

Non-Technical Popular Categories

RRB NTPC

**Graduate and Under-Graduate Level
(Computer Based Test)**

Solved Papers (VOLUME-1)

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Graduate and Under-Graduate Level

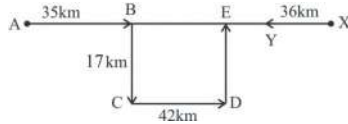
[Ist Stage Computer Based Test]

Exam Date : 28.12.2020]

[Time : 10:30 am-12:00 pm

1. Two buses start from opposite points towards each other on a main road, 185 km apart. The first bus runs for 35 km and takes a right turn and runs for 17 km. It then turns left and runs for another 42 km and takes the direction back to reach the main road, in the meantime, due to a minor breakdown, the other bus has run only 36 km along the main road. What would the distance between the two buses be at this point?
- (a) 75 km (b) 80 km
(c) 72 km (d) 85 km

Ans. (c) :



$$\begin{aligned}\text{Distance between both buses} &= 185 - (35 + 42 + 36) \\ &= 185 - 113 \\ &= 72 \text{ km}\end{aligned}$$

2. Which of the following states is NOT a member of 'Seven Sisters' states of North-East India?
- (a) Tripura (b) Sikkim
(c) Meghalaya (d) Mizoram

Ans. (b) : The Indian North-Eastern region consists of eight states which are Assam, Manipur, Meghalaya, Mizoram, Nagaland, Arunachal Pradesh, Tripura and Sikkim. Among them, except Sikkim, all states are collectively termed as 'Seven Sisters'.

3. Which of the following units is used for measuring the amount of a substance?
- (a) Lux (b) Mole
(c) Tesla (d) Joule

Ans. (b) : The mole is used for measuring the amount of a substance. It is the SI unit of amount of substance. One mole contains 6.022×10^{23} units of that substance.
Tesla → SI unit of Magnetic flux density.
Joule → SI unit of Work and Energy.
Lux → SI unit of illumination.

4. In the following question, select the related words from the given alternatives.
Writer : Pen :: Tailor : ?
- (a) Axe (b) Needle
(c) Saw (d) Scalpel

Ans. (b) : As the Writer writes with Pen, same as Tailor stitches clothes with the Needle.

5. In which state is the Kudankulam Nuclear Power Station located?
- (a) Karnataka (b) Gujarat
(c) Tamil Nadu (d) Rajasthan

Ans. (c) : The Kudankulam Nuclear Power Station is located in Tirunelveli district of Tamil Nadu. It is the largest nuclear power station in the country. It has a capacity of 6,000 MW of electricity. It was established with the help of the country Russia. It is the India's first nuclear station which uses pressurised water reactor (PWR).

6. In which year did ISRO launch the Mars Orbiter Mission?
- (a) 2012 (b) 2013
(c) 2014 (d) 2015

Ans. (b) : The Mars Orbiter Mission (MOM) is a space probe mission launched from Satish Dhawan Space Centre, Sriharikota, Andhra Pradesh. It was launched by using a Polar Satellite Launch Vehicle (PSLV) C 25 XL on 5 November 2013 by the Indian Space Research Organisation (ISRO). It is also known as Mangalyaan or Mangal Mission. Mars orbiter Mission was India's first venture into the interplanetary mission and it made it the fourth space agency to achieve Mars orbit, after Roscosmos, NASA and the European space Agency.

7. Which of the following is a multi-barrel rocket system developed by DRDO?
- (a) Trishul (b) Dhanush
(c) Pinaka (d) Prithvi

Ans. (c) : Pinaka is a multi-barrel rocket launcher developed by Defence Research and Development Organisation (DRDO). Through this, 12 rockets of 100 kg weight can be launched in 40 seconds.
Trishul is a short range surface to air missile.
Prithvi is a surface to surface ballistic missile.
Dhanush is a naval variant of the Prithvi missile having 500 kg payload.

8. The smallest 5 digit number that leaves a remainder of 6 when divided by 7 is :
- (a) 10009 (b) 10002
(c) 10003 (d) 10007

Ans. (b) : Smallest number of 5 digits = 10000

$$\begin{array}{r} 10000 \\ 7 \overline{) 10000} \\ \underline{7} \\ 3 \\ \underline{21} \\ 9 \\ \underline{7} \\ 20 \\ \underline{14} \\ 6 \end{array}$$

Remainder=6

$$\text{Given number} = 10000 + (6 - 4) = 10002$$

9. 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.
RAMO : SCPS :: VXMJ : ?
- (a) WQZN (b) WQPN
(c) WPZN (d) WZPN

Ans. (d) :

As like,

$$R \xrightarrow{+1} S$$

$$A \xrightarrow{+2} C$$

$$M \xrightarrow{+3} P$$

$$O \xrightarrow{+4} S$$

Hence, $W = WZPN$

Same as,

$$V \xrightarrow{+1} W$$

$$X \xrightarrow{+2} Z$$

$$M \xrightarrow{+3} P$$

$$J \xrightarrow{+4} N$$

10. What is 'UBUNTU'?

- (a) Web Browser (b) External hard drive
(c) Malware (d) Operating system

Ans. (d) : UBUNTU is an operating system launched in 2004, same like Microsoft Windows. It is formed on Linux code basis. It has several software packages which get license from GNU general public.

11. X and Y together can complete a piece of work in 12 days, Y and Z can do it 18 days and X and Z can complete the same work in 15 days. If X, Y and Z are together complete the work, approximately how many days will be required to complete the work?

- (a) 12 (b) 14
(c) 10 (d) 18

Ans. (c) : $(X + Y)$'s one day work = $\frac{1}{12}$ part

$(Y + Z)$'s one day work = $\frac{1}{18}$ part

$(X + Z)$'s one day work = $\frac{1}{15}$ part

$$\begin{aligned} 2(X + Y + Z)\text{'s one day work} &= \frac{1}{12} + \frac{1}{18} + \frac{1}{15} \\ &= \frac{15 + 10 + 12}{180} \\ &= \frac{37}{180} \text{ part} \end{aligned}$$

$(X + Y + Z)$'s one day work = $\frac{37}{2 \times 180} = \frac{37}{360}$ part

Total time taken by $(X + Y + Z)$ to complete work = $\frac{360}{37}$ days

$$\begin{aligned} &= 9.72 \text{ days} \\ &= 10 \text{ days (approx.)} \end{aligned}$$

12. Where is the Sabarimala temple located?

- (a) Kerala (b) Odisha
(c) Maharashtra (d) Andhra Pradesh

Ans. (a) : The Sabarimala temple is located in the state of Kerala. The temple is dedicated to God Ayyappa. The temple holds a practice of banning the entry of women of age group 10-50 years. In 2018, Supreme Court by a verdict nullified the ban of entry of women in temple premises.

13. Which of the following monuments is not located in Delhi?

- (a) Alai Darwaza (b) Buland Darwaza
(c) India Gate (d) Humayun's Tomb

Ans. (b) : Buland Darwaza is a monument constructed at Fatehpur Sikri, Uttar Pradesh. It was built in 1575 AD by the great Mughal Emperor Akbar to commemorate his victory over Gujarat. It is the highest gateway in the world. Alai Darwaza is situated in premises of Qutub Minar in Delhi. It was built by Alauddin Khilji in 1311.

India Gate is a national monument of India situated in Delhi.

Humayun's Tomb is located in Delhi, It was built by the Humayun's wife Bega Begum in 1570. It was the first garden-tomb on the Indian subcontinent.

14. If $\sin \theta = \frac{3}{4}$ and $\cos \theta = \frac{5}{4}$, then the value of

$\frac{1 + \tan \theta}{1 - \cot \theta}$ is :

- (a) $-\frac{8}{5}$ (b) $-\frac{12}{5}$
(c) $\frac{2}{5}$ (d) $\frac{11}{5}$

Ans. (b) : $\sin \theta = \frac{3}{4}$, $\cos \theta = \frac{5}{4}$

$$\therefore \tan \theta = \frac{\sin \theta}{\cos \theta} = \frac{3/4}{5/4} = \frac{3}{5}$$

$$\text{and, } \cot \theta = \frac{1}{\tan \theta} = \frac{5}{3}$$

$$\therefore \frac{1 + \tan \theta}{1 - \cot \theta} = \frac{1 + \frac{3}{5}}{1 - \frac{5}{3}} = \frac{8/5}{-2/3}$$

$$= -\frac{8 \times 3}{5 \times 2}$$

$$= -\frac{12}{5}$$

15. Who was honoured with the 55th Jnanpith Award for the year 2019?

- (a) Krishna Sobti
(b) A Achuthan Namboothiri
(c) Chitra Mudgal
(d) Shobha Rao

Ans. (b) : The Jnanpith Award for the year 2019 was conferred to the Malayalam poet, Akkitham Achuthan Namboothiri. This award is the highest literary award of country. The award consists of a cash prize of Rs.11 lakh, a citation plaque and a bronze statue of Hindu goddess Saraswati.

16. In order to qualify in an examination, one has to secure 50% of the overall marks. In the examination consisting of two papers, a student secured 40% in the first paper of 200 marks. Minimum what percentage of marks should be secured in the second paper of 150 marks in order to qualify in the examination?

- (a) 65% (b) 60%
(c) 68% (d) 64%

Ans. (d) :

Maximum marks of the first question paper = 200
Maximum mark of the second question paper = 150

$$\text{Minimum marks to qualify} = \frac{(200+150) \times 50}{100} \\ = \frac{350}{2} = 175 \text{ marks}$$

$$\text{Marks obtained in first question paper} = 200 \times \frac{40}{100} = 80$$

$$\text{Remaining minimum marks} = 175 - 80 = 95$$

$$\text{Required percentage of marks} = \frac{95}{150} \times 100 \\ = 63.33\% \approx 64\%$$

17. Mahatma Gandhi started the famous 'Salt March' from Sabarmati to Dandi. In which district of Gujarat is Dandi?

- (a) Porbandar (b) Navsari
(c) Surat (d) Kutch

Ans. (b) : Dandi is a village in Navsari district of Gujarat located on the coast of the Arabian Sea. On 12 March 1930, Mahatma Gandhi started his famous Dandi March from Sabarmati Ashram and reached Dandi on 5 April, 1930 along with his 78 followers. On reaching there, he broke the salt law by making salt on the shore.

18. If all the special characters are dropped from the below arrangement, which of the following will be the 10th to the right of X?

3 X ! B 9 # F 4 5 * 1 K 2 \$ 8 R S % Z

- (a) 8 (b) 2
(c) R (d) S

Ans. (c) : On removing the special characters from the series—

3 X B 9 F 4 5 1 K 2 8 R S Z

Hence, it's clear that 'R' would be at 10th place from the right of X.

19. If $a^3 - b^3 = 625$, $a^2 - b^2 = 25$ and $a + b = 5$ then the value of $a^2 + ab + b^2$ is:

- (a) 150 (b) 125
(c) 5 (d) 25

Ans. (b) : $a^3 - b^3 = 625$

$$(a-b)(a^2 + b^2 + ab) = 625 \quad \text{_____ (i)}$$

$$(a+b) = 5 \text{ [Given]} \quad \text{_____ (ii)}$$

$$a^2 - b^2 = 25 \text{ [Given]}$$

$$(a+b)(a-b) = 25 \quad \text{_____ (iii)}$$

From eqⁿ (ii)

$$5(a-b) = 25$$

$$a-b = 5 \text{(iv)}$$

Again from eqⁿ (i) & (iv)

$$5(a^2 + b^2 + ab) = 625$$

$$a^2 + b^2 + ab = 125$$

20. The greatest number that will divide 155, 260, 315 and leave the remainders 5, 10 and 15 respectively is:

- (a) 75 (b) 25
(c) 10 (d) 50

Ans. (d) : Given number = H.C.F. of $(155 - 5)$, $(260 - 10)$ and $(315 - 15)$
= H.C.F. of 150, 250 and 300 = 50

21. The ratio of ladies to gents numbers in a club is 3 : 2. Recently, 300 ladies joined the club and the ratio became 5 : 2. The number of lady members now in the club is:

- (a) 600 (b) 750
(c) 900 (d) 1200

Ans. (b) : Let the number of ladies in club = $3x$
and number of males = $2x$

According to the question,

$$\frac{3x + 300}{2x} = \frac{5}{2}$$

$$6x + 600 = 10x$$

$$4x = 600$$

$$x = 150$$

$$\text{Hence, the number of ladies in club is} = 3 \times 150 + 300 \\ = 450 + 300 \\ = 750$$

22. The sum of two numbers is 60 and their HCF and LCM are 12 and 72 respectively. The sum of the reciprocal of the two numbers is:

- (a) $\frac{1}{5}$ (b) $\frac{5}{72}$
(c) $\frac{5}{6}$ (d) $\frac{5}{12}$

Ans. (b) : Let the numbers be a & b respectively.

According to the question,

$$a + b = 60 \quad \text{... (i)}$$

$$\text{L.C.M.} \times \text{H.C.F.} = \text{Product of both numbers } a \text{ \& } b.$$

$$\frac{a+b}{ab} = \frac{60}{12 \times 72}$$

$$\frac{a}{ab} + \frac{b}{ab} = \frac{5}{72}$$

$$\frac{1}{b} + \frac{1}{a} = \frac{5}{72} \text{ or } \frac{1}{a} + \frac{1}{b} = \frac{5}{72}$$

23. Select the combination of letters that when sequentially placed in the blanks will create a repetitive pattern.

c _ b b a _ c a b _ a c _ a b _ a c

- (a) b, a, b, c, c (b) b, c, a, c, b
(c) a, c, b, c, b (d) a, b, c, b, c

Ans. (c) : The correct pattern will be
c a b b a c/c a b b a c/c a b b a c
Hence, option 'c' will be the answer.

24. The value of $\frac{\sqrt{54} \times \sqrt{125}}{\sqrt{24} \times \sqrt{45}}$ is :

- (a) $2\sqrt{5}$ (b) 4
(c) 2.5 (d) $4\sqrt{6}$

Ans. (c) :
$$\frac{\sqrt{54} \times \sqrt{125}}{\sqrt{24} \times \sqrt{45}}$$
$$= \frac{3\sqrt{6} \times 5\sqrt{5}}{2\sqrt{6} \times 3\sqrt{5}}$$
$$= \frac{5}{2} = 2.5$$

25. In the domain of computers and the internet, what is the full form of URL?

- (a) Unique Revoked Location
(b) Unique Resource Location
(c) Uniform Resource Locator
(d) Universal Resource Locator

Ans. (c) : In the domain of computers and the internet, the full form of URL is Uniform Resource Locator.

26. The cost price of an article is 75% of the market price. If a discount of 15% is allowed, then the profit or loss percentage is:

- (a) 15% profit (b) 13.33% profit
(c) 15.55% loss (d) 12.44% loss

Ans. (b) : Let market price of article = ₹ x

∴ Cost price = $x \times \frac{75}{100} = ₹ \frac{3x}{4}$

Selling price after 15% discount = $x \times \frac{85}{100} = ₹ \frac{17x}{20}$

Profit % = $\frac{\frac{17x}{20} - \frac{3x}{4}}{\frac{3x}{4}} \times 100\%$

$$= \frac{17x - 15x}{20} \times \frac{4}{3x} \times 100\%$$

$$= \frac{2x}{5} \times \frac{1}{3x} \times 100\%$$

$$= \frac{40}{3}\% \text{ or } 13.33\%$$

27. Out of Harish's monthly salary of ₹45000, $\frac{1}{3}$ of the expenditures are on education and $\frac{2}{6}$ of the expenditures are on food and other necessities. The rest of the salary goes towards his savings. The amount of savings is:

- (a) ₹ 12000 (b) ₹ 11250
(c) ₹ 15000 (d) ₹ 22500

Ans. (c) : Monthly salary of Harish = ₹45000

Expenditure on education = $45000 \times \frac{1}{3} = ₹15000$

Expenditure on food and other necessities

$$= 45000 \times \frac{2}{6}$$

$$= ₹ 15000$$

Remaining amount = $45000 - (15000 + 15000)$
$$= ₹ 15000$$

28. Who said, "Freedom is my birth right and I shall have it"?

- (a) Gopal Krishna Gokhale
(b) Bhagat Singh
(c) Bal Gangadhar Tilak
(d) Chandra Shekhar Azad

Ans. (c) : "Freedom is my birth right and I shall have it" is a statement made by Lokmanya Bal Gangadhar Tilak. He launched two newspapers The Kesari and The Maratha during Home Rule League. Bhagat Singh gave a slogan "Inqalab Zindabad".

29. Which two banks were merged with Bank of Baroda with effect from 1st April 2019?

- (a) Union Bank of India and Andhra Bank
(b) Syndicate Bank and UCO Bank
(c) Vijaya Bank and Dena Bank
(d) Allahabad Bank and Canara Bank

Ans. (c) : On 1 April 2019 Vijaya Bank and Dena Bank have been merged with Bank of Baroda. After that Bank of Baroda became third the largest bank after SBI and PNB bank. At present, there are total 12 Public Sector Banks (PSBs) in the country.

30. Which of the following shows a symbiotic relationship?

- (a) Lichen (b) Ulothrix
(c) Marsilea (d) Funaria

Ans. (a) : Lichen is made with the help of both algae and fungus. The fungus provides water, mineral salt and vitamins to algae and algae with the process of photosynthesis gives carbohydrate to fungus. This kind of symbiosis between fungus and algae is called helotism.

31. Where is the Central Potato Research Institute of India located?

- (a) Shimla (b) Delhi
(c) Lucknow (d) Ranchi

Ans. (a) : Central Potato Research Institute → Shimla
Indian Agricultural Research Institute → New Delhi
Indian Sugarcane Research Institute → Lucknow
Central Rice Research Institute → Cuttack
Central Tobacco Research Institute → Rajahmundry
Indian Iron Research Institute → Ranchi

32. The simple interest on an amount of ₹3400 for 4 years is ₹680. The rate of interest is:

- (a) 6% (b) 4%
(c) 8% (d) 5%

Ans. (d) : Let interest rate be = $r\%$ per annum.
According to the question,

$$680 = \frac{3400 \times r \times 4}{100}$$

$$r = \frac{68000}{3400 \times 4}$$

$$r = 5\%$$

33. In a rectangle, the length is twice the breadth and the perimeter of the rectangle is 48 cm. The area of the rectangle is:

- (a) 288 cm^2 (b) 512 cm^2
(c) 128 cm^2 (d) 144 cm^2

Ans. (c) : Let the breadth of rectangle = $x \text{ cm}$

$$\therefore \text{Length} = 2x \text{ cm}$$

$$\text{Perimeter of rectangle} = 2 (\text{length} + \text{breadth})$$

$$48 = 2 (x + 2x)$$

$$48 = 2 \times 3x$$

$$\text{Breadth } (x) = 8 \text{ cm}$$

$$\text{Length } (2x) = 16 \text{ cm}$$

$$\text{Area of rectangle} = \text{Length} \times \text{Breadth} \\ = 16 \times 8 = 128 \text{ cm}^2$$

34. If $\frac{x}{2} + \frac{2}{y} = 1$ and $\frac{y}{2} + \frac{2}{z} = 1$, then the value of

$$\frac{z}{2} + \frac{2}{x} \text{ is:}$$

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

Ans. (b) : Given that –

$$\frac{x}{2} + \frac{2}{y} = 1$$

$$xy + 4 = 2y$$

$$2y - xy = 4$$

$$y = \frac{4}{2-x} \quad \text{---(i)}$$

$$\text{and, } \frac{y}{2} + \frac{2}{z} = 1$$

$$yz + 4 = 2z \quad \text{---(ii)}$$

Putting the value of 'y' in eqⁿ (ii)

$$\frac{4}{(2-x)} \times z + 4 = 2z$$

$$4z + 8 - 4x = 4z - 2xz$$

$$8 - 4x = -2xz$$

$$4 - 2x = -xz$$

$$2x = 4 + xz$$

$$1 = \frac{4}{2x} + \frac{xz}{2x}$$

$$\text{or, } \frac{2}{x} + \frac{z}{2} = 1$$

35. What is to be added to 12% of 2400, so that the sum will be equal to 18% of 5400?

- (a) 952 (b) 972
(c) 288 (d) 684

Ans. (d) : Let the required number = x

According to the question,

$$2400 \times \frac{12}{100} + x = 5400 \times \frac{18}{100}$$

$$288 + x = 972$$

$$x = 972 - 288$$

$$x = 684$$

36. Which of the following countries is NOT a member of BIMSTEC?

- (a) India (b) Nepal
(c) Bhutan (d) Maldives

Ans. (d) : BIMSTEC (Bay of Bengal Initiative for Multi Sectoral Technical and Economic Cooperation) is a regional organisation which came into existence by Bangkok Declaration. It consists of Bangladesh, Bhutan, India, Nepal, Sri Lanka, Myanmar and Thailand. It is headquartered in Dhaka, Bangladesh.

37. Who was the founder of the Prarthana Samaj?

- (a) Swami Vivekananda
(b) Atmaram Pandurang
(c) Swami Dayanand Saraswati
(d) Raja Ram Mohan Roy

Ans. (b) : In 1867, with the help of Keshav Chandrasen, Atmaram Pandurang established Prarthana Samaj in Bombay. In 1869 MG Ranade became a member of this organisation. The popularity of this organisation is credited to Ranade, who rose his voice against the evil practices of Hindu religion.

38. Which of the following two countries of South America are land locked?

- (a) Paraguay and Bolivia
(b) Chile and Ecuador
(c) Guyana and Suriname
(d) Brazil and Venezuela

Ans. (a) : Those countries who do not share their boundaries with water bodies. There are, at present, 44 countries of the world who are landlocked. No any landlocked countries are present in North America and Australia. Paraguay and Bolivia are the two landlocked countries of South America.

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

Lawyer : Court : : Beautician : ?

- (a) Class (b) House
(c) Ship (d) Parlour

Ans. (d) : As a Lawyer goes to Court for his work in the same way a Beautician goes to Parlour for his work.

40. Name the theme declared by United Nations for World Environment Day, 2020.

- (a) Biodiversity
(b) Beat Plastic Pollution
(c) Connecting People to Nature
(d) Water Pollution

Ans. (a) : The World Environment Day is celebrated for protection and conservation of environment. It was first declared by United Nations in 1972 and the first World Environment Day was celebrated on 5th June 1974. Theme for the year 2020 and 2021 are 'Biodiversity' and 'Ecosystem Restoration' respectively.

41. If $\frac{1}{\sin^2 65^\circ + \cos^2 65^\circ} + \frac{\sin 15^\circ}{\cos 75^\circ} + \frac{\cos 65^\circ}{\sin 25^\circ} = \sqrt{3} \tan \theta$, then the value of θ is:
- (a) 60° (b) 45°
(c) 90° (d) 30°

Ans. (a) :

$$\frac{1}{\sin^2 65^\circ + \cos^2 65^\circ} + \frac{\sin 15^\circ}{\cos 75^\circ} + \frac{\cos 65^\circ}{\sin 25^\circ} = \sqrt{3} \tan \theta$$

[$\sin^2 \theta + \cos^2 \theta = 1$]

$$\frac{1}{1} + \frac{\sin 15^\circ}{\cos(90-15^\circ)} + \frac{\cos 65^\circ}{\sin(90-65^\circ)} = \sqrt{3} \tan \theta$$

$$1 + \frac{\sin 15^\circ}{\sin 15^\circ} + \frac{\cos 65^\circ}{\cos 65^\circ} = \sqrt{3} \tan \theta \quad \left[\begin{array}{l} \because \sin(90^\circ - \theta) = \cos \theta \\ \cos(90^\circ - \theta) = \sin \theta \end{array} \right]$$

$$1 + 1 + 1 = \sqrt{3} \tan \theta$$

$$\tan \theta = \frac{3}{\sqrt{3}} = \sqrt{3}$$

$$\tan \theta = \tan 60^\circ$$

$$\theta = 60^\circ$$

42. Which of the following diseases is caused by a virus?
- (a) Typhoid (b) Tuberculosis
(c) Cholera (d) Chicken Pox

Ans. (d) : Diseases caused by :

Virus → Chicken pox, Small pox, AIDS, Polio, Rabies, Herpes.
Bacteria → Tuberculosis, Whooping cough, Diphtheria, Typhoid, Pneumonia.
Fungi → Athlete foot, Baldness.

43. The value of $\frac{6}{5}$ of $\left(\frac{1}{3} + \frac{2}{4}\right) - \frac{5}{6}$ of $\left(\frac{3}{10} + \frac{12}{20}\right) - \frac{1}{6}$ is:
- (a) $\frac{1}{3}$ (b) $\frac{3}{4}$
(c) $\frac{1}{12}$ (d) $\frac{5}{6}$

Ans. (c) :

$$\frac{6}{5} \text{ of } \left(\frac{1}{3} + \frac{2}{4}\right) - \frac{5}{6} \text{ of } \left(\frac{3}{10} + \frac{12}{20}\right) - \frac{1}{6}$$

$$= \frac{6}{5} \times \left(\frac{4+6}{12}\right) - \frac{5}{6} \times \left(\frac{6+12}{20}\right) - \frac{1}{6}$$

$$= \frac{6}{5} \times \frac{10}{12} - \frac{5}{6} \times \frac{18}{20} - \frac{1}{6}$$

$$= 1 - \frac{3}{4} - \frac{1}{6}$$

$$= \frac{12-9-2}{12}$$

$$= \frac{12-11}{12}$$

$$= \frac{1}{12}$$

44. The value of $180 \div (2^3 + 3^2 + 1) + 37 - 20$ equal to:
- (a) 23 (b) 27
(c) 25 (d) 20

Ans. (b) :

$$180 \div (2^3 + 3^2 + 1) + 37 - 20$$

$$= 180 \div (8 + 9 + 1) + 37 - 20$$

$$= 180 \div 18 + 37 - 20$$

$$= 10 + 37 - 20$$

$$= 47 - 20$$

$$= 27$$

45. The unit digit in $4 \times 38 \times 764 \times 1256$ is :
- (a) 6 (b) 8
(c) 4 (d) 5

Ans. (b) :

$$4 \times 38 \times 764 \times 1256$$

$$\downarrow \quad \downarrow \quad \downarrow \quad \downarrow$$

$$4 \times 8 \times 4 \times 6$$

$$= 32 \times 24$$

$$\downarrow \quad \downarrow$$

$$= 2 \times 4$$

Unit digit = 8

46. Which Indian state has the longest mainland coastline?
- (a) Kerala (b) Maharashtra
(c) Odisha (d) Gujarat

Ans. (d) : The total length of coastlines of India measures about 7516.6 km. There are total 9 Indian states and 4 union territories which are located on coastlines of India. The states with maximum length of coastlines is Gujarat (1214 km) followed by Andhra Pradesh (974 km), Tamil Nadu (906 km), Maharashtra (652.6 km) and Kerala (569.7 km).

47. Four number-pairs have been given, out of which three are alike in some manner and one is different. Select the odd one.
- (a) 12 - 96 (b) 16 - 118
(c) 13 - 104 (d) 15 - 120

Ans. (b) : In the given options (a), (c) and (d) the second number is divisible by the first number. But in option (b) the second number is not perfectly divisible by the first. Hence option (b) is different among all.

48. In which year was The Environment (Protection) Act passed by the Parliament of India?
- (a) 1988 (b) 1990
(c) 1991 (d) 1986

Ans. (d) : In order to improve the protection and conservation of environment, the Government of India enacted the Environment Protection Act, 1986 under Article 253 of the Indian Constitution . The act was an immediate effect of Bhopal Gas Tragedy.

49. Through which of the following mediums can sound NOT travel?

- (a) Steel (b) Vacuum
(c) Air (d) Milk

Ans. (b) : Sound is a kind of vibration which travels through solid, liquid and gas. It travels in the form of waves. The velocity of sound depends upon elasticity of medium and its density. It travels slow in gases, faster in liquids and fastest in solids. It does not travel in vacuum. Sound waves are the longitudinal mechanical waves.

Speed of sound in Air \rightarrow 332 m/s

Speed of sound in Water \rightarrow 1482 m/s

Speed of sound in Iron (solid) \rightarrow 5130 m/s

50. A rope is divided into three different parts. The first part is $\frac{1}{5}$ of the whole length, the second

part is $\frac{3}{2}$ of the first. The third part is what fraction of the rope?

- (a) $\frac{2}{3}$ (b) $\frac{1}{2}$
(c) $\frac{3}{4}$ (d) $\frac{1}{3}$

Ans. (b) Let the length of rope = x metre

Length of first part = $\frac{x}{5}$ m

Length of second part = $\frac{x}{5} \times \frac{3}{2} = \frac{3x}{10}$ m

Length of third part = $x - \left(\frac{x}{5} + \frac{3x}{10} \right)$ m

$$= x - \left(\frac{2x + 3x}{10} \right)$$

$$= x - \left(\frac{5x}{10} \right)$$

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

$$= \frac{x}{2} \text{ m}$$

Hence the length of third part is half ($\frac{1}{2}$) of the total rope.

51. Which of the following passes connects Srinagar and Leh?

- (a) Zoji La (b) Bara La
(c) Nathu La (d) Jelep La

Ans. (a) :

Passes	States & UTs	Connects
Zoji La	Jammu & Kashmir	Srinagar and Leh
Bara Lacha La	Himachal Pradesh	Leh and Mandi
Nathu La	Sikkim	Sikkim & Chumbi Valley
Jelep La	Sikkim	Sikkim & Autonomous Tibet

52. The value of $5\sin 14^\circ \sec 76^\circ + 3 \cot 15^\circ \cot 75^\circ + 2\tan 45^\circ$ is :

- (a) 0 (b) 10
(c) 1 (d) 8

Ans. (b) : $5 \sin 14^\circ \sec 76^\circ + 3 \cot 15^\circ \cot 75^\circ + 2 \tan 45^\circ$
 $= 5 \sin 14^\circ \sec (90^\circ - 14^\circ) + 3 \cot (90^\circ - 75^\circ) \cot 75^\circ + 2 \tan 45^\circ$

$$\frac{7}{2}$$

$$= 5 \sin 14^\circ \operatorname{cosec} 14^\circ + 3 \tan 75^\circ \cot 75^\circ + 2 \tan 45^\circ$$

$$= 5 \times 1 + 3 \times 1 + 2 \times 1$$

$$= 5 + 3 + 2$$

$$= 10$$

53. The term 'Sericulture' is related to which of the following?

- (a) Fish farming (b) Silk farming
(c) Bird farming (d) Bee farming

Ans. (b) : Sericulture \rightarrow cultivation of silk worms

Pisciculture \rightarrow fish farming

Apiculture \rightarrow bee keeping

Aviculture \rightarrow bird keeping

54. The angles of a triangle are $2x^\circ$, $(3x^\circ - 8^\circ)$ and $(5x^\circ - 12^\circ)$. The greatest angle of the triangle is:

- (a) 112° (b) 88°
(c) 118° (d) 40°

Ans. (b) : \therefore Sum of three angles of triangle is 180°

$$\therefore 2x^\circ + 3x^\circ - 8^\circ + 5x^\circ - 12^\circ = 180^\circ$$

$$10x^\circ - 20^\circ = 180^\circ$$

$$10x^\circ = 200^\circ$$

$$x = 20^\circ$$

$$\text{First angle} = 2 \times 20^\circ = 40^\circ$$

$$\text{Second angle} = 3 \times 20^\circ - 8^\circ = 52^\circ$$

$$\text{Third angle} = 5 \times 20^\circ - 12^\circ = 88^\circ$$

$$\text{Hence the greatest angle} = 88^\circ$$

55. A cylinder has a height of 14 cm and the curved surface area is 528 cm^2 . The volume of the cylinder is :

- (a) 1244 cm^3 (b) 1584 cm^3
(c) 2538 cm^3 (d) 792 cm^3

Ans. (b) : Height of cylinder (h) = 14 cm

Curved surface area of cylinder ($2\pi rh$) = 528 cm^2

$$\Rightarrow 2 \times \frac{22}{7} \times r \times 14 = 528$$

$$\Rightarrow r = \frac{528}{2 \times 2 \times 22}$$

$$r = 6 \text{ cm}$$

$$\text{Volume of cylinder } (\pi r^2 h) = \frac{22}{7} \times 6 \times 6 \times 14$$

$$= 22 \times 36 \times 2$$

$$= 1584 \text{ cm}^3$$

56. The ratio of two positive numbers is 3 : 7 and their LCM is 231. The smaller number is:

- (a) 55 (b) 44
(c) 77 (d) 33

Ans. (d) : Let the two numbers be $3x$ & $7x$.

L.C.M. of $3x$ and $7x = 231$

$21x = 231$

$x = 11$

Hence, the smaller number = $3 \times 11 = 33$

57. In which city was the Khelo India Youth Games, 2020 held?

- (a) Kolkata (b) Chennai
(c) Bangalore (d) Guwahati

Ans. (d) : Khelo Indian Youth Games is organized by the Government of India for the upliftment of athletes in field of sports. The Third edition of this game was held in Guwahati, Assam in January 2020. Two new games "Lawn Bowls & Cycling" are recognised into this edition.

States	Medals
Maharashtra	256
Haryana	200
Delhi	122

58. In general, the most appropriate average value in measuring central tendency is :

- (a) mode (b) range
(c) median (d) mean

Ans. (d) : Mean is the most appropriate average value in measuring central tendency.

59. Which of the following is in the list of Maharatna Central Public Sector Enterprises?

- (a) India Tourism Development Corporation
(b) Central Coalfields Limited
(c) Cochin Shipyard
(d) Coal India Limited

Ans. (d) : As of October 2021, the nation holds 11 Maharatnas, 14 Navratnas and 73 Miniratnas. The Maharatnas are :

1. National Thermal Power Corporation
2. Oil and Natural Gas Corporation.
3. Steel Authority of India Limited.
4. Coal India Limited.
5. Indian Oil Corporation Limited.
6. Bharat Heavy Electricals Limited.
7. Gas Authority of India Limited.
8. Bharat Petroleum Corporation Limited.
9. Hindustan Petroleum Corporation Limited.
10. Power Grid Corporation of India Limited.
11. Power Finance Corporation Limited.

60. Between which two cities does India's first semi high-speed train 'Vande Bharat Express' run?

- (a) Ahmedabad and Mumbai Central
(b) Hazrat Nizamuddin and Jhansi Junction
(c) Puri and Howrah Junction
(d) New Delhi and Varanasi Junction

Ans. (d) : Vande Bharat (Train 18) is a semi high speed train of India. It is India's first engine less train which is indigenously developed. In 2019, it was started between New Delhi and Varanasi Junction. The Second Vande Bharat runs between New Delhi and Vaishno Devi Katra.

61. Pattachitra style of painting is one of the oldest and most popular art forms of which of the following states?

- (a) Odisha (b) Rajasthan
(c) Bihar (d) Andhra Pradesh

Ans. (a) : The Pattachitra style of painting is the most popular art form of Odisha and West Bengal. It is generally a cloth based painting. The paintings are based on Hindu mythology and is highly inspired by Lord Jagannath and Vaishnava sect. The Geographical Indication of Pattachitra is registered differently in both states as 'Orissa Pattachitra' in Odisha and Bengal 'Pattachitra' in West Bengal.

62. Who among the following was the youngest President of India?

- (a) Shri Neelam Sanjiva Reddy
(b) Dr. S. Radhakrishnan
(c) Dr. Rajendra Prasad
(d) Dr. Zakir Hussain

Ans. (a) : Neelam Sanjeev Reddy was the youngest President of India. His tenure was from 25th July, 1977 to 25th July 1982. He was the President elected unopposed.

63. From among the given options, select the word which cannot be formed using the letters of the given word.

LAUGHTER

- (a) GRUNT (b) GATE
(c) HATE (d) RATE

Ans. (a) : The word GRUNT may not be formed from 'LAUGHTER' because it doesn't contain letter 'N'.

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.

Pediatrics : Children : : Neurology : ?

- (a) Veins (b) Eyes
(c) Brain (d) Heart

Ans. (c) : As Pediatrics is related to Children similarly Neurology is related to Brain.

65. Where is the Head Quarters of the International Court of Justice located?

- (a) Paris (b) Washington D.C.
(c) New York (d) The Hague

Ans. (d) : International Court of Justice is a significant organ of the United Nations. It was formulated through UN Charter in 1945. It has total 193 member countries. Its current President is Joan Donoghue. The headquarters of ICJ is in the Hague, Netherlands.

66. In which of the following continents is the Gobi desert located?

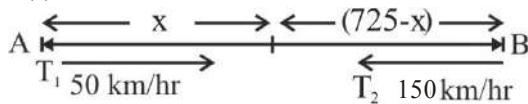
- (a) Europe (b) North America
(c) Africa (d) Asia

Ans. (d) : Gobi desert lies between the area of China and Mongolia. It is the world's 5th biggest desert and the biggest in Asia. Altai mountains lie north of it, while Takla Makan desert lies in south west direction.

67. A train leaves station A towards station B at the speed of 50 km/hr. After half an hour, another train leaves station B towards station A at 150 km/hr. The distance between the stations is 725 km. The distance of the point from station A where the two trains are to meet is:

- (a) 168 km (b) 250 km
(c) 200 km (d) 150 km

Ans. (c) :



Distance of meeting point from 'A' = x km
Distance covered by the first train in 30 min = 25 km
Remaining distance = $725 - 25 = 700$ km
Relative speed = $(50 + 150)$ km/h
= 200 km/hr
Meeting time = $\frac{700}{200}$ hours
= 3.5 hours
Distance covered by the first train in 3.5 hours
= $50 \times \frac{7}{2}$ km
175 km
Hence, distance from A = $175 + 25 = 200$ km

68. The adjacent angles of a rhombus are in the ratio of 3 : 6. The smallest angle of the rhombus is:

- (a) 40° (b) 120°
(c) 60° (d) 80°

Ans. (c) : Let adjacent angles of rhombus be $3x^\circ$ & $6x^\circ$
Now, sum of adjacent angles of Rhombus = 180°

$$\begin{aligned}\therefore 3x^\circ + 6x^\circ &= 180^\circ \\ 9x^\circ &= 180^\circ \\ x^\circ &= 20^\circ\end{aligned}$$

The smallest angle = $3 \times 20 = 60^\circ$

69. Who is the author of 'Rajatarangini'?

- (a) Kalidas (b) Chand Bardai
(c) Jayadeva (d) Kalhana

Ans. (d) : Rajatarangini is a book written by Kalhana, depicts magnificently about the history of Kashmir. Kalhana was patronised by Lohara dynasty ruler Harsha.

Authors

Chanda Bardai
Jaydev
Kalidas

Books

Prithviraj Raso
Geet - Govinda
Abhigyanshakuntalam,
Meghdoot

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

5	4	3
6	5	4
7	6	5
384	245	?

- (a) 144 (b) 269
(c) 249 (d) 244

Ans. (a) : Given that :

From Column I

$$(5)^1 + (6)^2 + (7)^3 = 5 + 36 + 343 = 384$$

again, from Column II

$$(4)^1 + (5)^2 + (6)^3 = 4 + 25 + 216 = 245$$

Same as,

From Column III

$$(3)^1 + (4)^2 + (5)^3 = 3 + 16 + 125 = 144$$

71. In which year was the Second battle of Panipat fought between Akbar and Hemu?

- (a) 1526 (b) 1536
(c) 1576 (d) 1556

Ans. (d) : The second battle of Panipat held on 5 November, 1556, between Hemu and the Mughal emperor Akbar. Akbar defeated Hemu.

First Battle of Panipat : In 1526, Babar defeated Ibrahim Lodhi.

Third Battle of Panipat : In 1761, Ahmad Shah Abadali defeated the Marathas.

72. If the mass of a person is 60 kg on the surface of earth then the same person's mass on the surface of the moon will be:

- (a) 0 kg (b) 360 kg
(c) 60 kg (d) 10 kg

Ans. (c) : According to the formula,

Weight = mass \times gravitation

Gravitational value on moon is $1/6^{\text{th}}$ to that of the Earth. But question has been in reference with mass which is a constant entity and is independent of gravity. Hence the mass of an individual remains same, 60 kg at every place.

73. The value of $5\frac{2}{3} + 0.73 - 3.123$ is equal to:

- (a) 3.12 (b) 3.27
(c) 2.55 (d) 5.73

Ans. (b) : $5\frac{2}{3} + 0.73 - 3.123$
 $= \frac{17}{3} + 0.73 - 3.123 = 5.666 + 0.73 - 3.123$
 $= 6.396 - 3.123 = 3.273$

74. Select the letter cluster that can replace the question mark (?) in the following series.

BZA, DYC, FXE, HWG, ?

- (a) KVI (b) JUH
(c) JVH (d) JVI

Ans. (d) : The given series –
 $B \xrightarrow{+2} D \xrightarrow{+2} F \xrightarrow{+2} H \xrightarrow{+2} J$
 $Z \xrightarrow{-1} Y \xrightarrow{-1} X \xrightarrow{-1} W \xrightarrow{-1} V$
 $A \xrightarrow{+2} C \xrightarrow{+2} E \xrightarrow{+2} G \xrightarrow{+2} I$
Hence ? = JVI

75. Which of the following countries is NOT a permanent member of United Nations Security Council?

- (a) China (b) United Kingdom
(c) France (d) Japan

Ans. (d) : United Nations Security Council is one of the six principal organs of United Nations, which has the responsibility to maintain peace and security throughout the world. It is also called as "Policeman of the World". It has fifteen member countries of which five are permanent members and ten are Non-permanent members. The five permanent members are China, France, the USA, UK, and Russia.

76. Shweta and Harish completed a project with an income of ₹28,000. In this project Shweta worked for 20 days and Harish worked for 30 days. If their daily wages are in the ratio of 5 : 6, then Shweta's share is:

- (a) ₹ 12,000 (b) ₹ 16,000
(c) ₹ 10,000 (d) ₹ 18,000

Ans. (c) : Ratio of workdone by Shweta & Harish
 $= 20 \times 5 : 30 \times 6$
 $= 100 : 180$
 $= 5 : 9$
Shweta's share
 $= 28000 \times \frac{5}{14}$
 $= 2000 \times 5$
 $= ₹ 10,000$

77. What is the maximum strength of the members of the Lok Sabha?

- (a) 543 (b) 547
(c) 552 (d) 549

Ans. (c) : The members of Lok Sabha are elected through Universal Adults Suffrage. The maximum strength of Lok Sabha is 552 in which 530 members are elected from states and 20 members are elected from union territories.

Previously 2 members were nominated from Anglo-Indian Community, but this provision was deleted by 104th Constitutional Amendment Act, 2021.

78. A class of 50 girls and 70 boys sponsored a musical programme. If 40% of the girls and 50% of the boys attended, approximately what percentage of the class attended the programme?

- (a) 46% (b) 42%
(c) 48% (d) 44%

Ans. (a) : Total numbers of students in class = 50 + 70 = 120

No. of present students in musical programme

$$= 50 \times \frac{40}{100} + 70 \times \frac{50}{100}$$

$$= 20 + 35$$

$$= 55$$

Hence, percentage of class present in the programme

$$= \frac{55}{120} \times 100$$

$$= 45.83 \approx 46\%$$

79. Which Sikh guru established the Khalsa Panth?

- (a) Shri Guru Nanak ji
(b) Shri Guru Tegh Bahadur ji
(c) Shri Guru Har Gobind ji
(d) Shri Guru Gobind Singh ji

Ans. (d) : The tenth Sikh Guru, Guru Gobind Singh was born in Patna on 22nd December 1666. In 1699 on the eve of Vaisakhi. He established the famous Khalsa Panth.

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

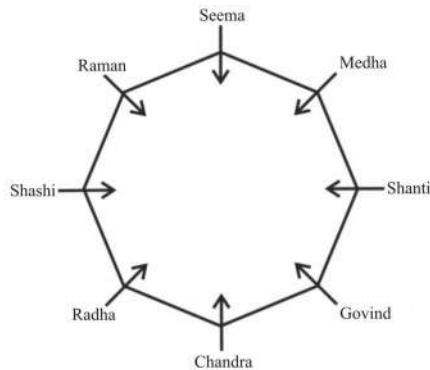
- (a) Chalk (b) Marker
(c) Book (d) Pen

Ans. (c) : Pen, Marker and Chalk is used for writing, while Book is used for reading. Hence option 'c' is different among all.

81. A group of friends are sitting in an arrangement with one each at the corner of an octagon. All are facing the centre. Medha is sitting diagonally opposite Radha. Medha is on Seema's left. Raman is next to Seema and opposite to Govind. Govind is on Chandra's right. Shanti is not on Medha's right but is opposite to Shashi. Who is opposite to Chandra?

- (a) Radha (b) Seema
(c) Shanti (d) Raman

Ans. (b) : The correct pattern of sitting will be :



Hence it is clear that Seema is sitting in front of Chandra.

82. The simple interest on a sum of amount for 2 years at 10% per annum is ₹500. The compound interest on the same sum at the same rate for the same time is:

- (a) ₹ 510 (b) ₹ 525
(c) ₹ 520 (d) ₹ 515

Ans. (b) : Let Principal amount = ₹ P

Rate = 10% annual

Time = 2 years

According to the question,

$$500 = \frac{P \times 10 \times 2}{100}$$

$$P = ₹ 2500$$

$$\text{Compound interest} = 2500 \left[\left(1 + \frac{10}{100} \right)^2 - 1 \right]$$

$$= 2500 \left[\frac{11}{10} \times \frac{11}{10} - 1 \right]$$

$$= 2500 \left[\frac{121 - 100}{100} \right]$$

$$= 2500 \times \frac{21}{100}$$

$$= ₹ 525$$

83. What is Sukanya Samriddhi Yojana?

- (a) A scheme to develop self-defense skills in girls.
(b) A scheme to provide bicycles for girls studying in the class 10th.
(c) A small deposit scheme for the girl child.
(d) A scheme to provide skills that give employability to women

Ans. (c) : Sukanya Samriddhi Yojana is a central government's saving scheme which was started on 22nd January 2015 by Prime Minister Narendra Modi. Under this scheme, a bank account is to be opened for a girl child upto 10 years from birth. It consists of minimum annual deposit limit and maximum annual deposit limit Rs. 250 and Rs. 1.5 lakh respectively. After completing 21 years of the girl, the amount would be returned along with interests.

84. Which part of the computer is called its brain?

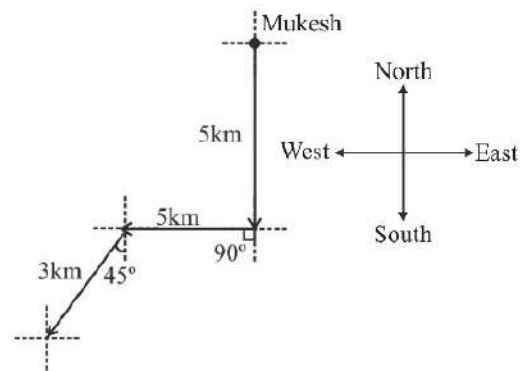
- (a) ROM (b) Hard Disc
(c) CPU (d) Monitor

Ans. (c) : CPU (Central Processing Unit) is termed as the brain of the computer. It regulates, manages, controls and directs the computer functions and programmings. It also helps in data processing and management.

85. Mukesh was facing the south. He walked 5 km straight and from there he turned at a 90° angle to his right and walked 5 km. Then he turned at a 45° angle to his left and walked 3 km. Where will he be from his actual position?

- (a) South-west direction
(b) South-east direction
(c) North-west direction
(d) South direction

Ans. (a) : According to question,



Hence it is clear that Mukesh will be in South-West direction in reference to his initial position.

86. Select the option that is related to the third number in the same way as the second number is related to the first number.

21 : 11 :: 31 : ?

- (a) 15 (b) 18
(c) 17 (d) 16

Ans. (d) : Given that –

$$21 : 11$$

$$\downarrow \quad \downarrow$$

$$20 + 1 = 21 \quad \frac{20}{2} + 1 = 11$$

Same as

$$31 : ?$$

$$\downarrow \quad \downarrow$$

$$30 + 1 = 31 \quad \frac{30}{2} + 1 = 16$$

Hence ? = 16

87. Select the number from among the given options that can replace the questions mark (?) in the following table.

28	63	94
8	18	?
6	9	13

- (a) 69 (b) 48
(c) 76 (d) 75

Ans. (d) : Given that –

From Column I

$$28 + 8 = 36 = (6)^2$$

again, from Column II,

$$63 + 18 = 81 = (9)^2$$

Same as,

Column III

$$94 + ? = (13)^2$$

$$94 + ? = 169$$

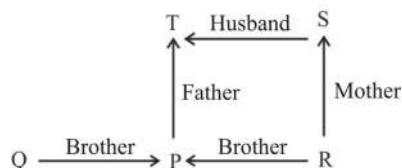
$$? = 169 - 94$$

$$? = 75$$

88. P is the brother of Q and R. S is R's mother. T is P's father. Which of the following statements cannot be definitely true?

- (a) T is S's husband (b) T is Q's father
(c) S is P's mother (d) T is Q's husband

Ans. (d) : According to question,



Hence from this it is clear that T is Q's father. Then the statement T is Q's husband, proved wrong.

89. From among the given options, select the word which cannot be formed using the letters of the given word.

DAUGHTER

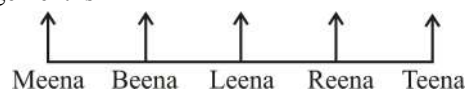
- (a) DATE (b) HURT
(c) TOUGH (d) GET

Ans. (c) : The word TOUGH may not be formed from word DAUGHTER as it doesn't contain the word 'O'.

90. Five girls Beena, Leena, Meena, Reena and Teena are playing game. They are sitting in a row facing towards the north. Meena is sitting at the west end and Teena is sitting at the east end. Leena and Reena are sitting together next to each other. Beena is sitting to the left of Leena and to the right of Reena. Who is sitting second from the east end?

- (a) Beena (b) Reena
(c) Teena (d) Leena

Ans. (b) : According to the question, the sitting arrangement is-

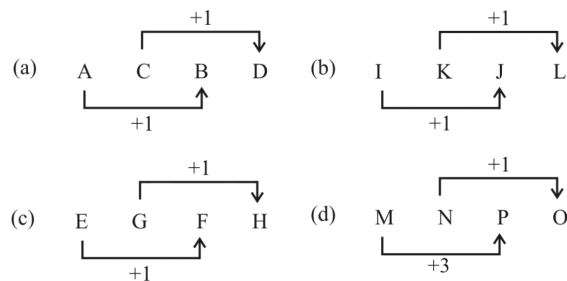


It is clear that Reena is on 2nd place from the east.

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

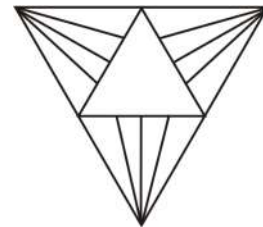
- (a) ACBD (b) IKJL
(c) EGFH (d) MNPO

Ans. (d) : From the option –



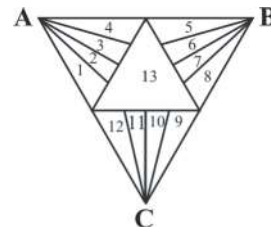
Hence, it is clear that option 'd' is different among all.

92. Find the number of triangles in the diagram given below:



- (a) 29 (b) 32
(c) 31 (d) 30

Ans. (b) :



Triangles made by 1 digit = 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13

Triangles made by two digits = (1, 2) (2, 3) (3, 4) (5, 6) (6, 7) (7, 8) (9, 10) (10, 11) (11, 12)

Triangles made by 3 digits = (1, 2, 3) (2, 3, 4) (5, 6, 7) (6, 7, 8) (9, 10, 11) (10, 11, 12)

Triangles made by 4 digits = (1, 2, 3, 4) (5, 6, 7, 8) (9, 10, 11, 12)

Triangles made by every number = ΔABC

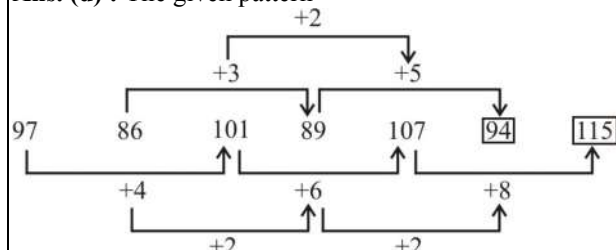
Total number of triangles = $13 + 9 + 6 + 3 + 1 = 32$

93. Select the numbers that can replace the question mark (?) in the following series.

97, 86, 101, 89, 107, ?, ?

- (a) 84; 125 (b) 114; 169
(c) 121; 144 (d) 94; 115

Ans. (d) : The given pattern –



94. The positions of Deepti and Mohan in a row are 14th from the left and 9th from the right respectively. If they interchange their places, then Mohan will be 21st from the right, find the position of Deepti from the left now and the total number of persons in the row.

- (a) 33, 27
(b) 26, 34
(c) 34, 26
(d) 24, 38

Ans. (b) : Position of Deepti from the left = 14th
Position of Mohan from the right = 9th
After changing positions
Position of Mohan from the right = 21st
Total people in row = $14 + 21 - 1 = 34$
Position of Deepti from the left = $34 - 9 + 1 = 26$
Hence, position of Deepti & No. of people in row is 26 & 34 respectively.

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

- (a) Head : cap (b) Hand : glove
(c) Paper : note (d) Gift : gift wrap

Ans. (c) : As gloves is used to cover hands, cap is used to cover head, gift is wrapped by gift wrap, while note is printed on paper. Hence paper would be the different among these.

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:

All Roses are Red.

Some Red are Colours.

All Colours are Paints.

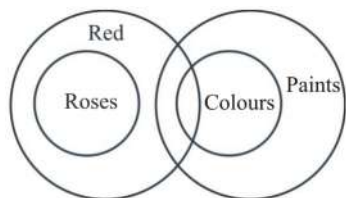
Conclusions:

I. Some Red are Paints.

II. All Red are Roses.

- (a) Only conclusion I follows
(b) Neither conclusion I nor II follow
(c) Only conclusion I follows
(d) Both conclusion I and II follow

Ans. (c) : After drawing venn diagram-



The following Venn's diagram shows that only conclusion I follows the statement logically.

97. Five students are sitting in a row. Sunil is neither a neighbour of Aashtha nor Shyam, Aashtha is a neighbour of Shyam and she is on the left end of the row. Sunil is a neighbour of Manjeet, Manjeet is exactly in the middle of the row, and is not a neighbour of Amita. Who are the neighbours of Sunil ?

- (a) Aashtha and Manjeet
(b) Shyam and Amita
(c) Manjeet and Amita
(d) Shyam and Manjeet

Ans. (c) : The sitting arrangement of students will be follows -



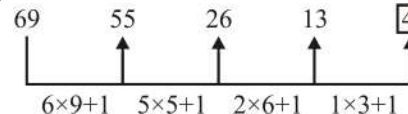
Hence, it is clear that neighbour of Sunil are Manjeet and Amita.ss

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

69, 55, 26, 13, ?

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

Ans. (b) : Given series will be -



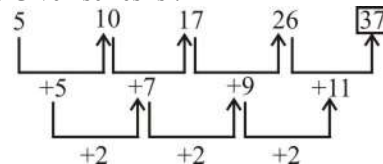
Hence $? = 4$

99. Select the number that can replace the question mark (?) in the following series.

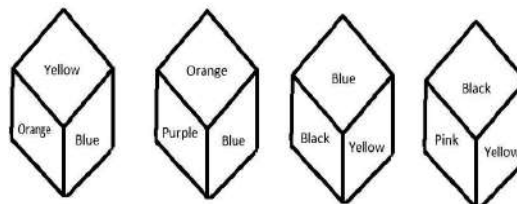
5, 10, 17, 26, ?

- (a) 37 (b) 34
(c) 36 (d) 35

Ans. (a) : Given series is :



100. Four different positions of a cube are shown in the figure. Which of the following colours is on the face opposite to the face that has black written on it?



- (a) Pink (b) Blue
(c) Orange (d) Purple

Ans. (c) : According to the rule of cube, if two depicted faces of two cubes are same, then the third faces will be opposite to each other. The first and third cube have two same faces, hence third faces of them will be opposite to each other. Hence opposite of Black will be Orange.

Railway Non-Technical Popular Categories Exam - 2019

Graduate and Under-Graduate Level

[Ist Stage Computer Based Test]

Exam Date : 05.01.2021]

[Time : 10:30 am-12:00 pm

1. The balance of exports and imports of goods is referred to as :
- current account
 - trade balance
 - current account deficit
 - current account balance

Ans. (b) The trade balance is the net sum of a country's exports and imports of goods without taking into account all financial transfers, investments and others financial components. A country's trade balance is positive (meaning that it registers a surplus) if the value of exports exceeds the value of import. Conversely a trade balance is negative, if the value of import exceeds that of exports. It will be known as trade deficit The trade balance is the official term that is used for net export in the current account.

2. Which temple in Thanjavur has Chola architecture and was built by Emperor Rajaraja?
- Lord Murugan Temple
 - Naganathaswamy Temple
 - Thirumananjeri Temple
 - Brihadisvara Temple

Ans. (d) : Brihadishvara Temple is a Hindu temple dedicated to Lord Shiva located in South bank of cauvery river in Thanjavur, Tamil Nadu. It was built by Tamil king Raja Raja Chola I between 1003 and 1010 AD. Temple is a UNESCO World Heritage Site. It is known as "Great living Chola Temples".

3. Which of the following countries is a permanent member of the United Nations Security Council?
- Canada
 - China
 - India
 - Japan

Ans. (b) : The Security Council was established by the UN charter in 1945. It is one of the six principal organs of the United Nations. The UNSC is composed of 15 members, 5 permanent and 10 non-permanent.

* Permanent members :- China, France, Russia, United Kingdom, United States.

* Non-Permanent member - Elected for two-year terms by the General Assembly. India Currently is a non permanent member of UNSC.

4. In which part of a neuron is information acquired?
- Cell body
 - Nerve ending
 - Dendrite
 - Axon

Ans. (c) : The part of neuron that acquires information is dendrite and the part of neuron through which information travels as an electrical impulse is axon. The transfer of information from neuron to neuron takes place through the release of chemical substance into the space between the axon and the dendrites.

5. In a row of students, one student is tenth from either end of the row. How many students are there in the row?
- 22
 - 16
 - 20
 - 19

Ans. (d) : Total no. of students in a row = L + R - 1
= 10 + 10 - 1 = 19

6. What is Tamil New Year also known as
- Varusha Pirappu
 - Bestu Varas
 - Ugadi
 - Vishu

Ans. (a) : Varusha Pirappu, also known as Puthandu, marks Tamil New Year and is observed on first day of Tamil month Chithirai and people greet each other by saying, 'Puthandu Vazthukal' to each on this day which means Happy New Year.

7. If the dimensions of a room are 2m, 3m and 4m, then how many cubes of size $\frac{1}{2}m \times \frac{1}{3}m \times \frac{1}{4}m$ can be placed in the same room?
- 672
 - 760
 - 576
 - 676

Ans. (c) :

$$\text{Required number of cubes} = \frac{24m^3}{\frac{1}{24}m^3} = 576$$

Hence, the number of cubes required = 576

8. Which of these is not a part of capital receipt?
- Tax
 - Recovery of loan
 - Borrowing
 - Disinvestment

Ans. (a) : Tax is not a part of capital receipts. Tax Revenue forms part of the Receipt Budget, which in turn is a part of the annual financial statement of the Union Budget. Other than this, the capital budget consists of capital receipts and capital payments. Government receipts which either create liabilities (e.g. borrowing) or reduce assets. (e.g. disinvestment) are called capital receipts. These are receipts that create liabilities or reduce financial assets. They also refer to incoming cash flows.

9. Some organisms use simple food material obtained from inorganic sources in the form of carbon dioxide and water. What are these organisms known as?
- Autotrophs
 - Saprophytes
 - Holozoic
 - Heterotrophs

Ans. (a) : An autotrophs is an organism that can produce its own food using light, water, carbon dioxide, or other chemicals because autotrophs produce make their own food, they are often called producers. Some type of bacteria are Autotrophs. Most of Autotrophs use a process called photosynthesis to make their food.

10. Total cost per unit of output is known as:

- (a) average product
- (b) average fixed cost
- (c) average cost
- (d) average variable cost

Ans. (c) : The Average cost is the per unit cost of production obtained by dividing the total cost (TC) by the total output (Q). By per unit cost of production, we mean that all the fixed and variable cost is taken into consideration for calculating the average cost

$$\text{Average Cost} = \frac{\text{Total Cost of Production}}{\text{No. of Units Produced}}$$

11. Select the option that is related to the third word in the same way as the second word is related to the first word.

Shirt : Apparel :: Necklace : ?

- (a) Chain
- (b) Gold
- (c) Jewellery
- (d) Neck

Ans. (c) : Just as a shirt is a Apparel, similarly a necklace is an 'Jewellery'.

12. Which of the following cities has emerged as the most important center with nearly half the cotton mills of the state

- (a) Coimbatore
- (b) Bengaluru
- (c) Chennai
- (d) Madurai

Ans. (a) : The largest number of cotton mills in Tamil Nadu are found in Coimbatore. Coimbatore is known as the Manchester of South India. Recently the Kovai cora/kora cotton here has been approved by the government of India by G.I. Tag.

13. Which is Satyajit Ray's famous film about the decline of the aristocratic zamindari style of living?

- (a) Pather Panchali
- (b) Apur Sansar
- (c) Jalsaghar
- (d) Charulata

Ans. (c) : Satyajit Ray's 1958 Bengali film Jalsaghar, usually translated as "The Music Room" is typically taken to depict, broadly, the decadence and recline of aristocratic 'feudal' landowners (zamindars), who represent the languid past of the nobility, and the ascendance of a restless business oriented class that represents an emerging present and possible future.

14. The difference between the compound interest and the simple interest on a sum of money at 10% for 2 years (compounded annually) is ₹50. The sum of money is:

- (a) ₹5,000
- (b) ₹4,500
- (c) ₹4,000
- (d) ₹2,500

Ans. (a) :

$$\begin{aligned} \text{For two years, } D &= \frac{PR^2}{100^2} \\ 50 &= \frac{P \times 10 \times 10}{100 \times 100} \\ P &= 5000 \end{aligned}$$

Hence, Money = ₹5000

15. If the denominator of a rational number is of the form $2^n 5^m$ where n and m are non-negative integers, then what will be the decimal expansion of the number?

- (a) Non-terminating and non-recurring
- (b) Non-terminating but recurring
- (c) Terminating
- (d) Can't be determined

Ans. (c) : Let rational number

$$\frac{P}{2^m 5^n} = \frac{P}{2^{(m+n)}}$$

Taking the value of m and n as non-negative integers, the number will always have a decimal expansion.

If $m = n = 1$

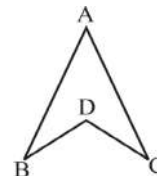
$$\text{Then, } \frac{P}{2^2} = \frac{P}{4} = \frac{1}{4} \times P = 0.25 P$$

16. Which of the following is not an input device?

- (a) Plotter
- (b) Touch screen
- (c) Light pen
- (d) Track ball

Ans. (a) : In computing, an input device is a peripheral (hardware equipment) used to provide data and control signals, to an information processing system such as a computer or other information appliance. Examples – Keyboards, mouse, scanner, digital pen and joysticks. A plotter is a printer that prints a vector image. It receive data from computer and prints it on paper. So it is an output device.

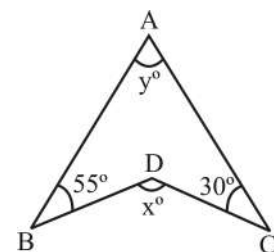
17. If the given figure, $\angle ABD = 55^\circ$ and $\angle ACD = 30^\circ$. If $\angle BAC = y^\circ$ and non-reflex $\angle BDC = x^\circ$, then what is the value of ' $x - y$ '?



- (a) 95
- (b) 15
- (c) 85
- (d) 105

Ans. (c) :

Given,
 $\angle ABD = 55^\circ$
 $\angle ACD = 30^\circ$
 $\angle BAC = y^\circ$
 and
 $\angle BDC = x^\circ$
 In figure –
 $x^\circ = y^\circ + 55^\circ + 30^\circ$
 $(x^\circ - y^\circ) = 85^\circ$



18. Which of the following statements is true?

- (a) Every integer is natural number
- (b) Every real number can be written in the complex form
- (c) Every complex number can be expressed in the form of a real number
- (d) Every real number is an integer

Ans. (b) :

- (a) Integer is both positive and negative whereas natural numbers represent only counted numbers.
- (b) Every real number can be written as a complex number

Example - $(x + 1)^2 = -9$

$$(x + 1) = \pm \sqrt{-9} \Rightarrow x + 1 = \pm 3i$$

$$x = -1 \pm 3i$$

here x is a real number.

- (c) Every complex number, cannot be expressed as a real number.
- (d) It is not necessary that every real number is an integer.

19. The value of $\sin 15^\circ$ is:

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

Ans. (d) : $\sin 15^\circ = \sin (45^\circ - 30^\circ)$

By formula, $(\sin(A - B) = \sin A \cos B - \cos A \sin B)$

$$\therefore \sin 45^\circ \cdot \cos 30^\circ - \cos 45^\circ \cdot \sin 30^\circ$$

$$\frac{1}{\sqrt{2}} \times \frac{\sqrt{3}}{2} - \frac{1}{\sqrt{2}} \times \frac{1}{2}$$

$$\frac{1}{\sqrt{2}} \times \left(\frac{\sqrt{3}-1}{2} \right) = \frac{\sqrt{3}-1}{2\sqrt{2}}$$

20. Which port is one of the oldest artificial ports on the eastern coast of India?

- (a) Chennai Port
- (b) Kandla Port
- (c) Visakhapatnam Port
- (d) Paradip Port

Ans. (a) : Chennai Port was founded in 1639. Initially, East India company's ships used to anchor offshore and the cargo was transported through the small boats. Chennai doesn't possess any natural harbour. Chennai Port is 3rd oldest port in India. It serves mainly as a container port that ranks second in India just after the container port of Mumbai. It is the largest port in Bay of Bengal.

21. The value of $\sqrt{\frac{36.1}{102.4}}$ is:

- (a) $\frac{19}{32}$
- (b) $\frac{19}{34}$
- (c) $\frac{6.1}{34}$
- (d) $\frac{19}{31}$

Ans. (a) :

$$\sqrt{\frac{36.1}{102.4}} = \sqrt{\frac{361}{1024}} = \frac{19}{32}$$

22. Who led the Khilafat Movement?

- (a) Muhammad Ali Jinnah
- (b) Ali Brothers
- (c) Mahatma Gandhi
- (d) Abul Kalam Azad

Ans. (b) : The Khilafat agitation was launched in India in 1919. It was led by two Ali brothers namely Muhammad Ali and Shaukat Ali. It was a Pan-Islamic force in India that arose in an effort to salvage the Ottoman caliph as a symbol of unity among the Muslim community in India during the British raj.

23. If in a certain code language REWARI is coded as TGYCTK, then how is DELHI coded in the same code language?

- (a) FGLJK
- (b) FGNJK
- (c) FGOJK
- (d) FGMJK

Ans. (b) : Just as,

R E W A R I
+2 +2 +2 +2 +2 +2
↓ ↓ ↓ ↓ ↓ ↓
T G Y C T K

Similarly

D E L H I
+2 +2 +2 +2 +2
↓ ↓ ↓ ↓ ↓
F G N J K

24. In which year was India's first nuclear reactor formally inaugurated by Prime Minister J.L. Nehru?

- (a) 1967
- (b) 1965
- (c) 1955
- (d) 1957

Ans. (d) : The first nuclear reactor was formally inaugurated on 20 January, 1957 by former Prime Minister Jawaharlal Nehru which was named 'Apsara'. The BARC (Bhabha Atomic Research Center) was also inaugurated on the same day. BARC has three operating research reactors - Apsara, Cirus and Dhruva.

25. A bus passes two persons moving in the same direction at a speed of 3 km/h and 5 km/h respectively. The bus passes the first person in 10 s and the second person in 11 s. The speed of the bus is:

- (a) 28 km/h
- (b) 25 km/h
- (c) 27 km/h
- (d) 24 km/h

Ans. (b) : Let, the speed of bus is x km/h.

According to question,

$$10(x - 3) = 11(x - 5)$$

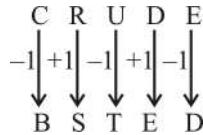
$$10x - 30 = 11x - 55$$

$$x = 25 \text{ km/h}$$

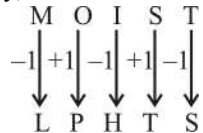
26. In a certain code language CRUDE is written as BSTED. How is MOIST written in that language?

- (a) LPHTS
- (b) NNJRU
- (c) NPJTU
- (d) LNHRU

Ans. (a) : Just as,



Similarly,



27. Anil alone can complete a task in 6 days and Bhushan alone can complete it in 8 days. Anil and Bhushan undertook the task for ₹3,200. With the help of Chaman, they completed the task in 3 days. What is Chaman's share in this earning?

- (a) ₹600 (b) ₹400
(c) ₹800 (d) ₹375

Ans. (b) : Anil → A, Bhushan → B, Chaman → C

$$\begin{array}{rcl} A = 6 & \xrightarrow{4} & \\ B = 8 & \xrightarrow{3} & 24 \\ & \xrightarrow{8} & \\ A+B+C = 3 & \xrightarrow{8} & \end{array}$$

Chaman's Efficiency = $8 - (3 + 4) = 1$ Unit

Chaman's part = $3200 \times \frac{1}{8} = ₹400$

28. How many D's are there in the following series which are immediately followed by W but not immediately preceded by K?

KDCWKDWNKGDWWDHKVDWZDW

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

Ans. (c) : KDCWKDWNKGDWWDHKVDW ZDW

The required followed by W but not immediately preceded K is '3'.

29. The addition to capital stock in an economy is measured by net investment or new capital formation, which is expressed as:

- (a) Net investment = Gross investment – depreciation
(b) Depreciation = Net investment + Government investment
(c) Net investment = Gross investment + depreciation
(d) Government investment = Net investment – depreciation

Ans. (a) : New addition to capital stock in an economy is measured by net investment or new capital formation, which is expressed as

Net Investment = Gross investment – Depreciation

It is significant that, Gross Investment is the total expenditure done for buying capital goods or adding to the capital stock over a time period, without counting depreciation.

30. The given table shows the number of students in a hostel speaking different languages:

Languages	Hindi	English	Marathi	Tamil	Bengali	Total
Number of Students	25	22	12	9	4	72

Which language is spoken by atleast 1 out of 3 students residing in the hostel?

- (a) English (b) Marathi
(c) Hindi (d) Tamil

Ans. (c) : Total number of student = 72

$$\frac{72}{3} = 24 \text{ (Group)}$$

That is, in the 24 group which is of 3-3 student must have spoken Hindi because, the total number of Hindi speakers is 25.

31. The sum of the deviations about the mean is always

- (a) the total standard deviation
(b) zero
(c) the range
(d) positive

Ans. (b) : The sum of the deviations about the mean is always zero.

32. Which essential element is used in the synthesis of proteins and other compounds in plants–

- (a) Potassium (b) Phosphorous
(c) Magnesium (d) Nitrogen

Ans. (d) : Nitrogen is an important component for the synthesis of chlorophyll, protoplasm, proteins, and nucleic acids. The main nutrients used by plants are nitrogen, phosphorus and Potassium.

Minor nutrients - Calcium, Magnesium and Sulfur.

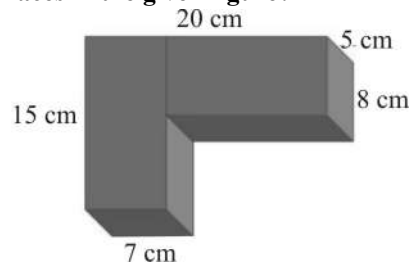
Micro nutrients Iron, Zinc, Copper, Molybdenum, Boron and Chlorine.

33. When is International Dance Day celebrated?

- (a) 27th April (b) 29th April
(c) 28th April (d) 30th April

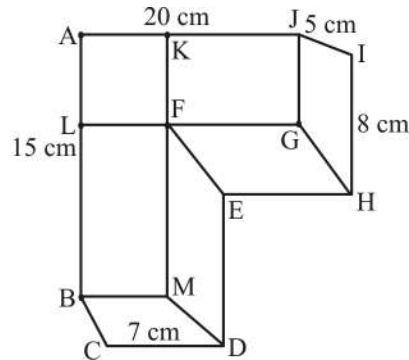
Ans. (b) : The dance committee of International Theatre Institute (ITI) founded the International Dance Day and decided to celebrate the dance day on 29 April to honour the birthday of Jean Georges Noverre, who is known as the creator of modern ballet.

34. What is the total surface area of the visible faces in the given figure?



- (a) 580 cm^2 (b) 384 cm^2
(c) 905 cm^2 (d) 1325 cm^2

Ans. (b) :



area of ALGJ = $20 \times 8 = 160$
 area of LBMF = $7 \times 7 = 49$
 area of BCDM = $7 \times 5 = 35$
 area of MDEF = $7 \times 5 = 35$
 area of GHIJ = $8 \times 5 = 40$
 area of EFGH = $13 \times 5 = 65$
384
 Total area = 384 cm^2

35. Who was the eighth Secretary-General of the UN?

- (a) Antonio Guterres (b) U Thant
 (c) Ban Ki-Moon (d) Kofi Annan

Ans. (c) : The eighth Secretary - General of United Nations (UN) was Ban ki-Moon of South Korea, serving from January 1, 2007 to December 31, 2016. The current Secretary General of the United Nations is Antonio Guterres of Portugal.

36. A shopkeeper incurs a loss of 20% after selling a machine for ₹4800. In order to gain a profit of 20%, at what price should the shopkeeper sell the same machine?

- (a) ₹7,200 (b) ₹6,000
 (c) ₹6,600 (d) ₹7,500

Ans. (a) : Required selling price of the machine

$$= 4800 \times \frac{100}{80} \times \frac{120}{100} = ₹7,200$$

37. Where was the First experimental satellite telecommunication earth station set up in 1967 in India

- (a) Ahmedabad (b) Ahmadnagar
 (c) Aurangabad (d) Allahabad

Ans. (a) : Space research activities in India started in 1960. The Experimental Satellite Communication Earth Station (ESCES) was commissioned in Ahmedabad in 1967, which emerged as a training center for the Indian as well as international scientists and engineers from India.

38. How many factors of the number 21600 are perfect squares?

- (a) 10 (b) 12
 (c) 6 (d) 15

$$\text{Ans. (b) : } 21600 = 6 \times 6 \times 6 \times 10 \times 10 \\ = 2^5 \times 3^3 \times 5^2$$

Factor which is perfect squares $\rightarrow \frac{5}{2} \Rightarrow \text{Quotient} = 2$

$$\frac{3}{2} \Rightarrow \text{Quotient} = 1$$

$$\frac{2}{2} \Rightarrow \text{Quotient} = 1$$

$$\text{Required number of factors} = (2+1)(1+1)(1+1) \\ = 3 \times 2 \times 2 = 12$$

39. Find the value of $7 + 5 - 2 \times (7 + 89) - 94 \div 2 + (33 \div 3 + 9 \times 2 - 7) \div 11$.

- (a) -235 (b) -245
 (c) 245 (d) -225

Ans. (d) : $7 + 5 - 2 \times (7 + 89) - 94 \div 2 + (33 \div 3 + 9 \times 2 - 7) \div 11$

$$12 - 2 \times 96 - 47 + (11 + 18 - 7) \div 11$$

$$12 - 192 - 47 + 2$$

$$14 - 239 = -225$$

40. Small bead-like structures inside the ovary of flowers is called

- (a) sepals (b) stamen
 (c) ovules (d) petals

Ans. (c) : Ovules are small bead-like structures inside the ovary of the female flowers plant. It develops into a seed when fertilized. Ovules are structures that give rise to and contain the female reproductive cells. While stamen are the pollen producing part of a flower, usually with a slender filament supporting the anther.

41. Four options have been given out of which three are alike in some manner and one is different. Select the odd one –

- (a) (42, 15) (b) (51, 24)
 (c) (32, 13) (d) (72, 45)

Ans. (c) :

(a) (42, 15) \Rightarrow is divisible by 3

(b) (51, 24) \Rightarrow is divisible by 3

(c) (32, 13) \Rightarrow is co-prime number

(d) (72, 45) \Rightarrow is divisible by 3

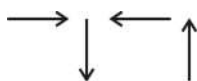
Hence, option (c) is inconsistent with the others.

42. Identify the principal organ of the UN which got suspended in 1994?

- (a) International Court of Justice
 (b) General Assembly
 (c) Security Council
 (d) Trusteeship Council

Ans. (d) : The United Nations charter established the Trusteeship Council in 1945 as one of the six main organs of the United Nations and entrusted it with the task of overseeing the administration of the trust territories placed under the International Trusteeship system. The Trusteeship Council suspended its operations on 1 November 1994, a month after Palau's independence, the last remaining trust territory of the United Nations (UN).

43. Select the option that would come next in the given series.



Ans. (d) : Each subsequent figure in the given figure is rotating 90° clockwise. On the basis of which the next required figure will be option (d).

44. What was considered as a symbol of human society that would not glorify machines and technology during the Indian National Movement?

- (a) Handloom (b) Charkha
(c) Potter's wheel (d) Spinning jenny

Ans. (b) : During the Indian National movement, the spinning wheel (Charkha) was considered as a symbol of human society that would not glorifying machines and technology. Gandhiji made economic independence in the Freedom struggle. According to Gandhiji, the spinning wheel was also a symbol of an alternative economic system, it was also for the economic condition of women, for their freedom and also for the former who lived empty for 6 months. It could have been made an instrument of economic freedom.

45. The value of $\frac{2}{5} \times 350 + 30\% \text{ of } 250$ is :

- (a) 115 (b) 225
(c) 125 (d) 215

Ans. (d) :

$$\frac{2}{5} \times 350 + 30\% \text{ of } 250$$

$$\frac{2}{5} \times 350 + \frac{30}{100} \times 250$$

$$2 \times 70 + 75 = 215$$

46. An airplane is carrying 500 passengers of which 45% are men and 20% are children. The ratio of the number of men, women and children in the lowest term is –

- (a) 9 : 7 : 4 (b) 4 : 7 : 9
(c) 9 : 4 : 7 (d) 7 : 4 : 9

Ans. (a) : Men : Women : Children
45% : 35% : 20%
45 : 35 : 20
9 : 7 : 4

47. Who was the first Indian to win the Nobel Prize for literature in 1913?

- (a) Humayun Kabir
(b) Bishnu Dey
(c) Annadashankar Roy
(d) Rabindranath Tagore

Ans. (d) : Poet Rabindranath Tagore was awarded the Nobel Prize in Literature in 1913 for his collection of poems Gitanjali published in London in 1913. The award got more importance as it was given to an Indian for the first time. This honor established Tagore's literary reputation all over the world. In 1915 Tagore was awarded a knighthood for services to literature. Which he returned in protest against the 1919 Jallianwala massacre.

48. Four letter clusters have been given out of which three are alike in some manner and one is different. Select the odd one –

- (a) JMLK (b) VYXW
(c) PSRQ (d) CGEF

Ans. (d) :

(a) $J \xrightarrow{+3} M \xrightarrow{-1} L \xrightarrow{-1} K$

(b) $V \xrightarrow{+3} Y \xrightarrow{-1} X \xrightarrow{-1} W$

(c) $P \xrightarrow{+3} S \xrightarrow{-1} R \xrightarrow{-1} Q$

(d) $C \xrightarrow{+4} G \xrightarrow{-2} E \xrightarrow{+1} F$

It is clear that option (d) is different than other options.

49. Dena Bank and Vijaya Bank have recently merged with–

- (a) State Bank of India
(b) Punjab National Bank
(c) Bank of India
(d) Bank of Baroda

Ans. (d) : Vijaya Bank and Dena Bank were merged into public sector Bank of Baroda on April 1, 2019. Bank of Baroda completed the integration of 1770 Dena Bank Branches by December 2020 and before that in September 2020. The integration of 2128 Vijaya Bank branches was completed in September, 2020.

50. When was the State Reorganisation Commission formed in India?

- (a) 1953 (b) 1951
(c) 1950 (d) 1952

Ans. (a) : The States Reorganization Commission in India was constituted on 22 December 1953 under the chairmanship of Justice Fazal Ali. Three members of this commission were Justice Fazal Ali, Hridaynath Kunzru and K.M. Panikkar. This commission submitted its report in 1955. In 1956, the states Reorganization Act was passed in the parliament. Under this act 14 states and 6 UT were created.

51. The exterior angles of any polygon sum upto:

- (a) 270° (b) 180°
(c) 360° (d) 90°

Ans. (c) : The sum of the exterior angles of any polygon is 360° .

52. What is the least number which when divided by 12, 21 and 35, leaves the same remainder 6?

- (a) 420 (b) 576
(c) 414 (d) 426

Ans. (d) : LCM of No. 12, 21 and 35.

$$4 \times 3 \times 5 \times 7 = 420$$

Required number = $(420 + 6) = 426$

53. What protects the inner lining of the stomach from the action of acid, under normal conditions?

- (a) Mucus (b) Gastric Glands
(c) Enzymes (d) Villi

Ans. (a) : The Mucus protects the inner lining of the stomach from the action of the acid under normal conditions. The digestion in stomach is taken care of by the gastric glands present in the wall of the stomach. They release hydrochloric acid, a protein digesting enzyme called pepsin, and mucus.

54. The value of $\sin(45^\circ + A) - \cos(45^\circ - A)$ is:

- (a) 1 (b) $2 \cos A$
(c) 0 (d) $2 \sin A$

Ans. (c) : $\sin(45^\circ + A) - \cos(45^\circ - A)$
 $\sin(45^\circ + A) - \sin[90^\circ - (45^\circ - A)]$
 $\sin(45^\circ + A) - \sin(45^\circ + A) = 0$

55. Which point on the given number line represents $\frac{6}{5}$?



- (a) S (b) W
(c) K (d) R

Ans. (d) : $\frac{6}{5} = 1.2$

On the given number line $\frac{6}{5} = 1.2$ represents R.

56. If $x = 2$ and $y = 5$, evaluate $5xy - y^2 -$

- (a) 40 (b) 0
(c) 20 (d) 25

Ans. (d) : $x = 2, y = 5$ (given that)

$$\begin{aligned} \text{So, } 5xy - y^2 &= 5 \times 2 \times 5 - 5^2 \\ &= 50 - 25 \\ &= 25 \end{aligned}$$

57. In Computer field, what does LIFO stand for?

- (a) Left-In-First-Out (b) Last-In-Finish-Out
(c) Last-In-First-Out (d) Lost-In-First-Out

Ans. (c) : LIFO (Last In First Out) is a method for handling data structure where the first elements is processed last and the last element is processed first. LIFO used in Data structures and Extracting latest Information.

58. The Rourkela Steel Plant started with the inauguration of first blast furnace by the then President of India in

- (a) 1958 (b) 1968
(c) 1959 (d) 1969

Ans. (c) : Rourkela steel plant is situated at the north-west end of Odisha in the rich mineral area. This is the first integrated steel plant in the Public sector in India, which was established in collaboration with Germany. On 3 February 1959, the then President Dr. Rajendra Prasad inaugurated the first blast furnace 'Parvati' of Rourkela steel Plant.

59. The value so obtained on adding the sum and the difference of the numbers 3.03 and 2.05, is –

- (a) 0.606 (b) 6.06
(c) 600.6 (d) 60.06

Ans. (b) : $3.03 + 2.05 = 5.08$

$$3.03 - 2.05 = 0.98$$

$$+ 6.06$$

60. In a frequency distribution, the mid value of a class is 12 and its width is 6. The lower limit of the class is

- (a) 12 (b) 9
(c) 18 (d) 6

Ans. (b) : Maximum limit of distribution = M,

Range = R

Minimum limit of distribution = L

According to question, $\frac{M+L}{2} = 12$

$$M+L = 24 \dots\dots(i)$$

$$M-L = 6 \dots\dots(ii)$$

For solving eqⁿ (i) or eqⁿ (ii)

$$L = 9$$

61. If $x^2 - 4x + 1 = 0$, what is the value of $x^2 + \frac{1}{x^2}$?

- (a) 14 (b) 15
(c) 18 (d) 16

Ans. (a) : $x^2 - 4x + 1 = 0$

$$x - 4 + \frac{1}{x} = 0 \text{ [by dividing } x \text{ into both sides]}$$

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

$$x^2 + \frac{1}{x^2} = 4^2 - 2$$

$$x^2 + \frac{1}{x^2} = 14$$

62. Anil and Balbeer can finish a task in 3 days. They started working together, but after 2 days Anil got injured. Balbeer took 2 more days to finish the task. In how many days can Balbeer alone finish the same task?

- (a) 9 (b) 5
(c) 10 (d) 6

Ans. (d) : Anil $\rightarrow A$, Balbeer $\rightarrow B$

$$(A+B)\text{'s one day work} = \frac{1}{3} \text{ part}$$

$$\text{After 2 days Remaining work} = 1 - \frac{2}{3} = \frac{1}{3}$$

\therefore Balbeer completes $\frac{1}{3}$ work in 2 days.

\therefore Total work = $2 \times 3 = 6$ days

63. Who is the author of the book 'Shades of Saffron'?

- (a) Kamla Bhasin (b) Saba Naqvi
(c) Chidanand Rajghatta (d) Arundhati Roy

Ans. (b) :

Book	Writer
Shades of Saffron	Saba Naqvi
Borders and Boundaries : Women in India's partition	Kamala Bhasin
Horse that flew	Chidananda Rajghatta
The God of small Things	Arundhati Roy

64. When was India's hundredth space mission launched?

- (a) September, 2012 (b) September, 2014
(c) September, 2009 (d) September, 2010

Ans. (a) : The Indian Space Research Organisation (ISRO) successfully launched the hundredth space mission with PSLV-C21 from the Satish Dhawan Space Centre in Sri Harikota in September 2012. Currently, the space agency has undertaken 206 missions, including 124 Spacerafts and 82 Launchers, since the launch of the Aryabhata in 1975.

65. Who represents the Congress in the second round table conference held in London?

- (a) Lal Bahadur Shastri (b) Vallabhbhai Patel
(c) Jawaharlal Nehru (d) Mahatma Gandhi

Ans. (d) : The Congress also participated in the second Round Table Conference (September 7, 1931 to December 1, 1931). Which was led by Mahatma Gandhi. The conference was attended by Sarojini Naidu and Annie Besant in which the women were led by Annie Besant. Gandhi ji went to London to attend the conference by S.S. Rajputana Ship. The conference failed because of a dispute over the communal problem.

66. Which of the following Indian mines is one of the world's largest uranium mine?

- (a) Tummalapalle mine
(b) Narwapahar mine
(c) Jaduguda mine
(d) Bhatin mine

Ans. (a) : Tummalapalle Uranium Ore mine is located in Kadapa district of Andhra Pradesh. The mine at Tummalapalle at present produces 3,000 tonnes of uranium. Tummalapalle uranium mines are said to have the world's largest uranium reserves. In the results of research conducted by the atomic energy commission of India in 2011 the analysts concluded that this mine could be one of the longest reserves of Uranium in the world.

67. Shakila incurs a loss of 10% after selling a machine part for ₹540. In order to gain a profit of 10%, at what price should Shakila sell the same part?

- (a) ₹600 (b) ₹550
(c) ₹60 (d) ₹660

Ans. (d) :

$$\text{Cost price of machine} = 540 \times \frac{100}{90} = ₹600$$

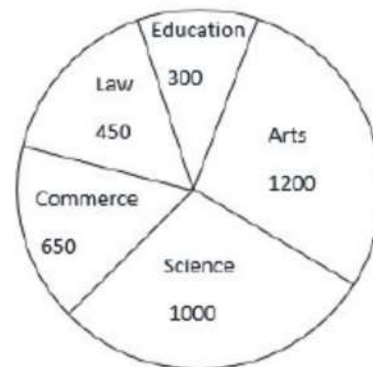
$$\text{Required selling price (SP) of the machine} = 600 \times \frac{110}{100} = ₹660$$

68. The movement for a separate Andhra was called-

- (a) Hamara Andhra movement
(b) Azad Andhra movement
(c) Vishal Andhra movement
(d) Telugu Andhra movement

Ans. (c) : The Vishalandhra movement was the movement for a United State, greater Andhra for all Telugu speaking people in post independence India. The movement was led by the communist party of India under the banner of the Andhra Pradesh Mahasabha. Which demanded the merger of all Telugu speaking regions into a single state. The movement was successful and under the states Reorganization Act, the state of Andhra Pradesh was formed on 1 November, 1956 merging of Hyderabad with Andhra Pradesh. This was the first state to be formed on linguistic base. The latest state is Telangana which was separated from Andhara Pradesh in June 2014.

69. The given pie diagram shows the number of student admitted in different faculties of a college. What part of the total students is admitted in the arts faculty?



Law
Education
Arts
Science
Commerce

- (a) $\frac{1}{12}$ (b) $\frac{1}{8}$
(c) $\frac{1}{3}$ (d) $\frac{5}{8}$

Ans. (c) : Total number of students = $1000 + 1200 + 300 + 450 + 650 = 3600$
 The shares of students attending the faculty of Arts = $\frac{1200}{3600} = \frac{1}{3}$

70. Who won the Spanish 'La Liga' title, 2019-20?

- (a) Real Madrid C.F. (b) SD Huesca
 (c) Rayo Vallecano (d) FC Barcelona

Ans. (a) : Real Madrid won the Spanish La liga 2019-20 title. Real Madrid has won the title for the most number of times. Atletico Madrid is currently the champion of La Liga 2020-21.

71. Colonial rule was first established in—

- (a) Delhi (b) Bombay
 (c) Surat (d) Bengal

Ans. (d) : Colonial rule was first established in Bengal province. First efforts were made to rearrange the rural society and to introduce a new system of land rights and to establish a new revenue system.

72. Which of these is not a computer characteristic?

- (a) Intelligence quotient
 (b) Data storage
 (c) Accuracy
 (d) Speed

Ans. (a) : Features of computer speed, Data storage of information, Accuracy (error - free work). Fast retrieval of stored information. Ability to make quick decisions, versatility is repetition, Agility. Uniformity of work, secrecy etc where as intelligence quotients is not a characteristic of computer.

73. Which of the following is not a rational number?

- $\sqrt{3^2 + 4^2}$, $\sqrt{12.96}$, $\sqrt{125}$ and $\sqrt{900}$
 (a) $\sqrt{12.96}$ (b) $\sqrt{900}$
 (c) $\sqrt{125}$ (d) $\sqrt{3^2 + 4^2}$

Ans. (c) : $\sqrt{3^2 + 4^2} = \sqrt{9 + 16} = \sqrt{25} = 5 \rightarrow$ Rational number

$$\sqrt{12.96} = \sqrt{1296 \times 10^{-2}} = \frac{36}{10} = \frac{18}{5} \rightarrow \text{Rational number}$$

$$\sqrt{125} = \sqrt{5 \times 5 \times 5} = 5\sqrt{5} \rightarrow \text{Irrational Number}$$

$$\sqrt{900} = \sqrt{30 \times 30} = 30 \rightarrow \text{Rational Number}$$

Hence, $\sqrt{125}$ is not a rational number.

74. Select the number from the given options that can replace the question mark (?) below:

If 243 (222) 317, then 548 (?) 621

- (a) 210 (b) 219
 (c) 211 (d) 209

Ans. (b) : Just as, $3 (317 - 243) = 222$
 Similarly, $3 (621 - 548) = 219$

75. The ratio of two weights, 27kg and 108 g, is:

- (a) 250 : 1 (b) 300 : 1
 (c) 270 : 1 (d) 240 : 1

Ans. (a) :

$$\begin{aligned} \text{Ratio} &= \frac{27 \times 1000 \text{ gm}}{108 \text{ gm}} \\ &= \frac{1000}{4} \Rightarrow 250 : 1 \end{aligned}$$

76. The expression 'Aaya Ram, Gaya Ram' became popular in political vocabulary in India to describe:

- (a) Jaya Lal (b) Gaya Lal
 (c) Durgesh Lal (d) Bipin Lal

Ans. (b) : The above term 'Aaya Ram, Gaya Ram' was used by then MLA Virendra Rao for the Congress MLA 'Gaya Lal' who was elected in the first assembly election of Haryana. He changed his party thrice in a fortnight from congress to United Front back to congress and then within nine hours to united front again. This incident later became a political joke.

77. A student required 20% marks to pass in psychology. He/she secured 10% marks and failed by 20 marks. What is the passing marks?

- (a) 60 (b) 40
 (c) 50 (d) 20

Ans. (b) : $20\% - 10\% = 10\%$

$$10\% = 20$$

$$100\% = 200$$

$$\text{Required marks to pass} = 200 \times \frac{20}{100} = 40$$

78. 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 the cars are four-wheelers

2. All the four-wheelers are vehicles

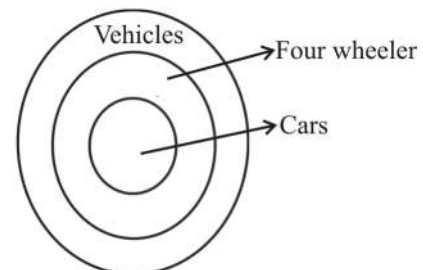
Conclusions

I. All the vehicles are four-wheelers

II. All the cars are vehicles

- (a) Either I or II (b) Both I and II
 (c) Only I (d) Only II

Ans. (d) :



It is clear from the Venn diagram that all cars are vehicles. Hence only conclusion (II) follows.

79. Land which is left without cultivation for one or less than one agricultural year is known as:

- (a) current fallow (b) net sown area
(c) culturable waste land (d) waste land

Ans. (a) : Land uncultivated for a agricultural year or less is called fallow land or present fallow land. Keeping the land fallow is a cultural practice to maintain the quality of the land. By this method the depleted fertility or nutritional value of the land is returned naturally.

Net Sown Area – The land on which crops are grown and harvested is called net sown area.

Cultivable barren land– The land which is fallow or uncultivable for the last five years or more is called cultivable barren land. It is made cultivable by land reclamation techniques.

Barren land– The land which cannot be made cultivable with the help of technology, is called barren or waste land such as desert, barren mountainous terrain, ravine etc.

80. The value of $1 \div \left\{ \frac{1}{2} + \frac{1}{3} + \frac{1}{6} \div \left(\frac{3}{4} - \frac{1}{3} \right) \right\}$ is:

- (a) $\frac{1}{12}$ (b) 1
(c) $\frac{30}{37}$ (d) $\frac{5}{12}$

Ans. (c) :

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

$$1 \div \left\{ \frac{5}{6} + \frac{1}{6} \div \frac{5}{12} \right\}$$

$$1 \div \left\{ \frac{5}{6} + \frac{2}{5} \right\}$$

$$1 \div \frac{37}{30}$$

$$1 \times \frac{30}{37} = \frac{30}{37}$$

81. Among various electrical safety devices, one based on the heating effect of electric current is called a :

- (a) fuse (b) protective relay
(c) circuit breaker (d) surge protector

Ans. (a) : Fuse is an electrical safety device, which provides protection of an electric circuit from excessive current. The fuse is designed to allow current through a circuit. When the current in the electrical circuit exceeds some maximum amount, it burns the fuse wire so that no longer the circuit is destroyed. The fuse coil is made of tungsten, an alloy of tin and lead.

82. Select the option that is related to the third word in the same way as the second word is related to the first word.

Bihar : Jharkhand :: Chhattisgarh :

- (a) Maharashtra (b) Ranchi
(c) Raipur (d) Madhya Pradesh

Ans. (d) : In the way the state of Jharkhand has been formed by dividing Bihar. Similarly, Chhattisgarh has been formed by dividing the state of Madhya Pradesh.

83. Who was the Raja of Burdwan when Permanent Settlement was imposed

- (a) Abu Ray (b) Tejchand
(c) Sangam Rai (d) Mehtab Chand

Ans. (b): When the permanent settlement was imposed, Tejchand was the Raja of Burdwan. Subsequently under Mehtab Chand the estate prospered. Mehtab Chand helped the British during the Santhal rebellion and the 1857 revolt.

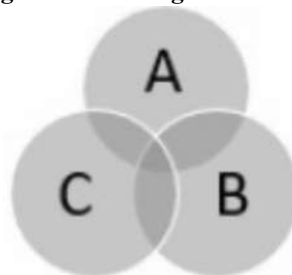
After many deliberations the Court of Directors passed a ten-year settlement Act in 1790 CE, which finally led to the permanent settlement Act of 1793 CE instituted by Lord Cornwallis.

84. If the price of a grocery item consumed by a family increases by 25%, then by what percentage should its consumption reduce, so as to keep the expenditure on this item unchanged?

- (a) 50% (b) 67%
(c) 25% (d) 20%

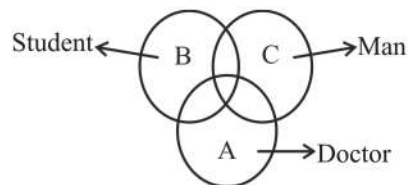
Ans. (d) : Required % reduction = $\frac{25}{125} \times 100 = 20\%$

85. Select the option that is best represented by the given Venn diagram.



- (a) Doctor, Man, Student
(b) Gold, Silver, Ornaments
(c) Table, Chair, Furniture
(d) Family, Parents, Children

Ans. (a) :

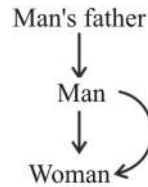


Hence, option (a) will be required answer.

86. Indicating to a woman, a man said, "Her father is the only son of my father." How is the man related to the woman?

- (a) Father (b) Grandfather
(c) Brother (d) Son

Ans. (a) :



Hence the man is the father of women.

87. The given table shows the height (in cm) of 90 plants in a garden:

Height (in cm)	58	61	62	64	65	70
Number of plants	20	25	14	9	12	10

How many plants have heights 61 cm or more, but less than 70 cm?

- (a) 62 (b) 60
(c) 65 (d) 58

Ans. (b) : The number of plants which are 61 cm or more but less than 70 cm.

$$25 + 14 + 9 + 12 = 60$$

88. Five persons A, B, C, D and E are sitting one above the other on a ladder (not necessarily in the same order). B is sitting above A with one person sitting between them. Only two persons are sitting between A and C.

If C is not sitting at top, then who is sitting in the middle?

- (a) E (b) B
(c) C (d) D

Ans. (b) : Following is the order of seating of five friends.

• → (D or E)
C
B
• → (D or E)
A

So it is clear that B is sitting in the middle.

89. A team is to be selected from 13 players P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12 and P13. There will be seven players in the team. P2 cannot be selected with P1, P6 or P4. P7 cannot be selected with P2, P10, P11 or P13. If P8 and P13 both are selected, then P5 must be selected, P4 cannot be selected with P2, P6, P12 or P11. Which of the following is a correct selection of the team?

- (a) P1, P3, P4, P5, P8, P9, P13
(b) P1, P6, P11, P12, P13, P3, P4
(c) P2, P3, P5, P7, P8, P9, P13
(d) P1, P3, P4, P5, P6, P8, P9

Ans. (a) : To be selected not selected
P1, P6 or P4 P2
P2, P10, P11 or P13 P7

P2, P6, P12 or P11 P4
P8, P13, P5

The relation of P₃ and P₉ is not mentioned but there is a total of 7 people to be selected. Then both of them will be in the team.

P1, P3, P4, P5, P8, P9, P13

90. The given table shows the number of electric bulbs sold in a shop during a week:

Day	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
Number of bulbs sold	225	100	150	200	75	90

On which day was the daily sale closest to the average sale for the week?

- (a) Wednesday (b) Friday
(c) Thursday (d) Saturday

Ans. (a) :

$$\begin{aligned} \text{Average sell of week} &= \frac{225 + 100 + 150 + 200 + 75 + 90}{6} \\ &= \frac{840}{6} = 140 \end{aligned}$$

So, Wednesday is closest to the week's average sales.

91. A statement is given followed by two arguments. Decide which of the arguments is/are strong with respect to the statement.

Statement:

Life expectancy of Indians is increasing

Arguments

I. Yes. People are getting better medical facilities.

II. Yes. People are doing more physical exercises now

- (a) Both arguments I and II are strong
(b) Only argument I is strong
(c) Neither I nor II is strong
(d) Only argument II is strong

Ans. (a) : Both arguments I and II are strong

92. Arrange the given words in alphabetical order

- A. mild B. moderate
C. severe D. profound
(a) A, C, B, D (b) A, D, B, C
(c) A, B, C, D (d) A, B, D, C

Ans. (d) : mild → moderate → profound → severe

A B D C

93. Cariappa, Kargil, Katari, Manekshaw and Subroto are five different sadans in a sanik school. Kargil is to the right of Subroto and Katari is the left of Cariappa and rights of Kargil. Subroto is to the right of Manekshaw. Which sadan is in the middle?

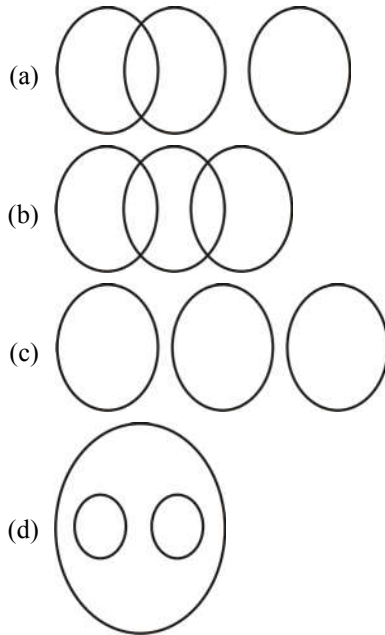
- (a) Cariappa (b) Kargil
(c) Subrto (d) Katari

Ans. (b) : According to question, Series of sadan are following :-

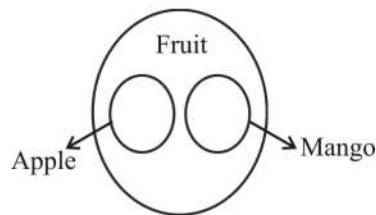
Manekshaw → Subrto → Kargil → Katari → Cariappa
Hence, Kargil Sadan is in the Middle.

- 94. Select the Venn diagram that best represents the relationship between the given set of classes.**

Apple, Mango, Fruits



Ans. (d) : The following is the correct depiction of apple mango and fruit.

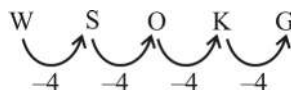


- 95. Select the most appropriate option to fill in the blank**

W S O K _____

- (a) T (b) G
(c) H (d) L

Ans. (b) :



- 96. Select the word from the options, which is similar to the given words in a certain manner**
Stable, Burrow, Nest

- (a) Slum (b) City
(c) Herd (d) Den

Ans. (d) : In the given alternatives the words are same as given in the original words, because the stables are for animals (domestic), nest for birds, burrows for rats, snakes etc and dens for lions.

- 97. If \times stands for addition, \div stands for subtraction, $+$ stands for multiplication and $-$ stands for division, then $10 \times 4 \div 4 - 2 + 1 = ?$**

- (a) 40
(b) 5
(c) 12
(d) 12.5

Ans. (c) : To changing the sign.

$$10 + 4 - 4 \div 2 \times 1$$

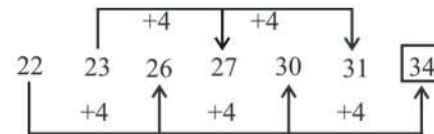
$$14 - 2 \times 1 = 12$$

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

22, 23, 26, 27, 30, 31, ?

- (a) 31
(b) 35
(c) 34
(d) 33

Ans. (c) :

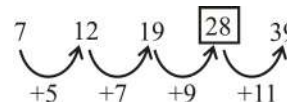


- 99. Select the number from among the given options that can replace the question mark (?) in the following series**

7, 12, 19, ?, 39

- (a) 29 (b) 28
(c) 24 (d) 26

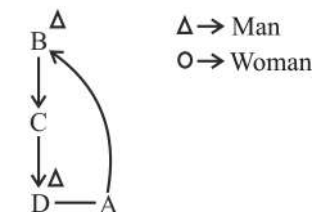
Ans. (b) :



- 100. D has a brother A. D is the son of C. B is C's father. In terms of relationship, what is A of B?**

- (a) Brother
(b) Son
(c) Grandson
(d) Grandfather

Ans. (c) :



It is clear from the figure that is the grandson or granddaughter of B.

Railway Non-Technical Popular Categories Exam - 2019

Graduate and Under-Graduate Level

[Ist Stage Computer Based Test]

Exam Date : 07.01.2021]

[Time : 10:30 am-12:00 pm

1. In a school, the number of boys and girls were in the ratio 5 : 7. Eight more boys were admitted during the session. The new ratio of girls and boys is 1:1. In the beginning the difference between the number of boys and that of girls was :

(a) 12 (b) 08
(c) 02 (d) 10

Ans. (b) : Suppose no. of boys in school = $5x$
and number of girls in school = $7x$
According to question eight more boys were admitted,

$$\frac{5x+8}{7x} = \frac{1}{1}$$

$$2x = 8$$

$$x = 4$$

$$\begin{aligned} \text{Required difference} &= 7x - 5x \\ &= 2x \\ &= 2 \times 4 \\ &= 8 \end{aligned}$$

2. India has _____ state and _____ union territories as of 31st October, 2020.

(a) 26 and 6 (b) 24 and 7
(c) 28 and 8 (d) 29 and 9

Ans. (c) : India has 28 States and 8 Union Territories as of 31st October, 2020. Recently Central Government through the Jammu and Kashmir Reorganisation Act, 2019 created Jammu & Kashmir and Ladakh as a two new union territory of India. With the merger of Daman and Diu, and Dadra and Nagar Haveli, the number of UT's became eight.

3. Which of the following rural housing schemes by the Government of India is re-structured into Pradhan Mantri Gramin Awas Yojana?

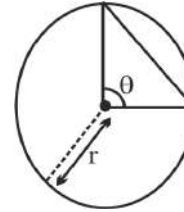
(a) Deendayal Antyodaya Yojana
(b) Jawahar Gram Samridhi Yojana
(c) Indira Awas Yojana
(d) Rajiv Awas Yojana

Ans. (c) : Pradhan Mantri Gramin Awas Yojana previously known as Indira Awas Yojana is a Social Welfare Programme. Its objective is to provide housing for rural poor families. This yojana was started in 1996 as Indira Awas Yojana later restructured as Pradhan Mantri Gramin Awas Yojana in 2015.

4. A sector is cut off from a circle of radius 21 cm. The angle of the sector is 40 degrees. Find the area of the sector in square cm?

(a) 145 (b) 154
(c) 156 (d) 144

Ans. (b) : Given, $r = 21$ cm, $\theta = 40^\circ$



$$\begin{aligned} \text{Area of sector} &= \frac{\pi r^2 \theta}{360^\circ} \\ &= \frac{22 \times 21 \times 21 \times 40^\circ}{7 \times 360^\circ} \\ &= 154 \text{ cm}^2 \end{aligned}$$

5. How many organizations are a part of the United Nations in India?

(a) 22 (b) 28
(c) 12 (d) 26

Ans. (d) : The United Nations Organisation (UNO) is an international organisation which is established to maintain international peace and security, in 1945. At present, 193 countries are the members of United Nations. South Sudan is the latest (193rd) member. Antonio Guterres is the present Secretary –General of United Nations.

There are 26 organisations of UN which are working in India. Some of them are -

FAO (Food and Agricultural Organisation) – 1945

ILO (International Labour Organisation) – 1919

IMF (International Monetary Fund) – 1944

UNDP (United Nations Development Programme) – 1965

6. What facilitates remote login on a computer?

(a) RTP (b) HTTP
(c) FTP (d) TELNET

Ans. (d) : TELNET is a network protocol that provides a command line interface for communication with a remote device or server. It allows a user to log in on any other computer on the network.

7. From the 3 sets of statements, A, B and C given below, choose the set/s in which the third statement is a logical conclusion of the first two statements.

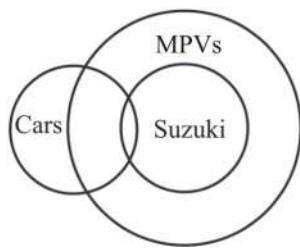
A. Some cars are Suzuki. All Suzukis are MPVs. Some cars are MPVs.

B. All men are humans. No human is red. No man is red.

C. Every man loves his wife. All wives are beautiful. No beautiful has a husband.

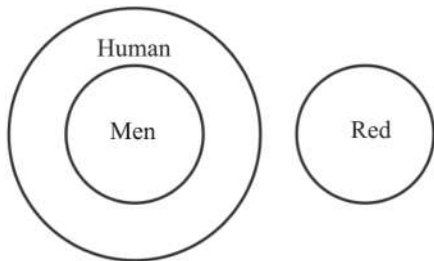
(a) Only A (b) A and B only
(c) B and C only (d) Only B

Ans. (b) : According to the statements A, the Venn Diagram relation is as follows.



It is clear from the above diagram that third statement of the Set A is the logical conclusion of the first two statements.

According to the first two statement of Set B, the Venn diagram relation is as follows.



It is clear from above diagram that the third statement of the Set B is the logical conclusion of the first two statements,

→ Whereas there is no logical relation of set C between statement and conclusion.

8. Who founded India's three stage Nuclear Power Programme?

- (a) Dr. Homi Bhabha
- (b) Vikram Sarabhai
- (c) K. Kasturirangan
- (d) A.P.J. Abdul Kalam

Ans. (a) : India's three stage Nuclear Power Programme was founded by Dr. Homi Jehangir Bhabha in the 1950. It's objective was to secure the country energy independence through the use of Uranium and Thorium. In India, state of Kerala, Jharkhand, Tamil Nadu, Andhra Pradesh has thorium reserves.

9. Which country was placed first in the Asian Games held in Jakarta in 2018?

- (a) India
- (b) Australia
- (c) Japan
- (d) China

Ans. (d) : China stood first in the Asian Games held in Jakarta in 2018. 18th Asian Games was held from 18 August to 2 September 2018 in Jakarta and Palembang, Indonesia. India was at the 8th place in this game. 19th Asian Games will be held in Hangzhou, China from 10 to 25 September 2022. The first Asian Games was held in 1951 in India.

10. How many demands did Mahatma Gandhi make in his letter to Lord Irwin some of which were agreed to and came to be known as Gandhi-Irwin Pact?

- (a) 10
- (b) 13
- (c) 12
- (d) 11

Ans. (d) : Gandhi ji wanted to make use of salt tax as a powerful means to strengthen the nationalist movement. He wrote a letter to Lord Irwin, the then Viceroy of India on 31st January, 1930 consisting of eleven demands. Gandhi ji had mentioned that if his demands were not fulfilled he would launch a nationalist movement. But Lord Irwin did not accept the demand and Mahatma Gandhi started the Civil Disobedience Movement in 1930. On 5th March, 1931 Gandhi - Irwin Pact was signed in which Irwin accepted some demands.

11. Two men start travelling from the same place in the same direction at the rate of 5 km/h and 5.5 km/h respectively. Then after how much time will they be at a distance of 8.5 km from each other.

- (a) 8 h 30 min
- (b) 16 h 15 min
- (c) 4 h 15 min
- (d) 17 h

Ans. (d) : Let two men will be at 8.5 km distance in 't' hours

$$\begin{aligned} \text{According to question,} \\ 5.5t - 5t &= 8.5 \\ 0.5t &= 8.5 \\ t &= 17 \text{ hours} \end{aligned}$$

12. When is World Book and Copyright Day celebrated?

- (a) 19th January
- (b) 27 April
- (c) 23 April
- (d) 13 May

Ans. (c) : World Book and Copyright Day is celebrated every year on 23rd April to encourage people about books, reading, understanding copyright laws, to measure and to protect intellectual copyright.

13. When a number n is divided by 5, the remainder is 2. When n² is divided by 5, the remainder will be:

- (a) 3
- (b) 1
- (c) 4
- (d) 0

Ans. (c) : Number = Divisor × Quotient + Remainder

According to question,

$$\begin{aligned} n &= 5 \times q + 2 \\ n^2 &= 25q^2 + 4 + 20q \end{aligned}$$

On dividing by 5 –

$$\frac{n^2}{5} = 5q^2 + \frac{4}{5} + 4q$$

Hence, required remainder will be 4.

14. Simplify the following :

$$\frac{1}{2} \div \left(\frac{1}{2} \times \frac{1}{2} \right) \times \frac{1}{2} + \frac{1}{2} \div \left(\frac{1}{4} \times \frac{3}{4} \right)$$

- (a) $\frac{11}{3}$
- (b) $\frac{4}{3}$
- (c) $\frac{11}{8}$
- (d) $\frac{11}{2}$

$$\begin{aligned}
 \text{Ans. (a)} : & \frac{1}{2} \div \left(\frac{1}{2} \times \frac{1}{2} \right) \times \frac{1}{2} + \frac{1}{2} \div \left(\frac{1}{4} \times \frac{3}{4} \right) \\
 &= \frac{1}{2} \div \frac{1}{4} \times \frac{1}{2} + \frac{1}{2} \div \frac{3}{16} \\
 &= \frac{1}{2} \times 4 \times \frac{1}{2} + \frac{1}{2} \times \frac{16}{3} \\
 &= 1 + \frac{8}{3} \\
 &= \frac{11}{3}
 \end{aligned}$$

15. Select the option that is related to the third term in the same way as the second term is related to the first term?

Gravity : Discovery :: Telephone : ?

- (a) Experiment (b) Explore
(c) Construct (d) Invention

Ans. (d) : As like Newton discovered Gravity, similarly Telephone was invented by Graham Bell.

16. Who led the Non-Cooperation Movement in 1920-22 ?

- (a) Motilal Nehru
(b) Subhash Chandra Bose
(c) Jawaharlal Nehru
(d) Mahatma Gandhi

Ans. (d) : The Non-Cooperation Movement (1920-22) was launched under the leadership of Mahatma Gandhi on 5th September, 1920. It was called off because of Chauri-Chaura incident of 1922.

Features of the Non-Cooperation Movement are –

- * The movement was essentially a peaceful and non-violent protest against the British Government.
- * People were asked to resign from their government jobs.
- * People were asked to boycott the foreign goods and use only Indian - made goods.
- * This movement was the reaction towards Rowlatt Act, 1919 and Jallianwala Bagh Massacre.

17. By reducing the selling price of an article by ₹50.00, a gain of 5% turns into a loss of 5%. Original selling price is:

- (a) ₹ 600.00 (b) ₹ 550.00
(c) ₹ 500.00 (d) ₹ 525.00

Ans. (d) : Let original selling price = ₹ x
According to question,

$$\begin{aligned}
 \frac{x \times 100}{105} &= (x - 50) \times \frac{100}{95} \\
 19x &= 21x - 1050 \\
 2x &= 1050 \\
 x &= ₹ 525
 \end{aligned}$$

18. Who was the first Muslim president of the Indian National Congress?

- (a) Badruddin Tyabji
(b) Navab Shaiyad Muhammad Bahadur
(c) Dada Bhai Naoroji
(d) Abul Kalam Azad

Ans. (a) : Badruddin Tyabji was the first Muslim President of Indian National Congress (INC). He presided over the 3rd session at Madras in 1887. Tyabji was the third President of the INC after WC Bannerjee and Dadabhai Naoroji.

19. Who is known as the Father of India's Space Programme?

- (a) Vikram Sarabhai (b) Vikram Seth
(c) Aditya Sarabhai (d) Anuj Lal

Ans. (a) : The Indian Space Programme was started as a result of vision and efforts of Dr. Vikram Ambalal Sarabhai. He is thus, regarded as the father of India's space programme. Indian Space Research Organization (ISRO) was formed on 15 August, 1969.

20. Which country will host the Asian Cup Football tournament in 2023?

- (a) India (b) Japan
(c) China (d) South Korea

Ans. (c) : China will host the Asian Cup Football tournament in 2023. It will be the 18th edition of the AFC Asian Cup organised by Asian Football Confederation (AFC). The 17th edition of AFC Asian Cup was hosted by United Arab Emirates (UAE) in 2019.

21. The difference between the compound interest compounded annually and the simple interest on a certain sum of money for 2 years at 4% per annum is ₹20.00. The sum is?

- (a) ₹ 12,500.00 (b) ₹ 10,500.00
(c) ₹ 8,500.00 (d) ₹ 11,500.00

Ans. (a) : Rate on simple interest in two years
= 4% + 4% = 8%

Rate on compound interest in two years

$$= 4\% + 4\% + \frac{4\% \times 4\%}{100} = 8.16\%$$

$$\begin{aligned}
 \text{difference} &= 8.16\% - 8\% \\
 &= 0.16\%
 \end{aligned}$$

According to the question,

$$0.16\% = ₹ 20$$

$$\begin{aligned}
 (\text{Principal}) 100\% &= \frac{20 \times 100 \times 100}{16} \\
 &= ₹ 12,500.00
 \end{aligned}$$

22. Devesh leaves his home every day at 7 am and reaches office at 8:30 am. One day he left his home at 7 am but travelled a fifth of the distance at 5/6 of the usual speed and the rest of the distance at 6/5 of the usual speed. Approximately at what time did Devesh reach office on that day?

- (a) 8 : 40 am (b) 8 : 25 am
(c) 8 : 21 am (d) 9 : 36 am

Ans. (c) : Let Devesh's usual speed = x km/hr
Total time taken by Devesh to reach office from his home = 8:30 – 7:00 = 1:30 hour

Distance = Speed × Time

$$= x \times \frac{3}{2} \text{ km}$$

According to the question,

$$\text{Speed to cover } \left(\frac{3x}{2} \times \frac{1}{5}\right) \text{ km distance} = \frac{5x}{6} \text{ km/hr}$$

$$\text{Remaining distance} = \frac{3x}{2} - \frac{3x}{10} = \frac{12x}{10} \text{ or } \frac{6x}{5} \text{ km}$$

$$\text{Speed to cover } \frac{6x}{5} \text{ km} = \frac{6x}{5} \text{ km/hr}$$

Suppose the time taken by Devesh to reach office = t hour.

$$\frac{\frac{3x}{5x}}{\frac{6}{6}} + \frac{\frac{6x}{5x}}{\frac{6}{6}} = t$$

$$\frac{18}{50} + 1 = t$$

$$t = \frac{34}{25} \text{ hours}$$

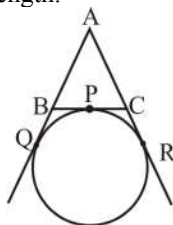
= 1 hour 21 minute (approximately)

Therefore, that day Devesh reach office approximately Morning 8 : 21 am

23. A circle touches the side BC of triangle ABC at P. Side AB and AC are produced to touch the circle at points Q and R respectively. The length of AQ is:

- (a) $\frac{1}{2}(BC + CA + AB)$
 (b) $\frac{1}{4}(BC + CA + AB)$
 (c) $\frac{1}{3}(BC + CA + AB)$
 (d) $\frac{1}{2}(2BC + CA + AB)$

Ans. (a) : The tangents drawn from external point to a circle are of equal length.



$$\therefore BP = BQ$$

$$\text{and, } CP = CR$$

$$\text{and } AQ = AR$$

$$AB + BQ = AC + CR$$

$$\text{Now, } AB + BP = AC + CP \dots\dots\dots(i)$$

$$\text{Perimeter of } \triangle ABC = AB + BC + CA$$

$$= AB + BP + CP + CA \quad [\because BC = BP + CP]$$

$$= (AB + BP) + (AC + CP)$$

$$= 2(AB + BP) \quad \text{From equation (i)}$$

$$AB + BC + CA = 2AQ$$

$$\text{or } AQ = \frac{1}{2}(AB + BC + CA)$$

24. The ratio of two numbers is 2 : 3. When 4 is added to the numbers, the ratio becomes 7:10.

The difference between the numbers is:

- (a) 10 (b) 24
 (c) 12 (d) 08

Ans. (c) : Let numbers are 2x and 3x

According to the question,

$$\frac{2x+4}{3x+4} = \frac{7}{10}$$

$$20x + 40 = 21x + 28$$

$$x = 12$$

$$\text{Difference between the numbers} = 3x - 2x$$

$$\Rightarrow x = 12$$

25. Where was the 11th World Hindi Conference held in 2018?

- (a) Mauritius (b) Mumbai
 (c) Kolkata (d) Chandigarh

Ans. (a) : The 11th edition of World Hindi Conference was held in Port Louis, Mauritius. The theme of this conference was "Vaishvik Hindi Aur Bharatiya Sanskriti." The first World Hindi Conference was held in Nagpur in 1975 India. Fiji to host 12th World Hindi Conference in 2021. World Hindi Day is observed on 10 January.

26. 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. All papayas are fruits.

B. Some fruits are vegetables.

C. All vegetables are vegans.

Conclusions:

i. Some vegetables are papayas.

ii. Some vegans are fruits.

iii. Some vegans are papayas.

iv. Some fruits are papayas.

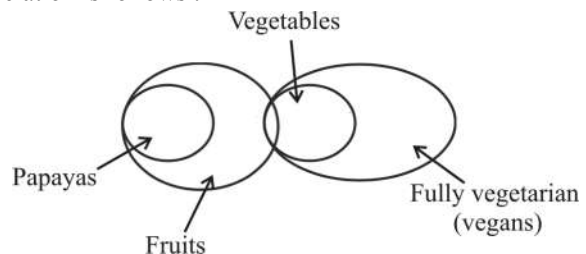
(a) Only (i) follows

(b) Only (iv) follows

(c) Only (ii) and (iv) follow

(d) Only (ii) and (iii) follow

Ans. (c) : According to the statement, Venn diagram relation is follows :



Hence, it is clear from the diagram that conclusion (ii) and (iv) follow.

27. When 5 men can build a wall in 12 days, to build a wall 50% more than the original wall in 10 days, the number of men required is:

(a) 8 (b) 9
(c) 7 (d) 4

Ans. (b) :

$$\text{From, } \frac{M_1 \times D_1 \times H_1}{W_1} = \frac{M_2 \times D_2 \times H_2}{W_2}$$

According to the question,

$$\frac{5 \times 12}{1} = \frac{M_2 \times 10}{\frac{3}{2}}$$

$$\frac{5 \times 12 \times 3}{2 \times 10} = M_2$$

$$M_2 = 9 \text{ Men}$$

28. Which country ranked first in the world as per the Human Development Index of 2020?

(a) Japan (b) Norway
(c) USA (d) Australia

Ans. (b) : According to 2020 Human Development Report published by the United Nations Development Programme (UNDP) Norway topped the list followed by Ireland, Switzerland. Three basic scales of human development index are -

→ Life expectancy.

→ Per capita income.

→ Education index.

India's rank was 131 out of 189 countries.

29. The value of a car depreciates at the rate of 20% every year. After two years the value of the car will be ₹4,80,000/-. The original price of the car is.

(a) ₹ 6,00,000/- (b) ₹ 7,50,000/-
(c) ₹ 5,50,300/- (d) ₹ 6,20,000/-

Ans. (b) : Let original price of car was ₹x

According to the question,

$$x \times \frac{80}{100} \times \frac{80}{100} = 480000$$

$$x = \frac{480000 \times 100 \times 100}{80 \times 80}$$

$$x = ₹750000/-$$

30. A positively charged ion is called a/an:

(a) molecule (b) atom
(c) cation (d) anion

Ans. (c) : Ion is an atom or group of atoms that bears one or more than one positive or negative electrical charges. Positively charged ions are called cations and negatively charged ions are called anions.

31. When did India test its first atomic bomb ?

(a) 1976 (b) 1981
(c) 1968 (d) 1974

Ans. (d) : On 18 May, 1974 India successfully tested its first atomic bomb. Its code name was "Operation Smiling Buddha" and it was conducted in Pokharan, Rajasthan. During first atomic test, Indira Gandhi was the Prime Minister of India.

32. A sum of ₹12,000.00 deposited at compound interest becomes double at the end of 5 years.

At the end of 15 years the sum will be:

(a) ₹ 1,20,000.00 (b) ₹ 96,000.00
(c) ₹ 1,08,000.00 (d) ₹ 84,000.00

Ans. (b) : According to first condition

Principal = ₹ 12,000

Time = 5 year

Let, Rate = r % (yearly)

$$\text{Amount} = \text{Principal} \left(1 + \frac{\text{Rate}}{100}\right)^{\text{Time}}$$

$$2 \times 12000 = 12000 \left(1 + \frac{r}{100}\right)^5$$

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

According to second condition,

$$\begin{aligned} \text{Amount} &= 12000 \left(1 + \frac{r}{100}\right)^{15} \\ &= 12000 \left[\left(1 + \frac{r}{100}\right)^5\right]^3 \end{aligned}$$

From equation (i)

$$\begin{aligned} \text{Amount} &= 12000 \times 2^3 \\ &= 12000 \times 8 \end{aligned}$$

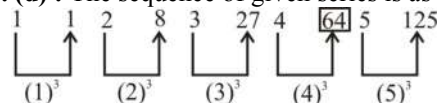
$$\text{Amount} = ₹ 96000$$

33. Which number from among the given options will come in place of (*) in the given number series?

1, 1, 2, 8, 3, 27, 4, (*), 5, 125.....

(a) 32 (b) 96
(c) 36 (d) 64

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



Hence, * = 64

34. Simplify the following :

$$2.2 \times 0.2 \div \left(0.4 \times \frac{1}{2}\right) - \frac{1}{2} \times 4(1.04 - 0.2 \times 0.2)$$

(a) 0.3 (b) 0.2
(c) 0.5 (d) 0.6

Ans. (b) : On solving according to BODMAS rule

$$= 2.2 \times 0.2 \div \left(0.4 \times \frac{1}{2}\right) - \frac{1}{2} \times 4(1.04 - 0.2 \times 0.2)$$

$$= 2.2 \times 0.2 \div (0.2) - \frac{1}{2} \times 4 \times 1$$

$$= 2.2 - 2$$

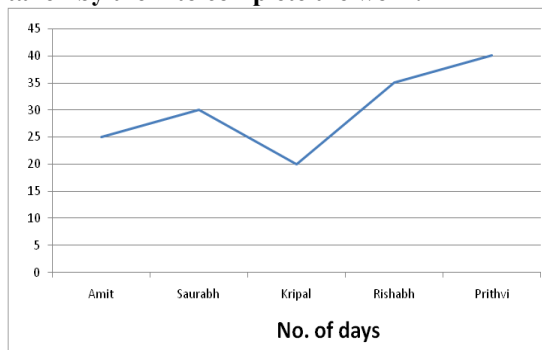
$$= 0.2$$

35. The Rowlatt Act was passed in ____.

- (a) 1920 (b) 1922
(c) 1919 (d) 1921

Ans. (c) : Rowlatt Act was enacted in order to control public unrest and root out conspiracy based on the recommendations of Sedition Committee chaired by Sir Sidney Rowlatt. This act was passed in March 1919 by the Imperial Legislative Council which gave Britisher's power to arrest any person without any trial. This act was called the Black Act by Mahatma Gandhi.

36. The following graph represents the number of days taken by five boys individually to complete a piece of work. If Saurabh and Kripal work together, find the number of days taken by them to complete the work.



- (a) 20 days (b) 6 days
(c) 18 days (d) 12 days

Ans. (d) : One day work of Saurabh = $\frac{1}{30}$ part

One day work of Kripal = $\frac{1}{20}$ part

One day work of Saurabh and Kripal = $\left(\frac{1}{30} + \frac{1}{20}\right)$ part
 $= \frac{2+3}{60} = \frac{5}{60} = \frac{1}{12}$ part

Hence, Saurabh and Kripal will complete the total work in 12 days.

37. If $\sqrt{3} \tan 2\theta - 3 = 0$, then the value of θ is:

- (a) 45° (b) 60°
(c) 150° (d) 30°

Ans. (d)

$$\Rightarrow \tan 2\theta = \frac{3}{\sqrt{3}} = \sqrt{3}$$

$$\Rightarrow \tan 2\theta = \tan 60^\circ$$

$$\Rightarrow 2\theta = 60^\circ$$

$$\Rightarrow \theta = 30^\circ$$

38. In an examination a student scored 65% marks but was 20 marks below the qualifying marks. Another student scored 80% marks and scored 5% more marks than the qualifying marks. Total marks of the examination are:

- (a) 400 (b) 500
(c) 300 (d) 200

Ans. (d) : Suppose total marks of examination be x.

According to the question,

$$x \times \frac{65}{100} + 20 = x \times \frac{80}{100} - x \times \frac{5}{100}$$

$$\frac{75x}{100} - \frac{65x}{100} = 20$$

$$\frac{10x}{100} = 20$$

$$x = 200$$

39. When is National Panchayati Raj Day observed in India.

- (a) 4 June (b) 3 May
(c) 10 April (d) 24 April

Ans. (d) : The first time National Panchayati Raj Day was celebrated on 24 April 2010. Since then, the National Panchayati Raj Day is celebrated on 24th April every year in India. Panchayati Raj was constitutionalized through the 73rd Constitutional Amendment Act, 1992.

40. The least number that should be added to the largest three digit number to make it a perfect square, is:

- (a) 24 (b) 12
(c) 25 (d) 01

Ans. (c) : Largest three digit number = 999 and

$$(31)^2 = 961$$

$$(32)^2 = 1024$$

Whereas, $961 < 999 < 1024$

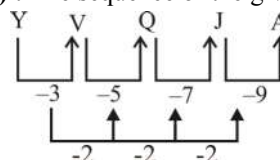
On adding 25 into 999, the number 1024 will become perfect square of 32.

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

Y, V, Q, J, ?

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

Ans. (c) : The sequence of the given series –



Hence, ? = A

42. What will be the least multiple of 23 which when divided by 18, 21 and 24 leaves the remainder 7, 10 and 13 respectively.

- (a) 3113 (b) 3013
(c) 3103 (d) 3131

Ans. (b) : L.C.M. of 18, 21, 24 = 504

$$\left\{ \begin{array}{l} \therefore 18 - 7 = 11 \\ 21 - 10 = 11 \\ 24 - 13 = 11 \end{array} \right\}$$

Required number = $(504n - 11)$

$$\begin{aligned} \text{Suppose } n &= 6 \\ &= 504 \times 6 - 11 \\ &= 3024 - 11 \\ &= 3013 \end{aligned}$$

\therefore Required number = 3013

- 43. Given below is a paragraph. While S1 and S6 are the first and last sentences of this paragraph, the parts that are labelled 1, 2, 3 and 4 are jumbled up. Rearrange them to form a meaningful and coherent paragraph.**

S1 : Several metro lines have been planned in the NCR.

1. Red line is the first among them.
2. They are expected to alleviate the problem of transportation.
3. It starts from Shahdara and terminates at Tis-Hazari in the initial phase.
4. It caters to over 1 lakh commuters at present.

S6: Hopefully, the public transportation problem will not be as acute after all the metro lines are completed.

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

Ans. (d) : According to the question the sequence of sentence will be 2, 1, 3, 4 for meaningful and relevant paragraph.

Hence, the meaningful paragraph will be : –

Several metro lines have been planned in NCR. There are expected to reduce the problem of transportation. The Red line is the first among them. It starts from Shahdara in its initial phase and goes upto Tis - Hazari. It caters over 1 lakh commuters at present. Hopefully, the public transportation problem will not be as acute after all the metro lines are completed.

- 44. How many times has India been elected as non-permanent member of the UN Security Council till Oct, 2020?**

- (a) 5 (b) 4
(c) 8 (d) 10

Ans. (c) : The United Nations Security Council is one of the six principal organs of UNO and is responsible for maintaining international peace and security. It has 15 members, in which five are permanent members (United States of America (USA), Russia, Britain, France and China) and 10 are non-permanent members. It is noteworthy that from 1950 to 2020 India has been elected 8 times for the non-permanent member seat of the UN security council.

- 45. Which of the following is NOT a government of India initiative to attract Foreign Direct Investments (FDI) in India?**

- (a) The government of India has eased the approval mechanism for FDI proposals.
- (b) Proposal of FDI are mandated to be cleared within ten days of receiving the application.
- (c) The Government of India announced 'Entrepreneurship Curriculum' to be taken up by the states.
- (d) States must focus on strengthening the single window clearance system.

Ans. (c) : The following are Government of India initiative to attract Foreign Direct Investments (FDI) in India.

- The Government of India has eased the approval mechanism for FDI proposals.
- Proposal of FDI are mandated to be cleared within ten days of receiving the application .
- States must focus on strengthening the single window clearance system.

- 46. During which five year plan did India opt for a mixed economy?**

- (a) First Five year Plan
- (b) Second Five Year Plan
- (c) Fourth Five Year Plan
- (d) Third five Year Plan

Ans. (b) : India opted for a mixed economy in the Second Five Year plan (1956 – 61). This five year plan was based on the model of Mahalanobis model. In this plan highest priority was to strengthen the industrial base of economy.

- 47. If $x : y = 3 : 4$, then what will be the value of $(4x + 3y) : (4y - 4x)$**

- (a) 1 : 6 (b) 2 : 3
(c) 6 : 1 (d) 3 : 2

Ans. (c) : Given,

$$x : y = 3 : 4$$

$$\begin{aligned} \text{So, } \frac{4x + 3y}{4y - 4x} &= \frac{4 \times 3 + 3 \times 4}{4 \times 4 - 4 \times 3} \\ &= \frac{12 + 12}{16 - 12} \\ &= \frac{24}{4} \\ &= 6 : 1 \end{aligned}$$

- 48. What type of pollution causes various diseases related to the respiratory system?**

- (a) Air Pollution (b) Land Pollution
- (c) Water Pollution (d) Noise Pollution

Ans. (a) : Air pollution causes various diseases related to the Respiratory system.

Air pollutant	Diseases
* Sulphur Dioxide	Asthma, Coughing, Chronic bronchitis
* Nitrogen Dioxide	Wheezing, Asthma, Lung Cancer
* Lead	Neurological Disease

49. One root of the equation $2x^2 - 8x - m = 0$, is $\frac{5}{2}$. The other root of the equation and the value of m are respectively.

- (a) $-\frac{3}{2}$ and $\frac{15}{2}$ (b) $\frac{5}{2}$ and $-\frac{15}{2}$
 (c) $\frac{3}{2}$ and $-\frac{15}{2}$ (d) $-\frac{5}{2}$ and $\frac{15}{2}$

Ans. (c) : Given,

First root (α) = $\frac{5}{2}$

Let second root is β

\therefore Sum of root ($\alpha + \beta$) = $\frac{\text{Coefficient of } (-x)}{\text{Coefficient of } x^2}$

$$\frac{5}{2} + \beta = \frac{8}{2}$$

$$\beta = \frac{3}{2}$$

\therefore Product of roots ($\alpha \cdot \beta$) = $\frac{\text{Constant term}}{\text{Coefficient of } x^2}$

$$\frac{5}{2} \times \beta = \frac{-m}{2}$$

$$\frac{5}{2} \times \frac{3}{2} = \frac{-m}{2}$$

$$m = \frac{-15}{2}$$

50. If the difference between squares of two consecutive positive odd integers is 56, then the two consecutive odd integers are.
 (a) 17,19 (b) 13,15
 (c) 11,13 (d) 15,17

Ans. (b) : Suppose first odd number = a

and, second consecutive odd number = $a+2$

Difference of square

$$(a+2)^2 - (a)^2 = 56$$

$$a^2 + 4 + 4a - a^2 = 56$$

$$a = \frac{52}{4} = 13$$

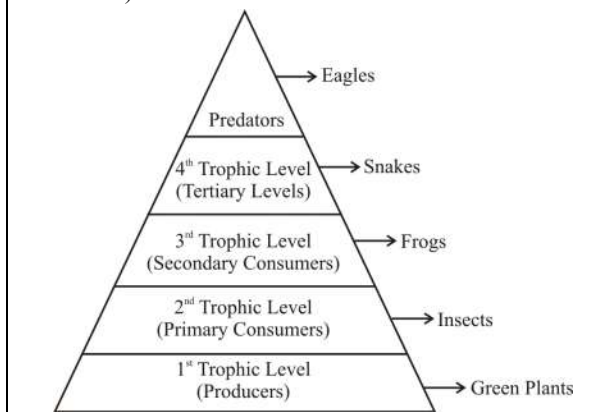
First Number = 13

Second Number = $13+2 = 15$

51. Which of the following is in the third trophic level of the food chain?
 (a) Producers
 (b) Top consumers
 (c) Secondary consumers
 (d) Primary consumers

Ans. (c) : Food chain is defined as the phenomenon of transfer of energy through series of organism by successive trophic levels.

In food chain there are four chains of trophic levels. It includes producers, herbivores (primary consumers), carnivores (secondary consumers), predators (tertiary consumers).



52. Name the element which has an electronic configuration of 2, 8, 7.
 (a) Carbon (b) Hydrogen
 (c) Chlorine (d) Helium

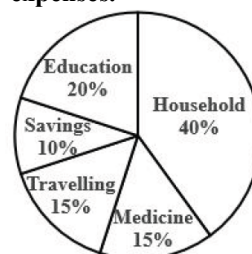
Ans. (c) : Chlorine is an element in the periodic table which belongs to the halogen family. It's atomic number is 17. The electronic configuration of chlorine is 2, 8, 7. It is used to treat drinking water and swimming pool's water, for the production of paper, plastic, medicines etc.

53. Which city is NOT a part of The Golden Quadrilateral highway network?
 (a) Hyderabad (b) Mumbai
 (c) Kolkata (d) Delhi

Ans. (a) : The Golden Quadrilateral Highway Network connects 4 major cities of India to enhance communication and transportation. The four cities are Delhi, Kolkata Chennai & Mumbai. This highway network passes through 13 states.

54. The Pie Chart represents the share of savings and expenses under different heads, from the monthly salary of Manish.

If Manish's salary is ₹50,000 and he wishes to double his monthly savings and spends 50% of the balance amount on his Household expenses, by what amount would he need to reduce on the other expenses.



- (a) ₹20,000 (b) ₹5,000
(c) ₹15,000 (d) ₹10,000

Ans. (b) : Salary of Manish = ₹ 50000

In starting, Savings + Household expenses = 10%+40%
= 50%

$$\begin{aligned}\text{Initial expenses} &= 50000 \times \frac{50}{100} \\ &= ₹25000\end{aligned}$$

According to question,

$$\begin{aligned}\text{If he doubles his monthly savings} &= 2 \times 10\% = 20\% \\ &= 50000 \times \frac{20}{100} \\ &= ₹10000\end{aligned}$$

$$\text{balance} = 100 - 20 = 80\%$$

Household expenses on 50% balance amount

$$= 80 \times \frac{50}{100} = 40\%$$

$$\begin{aligned}40\% \text{ of total salary} &= 50000 \times 40\% \\ &= ₹20000\end{aligned}$$

Now total expenses on balance amount and house hold expense

$$\begin{aligned}&= 20000 + 10000 \\ &= ₹30000\end{aligned}$$

$$\begin{aligned}\text{Needed amount to reduce on the other expenses} &= 30000 - 25000 \\ &= ₹5000\end{aligned}$$

55. Who are the famous Indian women lawyers who led the legal battle to strike Section 377 of the Indian Penal Code (IPC)?

- (a) Menaka Gandhi and Arundhati Roy
(b) Karuna Nandi and Vrinda Grover
(c) Menaka Guruswamy and Arundhati Katju
(d) Menaka Guruswamy and Pinky Anand

Ans. (c) : Menaka Guruswamy and Arundhati Katju are the lawyer who led the legal battle to strike Section 377 of the Indian Penal Code (IPC).

Section 377 of IPC → Unnatural offences – who ever voluntarily has carnal intercourse against the order of nature with any man, woman or animal, shall be punished.

56. If $x\sqrt{12} = 4 + x\sqrt{3}$, then the value of x is .

- (a) $\sqrt{3}$ (b) $\frac{4}{\sqrt{3}}$
(c) $2\sqrt{3}$ (d) $-\sqrt{3}$

Ans. (b) :

$$\begin{aligned}\Rightarrow x\sqrt{12} &= 4 + x\sqrt{3} \\ \Rightarrow 2x\sqrt{3} &= 4 + x\sqrt{3} \\ \Rightarrow x(2\sqrt{3} - \sqrt{3}) &= 4 \\ x &= \frac{4}{\sqrt{3}}\end{aligned}$$

57. Which sea route is the busiest in the world?

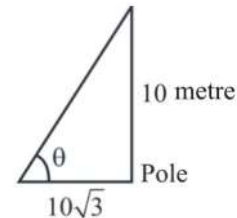
- (a) The North Pacific sea route
(b) Cape of Good Hope sea route
(c) The South Pacific sea route
(d) The North Atlantic sea route

Ans. (d) : The North Atlantic sea route is the busiest sea route in the world, which connects important European and North American ports such as New York, Boston, Toronto, London etc.

58. When the shadow of a pole of 10 m height is $10\sqrt{3}$ m, the angular elevation of the Sun is:

- (a) 75° (b) 90°
(c) 30° (d) 60°

Ans. (c) : According to the question,



Suppose angular elevation of the Sun = θ

$$\therefore \tan \theta = \frac{\text{Perpendicular}}{\text{Base}}$$

$$\tan \theta = \frac{10}{10\sqrt{3}}$$

$$\tan \theta = \frac{1}{\sqrt{3}}$$

$$\tan \theta = \tan 30^\circ$$

$$\theta = 30^\circ$$

59. When the side of an equilateral triangle is made three times the original side, the area of the new equilateral will become:

- (a) 12 times of the original area
(b) 6 times of the original area
(c) 3 times of the original area
(d) 9 times of the original area

Ans. (d) : Suppose, the side of original triangle is 'a' and area is A_1 and the new area of triangle is A_2

$$\therefore \text{Area of equilateral triangle } (A_1) = \frac{\sqrt{3}}{4} \times a^2$$

According to question,

On increasing side by 3 times –

$$\text{New area of equilateral triangle } (A_2) = \frac{\sqrt{3}}{4} (3a)^2$$

$$= \frac{\sqrt{3}}{4} \times 9a^2$$

$$= 9 \times \frac{\sqrt{3}}{4} a^2$$

$$A_2 = 9A_1$$

Hence, area of new equilateral triangle is 9 times of the original area.

60. The denominator of a fraction is 2 more than the numerator. When the numerator is multiplied by 3 and the denominator is multiplied by 2 the fraction becomes $\frac{1}{2}$. The given fraction is:

- (a) $\frac{2}{5}$ (b) $\frac{2}{3}$
(c) $\frac{1}{4}$ (d) $\frac{1}{3}$

Ans. (d) : Let fraction is $\frac{x}{y}$

According to the question,

$$y = x + 2$$

$$\frac{3x}{2y} = \frac{1}{2}$$

$$3x = y$$

$$3x = x + 2$$

$$x = 1$$

$$y = 3$$

Hence, fraction = $\frac{x}{y}$
= $\frac{1}{3}$

61. Two statements are given followed by two conclusions. Considering the two statements to be true irrespective of the commonly known facts, decide which of the two conclusions follow logically from these two statements.

Statements:

1. All hill stations have an echo-point.
2. P is a hill station.

Conclusions:

- 1: P has an echo-point.
 - 2: Places other than hill stations do not have echo-points.
- (a) Only conclusion 2 follows
(b) Both conclusion 1 and conclusion 2 follow
(c) Neither conclusion 1 nor conclusion 2 follows
(d) Only conclusion 1 follows

Ans. (d) : It is clear from the statement that all hill station have a echo-point. If P is a hill station then there must be a echo-point. Hence, conclusion 1 logically follows from the statement whereas there is not mention about other places in the statement. Hence conclusion 2 does not follow.

62. How many output ports are there in peripheral I/O?

- (a) 512 (b) 264
(c) 24 (d) 256

Ans. (d) : A peripheral device is an internal or external device that connects directly to a computer or other digital devices but does not contribute to the computers primary function, such as computing. It helps end users to access and to use the functionalities of the computer. There are 256 output ports in the peripheral I/O.

63. Three electronic bells are fixed in three adjoining temples. The priests of these temples decided to ring the bells at different times with the intervals of 2, 3 and 5 min. If the bells start tolling together for the first time at 8 : 00 : 00 in the morning, up to 9 : 00 : 00 in the morning they will toll together:

- (a) 4 times after the starting time
(b) 2 times after the starting time
(c) 5 times after the starting time
(d) 15 times after the starting time

Ans. (b) : L.C.M. of 2, 3, 5 = 30 minute
Difference between 8 : 00 – 9.00 = 1 hour

Hence, bell will ring in 60 minute = $\frac{60}{30}$
= 2 times

64. As of August, 2019 how many Himalayan peaks are open for trekking for domestic and foreign mountaineers?

- (a) 140 (b) 137
(c) 120 (d) 130

Ans. (b) : As of August 2019, 137 Himalayan Peaks are open for trekking for domestic and foreign mountaineers. These 137 peaks are located in Jammu-Kashmir, Himachal Pradesh, Uttarakhand and Sikkim.

65. What does WCCB stand for in the context of Environment and Forest?

- (a) Wildlife Crime Control Bureau
(b) World Crime Control Bureau
(c) Wildlife Conservation Control Bureau
(d) World Conservation Control Bureau

Ans. (a) : In the context of Environment and Forest WCCB stands for Wildlife Crime Control Bureau. It was established in 4 September 2006 by amending Wildlife (Protection) Act (WLPA), 1972 to protect the wildlife and fauna in India. It is headquartered in New Delhi.

66. For which Indian spice did the Indian government challenge the US patenting and force them to revoke it?

- (a) Mustard (b) Clove
(c) Cardamom (d) Turmeric

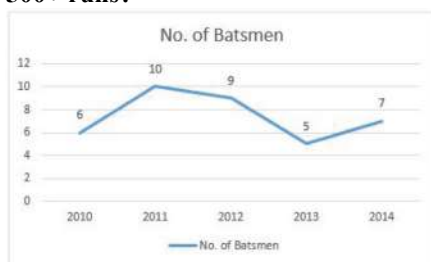
Ans. (d) : For turmeric, Indian government challenges the US patenting and force them to revoke. India challenged this patenting on the basis of Indian traditional knowledge of turmeric's antiseptic properties.

67. According to the Census of 2011 _____ is the most populated state of India.

- (a) Tamil Nadu (b) Uttar Pradesh
(c) West Bengal (d) Andhra Pradesh

Ans. (b) : According to the Census of 2011, Uttar Pradesh is the most populated state of India whereas Sikkim is the least populated state. Total population of Uttar Pradesh as per 2011 census is 199, 812, 341.

68. The following line graph shows the number of batsmen who scored 500+ runs in the Indian Cricket League from 2010 to 2014. In which year did maximum number of batsmen score 500+ runs?



- (a) 2011 (b) 2012
(c) 2013 (d) 2014

Ans. (a) : It is clear from the given graph that in 2011 maximum number of batsmen score 500+ runs.

69. India boycotted the first Belt and Road forum in 2017 after protesting against Beijing over the controversial _____.
(a) China–Pakistan Economic Corridor
(b) China–Nepal Economic Corridor
(c) China–Bhutan Economic Corridor
(d) China–Afghanistan Economic Corridor

Ans. (a) : China-Pakistan Economic Corridor (CPEC) is China's most ambitious Belt and Road initiative project that aims to build a network of road, railways lines and power project through Pakistan. India boycotted the first Belt and Road forum in 2017 after protesting against Beijing over the China-Pakistan Economic corridor.

70. Choose the conclusion(s) which logically follow from the given statements.

Statements:

- MS Dhoni is a popular cricketer.
- All cricketers are fit and healthy.
- MS Dhoni earns a good money every year through advertisements of various products.

Conclusions:

- All popular cricketers earn a good money through advertisement.
 - MS Dhoni is fit and healthy.
 - MS Dhoni, being famous, only advertises famous products.
- (a) Only Conclusion C follows
(b) Conclusion A and C follow
(c) Conclusion A and B follow
(d) Only conclusion B follows

Ans. (d) : It is clear from the statement that all cricketers are fit and healthy. So being cricketer MS Dhoni is also fit and healthy. Therefore only conclusion B logically follows the statement.

71. Which of the following is an allotropic form of carbon?

- (a) Chalk (b) Gypsum
(c) Marble (d) Diamond

Ans. (d) : Allotropes refer to one or more physical forms of a chemical element that occurs in the same physical state. Allotropes may show differences in chemical and physical properties. Diamond and graphite are two allotropes of Carbon.

72. Given below is a paragraph. While S1 and S6 are the first and last sentences of this paragraph, the parts that are labelled 1, 2, 3 and 4 are jumbled up. Rearrange them to form a meaningful and coherent paragraph.

S1 : Shruti has been trying to lose weight.

- Regular exercising keeps our body fit and healthy.
- The trainer has suggested her to start with regular exercising in the morning.
- She has not yet started her exercising sessions.
- She says that because of late night office hours, it is difficult for her to get up early in the morning.

S6 : I think it is just a lame excuse for her laziness.

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

Ans. (b) : The sequence of the given sentences to make a meaningful and relevant paragraph according to the question 2, 1, 3, 4. So the whole meaningful paragraph would be – Shruti has been trying to lose weight. The trainer has suggested her to do regular exercise in the morning. Regular exercise keeps our body fit and healthy. She has not started exercise yet. She says that, for her to get up early in the morning is difficult because of working till late night in the office. I think this is a false excuse for her laziness.

73. Consider the given statement and decide which of the given assumptions is/ are implicit in the statement.

Statement:

The electricity board has started going from home to home to collect bills.

Assumptions:

- Electricity board considers going home to home an effective way to collect bills.
 - The electricity board has increased its focus on collecting bills.
- (a) Only assumption A is implicit
(b) Neither A nor B is implicit
(c) Only assumption B is implicit
(d) Both A and B are implicit

Ans. (d) : Hence, it is clear from statement that both Assumption A and B are implicit.

74. From the top of a building, 60 m high, the angles of depression of the top and the bottom of a tower are 30° and 60° respectively. The height of the tower is.

- (a) 30 m (b) 40 m
(c) 18 m (d) 42 m

Ans. (b) : Let height of the tower is h meter.

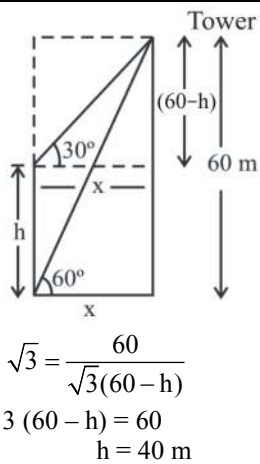
$$\tan 30^\circ = \frac{60-h}{x}$$

$$\frac{1}{\sqrt{3}} = \frac{60-h}{x}$$

$$x = \sqrt{3}(60-h)$$

$$\tan 60^\circ = \frac{60}{x}$$

$$\sqrt{3} = \frac{60}{x}$$



75. Which of the following is NOT a computer component?

- (a) ALU (b) CPU
(c) Memory (d) Paper

Ans. (d) : ALU, CPU and Memory are the components of computer whereas Paper is different.

76. Which watershed development and management program is being implemented by the central and state governments?

- (a) Desh Sudhar
(b) Hariyali
(c) Neeru-Meeru
(d) Arvary Pani Sansad

Ans. (b) : Hariyali is the watershed development and management program which is being implemented by the central and state government for enabling the rural population to conserve rain water for drinking, irrigation, fisheries, afforestation etc.

77. Which agency was created by the United Nations to provide emergency food and health care to children and mothers in the countries affected by World War II?

- (a) UNICEF (b) UNESCO
(c) WHO (d) IMF

Ans. (a) : UNICEF was created by the United Nations General Assembly resolution 57 (1) on 11 December 1946 to provide emergency food and healthcare to children's and mother's in the countries which are affected by World War II. It's headquarters is in New York, USA.

78. If $P = 2 + \sqrt{3}$, $Q = 2 - \sqrt{3}$ then find the value of

$$\frac{P}{Q}$$

- (a) $4\sqrt{3} - 5$ (b) $7 - 2\sqrt{6}$
(c) $4\sqrt{6} + 5$ (d) $\frac{7+4\sqrt{3}}{1}$

Ans. (d) : Given, $P = 2 + \sqrt{3}$
 $Q = 2 - \sqrt{3}$

$$\begin{aligned} \frac{P}{Q} &= \frac{2+\sqrt{3}}{2-\sqrt{3}} \times \frac{(2+\sqrt{3})}{(2+\sqrt{3})} \\ &= \frac{(2+\sqrt{3})^2}{(2)^2 - (\sqrt{3})^2} \\ &= \frac{4+3+4\sqrt{3}}{4-3} \\ &= \frac{7+4\sqrt{3}}{1} \end{aligned}$$

79. The Khilafat Movement was led by:

- (a) Shaukat Ali and Muhammad Ali
(b) Armaan Ali and Muhammad Ali
(c) Shaukat Ali and Arman Ali
(d) Shaukat ali and Musafir Ali

Ans. (a) : The Khilafat movement was led by Ali brothers, Shaukat Ali and Muhammad Ali. This movement was started to support the sultan of Turkey. Muslims considered the Sultan as their religion's head. It was started in the year 1919.

80. The difference between the mean of first 5 composite numbers and the mean of the first five prime numbers is:

- (a) 2.4 (b) 2.6
(c) 1.6 (d) 1.8

Ans. (d) :

Mean of first five composite numbers

$$\begin{aligned} &= \frac{4+6+8+9+10}{5} \\ &= \frac{37}{5} = 7.4 \end{aligned}$$

Mean of first five prime numbers

$$\begin{aligned} &= \frac{2+3+5+7+11}{5} = \frac{28}{5} \\ &= 5.6 \end{aligned}$$

Required difference = $7.4 - 5.6 = 1.8$

81. What was India's rank in terms of size of economy according to the GDP ranking of 2019?

- (a) 9th (b) 5th
(c) 7th (d) 11th

Ans. (b) : According to the GDP ranking of 2019 India's stood 5th and in Purchasing Power Parity India rank was 3rd.

82. Identify the number that does NOT belong to the given series of numbers.

46, 31, 22, 17, 30, -32, -89, -179

- (a) -32 (b) -89
(c) 30 (d) 22

Ans. (c) : The given series of numbers are written in descending order.

Therefore, on arranging series in descending order, 30 is not related to series.

83. What was the main reason for calling off the Non-Cooperation Movement by Gandhiji in 1922?

- (a) A police station at Chauri-Chaura in Uttar Pradesh was set on fire by a mob.
- (b) The movement was completed by achieving the target.
- (c) Gandhiji was seriously ill
- (d) Gandhiji was arrested and compelled to stop the movement.

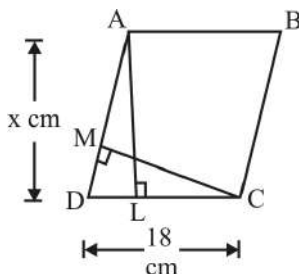
Ans. (a) : On 4 February, 1922 at Chauri Chaura in Uttar Pradesh, twenty two policemen were brutally killed by the violent mob. After the conflict between mob and policemen Mahatma Gandhi called off the Non-cooperation Movement on 12 February 1922.

84. In the parallelogram ABCD, AL and CM are perpendicular to CD and AD respectively. AL = 20 cm, CD = 18 cm and CM = 15 cm. The perimeter of the parallelogram is:

- (a) 84 cm
- (b) 80 cm
- (c) 64 cm
- (d) 76 cm

Ans. (a) : Given,
In the parallelogram ABCD,

and $AL \perp CD$
 $CM \perp AD$
 $AL = 20$ cm
 $CD = 18$ cm
 $CM = 15$ cm



In a parallelogram, the opposite sides are equal.

$AD = BC$
and $AB = CD$

Area of parallelogram = Base \times Height

$$AD \times CM = CD \times AL$$

$$x \times 15 = 18 \times 20$$

$$x = 24 \text{ cm}$$

Perimeter of the parallelogram

$$\begin{aligned} (ABCD) &= AB + BC + CD + AD \\ &= 2(AD + CD) \\ &= 2(24 + 18) \\ &= 2 \times 42 \\ &= 84 \text{ cm} \end{aligned}$$

85. How many such consonants are there in the following sequence, each of which is immediately followed by a vowel but not preceded by a number?

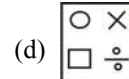
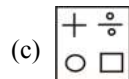
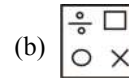
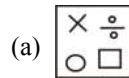
T R B 5 0 % U 7 C 4 # K F \$ 2 U E * 1 8 I 2 3 V @ 9 I X @ L A B

- (a) One
- (b) More than three
- (c) Two
- (d) Three

Ans. (a) : T R B 5 0 % U 7 C 4 # K F \$ 2 U E * 1 8 I 2 3 V @ 9 I X @ L A B

It is clear that only one consonant is here in the following sequence, of which is immediately followed by a vowel but not preceded by a number.

86. Choose the figure that is different from the others.



Ans. (c) : In option (c) figure on the place of multiply signs, addition sign is given whereas in the other figures all four sign are same.

87. Given below is a 'main statement' followed by four subsidiary statement.

From the given options, choose the ordered pair of subsidiary statements, where the first statement implies the second and the two statements are logically consistent with the main statement.

Main Statement:

You can drive over 60 km/h only on the national highways.

Subsidiary Statements :-

- A. You are on the national highways.
- B. You cannot drive over 60 km/h.
- C. You can drive over 60 km/h.
- D. You are not on the national highway.

- (a) DB
- (b) DA
- (c) CD
- (d) AB

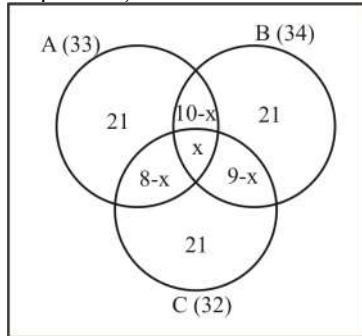
Ans. (a) : Out of the given pairs option (a) be the required answer. In which the given statement B is implicit in the statement D and both statement are logically related to the main statement.

88. Last year, there were three Sections in a competitive exam. Out of them 33 students cleared the cut-off in Section A, 34 students cleared the cut-off in Section B and 32 students cleared the cut-off in Section C. 10 Students cleared the cut-off in Section A and Section B, 9 cleared the cut-off in Section B and Section C and 8 cleared the cut-off in Section A and Section C. The number of students who cleared only one Section was equal and was 21 for each Section. How many students cleared all the three Sections?

- (a) 9
- (b) 8
- (c) 6
- (d) 7

Ans. (c): Suppose number of students cleared all the three section be x.

According to question,



Hence, from section A

$$21 + (10 - x) + x + (8 - x) = 33$$

$$39 - x = 33$$

$$x = 6$$

Hence, Number of students who cleared the all three section is 6.

89. Five students Radha, Sujit, Mihir, Anshul and Vikas have a total of five books on the subjects of Accountancy, Business Studies, Mathematics, Economics and English, written by authors Jain, Kohli, Das, Sharma and Edwin. Each student has only one book on one of the five subjects.

- Jain is the author of the Accountancy book, which is not owned by Vikas or Radha.
- Anshul owns the book written by Edwin.
- Mihir owns the Mathematics book.
- Vikas has the English book, which is not written by Kohli.
- The Economics books is written by Sharma.

Identify the author of the Business Studies book.

- (a) Das (b) Sharma
(c) Jain (d) Edwin

Ans. (d) :

Student	Book	Author
Radha	Economics	Sharma
Sujeet	Accountancy	Jain
Mihir	Mathematics	Kohli
Anshul	Business Studies	Edwin
Vikas	English	Das

Hence, it is clear that Business studies Book author is Edwin.

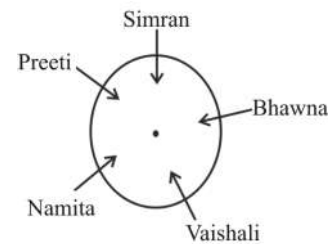
90. Read the following information and answer the question that follows.

- Five ladies Simran, Vaishali, Namita, Preeti and Bhawna meet in a hotel for a party. They all sit around a circular table facing the centre of the table
- Bhawna is sitting to the right of Vaishali
- Simran is sitting to the left of Preeti.
- Preeti is sitting between Namita and Simran

Who is sitting to the right of Namita?

- (a) Simran (b) Vaishali
(c) Bhawna (d) Preeti

Ans. (b) : According to question sitting arrangement is as follows:-



It is clear from sitting arrangement that Vaishali is sitting to the right of Namita.

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

4, 14, 60, 248, ?

- (a) 1012 (b) 1008
(c) 1020 (d) 1016

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

$$\Rightarrow 4^1 - 0 = 4$$

$$\Rightarrow 4^2 - 2 = 14$$

$$\Rightarrow 4^3 - 4 = 60$$

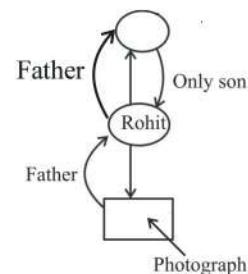
$$\Rightarrow 4^4 - 8 = 248$$

$$\Rightarrow 4^5 - 16 = 1008$$

92. Pointing to a photograph, Rohit said, "She is the daughter of the only son of my father." How is Rohit related to the girl in the photograph?

- (a) Cousin (b) Brother
(c) Father (d) Uncle

Ans. (c) : Blood relation diagram according to question is -



Hence, it is clear from the diagram that Rohit is the father of the girl in the photograph.

93. Four awards have been listed, out of which three are alike in some manner and one different. Select the odd one.

- (a) Padma Vibhushan (b) Padma Bhushan
(c) Param Vir Chakra (d) Padma Shri

Ans. (c) : Param Vir Chakra is the honor given for the extraordinary valor and sacrifice of the soldiers. This award is given for sacrifice. It was also given to the soldiers posthumously.

While the Padma Vibhushan, Padma Bhushan and Padma Shri awards are given for exceptional and outstanding work in any field.

94. In a certain code language, PAINT is coded as 83527 and SCORE is coded as 49061. How would you code RECENT in the same language?

(a) 921235 (b) 190985
(c) 648497 (d) 619127

Ans. (d) : According to the question,

P → 8 S → 4
A → 3 C → 9
I → 5 O → 0
N → 2 R → 6
T → 7 E → 1

On using given code

R → 6
E → 1
C → 9
E → 1
N → 2
T → 7

Hence, RECENT = 619127

95. In which of the given letter-clusters is the letters skipped between adjacent letters in the order $2^1, 2^2, 2^3$.

(a) BEJS (b) AEJS
(c) CFIS (d) EIRZ

Ans. (a) : From option (a)

B C D E F G H I J K L M N O P Q R S

Hence, option (a) letter skipped between adjacent letters in the order $2^1, 2^2, 2^3$.

96. Choose the word that is different from the other three.

(a) Treacherous (b) Devoted
(c) Loyal (d) Faithful

Ans. (a) : Treacherous is a negative emotion word whereas other words are showing positive emotion.

Hence, option (a) is different from all other options.

97. In a certain code, 'best way to win' is written as 'fa ka la ju', 'the way to hell' is written as 'lu la hu fa', 'win of the day' is written as 'na lu fu ka' and 'to sell of night' is written as 'na li ya la'. Which of the following represents 'of the way'?

(a) na ka fa (b) ka lu na
(c) lu na ya (d) lu na fa

Ans. (d) : According to the question,

best way to win → fa ka la ju

the way to hell → lu la hu fa

win of the day → na lu fu ka

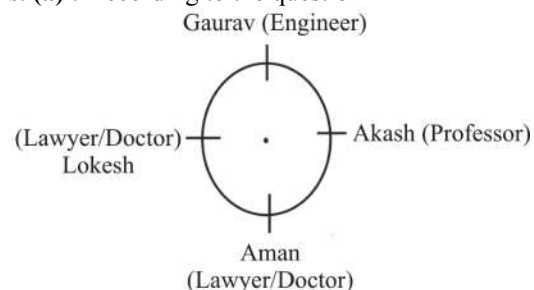
to sell of night → na li ya la

Hence, code 'of the way' is na lu fa.

98. Four brothers Aman, Gaurav, Akash and Lokesh are at their family function sitting across a circular table. Their occupations are Lawyer, Doctor, Professor and Engineer. Lokesh who is not the Professor, starts a conversation about the on-going IPL and after him the Engineer gives a long discourse about the teams that should reach the play-offs. Aman who is sitting across the Engineer and next to the Professor responds to the Engineer's predictions. Akash speaks only at the end. Who is the Professor?

(a) Akash
(b) Lokesh
(c) Cannot be determined
(d) Gaurav

Ans. (a) : According to the question –



Hence it is clear that Akash is the Professor.

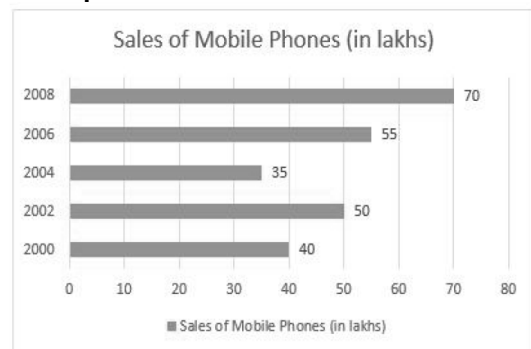
99. Select the option that is related to the third term in the same way as the second term is related to the first term?

Happiness : Sorrow :: Conflict : ?

(a) Competition (b) Harmony
(c) War (d) Anger

Ans. (b) : As like opposite of Happiness is Sorrow, similarly opposite of Conflict is Harmony.

100. Based on the bar graph given, calculate the approximate percentage increase in sales of mobile phones from 2004 to 2008.



(a) 150% (b) 200%
(c) 100% (d) 50%

Ans. (c) : Percentage increase in the sales of mobile phones from 2004 and 2008 = $\frac{70-35}{35} \times 100$

$$= \frac{35}{35} \times 100$$

$$= 100\%$$

Railway Non-Technical Popular Categories Exam - 2019

Graduate and Under-Graduate Level

[Ist Stage Computer Based Test]

Exam Date : 08.01.2021]

[Time : 03:00 pm-04:30 pm

1. Name the Buddhist text that comprises rules for monks.
 (a) Tripitaka (b) Vinaya Pitaka
 (c) Abhidhamma Pitaka (d) Sutta Pitaka

Ans. (b) : Buddhism is a religion founded by the Gautama Buddha. There is three baskets or Tripitaka in buddhism which is a traditional term used for Various Buddhist scriptures. The three Pitakas are Sutta Pitaka, Vinaya Pitaka and Abhidhamma Pitaka.

1. Sutta Pitaka :- It is the collection of Buddhas Sermon and Teachings.
2. Vinaya Pitaka :- It is known as the Book of discipline. This Pitaka deal with monastic rules for monks and nuns.
3. Abhidhamma Pitaka:- This Pitaka contain the philosophy and doctrive of Buddhism mention in the Suttas.

2. On being criticized for borrowing features from other countries for the constitution, who said the following- "Nobody holds any patent rights in the fundamental ideas of a constitution."
 (a) Jawahar Lal Nehru
 (b) Sardar Vallabhbhai Patel
 (c) Dr. B.R. Ambedkar
 (d) C. Rajagopalachari

Ans. (c) : The Indian Constitution is known as a bag of borrowing for its varied sources of many features. Criticizing the features of borrowing from other countries in constitution. Dr. BR Ambedkar said, 'No one has any special rights in terms of fundamental ideas of the constitution.

3. The length of a rectangle is $\frac{3}{5}$ of the radius of a circle. The radius of a circle is equal to the side of a square whose area is 4900 m^2 . what is the area of the rectangle if its breadth is 20m.
 (a) 840 m^2 (b) 880 m^2
 (c) 480 m^2 (d) 860 m^2

Ans. (a) : Let the side of square be 'a' meter and the radius of circle be 'r' meter

According to question

$$\text{area of square } (a^2) = 4900 \text{ m}^2$$

$$a = 70 \text{ m}$$

\therefore radius of circle (r) = 70 m

$$\text{Length of Rectangle} = \text{Radius of circle} \times \frac{3}{5}$$

$$= 70 \times \frac{3}{5} \quad (\because r = a)$$

$$= 42 \text{ m}$$

$$\begin{aligned} \text{Area of Rectangle} &= \text{Length} \times \text{Breadth} \\ &= 42 \times 20 \\ &= 840 \text{ m}^2 \end{aligned}$$

4. Which of the following State has the highest wind energy production in India?

- (a) Maharashtra (b) Karnataka
 (c) Odisha (d) Tamil Nadu

Ans. (d) : Wind Energy is a non-conventional and renewable energy. According to the National Institute of Wind Energy (NIWE) report 2020, Tamil Nadu is the largest producer of wind energy in India.

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

Paper : Stapler :: clothes : ?

- (a) Detergent (b) Dryer
 (c) Hanger (d) Washing machine

Ans. (c) : The way of Stapler is used to hang or punch the paper. Similarly, hanger are used to hang Clothes.

6. Whom did Mahatma Gandhi consider his mentor in politics?

- (a) Bal Gangadhar Tilak
 (b) Gopal Krishna Gokhale
 (c) Lala Lajpat Rai
 (d) Raychandbhai

Ans. (b) : Gopal Krishna Gokhale was a senior leader of the Indian National Congress and founder of the Servant of India Society. Gokhale was elected president of Indian National Congress in Banaras Session held in 1905. After coming back from South Africa Mahatma Gandhi was guided by Gopal Krishna Gokhale Gandhiji Considered Gopal Krishna Gokhale as his political guru.

7. In May 2019, the last captive White tiger of Mumbai died. What was the name of the tiger?

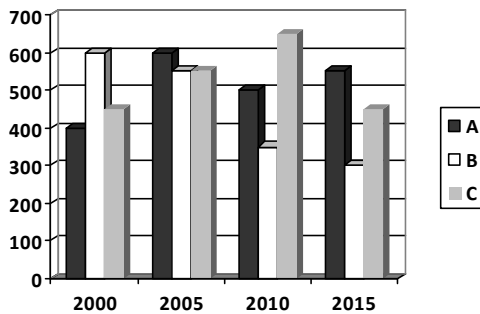
- (a) Bajirao (b) Vishwanath
 (c) Shivaji (d) Blalaji

Ans. (a) : The last captive white tiger named Bajirao died at Sanjay Gandhi National Park in Mumbai in May 2019. White tiger are not a separate sub - species of tiger, they are basically a pigmentation variant of the Bengal Tiger. Their white colour is due to lack of red or yellow pheomelanin pigment and presence of unique recessive genes. They were found in Madhya Pradesh, West Bengal, Bihar, Assam and in Sunderban regions.

8. Study the given diagram and answer the question that follow.

A, B and C are different cities and the given data is of the number of accidents that took place in the respective years 2000, 2005, 2010 and 2015

On the basis of given data, which city can be said to have controlled accidents most effectively?



- (a) C (b) B
(c) A (d) Both A and C

Ans. (b) : Total accident in city A in four year
 $= 400 + 600 + 500 + 550$
 $= 2050$

Total accident in city B in four year
 $= 600 + 550 + 350 + 300$
 $= 1800$

Total accident in city C in four year
 $= 450 + 550 + 650 + 450$
 $= 2100$

Hence, city B can be said to have controlled accidents most effectively

9. Name the recently added 17th zone of the Indian Railway.

- (a) Kolkata Metro (b) East Central Railway
(c) Konkan Railway (d) Delhi Metro

Ans. (a) : Indian Railways framework is the biggest in Asia and the fourth biggest in the world. It celebrated 150th anniversary in 2003. Kolkata Metro is the 17th Zone of Indian Railways. Presently Indian Railway have 18 Zone and 70 Divisions. The headquarter of Indian Railway is in New Delhi.

10. The three laws of motion were proposed by:

- (a) Aristotle (b) Galileo
(c) Newton (d) Edison

Ans. (c) : Sir Isaac Newton proposed the Law of motion, are three laws that explain the relationship between motion of an object and forces acting on object.

Newtons three laws of motion may be explain as follows –

1. Every object in a state of uniform motion will remain in that state of motion unless an external force acts on it.
2. Force equals mass times acceleration $f = ma$
3. For every action there is an equal and opposite reaction.

The first law is also called as the law of inertia.

11. If the length of side of a square is increased by 10%, what is the percentage increase in its area?

- (a) 10% (b) 20%
(c) 21% (d) 15%

Ans. (c) : Required percentage increase in area

$$= \left(10 + 10 + \frac{10 \times 10}{100} \right) \%$$

$$= 21\%$$

12. What is the code name of India's first successful Nuclear test?

- (a) Operation Shakti (b) Smiling Buddha
(c) laughing Buddha (d) Operation Vijay

Ans. (b) : 'Smiling Buddha' was the code name of India's first successful nuclear bomb test. It was conducted in the desert of Pokhran, Rajasthan on 18 May, 1974. India's second nuclear bomb test was conducted between 11-13 may, 1998 with code name Operation Shakti.

13. Who said in the Constituent assembly debate on 27 August 1947, "I believe separate electorates will be suicidal to the minorities."

- (a) Sardar Vallabhbhai Patel
(b) B. Pocker Bahadur
(c) R.V. dhulekar
(d) Govind Ballabh Pant

Ans. (d) : During the Constituent Assembly debate on separate electorates for minorities. Govind Ballabh Pant said, "I believe separate electorates will be suicidal to the minorities." According to the Pant view if they are isolated from the majority they can never convert them self to a majority. The feeling of frustration will cripple them.

14. The Smallest six-digit number which is completely divisible by 4, 8, 12 and 16 is :

- (a) 100032 (b) 100900
(c) 100800 (d) 100700

Ans. (a) : L.C.M. of 4, 8, 12 and 16 = 48

Least number of six digit = 100000

$$\left(\because k = \frac{100000}{48} \right)$$

$$\text{Number required} = 48k$$

$$= 2083.33$$

$$\approx 2084$$

$$= 48 \times 2084$$

$$= 100032$$

15. CSIR scientists have conducted a genetic study for the first time in India. Where has the study been conducted?

- (a) Lakshadweep (b) Hyderabad
(c) Kochi (d) Andaman

Ans. (a) : The scientist from CSIR - Centre for cellular and Molecular Biology (CCMB) Carried out first-ever genetic studies of Lakshadweep people.

16. Find the sum of the numbers between 400 and 600 such that when they are divided by 6, 12 and 16, there will be no remainder.

(a) 2610 (b) 2016
(c) 2620 (d) 2026

Ans. (b) : L.C.M. of 6, 12, 16 = 48

$$\text{Required number} = 48 \times 9 = 432$$

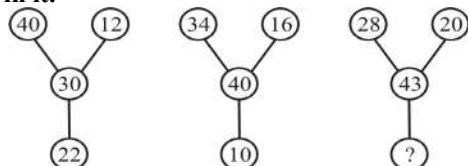
$$= 48 \times 10 = 480$$

$$= 48 \times 11 = 528$$

$$= 48 \times 12 = 576$$

$$\text{Sum} = 2016$$

17. Study the given pattern carefully and select the number that can replace the question mark (?) in it.



(a) 11 (b) 5
(c) 9 (d) 7

Ans. (b) : From pattern - I $40 - 22 + 12 = 30$

$$\text{From pattern - II } 34 - 10 + 16 = 40$$

$$\text{From pattern - III } 28 - ? + 20 = 43$$

$$48 - 43 = ?$$

$$? = 5$$

18. The 2020, UNESCO/ Guillermo Cano Press Freedom Prize has been awarded to _____

(a) Cheng Yizhong (b) Jineth Bedoya Lima
(c) Mahmud Abu Zeid (d) Reeyot Alemu

Ans. (b) : The UNESCO/Guillermo Cano Prize was constituted in 1997. This award is conferred on the occasion of World Press Freedom Day on 3 May. The Colombian Journalist Jineth Bedoya Lima has been honoured with the 2020 Prize. This award is given for a contribution toward press freedom.

19. Which Indian female shooter had won the gold medal in individual 10 m air rifle women event at the 2019 ISSF World Cup in New Delhi?

(a) Manu Bhaker (b) Apurvi Chandela
(c) Heena Sidhu (d) Anjum Moudgil

Ans. (b) : Apurvi Chandela won the Gold Medal in the 2019 ISSF World Cup in New Delhi. She is an Indian Shooting player who competes in the 10 m air rifle events. She won a gold medal at a private tournament in Meyton Cop, Austria in 2020.

20. The perimeter of a right triangle is 60 cm and its hypotenuse is 26 cm. Find the area of the triangle.

(a) 120 cm^2 (b) 160 cm^2
(c) 180 cm^2 (d) 240 cm^2

Ans. (a) : $a + b + 26 = 60 \text{ cm}$

$$a + b = 34 \text{ cm}$$

From Triplet Rule

Sides of the right angled triangle = 24, 10, 26

$$\text{Area of Triangle} = \frac{1}{2} \times \text{base} \times \text{height}$$

$$= \frac{1}{2} \times 24 \times 10$$

$$= 120 \text{ cm}^2$$

21. Who is considered the father of computers?

(a) Charles Bachman (b) John Atanasoff
(c) Charles Babbage (d) Alan Turing

Ans. (c) : A computer is a device for storing, processing and retrieving data. The first electronic computer was invented in the 20th Century, but a computer of a different type existed later. Charles Babbage is considered as the father of Computer.

22. If $\cos x = -\frac{1}{2}$ and $\pi < x < \frac{3\pi}{2}$ then find the

value of $4\tan^2 x - 3\text{cosec}^2 x$.

(a) 8 (b) 12
(c) 10 (d) 16

Ans. (a) : $\cos x = -\frac{1}{2}$, $\cos x = \cos 120^\circ$

$$x = 120^\circ$$

$$4\tan^2 x - 3\text{cosec}^2 x = 4\tan^2 120^\circ - 3\text{cosec}^2 120^\circ$$

$$= 4(-\sqrt{3})^2 - 3\left(\frac{2}{\sqrt{3}}\right)^2$$

$$= 12 - 4$$

$$= 8$$

23. Due to 25% reduction in the price of wheat per kg, John is able to buy 5 kg more for ₹600. What is the original price of wheat per kg?

(a) ₹50 (b) ₹45
(c) ₹40 (d) ₹60

Ans. (c) : Suppose original price of wheat per kg = ₹ x after reduction of 25%

$$\text{Price of wheat per kg} = x \times \frac{75}{100} = ₹ \frac{3x}{4}$$

According to question

$$\frac{600}{\frac{3x}{4}} - \frac{600}{x} = 5$$

$$\frac{2400}{3x} - \frac{600}{x} = 5$$

$$\frac{2400 - 1800}{3x} = 5$$

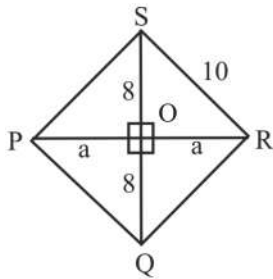
$$\text{or } 15x = 600$$

$$x = ₹ 40 \text{ per kg}$$

24. Find the area of a rhombus whose side is 10 cm and the longest diagonal is 16 cm.

(a) 86 cm^2 (b) 88 cm^2
(c) 96 cm^2 (d) 94 cm^2

Ans. (c) : In rhombus PQRS diagonal (SQ) = 16 cm
Suppose second diagonal (RP) = 2a cm



In ΔSOR ,

$$a^2 + (8)^2 = (10)^2$$

$$a^2 + 64 = 100$$

$$a = \sqrt{100 - 64} = \sqrt{36}$$

$$a = 6 \text{ cm}$$

$$\text{Area of rhombus} = \frac{1}{2} d_1 d_2 = \frac{1}{2} \times 16 \times 12 = 96 \text{ cm}^2$$

25. In a code language, if KARAN is written as 45, then how will ARUN be written as in that language?

- (a) 54 (b) 56
(c) 41 (d) 42

Ans. (a) : As like, Similarly

K A R A N	A R U N
11+1+18+1+14 = 45	1+18+21+14 = 54

26. What was India's Rank in Human Development Index, 2019?

- (a) 152 (b) 147
(c) 129 (d) 139

Ans. (c) : The Human Development Index (HDI) is a statistical tool used to measure a country overall achievement in its social and economic dimensions of country, are based on health of people, their level of education attainment and standard of living.

Criteria used by Human Development Report

→ Per Capita Income

→ Life expectancy at birth

→ Literacy rate

India rank 129 out of 189 countries in the 2019 human development index released by United Nations Development Programme (UNDP).

In 2020 HDI Ranks of India is 131 out of 189 Countries.

27. Which one of the following was a measure taken under the Rowlatt Act?

- (a) Restriction on wearing khadi
(b) Forced to buy foreign goods
(c) Imprisonment without trial
(d) Restriction on travelling abroad

Ans. (c) : Rowlatt Act gave the British government power to suppress the political activities, political leaders can be arrested and kept in prison without trial for two years. This act was passed by the British government in 1919, during the first World War. This act is also known as Black Act.

28. Litmus solution is derived from _____

- (a) Hydrangea (b) Cabbage leaves
(c) Lichen (d) Petunia

Ans. (c) : Litmus is used as an indicator to distinguish between acid and base. Litmus solution is obtained from lichen. It is a water soluble mixture of different dyes. Light blue litmus paper turns red under acidic solution and red litmus paper turns blue under basic or alkaline condition. It is measured in pH range, the neutral litmus paper is purple.

29. A alone can complete a work in 10 days and B can complete it in 15 days. A and B undertake the work for ₹4800. With the help of C, they complete the work in 5 days. What amount is to be paid to C?

- (a) ₹800 (b) ₹600
(c) ₹1,200 (d) ₹700

Ans. (a) :

$$\text{Work done by A in one day} = \frac{1}{10} \text{ part}$$

$$\text{Work done by B in one day} = \frac{1}{15} \text{ part}$$

$$\text{Work done by C in one day} = \frac{1}{5} - \left(\frac{1}{10} + \frac{1}{15} \right)$$

$$= \frac{1}{5} - \left(\frac{3+2}{30} \right)$$

$$= \frac{1}{5} - \frac{5}{30}$$

$$= \frac{1}{5} - \frac{1}{6}$$

$$= \frac{6-5}{30}$$

$$= \frac{1}{30} \text{ part}$$

$$\text{Efficiency ratio} = \frac{1}{10} : \frac{1}{15} : \frac{1}{30}$$

$$= 3 : 2 : 1$$

$$\text{Amount paid to C} = \frac{4800 \times 1}{6} = ₹800$$

30. Which function key in Excel helps to switch to edit mode?

- (a) F3 (b) F2
(c) F7 (d) F5

Ans. (b) : The function key F2 helps you in Excel to edit the data. Click the cell that contains the data that you want to edit and then press F2.

31. As per Public affair index 2020 (PAI-2020), which of the following state emerged as the best governed state in the country?

(a) Punjab (b) Gujrat
(c) Kerala (d) Maharashtra

Ans. (c) : Kerala was the best-governed state according to the Public Affair Index 2020. This index measure, the quality of governance at State/UTs level on three dimension of development - Equity, Growth and Sustainability. Uttar Pradesh ranked last in this index whereas Goa ranked the highest in small states while Manipur, the lowest.

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

BILR : EFOO :: CJPT : ?

(a) FGSQ (b) QWNT
(c) MIEB (d) NGDE

Ans. (a) : Like as, Similarly
 $B \xrightarrow{+3} E$ $C \xrightarrow{+3} F$
 $I \xrightarrow{-3} F$ $J \xrightarrow{-3} G$
 $L \xrightarrow{+3} O$ $P \xrightarrow{+3} S$
 $R \xrightarrow{-3} O$ $T \xrightarrow{-3} Q$

33. Nobel Laureate, Kailash Satyarthi is associated with which of the following organization.

(a) Bachpan Bachao Andolan
(b) Child Relief and You
(c) SOS Village
(d) Beti Bachao, Beti Padhao

Ans. (a) : Kailash Satyarthi was awarded with Nobel Peace Prize in 2014. He was awarded for his work against the suppression of children and for the right of all children to education. Kailash Satyarthi founded Bachpan Bachao Andolan in 1980 where all children are free from exclusion and exploitation and receive free education.

34. A train covers 400 at a uniform speed. If the speed had been 10 km/h more, it would have taken 2 h less for the same journey. find the speed of the train

(a) 45 km/h (b) 40 km/h
(c) 55 km/h (d) 50 km/h

Ans. (b) : Suppose speed of Train is x km/hr
According to question

$$\frac{400}{x} - \frac{400}{x+10} = 2$$

$$\frac{x+10-x}{x(x+10)} = \frac{1}{200}$$

$$x^2 + 10x = 2000$$

$$x^2 + 10x - 2000 = 0$$

$$x^2 + 50x - 40x - 2000 = 0$$

$$x(x+50) - 40(x+50) = 0$$

$$(x+50)(x-40) = 0$$

$$x - 40 = 0$$

$$x = 40$$

Hence, speed of Train = 40 km/h

35. If $a^2 + b^2 = 82$ and $ab = 9$, find the value of $a^3 + b^3$.

(a) 750 (b) 730
(c) 720 (d) 830

Ans. (b) : Given,

$$a^2 + b^2 = 82$$

$$ab = 9$$

On adding $2ab$ in both sides

$$a^2 + b^2 + 2ab = 82 + 2ab \quad (\because ab = 9)$$

$$(a+b)^2 = 82 + 18$$

$$(a+b)^2 = 100$$

$$a+b=10$$

On cubing both sides,

$$(a+b)^3 = (10)^3$$

$$a^3 + b^3 + 3ab(a+b) = 1000$$

$$a^3 + b^3 + 3 \times 9(10) = 1000$$

$$a^3 + b^3 = 1000 - 270$$

$$a^3 + b^3 = 730$$

36. Which of the following has been written by Munshi Premchand?

(a) Kamayani (b) Yama
(c) Chidambara (d) Sevasadan

Ans. (d) : Dhanpat Rai Srivastava popularly known as Premchand was most popular writer of the India. He wrote over three hundred stories and 14 Novels and plays, essays. His works are Godan, Karmabhoomi, Gaban, Idgah, Seva Sadan, Ranghoomi etc. His last and incomplete book was Mangal-sootra. Seva Sadan was the first novel of Munshi Premchand, it was first written in Urdu as Baazare-e-Husn, but its hindi version published first.

37. Simplify

$$17 \times 8 - 6 + [(27 - 3) \div 6 - 4]$$

(a) 150 (b) 142
(c) 130 (d) 136

Ans. (c) : $17 \times 8 - 6 + [(27 - 3) \div 6 - 4]$

$$= 17 \times 8 - 6 + [24 \div 6 - 4]$$

$$= 17 \times 8 - 6 + [4 - 4] = 136 - 6 = 130$$

38. The full form of BHEL is _____

(a) Bharat Heavy Electricals Limited
(b) Bharat Heavy Electronics Limited
(c) Bureau of Heavy Electricals Limited
(d) Bureau of Heavy Electronics Limited

Ans. (a) : The full name of BHEL is Bharat Heavy Electricals Limited. It is government owned engineering and manufacturing enterprise. It was established in 1964. It is India's largest power generation equipment manufactures. BHEL work under the leadership of ministry of Heavy industries and Public Enterprises.

39. Study the given pattern carefully and select the number that can replace the question mark (?) in it.



- (a) 8 (b) 10
(c) 12 (d) 6

Ans. (d) : As like,

From pattern I

$$\frac{(8+2)+(12+4)}{2} = \frac{26}{2} = 13$$

From pattern II

$$\frac{(16+4)+(24+8)}{2} = \frac{52}{2} = 26$$

From pattern III

$$\frac{(14+2)+(22+?)}{2} = 22$$

$$14 + 2 + ? = 44$$

$$? = 44 - 38$$

$$? = 6$$

40. What is the full form of COBOL?

- (a) computer Basic Operation Language
(b) Common Business Organised Language
(c) Common Business Oriented Language
(d) Computer Business Oriented Language

Ans. (c) : COBOL is a Common Business Oriented Language. It is designed for developing business typically file oriented applications. During 1950s when the businesses were rising in western part of the world, there was a need to automate various processes for ease of operation and from this high level programming language was designed for business data processing.

41. $3^{71} + 3^{72} + 3^{73} + 3^{74} + 3^{75}$ is divisible by:

- (a) 8 (b) 5
(c) 11 (d) 7

Ans. (c) : $3^{71} + 3^{72} + 3^{73} + 3^{74} + 3^{75}$
 $= 3^{71}(3^0 + 3^1 + 3^2 + 3^3 + 3^4)$
 $= 3^{71}(1 + 3 + 9 + 27 + 81)$
 $= 3^{71} \times 121$
 $= 3^{71} \times 11^2$

Hence, given series will be divisible by 11.

42. Simplify : $46 + \frac{3}{4} \times 32 - 6$
 $37 - \frac{3}{4} \times (34 - 6)$

- (a) 4 (b) 6
(c) 10 (d) 8

Ans. (a) : $46 + \frac{3}{4} \times 32 - 6$
 $37 - \frac{3}{4} \times (34 - 6)$
 $= \frac{46 + 24 - 6}{37 - \frac{3}{4} \times 28}$
 $= \frac{70 - 6}{37 - 21}$
 $= \frac{64}{16} = 4$

43. Ramesh Sharma borrows ₹8000 for 3 years at 5% p.a. simple interest. He lends it to Manohar at 7% p.a. for 3 years. Find his gain.

- (a) ₹580 (b) ₹450
(c) ₹480 (d) ₹460

Ans. (c) : Required profit = $\frac{8000 \times 7 \times 3}{100} - \frac{8000 \times 5 \times 3}{100}$
 $= 1680 - 1200$
 $= ₹480$

44. A is 5 times as good as workman as B and therefore is able to complete a piece of work in 60 days less than B. In how many days will they finish it working together?

- (a) 14 days (b) 12 days
(c) $12\frac{1}{2}$ days (d) $14\frac{1}{2}$ days

Ans. (c) : Efficiency ratio of A and B = 5 : 1

Time Ratio of A and B = 1 : 5

Let us Assume

Time taken by A to complete the work in x day and

Time taken by B to complete the work in 5x days

As per question

$$5x - x = 60$$

$$4x = 60 \Rightarrow x = 15 \text{ day}$$

Time taken by A to complete the work in 15 days

Time taken by B to complete the work in 5x = 75 day

$$\frac{1}{75} + \frac{1}{15} = \frac{1+5}{75} = \frac{6}{75} \text{ or } \frac{2}{25}$$

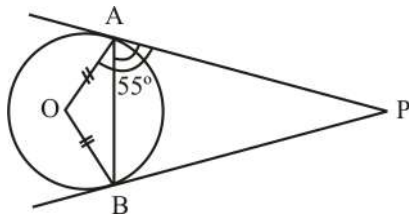
time taken by both A and B to complete the work

$$= \frac{25}{2} \text{ or } 12\frac{1}{2}$$

45. From an external point P, tangents PA and PB are drawn to a circle with centre O. $\angle PAB = 55^\circ$, find $\angle AOB$

- (a) 100° (b) 35°
(c) 125° (d) 110°

Ans. (d)



Given,

$$\angle PAB = 55^\circ$$

$$\angle OAP = 90^\circ (\because OA \perp AP)$$

$$\angle OAB = 90^\circ - 55^\circ = 35^\circ$$

$$\angle OAB = \angle OBA = 35^\circ$$

In $\triangle AOB$

$$\angle AOB + \angle OBA + \angle OAB = 180^\circ$$

$$\angle AOB + 35^\circ + 35^\circ = 180^\circ$$

$$= 110^\circ$$

46. What is the momentum of an object having mass of 14 kg and velocity 28 m/s?

- (a) 0.5 kg-m/s (b) 392 kg-m/s
(c) 1/392 kg-m/s (d) 2 kg-m/s

Ans. (b) : Momentum is a measure of the velocity of a moving object. Higher the velocity higher the momentum and higher the mass of object, higher the momentum.

Momentum = mass of body \times velocity of body

$$\vec{P} = m\vec{v}$$

So Momentum, of 14 kg mass and 28 m/s velocity will be $\Rightarrow P = mv$
 $= 392 \text{ kg-m/s}$

47. A man bought 2 articles for 3000 each. He sold one article at 10% profit and another at 5% profit. Find the total percentage profit he earned.

- (a) 7.5% (b) 8.5%
(c) 15% (d) 6.5%

Ans. (a) :

Total cost price of both articles = $3000 + 3000 = ₹ 6000$

Selling price of both articles

$$= 3000 \times \frac{105}{100} + 3000 \times \frac{110}{100}$$

$$= 3300 + 3150$$

$$= ₹ 6450$$

$$\text{Total profit earned \%} = \frac{6450 - 6000}{6000} \times 100$$

$$= \frac{450}{6000} \times 100 = 7.5\%$$

48. Name the first student satellite built by Indian high school student team and launched by NASA

- (a) Anusat (b) SRMsat
(c) Pratham (d) KalamSat

Ans. (d) : KalamSat is a satellite named after the former President Dr. APJ Abdul Kalam. It was developed by a class 12 student from Tamil Nadu. This satellite is lighter than smart phone and made of reinforced carbon fibre polymer, its role will be to demonstrate the performance of 3D-printed carbon fibre. US space agency NASA had launched this world's smallest and lightest satellite.

49. The region where farmers specialize in vegetables only, this type of farming is known as:

- (a) Cooperative farming (b) Collective farming
(c) Mixed farming (d) Truck farming

Ans. (d) : The regions where farmers specialize in vegetables farming only is known as Truck farming. The distance of truck farms from the market is governed by the distance that truck can cover overnight, hence the name is truck farming.

50. Name the cyclone that Hit Odisha and West Bengal in May 2020.

- (a) Hudhud (b) Amphan
(c) Bulbul (d) Fani

Ans. (b) : Cyclone Amphan caused widespread damage in Eastern India. Specially in West Bengal, Odisha in May 2020. It was the first Super cyclone formed in the Bay of Bengal since 1999 Odisha cyclone.

51. If $\sqrt{(2116 \times \sqrt{48} \div x)} = 92$, find the value of x.

- (a) 6 (b) 2
(c) 12 (d) 3

Ans. (d) : $\sqrt{2116 \times \sqrt{48} \div x} = 92$

On squaring both sides

$$2116 \times \sqrt{\frac{48}{x}} = 92 \times 92$$

$$\frac{48}{x} = 4 \times 4$$

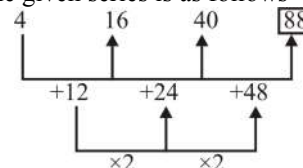
$$x = 3$$

52. Select the number from among the given options that will come next in the following series.

4, 16, 40, ?

- (a) 68 (b) 98
(c) 48 (d) 88

Ans. (d) : The given series is as follows



Hence, 88

53. If the sum of squares of two positive number is 2437 and square root of one number is 7 then find second number.

- (a) 16 (b) 12
(c) 6 (d) 8

Ans. (c) : Suppose two positive numbers are x and y respectively

According to question

$$\sqrt{x} = 7 \Rightarrow x = 49$$

$$\therefore (49)^2 + y^2 = 2437$$

$$y^2 = 2437 - 2401$$

$$y^2 = 36$$

$$y = \sqrt{36} = 6$$

54. Which city has bagged the second spot in the Swachh Sarvekshan award for 2020?

- (a) New delhi (b) Surat
(c) Bhopal (d) Chandigarh

Ans. (b) : The Ministry of Urban Development takes up the Swachh Sarvekshan in Urban areas and Ministry of Drinking Water and Sanitation in rural areas. Swachh Sarvekshan 2020 is the fifth edition of annual cleanliness survey in which Indore has been ranked first for the fourth time and Surat rank second, Navi Mumbai third in the category of cities with more than 10 lakh population.

55. Find the five digit least number that is divisible by 472.

- (a) 10384 (b) 10184
(c) 10472 (d) 10284

Ans. (a) : Smallest number of five digits = 10000

$$\begin{aligned} \text{Required number} &= 472 \times k \quad \left(\because k = \frac{10000}{472} \right) \\ &= 472 \times 22 \quad k = 21.186 \\ &= 10384 \quad k \approx 22 \end{aligned}$$

56. If $x^4 + x^{-4} = 1154$, then the value of $x + x^{-1}$ is:

- (a) 12 (b) 6
(c) 8 (d) 5

Ans. (b) : $x^4 + x^{-4} = 1154$

$$\text{or } x^4 + \frac{1}{x^4} = 1154$$

On adding 2 to both sides

$$\left(x^2\right)^2 + \frac{1}{\left(x^2\right)^2} + 2 = 1156$$

$$\left(x^2 + \frac{1}{x^2}\right)^2 = 1156$$

$$x^2 + \frac{1}{x^2} = 34$$

On adding 2 to both sides

$$x^2 + \frac{1}{x^2} + 2 = 36$$

$$\left(x + \frac{1}{x}\right)^2 = 36$$

$$x + \frac{1}{x} = 6$$

$$\text{or } x + x^{-1} = 6$$

57. If

$$6\left(\sec^2 59^\circ - \cot^2 31^\circ\right) + \frac{2}{3} \sin 90^\circ - 3 \tan^2 56^\circ y \tan^2 34^\circ = \frac{y}{3}$$

then the value of y is:

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

Ans. (d) : $6\left(\sec^2 59^\circ - \cot^2 31^\circ\right) +$

$$\frac{2}{3} \sin 90^\circ - 3 \tan^2 56^\circ y \tan^2 34^\circ = \frac{y}{3}$$

$$6\left(\sec^2 59^\circ - \tan^2 59^\circ\right) + \frac{2}{3} \times 1 - 3 \tan^2 56^\circ y \cot^2 56^\circ = \frac{y}{3}$$

$$\left\{ \begin{array}{l} \because \tan(90^\circ - \theta) = \cot \theta \\ \sec^2 \theta - \tan^2 \theta = 1 \end{array} \right\}$$

$$6 \times 1 + \frac{2}{3} - 3y = \frac{y}{3}$$

$$\frac{20}{3} = \frac{10y}{3}$$

$$y = 2$$

58. The average weight of A, B, C, and D is 56 kg. If the average weight of A, B and C is 52 kg and that the average weight of C and D is 48 kg, then the weight of C is—

- (a) 28 kg (b) 36 kg
(c) 34 kg (d) 30 kg

Ans. (a) : $A + B + C + D = 56 \times 4 = 224$

$$A + B + C = 52 \times 3 = 156$$

$$C + D = 48 \times 2 = 96$$

$$\text{Weight of C} = (156 + 96) - 224$$

$$= 252 - 224$$

$$= 28 \text{ kg}$$

59. Which of the following is a cause for migration of unskilled workers?

- (a) Population (b) Pollution
(c) Poverty (d) Ambience

Ans. (c) : In India unskilled labour migrate to urban areas mainly due to poverty availability of regular work and for relatively higher wages.

60. The compound interest on a certain sum of money at the rate of 11% p.a. for 2 years is ₹4642. Find its simple interest at the same rate and for the same period.

- (a) ₹4,200 (b) ₹3,500
(c) ₹4,500 (d) ₹4,400

Ans. (d) : Compound Interest = $P \left(1 + \frac{R}{100}\right)^t - P$

$$4642 = P \left[\left(1 + \frac{11}{100}\right)^2 - 1 \right]$$