Mandhana
(c) Poonam yadav (d) Mitali Raj

Ans. (d) : Mitali Raj has become the first Indian batswoman and only the second overall, to score 10,000 runs in women's International cricket. England's Charlotte Edwards was first women who score 10,000 runs in the International cricket.

78. Declared in the Stockholm Declarations, which of the following statements are related with United Nations Conference on Environment.

(a) Creation of United Nation Environment Programme
(b) Cultural and natural Inheritance of world
(c) Intellectual property Right
(d) Unequal growth

Ans. (a) : The United Nations environment programme was established by Maurice Strong, It's first director after the United Nations conference on the human environment in stockholm in 1972. UNEP is responsible for co-ordinating responses to environmental issue within the United Nation system.

79. Who was the Viceroy of India during the Jalianwalabagh Massacre?

(a) Lord Irwin (b) Lord Wavell
(c) Lord Minto (d) Lord Chelmsford

Ans. (d) : Jalianwalabagh Massacre took place on 13th April, 1919 in Amritsar, Punjab. It was the inhuman Approach of the British when the British troops under General Reginald Edward Dyer opened fire into an unarmed crowd. Lord Chelmsford was the viceroy of India during Jalianwalabagh Massacre.

80. Google has made a partnership with Archeological survey of India for 360 virtual tours of monuments. How many monuments have been selected for it?

(a) 280 (b) 295
(c) 290 (d) 285

Ans. (a) : Google has tied up with Archaeological survey of India (ASI) for 360º degree virtual tour of 280 odd movement across the country. ASI had given the permission to google for creating the virtual tour of 280 monuments which will be available in the maps.

81. If a is equal to 7.5% of b, and b is equal to 1.50% of C and 'd' is equal to 5% of c. Then find the value of a : d.

(a) 8 : 100 (b) 9 : 400
(c) 8 : 300 (d) 9 : 100

Ans. (b) : Let- c = x

$$\therefore \quad d = x \times \frac{5}{100}$$

$$b = x \times \frac{1.5}{100} = x \times \frac{15}{1000}$$

$$a = x \times \frac{15}{1000} \times \frac{7.5}{100} = x \times \frac{15}{1000} \times \frac{75}{1000}$$

$$a : d = x \times \frac{15}{1000} \times \frac{75}{1000} : x \times \frac{5}{100}$$

$$a : d = \frac{225}{10000} : 1$$

$$= 225 : 10000$$

$$\boxed{a : d = 9 : 400}$$

82. From the given options, choose the appropriate word group which may replace (?).
RAA, ?, PCB, ODB, NEC, MFC
(a) PKL (b) QBA
(c) PDB (d) QEC

Ans. (b) : The given series is as follows-

$$R \xrightarrow{-1} Q \xrightarrow{-1} P \xrightarrow{-1} O \xrightarrow{-1} N \xrightarrow{-1} M$$

$$A \xrightarrow{+1} B \xrightarrow{+1} C \xrightarrow{+1} D \xrightarrow{+1} E \xrightarrow{+1} F$$

$$A \xrightarrow{+0} A \xrightarrow{+1} B \xrightarrow{+0} B \xrightarrow{+1} C \xrightarrow{+0} C$$

Hence $\boxed{? = QBA}$

83. Which of the following rivers flow in west and fall in Arabian Sea?
(a) Gandak and Koshi
(b) Mahanadi and Krishna
(c) Luni and Kaveri
(d) Narmada and Tapti

Ans. (d) : Narmada and Tapti are among the few Indian rivers which flow towards the Arabian sea, because these two rivers flow in the right vally between the Vindhyan and Satpura mountains. Narmada rises from Amarkantak Plateau in M.P. The river originates from Multai in Betul district of Madhya Pradesh in the Satpura range.

84. Which Indian Para-athelete has won gold medal in 10m air pistol competition organised in UAE'S Al Ainin 2021 para shutting world cup.
(a) Abhishek Verma (b) Sarabjot Singh
(c) Saurabh Chaudhari (d) Singhraj

Ans. (d) : Para shooter Singhraj clinches gold in 10 m. air pistol at UAE's Al Ainin event.

85. Solve the following

$$\frac{1}{2}\left[\frac{3}{4} - \left\{\frac{1}{4} - (-5 - 3)\right\}\right]$$

(a) $3\frac{3}{4}$ (b) $3\frac{1}{4}$
(c) $-3\frac{3}{4}$ (d) $-3\frac{1}{4}$

Ans. (c) :

$$= \frac{1}{2}\left[\frac{3}{4} - \left\{\frac{1}{4} - (-5 - 3)\right\}\right]$$

$$= \frac{1}{2}\left[\frac{3}{4} - \left\{\frac{1}{4} - (-8)\right\}\right]$$

$$= \frac{1}{2}\left[\frac{3}{4} - \left\{\frac{1}{4} + 8\right\}\right]$$

$$= \frac{1}{2}\left[\frac{3}{4} - \frac{33}{4}\right]$$

$$= \frac{1}{2}\left(-\frac{30}{4}\right)$$

$$= \frac{-15}{4} \text{ or } -3\frac{3}{4}$$

86. Direction- (Qus. Num. 86-89): The following table contains distribution of factory workers. Read it carefull and answer the questions.

Year	Manager		Supervisor		Technician	
	male	female	male	female	male	female
2015	17	18	26	34	234	121
2016	18	20	32	36	241	153
2017	20	20	24	41	232	238
2018	24	22	31	38	249	236
2019	31	20	37	51	244	252

What is the ratio of female supervivor and female manager, when all the given years are combined together?
(a) 5 : 3 (b) 2 : 1
(c) 15 : 11 (d) 11 : 20

Ans. (b) : According to the table-
Total number of female supervisor = 34+36+41+38+51
= 200
Total number of female manager = 18+20+20+22+20
= 100
Required ratio = 200 : 100
= 2 : 1

87. Find the Increment % of growth in number of workers in between 2016-2018.
(a) 30% (b) 25%
(c) 20% (d) 15%

Ans. (c) : According to the table-
Total number of employess in year 2016
= 18 + 20 + 32 + 36 + 241 + 153
= 500
Total number of employess in year 2018
= 24 + 22 +31+ 38 + 249 + 236
= 600

$$\text{Increase percentage} = \frac{(600 - 500)}{500} \times 100$$

$$= \frac{100}{5}\%$$

$$= 20\%$$

88. In which of two years the no. of female workers was greater than number of male workers?
(a) 2015 and 2016 (b) 2015 and 2018
(c) 2017 and 2019 (d) 2016 and 2018

Ans. (c) : According to the table-
Total number of female employess in year 2015
= 18 + 34 + 121
= 173
And total number of male employees = 17 + 26 + 234
= 277
Total number of female employess in year 2016
= 20 + 36 + 153
= 209
And total number of male employees = 18 +32 + 241
= 291
Total number of female employess in year 2017
= 20 + 41 + 238
= 299
And total number of male employees = 20 +24 + 232
= 276
Total number of female employess in year 2018
= 22 + 38 + 236
= 296
And total number of male employees = 24 +31 + 249
= 304
Total number of female employess in year 2019
= 20 + 51 + 252
= 323
And total number of male employees = 31 +37 + 244
= 312
It is clear that the total number of female employees in the year 2017 and 2019 is more than the total number of male employees.

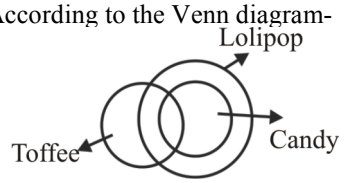
89. In which of the following years, number of workers increased highest than previous year
(a) 2018 (b) 2019
(c) 2017 (d) 2016

Ans. (c) : Total number of employees in the year 2015
= 17 + 18 + 26 + 34 + 234 + 121
= 450
Total number of employees in the year 2016
= 18 + 20 + 32 + 36 + 241 + 153
= 500
Total number of employees in the year 2017
= 20 + 20 + 24 + 41 + 232 + 238
=575
Total number of employees in the year 2018
= 24 + 22 + 31 + 38 + 249 + 236
= 600
Total number of employees in the year 2019
= 31 + 20 + 37 + 51 + 244 + 252
= 635
It is clear that in the year 2017 the maximum increae was highest in the total number of employees as compared to the previous year 2016 which is 575 – 500 = 75

90. If 'P' means '×' and Q means '÷' and R means '+' and S means '–' , then find the value of 32R16Q8S3P2
(a) 24 (b) 28
(c) 6 (d) 0

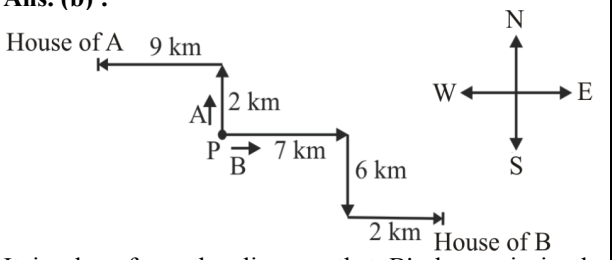
Ans. (b) : Given the
32R16Q8S3P2
According to the question,
32 + 16 ÷ 8 – 3 × 2
= 32 + 2 – 3 × 2
=32 + 2 – 6
= 34 – 6 = 28

91. Read the statements and conclusions carefully. Take the statements true, even if they are different. And state whether which of the conclusions follow statement logically.
Statement - Some toffees are candy
Every candy is a lolipop
Conclusion -
I- No lolipop is a toffee
II- Some lolipop are candy.
(a) Neither conclusion I nor II follow
(b) Only conclusion I follow
(c) Either I or II conclusion follow
(d) Only conclusion II follow

Ans. (d) : According to the Venn diagram-


It is clear that only conclusion (II) follows from the given statement.

92. Two student A and B are returning back from school, from a point P. A goes 2 km north and turns left and goes for 9 km and reaches home 'B' from point P' moves 7 km in East and then goes to 6 km towards south and then turns left and moves 2 km and reaches Home. In reference to A's house what is the direction of B ?
(a) North - West (b) South - East
(c) South - West (d) North - East

Ans. (b) :


It is clear from the diagram that B's house is in the South-east direction with respect to A's house.

93. After interchanging which of two signs the following equation will become balanced.
17 ÷ 65 × 13 + 11 - 10 = 86
(a) - and ÷ (b) + and -
(c) × and + (d) ÷ and ×

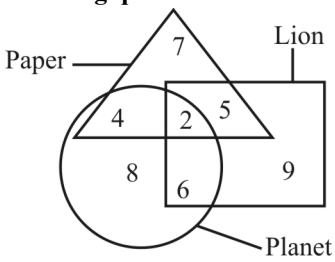
Ans. (d) : Given equation-
17 ÷ 65 × 13 + 11 – 10 = 86
From option (d)
$\Rightarrow$ 17 × 65 ÷ 13 + 11 – 10 = 86
$\Rightarrow$ 17 × 5 + 11 – 10 = 86
$\Rightarrow$ 85 + 11 – 10 = 86
$\Rightarrow$ 96 – 10 = 86
86 = 86
L.H.S = R.H.S.

94. Choose the appropriate option which is different from the others as the others are inter-related.

(a) Border : country (b) Coastline : Sea
(c) Bridge : steel (d) Wall : Room

Ans. (c) : Countries have borders, seas have coastlines and rooms have walls whereas bridges and steel have no relation. Hence option (c) is different from the others.

95. Read the graphs carefully and answer the following questions?

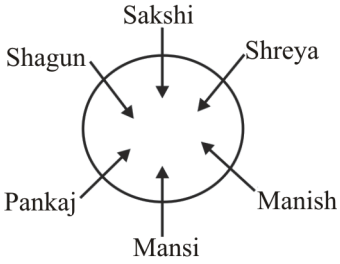


How many planets are paper and lion both?
(a) 7 (b) 4
(c) 5 (d) 2

Ans. (d) : It is clear from the given diagram that 2 planets are both paper and lion.

96. 6 friends Mansi, Manish, Shreya, Pankaj, Shagun and Sakshi are sitting around a circular disc facing the centre. Mansi is next left to Manish, Sakshi is in the middle of Shagun and shreya. Two people are in between Manish and Shagun. Who is sitting immediate to the right of manish?
(a) Sakshi (b) Shagun
(c) Pankaj (d) Shreya

Ans. (d) : According to the question-



It is clear from the diagram that Shreya is sitting right next to Manish.

97. From the given options, choose the number which may replace (?)
789, 267, 93, ?
(a) 27 (b) 31
(c) 35 (d) 39

Ans. (c) : The given series is as follows-

789 $\xrightarrow{\div 3+4}$ 267 $\xrightarrow{\div 3+4}$ 93 $\xrightarrow{\div 3+4}$ 35

Hence $\boxed{? = 35}$

98. In a certain coded language "ARCHITECT" has been written as 32051011227522. Then in same language "MANAGER" would be written as.
(a) 1531537918 (b) 1311473718
(c) 1531639720 (d) 1311963720

Ans. (c) : Just as,

(1) A → 3
(18) R → 20
(3) C → 5
(8) H → 10
(9) I → 11
(20) T → 22
(5) E → 7
(3) C → 5
(20) T → 22

Similarly,

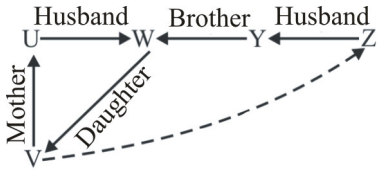
(13) M → 15
(1) A → 3
(14) N → 16
(1) A → 3
(7) G → 9
(5) E → 7
(18) R → 20

99. In the given pairs, first no. is related with second number logically.
11 : 131
17 : 305
23 : 551
of the given options, choose the one which follows the same logic.
(a) 27 : 756 (b) 33 : 1099
(c) 29 : 869 (d) 31 : 961

Ans. (c) : Just as,
11 : 131
$(11)^2 + (11 - 1) = 121 + 10 = 131$
17 : 305
$(17)^2 + (17 - 1) = 289 + 16 = 305$
23 : 551
$(23)^2 + (23 - 1) = 529 + 22 = 551$
Similarly, from option (c)-
29 : 869
$(29)^2 + (29 - 1) = 841 + 28 = 869$
Hence, option (c) will be correct.

100. A ÷B means - A is daughter of B
A ×B means - A is husband B
A -B means - A is Mother B
A +B means - A is brother B
If 'U - V ÷ W + Y × Z', then what's the relation of Z to V.
(a) Sister of father's brother
(b) Sister of Mother
(c) Daughter
(d) Wife of mother's brother

Ans. (a) : Given-
U – V ÷ W + Y × Z



It is clear from the diagram that Z is the wife of the brother of the father of V.