

Railway Non-Technical Popular Categories Exam-2019

Graduate and Under-Graduate Level

[Ist Stage Computer Based Test]

Exam Date : 28.12.2020]

[Time : 03:00 pm-04:30 pm

1. If 'A' means '+', 'S' means '-', 'M' means '×', 'D' means '÷', 'B' means '(' and 'F' means ')', then solve the following expression:
B700A110S90FDB9M10S10F
 (a) 10 (b) 7
 (c) 9 (d) 90

Ans. (c) : B700A110S90FDB9M10S10F
 According to the question, on changing letters into mathematical symbol, we have-
 $= (700+110-90) \div (9 \times 10-10)$
 $= 720 \div (80) = 9$

2. If $\cos 2\theta = \sin \theta$ and θ lies between 0° and 90° , then θ will be:
 (a) 45° (b) 30°
 (c) 60° (d) 90°

Ans. (b) : $\cos 2\theta = \sin \theta$
 On putting $\theta = 30^\circ$
 $\cos 60^\circ = \sin 30^\circ$
 $\frac{1}{2} = \frac{1}{2}$
 Hence, the value of θ will be 30° .

3. The difference between the mean of the first eight composite natural numbers and the mean of the first eight prime numbers, is:

- (a) $\frac{3}{20}$ (b) $\frac{1}{5}$
 (c) $\frac{1}{4}$ (d) $\frac{1}{8}$

Ans. (d) : First eight composite natural numbers = 4, 6, 8, 9, 10, 12, 14, 15
 $\text{Mean} = \frac{4+6+8+9+10+12+14+15}{8} = \frac{78}{8}$
 First eight prime numbers = 2, 3, 5, 7, 11, 13, 17, 19
 $\text{Mean} = \frac{2+3+5+7+11+13+17+19}{8} = \frac{77}{8}$
 Required difference = $\frac{78}{8} - \frac{77}{8} = \frac{1}{8}$

4. Which of the following is NOT a part of auxiliary memories in a Computer system?
 (a) Magnetic tapes (b) PROM
 (c) CD-ROM (d) Floppy

Ans. (b) : Auxiliary memory, also known as auxiliary storage, secondary storage, secondary memory or external memory, is a non-volatile memory (does not lose stored data when the device is powered down) that is not directly accessible by the CPU, because it is not accessed via the input/output channels (it is an external device). Examples: Hard Disks, Floppy Disks, CD-ROM, Magnetic Tapes etc. PROM is a type of primary memory.

5. India's 1st atomic power station was commissioned in:
 (a) 1966 (b) 1969
 (c) 1968 (d) 1967

Ans. (b) : Tarapur Atomic Power Station (T.A.P.S) was the first nuclear power plant in India. The construction of the plant was started in 1962 and the plant began operations in 1969. It is the world's oldest nuclear power plant in commercial operation. It was build for the Department of Atomic Energy by General Electric and Bechtel. The facility is operated by the NPCIL (Nuclear Power Corporation of India Limited).

6. A can complete a piece of work in 12 days. B is 20% less efficient than A. The number of days it will take for B to complete the work is:
 (a) 18 days (b) 15 days
 (c) 20 days (d) 16 days

Ans. (b) : Ratio of work efficiency
 $B : A = 4 : 5$
 Time ratio
 $B : A = 5 : 4$
 Let time taken by A to complete the work = $4x$
 Now, time taken by B to complete the work = $5x$
 $4x = 12$
 $x = 3$
 Time taken by B to finish the work = $5x = 5 \times 3 = 15$ days.

7. Which of the following projects is in Uttarakhand?
 (a) Tehri Hydro Power Complex
 (b) Koyna Hydroelectric Project
 (c) Sharavathi Hydroelectric Project
 (d) Chamera Hydroelectric Project

Ans. (a) :		
Dam (Hydroelectric)	Constructed on River	Location
Tehri Dam, Koteswar Dam	Bhagirathi	Tehri Garhwal, Uttarakhand
Ramganga Dam	Ramganga	Garhwal, Uttarakhand
Ichari Dam	Tons	Dehradun, Uttarakhand
Koyna Dam	Koyna	Satara, Maharashtra
Gerusoppa Dam	Sharavathi	Uttara Kannada, Karnataka
Chamera Dam	Ravi	Chamba, Himachal Pradesh

8. If AMBER = 27 and BROWN = 14, then GREEN will equal to:
 (a) 28 (b) 36
 (c) 39 (d) 24

Ans. (b) : Just as,

A M B E R

↓ ↓ ↓ ↓ ↓

$$1 + 13 + 2 + 5 + 18 = 39 \Rightarrow 3 \times 9 = 27$$

and,

B R O W N

↓ ↓ ↓ ↓ ↓

$$2 + 18 + 15 + 23 + 14 = 72 \Rightarrow 7 \times 2 = 14$$

Similarly,

G R E E N

↓ ↓ ↓ ↓ ↓

$$7 + 18 + 5 + 5 + 14 = 49 \Rightarrow 4 \times 9 = 36$$

9. The Tri-Color which was hoisted in Stuttgart by Madam Cama was smuggled into British India by:

- (a) Indulal Yagnik (b) Bhikaji Cama
 (c) Kishan Singh (d) Veer Savarkar

Ans. (a) : On August 21, 1907, an International Socialist Conference was being held at Stuttgart, a city in Germany. One thousand representatives from across the world had come to attend the conference. Madam Bhikaji Cama became the first person to hoist Indian flag on foreign soil in that conference. The same flag was later smuggled into India by socialist leader Indulal Yagnik and is now on display at the Maratha and Kesari Library in Pune.

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

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

- (a) 0 (b) 12
 (c) 8 (d) 16

Ans. (d) : Just as,

$$12 + 8 - 6 = 14$$

$$10 + 6 - 4 = 12$$

$$8 + 4 - 2 = 10$$

Similarly,

$$14 + 10 - 8 = 16$$

11. Which of the following is a scalar quantity?

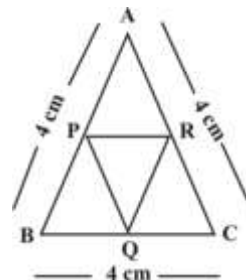
- (a) Momentum (b) Force
 (c) Mass (d) Velocity

Ans. (c) : A quantity that has magnitude but no particular direction is described as scalar quantity. A quantity that has magnitude and acts in a particular direction is described as vector quantity. Scalar quantities include: mass, distance, speed, time, power, energy. Vector quantities include: displacement, velocity, acceleration, force, weight, momentum.

12. ABC is an equilateral triangle. P, Q and R are the midpoints of sides AB, BC and AC respectively. The length of the side of the triangle is 4 cm. The area of triangle PQR is:

- (a) $\frac{1}{4}\sqrt{3}\text{cm}^2$ (b) $\frac{\sqrt{3}}{2}\text{cm}^2$
 (c) $\sqrt{3}\text{cm}^2$ (d) $\frac{\sqrt{3}}{9}\text{cm}^2$

Ans. (c) :



$$\begin{aligned} \text{Area of } \triangle PQR &= \frac{1}{4} \times \text{Area of equilateral triangle ABC} \\ &= \frac{1}{4} \times \frac{\sqrt{3}}{4} \times 4^2 = \sqrt{3}\text{cm}^2 \end{aligned}$$

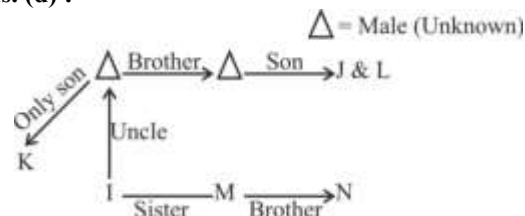
13. Read the following information and answer the question that follows.

- (i) I, J, K, L, M and N are playing hockey.
 (ii) I and M are sisters and N is the brother of M.
 (iii) K is the only son of I's paternal uncle.
 (iv) J and L are the sons of a brother of K's father.

How is K related to M?

- (a) Brother (b) Uncle
 (c) Sister (d) Cousin

Ans. (d) :



It is clear from above blood-relation diagram that K is cousin of M.

14. By which of the following Amendments of the Constitution, Fundamental Duties of the citizens were added to the Constitution of India?

- (a) 35th Constitutional Amendment Act
 (b) 36th Constitutional Amendment Act
 (c) 42nd Constitutional Amendment Act
 (d) 44th Constitutional Amendment Act

Ans. (c) : The Fundamental Duties of citizens were added to the Constitution by the 42nd Amendment in 1976, upon the recommendations of the Swaran Singh Committee that was constituted by the Government of India.

15. Choose the mirror image of the following

A!B@C#D\$E%

- (a) V!B@C#D\$E% (b) A!B@C#D\$E%
(c) A!B@C#D\$E% (d) A!B@C#D\$E%

Ans. (b) : The mirror image of the given figure will be option (b).

16. Which of the following Awards is associated with only Music?

- (a) Tagore (b) Oscar
(c) Cannes (d) Grammy

Ans. (d) : The Grammy award is presented by the Recording Academy to recognize outstanding achievements in the American music industry. It recognizes the achievements across the music industry. The trophy of the award depicts a gilded gramophone. The first award ceremony was held on 4 May 1959 with 28 Grammys awarded.

17. According to which law, at constant temperature, the volume of a gas is inversely proportional to pressure?

- (a) Boyle's Law (b) Charle's Law
(c) Gay-Lussac's Law (d) Graham's Law

Ans. (a) : Boyle's law is a gas law which states that the pressure exerted by a gas (of a given mass, kept at a constant temperature) is inversely proportional to the volume occupied by it. It was given by the Anglo-Irish chemist Robert Boyle in the year 1662.

18. The capacity of working by A and B is in the ratio 3 : 4. If A takes 12 days to finish the work, the time taken by B to finish the same work is:

- (a) 16 days (b) 9 days
(c) 12 days (d) 18 days

Ans. (b) : The ratio of work efficiency of A : B = 3 : 4
Time ratio

A : B = 4 : 3

Let the time taken by A to complete the work = 4x

Now, the time taken by B to complete the work = 3x

4x = 12

x = 3

Hence, the time taken by B to complete the work = 3x
= 3 × 3 = 9 days

19. The first attempt to calculate national income in India was made by:

- (a) VKRV Rao (b) Dadabhai Naoroji
(c) SD Tendulkar (d) PC Mahalanobis

Ans. (b) : Dadabhai Naoroji was the first Indian to estimate the national income of the country. In 1867-68, he estimated per capita income to be ₹20.

20. Which of the following is NOT a part of the circulatory system?

- (a) Large intestine (b) Heart
(c) Blood (d) Arteries

Ans. (a) : Large intestine is not a part of circulatory system. The circulatory system consists of three independent systems that work together: the heart (cardiovascular), lungs (pulmonary), and arteries, veins, coronary and portal vessels (systemic). The system is responsible for the flow of blood, nutrients, oxygen and other gases, and as well as hormones to and from cells.

21. Glowing surface of the sun is known as:

- (a) lithosphere (b) photosphere
(c) atmosphere (d) chromosphere

Ans. (b) : The photosphere is the 'visible surface' of the Sun. The Sun is a giant ball of plasma, so it doesn't have a distinct, solid surface like Earth. Sunlight that is created by nuclear fusion in the Sun's core (center) gradually works its way outward, colliding over and over with atoms in the Sun's interior. After a million-year journey, the sunlight finally reaches a level where the plasma is less dense and photons stop running into atoms and can finally escape into space. This level is what we see as the 'glowing surface' of the Sun - the photosphere.

22. The Moplah Rebellion took place between the years:

- (a) 1917 – 1919 (b) 1923 – 1924
(c) 1921 – 1922 (d) 1914 – 1915

Ans. (c) : The Malabar rebellion, which is also known as the Moplah (Muslim) riots happened from August 20, 1921 to 1922 in the Malabar region of Kerala. Moplah rebellion had been an uprising of Muslim tenants against British rulers and local Hindu landlords. It was an armed revolt. It was led by Ali Musliyar Variankunnath Kunjahammed Haji. It has even been described as a Peasant revolt.

23. The process of taking out stored results out of physical memory of computers is known as:

- (a) output process (b) programming
(c) processing (d) input process

Ans. (a) : The process of taking out stored result out of physical memory of computer is known as output process.

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

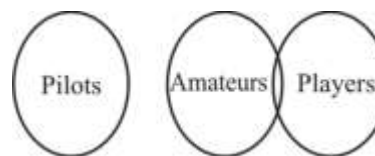
Statements:

1. No pilots are amateurs.

2. A few amateurs are players.

- (a) Some pilots are not players
(b) Some amateurs are not players
(c) Some players are pilots
(d) Some pilots are players

Ans. (b) :



It is clear that some amateurs are not players. Hence option (b) is correct.

25. The "Indradhanush" framework, an Indian government initiative, is for:

- (a) Capacity building in Private Sector Banks

- (b) Revamping of Private Sector Banks
- (c) Resource mobilisation
- (d) Revamping of Public Sector Banks

Ans. (d) : In 2015, the government in order to resolve the issues faced by the Public Sector Banks, launched a 7 pronged plan called "Mission Indradhanush." The objectives met by the Mission Indradhanush are taken from the recommendation of PJ Nayak Committee.

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

Dog : Guard : : Horse : ?

- (a) Cart
- (b) Saddle
- (c) Stable
- (d) Ride

Ans. (d) : Just as a Dog is related to protect in the same way a Horse is related to ride.

27. For any natural number n , $6^n - 5^n$ always ends with ;

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

Ans. (b) : The value of $6^n - 5^n$ for any natural number 'n' will always be 1 because 6 can be any natural number in the power that units number in the power of 5 has its unit digit as 5.

28. If $P = 2 + 0.2 \div (0.2 \times 2) - 1 \times 2$, $Q = 2 - 0.2 \div$

$(0.2 \times 2) - \frac{1}{2} \times 2$, then $\frac{P}{Q}$ is the equal to:

- (a) 0.5
- (b) 1.0
- (c) 1.5
- (d) -0.5

Ans. (b) : Given,

$$P = 2 + 0.2 \div (0.2 \times 2) - 1 \times 2,$$

$$Q = 2 - 0.2 \div (0.2 \times 2) - \frac{1}{2} \times 2$$

$$P = 2 + 0.2 \times \frac{1}{0.4} - 2 \quad Q = 2 - 0.2 \times \frac{1}{0.4} - 1$$

$$P = 0.5$$

$$Q = 0.5$$

$$\frac{P}{Q} = \frac{0.5}{0.5} = 1$$

29. The following table shows the Air Quality Index (AQI) (PM2.5) for the four weeks of February 2018. What is the difference in the average of AQI in Kolkata and Delhi in the month of February?

Toxic Trend Air Quality Index		
Period	Kolkata	Delhi
February 1st-7th	306	248
February 8th-14th	288	246
February 15th-21st	274	246
February 22nd-28th	172	236

- (a) 16
- (b) 14
- (c) 18
- (d) 12

Ans. (a) : Average of AQI of Kolkata in the month of February.

$$= \frac{306 + 288 + 274 + 172}{4}$$

$$= \frac{1040}{4} = 260$$

Average of AQI of Delhi in the month of February.

$$= \frac{248 + 246 + 246 + 236}{4}$$

$$= \frac{976}{4} = 244$$

Difference in the average of AQI in Kolkata and Delhi in the month of February

$$= 260 - 244$$

$$= 16$$

30. The global climate change alliance is an initiative of :

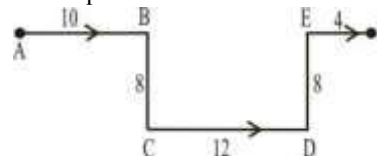
- (a) Continental Union
- (b) Greek Union
- (c) World Union
- (d) European Union

Ans. (d) : The Global Climate Change Alliance (GCCA) is an initiative of the European Union. Its overall objective is to build a new alliance on climate change between the European Union and the poor developing countries that are most affected and that have the least capacity to deal with climate change. It was established in 2007.

31. Sita took an auto from her home in Andheri (A) to go to her college in Fatehpuri (F). Rather than continuing straight on the direct road to the college that had no turns, the auto driver took a diversion after 10 km and turned right at Bandra (B) crossing, then at Colaba T-point (C) after 8 km turned left, again after covering 12 km turned left at Dalhousi Building (D) and soon after 8 km turned right at Elphinston point (E) and after covering 4 km reached Fatehpuri (F). Had the auto driver taken the direct route how much less distance would Sita have actually travelled between the starting point and the destination?

- (a) 10 km
- (b) 18 km
- (c) 16 km
- (d) 12 km

Ans. (c) : The sequence of Sita's travel is as follows-



Total distance between point A and F = $10 + 8 + 12 + 8 + 4 = 42$

The direct distance between point A and F = $10 + 12 + 4 = 26$

Then, difference = $42 - 26 = 16$ km

32. Yen is the currency of:

- (a) Maldives
- (b) Japan
- (c) Bali
- (d) South Korea

Ans. (b) : The Yen is the legal tender in Japan, and after the Euro and the US Dollar it is the most valued currency in the global market.

33. Who is called the father of taxonomy?

- (a) Eichler
- (b) Engler
- (c) Carl Linnaeus
- (d) Bentham and Hooker

Ans. (c) : Carolus Linnaeus, the Swedish botanical taxonomist who was the first person to formulate and adhere to a uniform system for defining and naming the world's plants and animals. Taxonomy is the study of naming, comparing and sorting organisms which involve all the plants, animals and microorganisms of the world. Carolus Linnaeus, who gave an organism classification, named as 'father of taxonomy'. He categorized the organism on the basis of similarities and differences.

34. If $\frac{\sqrt{19-x\sqrt{12}}}{1} = \sqrt{4}-\sqrt{3}$, then the value of x is equal to:

- (a) $\sqrt{3}+2$
- (b) $2+2\sqrt{3}$
- (c) $\sqrt{3}-2$
- (d) $2+4\sqrt{3}$

Ans. (b) :

$$\frac{\sqrt{19-x\sqrt{12}}}{1} = \sqrt{4}-\sqrt{3}$$

$$\sqrt{19-x\sqrt{12}} = \sqrt{4}-\sqrt{3}$$

Squaring both sides-

$$(\sqrt{19-x\sqrt{12}})^2 = (\sqrt{4}-\sqrt{3})^2$$

$$19-x\sqrt{12} = 4+3-2\sqrt{12}$$

$$19-x\sqrt{12} = 7-2\sqrt{12}$$

$$x\sqrt{12} = 12+2\sqrt{12}$$

$$2\sqrt{3}x = 2(6+\sqrt{12})$$

$$\sqrt{3}x = 6+\sqrt{12}$$

$$x = \frac{6+\sqrt{12}}{\sqrt{3}}$$

$$x = 2\sqrt{3}+2$$

35. Who fought the Battle of Plassey against the East India Company?

- (a) Tipu Sultan
- (b) Sirajuddaulah
- (c) Mir Jafar
- (d) Alivardi Khan

Ans. (b) : Battle of Plassey was fought between the East India Company headed by Robert Clive and the Nawab of Bengal (Siraj-Ud-Daulah) and his French Troop. The Battle of Plassey was fought at Palashi, on the banks of Bhagirathi river near Calcutta on 23 June 1757.

36. Which Nation has hosted the Commonwealth Games five times?

- (a) Australia
- (b) England
- (c) Canada
- (d) New Zealand

Ans. (a) : Australia had hosted the Commonwealth Games five times (1938, 1962, 1982, 2006 and 2018).

37. The Sahitya Academy is headquartered at:

- (a) Bangalore
- (b) New Delhi
- (c) Hyderabad
- (d) Mumbai

Ans. (b) : The headquarters of Sahitya Academy is located at New Delhi. Sahitya Academi is an organisation dedicated to the promotion of literature in the languages of India. It was founded in 1954. It organises national and regional workshops and seminars, provides research and travel grants to authors.

38. An article was sold at a gain of 12%. Had it been sold for ₹33 more, the gain would have been 14%. The cost price of the article is:

- (a) ₹1750.00
- (b) ₹1800.00
- (c) ₹1650.00
- (d) ₹1850.00

Ans. (c) : Let, CP of the article = 100

$$SP = 100 \times \frac{112}{100} = 112$$

According to the question-

$$114 - 112 \text{ unit} = 33$$

$$2 \text{ unit} = 33$$

$$1 \text{ unit} = 16.5$$

$$100 \text{ unit} = 1650$$

39. The smallest number which should be subtracted from the smallest number of four digits to make it a perfect square is:

- (a) 120
- (b) 24
- (c) 159
- (d) 39

Ans. (d) : Smallest number of four digit = 1000

3	1000
3	9
61	100
1	61
	39

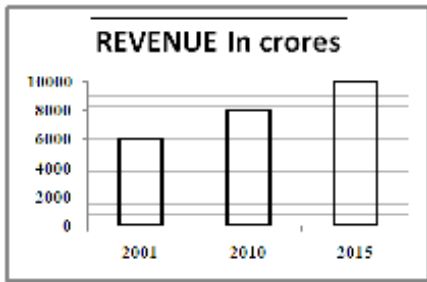
Hence, on subtracting 39 the number will be a perfect square.

40. The famous Gol Gumbaz is located in:

- (a) Punjab
- (b) Rajasthan
- (c) Karnataka
- (d) Gujarat

Ans. (c) : Gol Gumbaz, a work of architectural genius, is the most famous monument in Vijayapura, Karnataka. It is the tomb of Mohammed Adil Shah (ruled 1627-1656). It is the country's largest and the world's second largest dome, unsupported by any pillars, this mausoleum of Mohammed Adil Shah was constructed in 1656 by architect Yaqut of Dabul.

41. The revenue earned by Company A in 2001 is ₹ 6,300 crore, that earned in 2010 is ₹ 8,100 crore and that earned in 2015 is ₹ 10,800 crore. What is the ratio of the increase in revenue between 2001 to 2010 and between 2010 to 2015?



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

Ans. (b) : Given-

Revenue earned by the company in 2001 = ₹6,300 crore
Revenue earned by the company in 2010 = ₹8,100 crore
Revenue earned by the company in 2015 = ₹10,800 crore

Increase in revenue between 2001 and 2010 = ₹8100 – ₹6300 = ₹1800 crore

Increase in revenue between 2010 and 2015 = ₹10800 – ₹8100 = ₹2700 crore

Ratio of increase in revenue between 2001 to 2010 and 2010 to 2015 = $\frac{1800}{2700}$
 $= \frac{2}{3} = 2 : 3$

42. Who received the Nobel Prize for Economic Science in 2020?

- (a) George Smith (b) James P. Allison
(c) Robert B. Wilson (d) Dennis Mukherjee

Ans. (c) : The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2020 was awarded jointly to Paul R Milgrom and Robert B Wilson "for improvements to auction theory and inventions of new auction formats. David Card has been awarded the 2021 Nobel Prize in Economic Sciences "for his empirical contributions to labour economics." Joshua D Angrist and Guido W Imbens have been awarded the 2021 Nobel Prize in Economic Sciences "for their methodological contributions to the analysis of causal relationships.

43. In a certain code language, MAHARAJA is written as ZNUNENWN. How will RAINDROP be coded as in that language?

- (a) ENVAEQBC (b) ENVAQEBC
(c) EVNAQEBC (d) ENAVQEBC

Ans. (b) : Just as,

M $\xrightarrow{+13}$ Z
A $\xrightarrow{+13}$ N
H $\xrightarrow{+13}$ U
A $\xrightarrow{+13}$ N
R $\xrightarrow{+13}$ E
A $\xrightarrow{+13}$ N
J $\xrightarrow{+13}$ W
A $\xrightarrow{+13}$ N

Similarly,

R $\xrightarrow{+13}$ E
A $\xrightarrow{+13}$ N
I $\xrightarrow{+13}$ V
N $\xrightarrow{+13}$ A
D $\xrightarrow{+13}$ Q
R $\xrightarrow{+13}$ E
O $\xrightarrow{+13}$ B
P $\xrightarrow{+13}$ C

44. On which date did Jallianwala Bagh massacre take place?

- (a) 30th April, 1919 (b) 13th April, 1919
(c) 30th April, 1920 (d) 13th April, 1920

Ans. (b) : Jallianwala Bagh Massacre was an incident which took place on 13 April 1919, in which British troops fired on a large crowd of unarmed Indians in an open space known as the Jallianwala Bagh in Amritsar in Punjab.

45. If $P = 0.3 \times 0.3 + 0.03 \times 0.03 - 0.6 \times 0.03$ and $Q = 0.54$, then $\frac{P}{Q}$ is equal to:

- (a) 0.45 (b) 4.5
(c) 0.135 (d) 4.05

Ans. (c) : $P = 0.3 \times 0.3 + 0.03 \times 0.03 - 0.6 \times 0.03$

$P = 0.09 + 0.0009 - 0.018$

$P = 0.0729$

$Q = 0.54$

$\frac{P}{Q} = \frac{0.0729}{0.54} = \frac{729}{5400} = 0.135$

46. Jallianwala Bagh massacre took place during the term of Viceroy:

- (a) Lord Ripon (b) Lord Chelmsford
(c) Lord Dalhousie (d) Lord Irwin

Ans. (b) : Lord Chelmsford (1916-21) was the Viceroy of India when Jallianwala Bagh Massacre took place on 13 April, 1919. Other than this, Lucknow Pact (1916), Champaran Satyagraha (1917), Montagu's August Declaration (1917), Government of India Act (1919), Rowlatt Act (1919) and launch of Non-Cooperation and Khilafat Movements are also related with Lord Chelmsford.

47. Which colour is associated with the revolution in fertilisers?

- (a) Pink (b) Grey
(c) Black (d) Golden

Ans. (b) :

Agricultural Revolutions	Products/Aim
Grey Revolution	Fertilizers
Pink Revolution	Onion production/ Pharmaceuticals/ Prawn production
Black Revolution	Petroleum products
Golden Revolution	Fruits/Honey production/ Horticulture Development

48. In an election, there were only two candidates. The winning candidate got 48% of the total votes. His opponent got 6800 votes which was 34% of the total votes. Some of the votes were invalid. The winning margin of the candidate who won the election and the number of invalid votes respectively are:

- (a) 3000 votes, 3600 votes
(b) 2800 votes, 3600 votes

- (c) 3600 votes, 2800 votes
(d) 3200 votes, 3600 votes

Ans. (b) : Let number of total votes = 100
Votes obtained by winner candidate = 48
Votes obtained by opponent = 34
Invalid votes = $100 - (48 + 34) = 18$
Votes received by the opponent = 6800
34 unit = 6800
1 unit = 200
Winning margin = $48 - 34 = 14$
1 unit = 200
14 unit = 2800
Invalid votes = $18 \times 200 = 3600$

49. The region of planet Earth, where life exists is known as

- (a) Biosphere (b) Atmosphere
(c) Cryosphere (d) Hemisphere

Ans. (a) : The biosphere is made up of the parts of Earth where life exists. The biosphere extends from the deepest root systems of trees, to the dark environment of ocean trenches, to lush rain forests and high mountaintops.

50. Which of the following states has a Legislative Council?

- (a) Himachal Pradesh (b) Assam
(c) Madhya Pradesh (d) Andhra Pradesh

Ans. (d) : Legislative Council also known as the Vidhan Parishad is a permanent body of the state legislature. It operates at the state level, just like Rajya Sabha works in the centre. The states can have two houses namely Legislative Assembly and Legislative Council just like Lok Sabha and Rajya Sabha at centre level. At present, six states of India have Legislative Council. These are Andhra Pradesh, Telangana, Uttar Pradesh, Bihar, Maharashtra and Karnataka.

51. A sum of money of ₹2600.00 was lent out in two parts in such a way that the simple interest on the first part at 10% per annum for 5 years is the same as the interest of the second part at 9% per annum for 6 years. The part lent out at 10% is -

- (a) ₹1250.00 (b) ₹1350.00
(c) ₹1450.00 (d) ₹1150.00

Ans. (b) : Let, the amount lent at 10% = ₹x
Amount lent at 9% = ₹(2600-x)
According to the question-
$$\frac{x \times 10 \times 5}{100} = \frac{(2600 - x) \times 6 \times 9}{100}$$
$$50x = 2600 \times 54 - 54x$$
$$104x = 140400$$
$$x = 1350$$

52. In a school, the average age of boys and girls together is 16.8 years, the average age of boys is 15.4 years, and the average age of girls is 18.2 years. The ratio of number of boys to girls in the school is:

- (a) 3 : 2 (b) 1 : 1
(c) 3 : 5 (d) 2 : 3

Ans. (b) : Let the number of girls = x

The number of boys = y

According to the question-

$$(x + y) \times 16.8 = y \times 15.4 + x \times 18.2$$

$$16.8x + 16.8y = 15.4y + 18.2x$$

$$16.8y - 15.4y = 18.2x - 16.8x$$

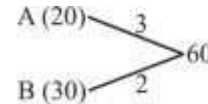
$$1.4y = 1.4x$$

$$\frac{y}{x} = \frac{1}{1} = 1:1$$

53. A can complete a piece of work in 20 days and B alone can complete the work in 30 days. Due to some other work, A had to leave the work before completion and for the last 5 days B alone did the work. The total time taken to complete the work is:

- (a) 12 days (b) 18 days
(c) 20 days (d) 15 days

Ans. (d) :



A's efficiency = 3

B's efficiency = 2

Work done by B in 5 days = $5 \times 2 = 10$

Remaining work = $60 - 10 = 50$

Time taken to complete the remaining work by (A+B)

$$= \frac{50}{3+2} = 10$$

Total taken time = $10 + 5 = 15$ days.

54. Which of the following was given the Filmfare Award for Best Film in 2020?

- (a) Andhadhun (b) Article 15
(c) Gully Boy (d) Padman

Ans. (c) : Bollywood movie Gully Boy was given the Filmfare Award for Best Film in 2020. The film has been directed by Zoya Akhtar. It is significant that, 'Thappad' was given the Filmfare Award for Best Film in 2021.

55. Given below is the marks obtained by 20 students in mathematics out of 30 marks.

7, 9, 12, 12, 13, 12, 14, 14, 14, 14, 15, 16, 17, 18, 18, 19, 20, 18, 20, 13. Then $(2 \times \text{median} - \text{mode})$ of the data is equal to:

- (a) 14 (b) 18
(c) 12 (d) 0

Ans. (a) : On arranging the given number in ascending order

7, 9, 12, 12, 12, 13, 13, 14, 14, 14, 14, 15, 16, 17, 18, 18, 19, 20, 20

$n = 20$ (even)

$$\text{Median} = \frac{\left(\frac{n}{2}\right)^{\text{th}} \text{ term} + \left(\frac{n+1}{2}\right)^{\text{th}} \text{ term}}{2}$$

$$\begin{aligned}
 &= \frac{\left(20^{\text{th}} / 2 \text{ term}\right) + \left(\frac{20+2^{\text{th}}}{2}\right) \text{ term}}{2} \\
 &= \frac{10^{\text{th}} \text{ term} + 11^{\text{th}} \text{ term}}{2} \\
 &= \frac{14+14}{2} = 14
 \end{aligned}$$

$$\text{Mode} = 14$$

$$\therefore 2 \times \text{Median} - \text{Mode} = 2 \times 14 - 14 = 14$$

56. Where is the headquarters of United Nations Security Council located?

- (a) Chicago (b) New Jersey
(c) Boston (d) New York

Ans. (d) : United Nations Security Council (UNSC) is headquartered at New York, USA. 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.

57. The Theory of Relativity is associated with:

- (a) WC Rontgen (b) Kelvin
(c) Newton (d) Albert Einstein

Ans. (d) : The theory of relativity was first introduced by Albert Einstein in 1905. It is the combination of his two interrelated theories called Special Relativity and General Relativity. Special Relativity applies to the object in absence of gravity and General Relativity explains the law of gravitation and the other forces existing in nature.

58. The numerator of a fraction is 2 less than the denominator. If the numerator is multiplied by 2 and the denominator is multiplied by 3, then

the fraction becomes $\frac{2}{9}$. The fraction is:

- (a) $\frac{5}{7}$ (b) $\frac{3}{5}$
(c) $\frac{7}{9}$ (d) $\frac{1}{3}$

Ans. (d) : Let the numerator of the fraction = x

Now, denominator = x + 2

According to the question-

$$\frac{x \times 2}{3(x+2)} = \frac{2}{9}$$

$$\frac{x}{3x+6} = \frac{1}{9}$$

$$9x = 3x + 6$$

$$x = 1$$

$$\text{Hence, required fraction} = \frac{x}{x+2} = \frac{1}{3}$$

59. If $p^2 + q^2 - r^2 = 0$, then the value of $p^6 + q^6 - r^6 \div p^2 q^2 r^2$, is:

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

Ans. (b) : Given,

$$p^2 + q^2 - r^2 = 0$$

$$p^6 + q^6 - r^6 = -3 p^2 q^2 r^2 \quad (\text{If } a + b - c = 0 \text{ then } a^3 + b^3 - c^3 = -3abc)$$

$$\therefore \frac{p^6 + q^6 - r^6}{p^2 q^2 r^2} = \frac{-3 p^2 q^2 r^2}{p^2 q^2 r^2} = -3$$

60. Three persons invested an amount of money in a business in the ratio $\frac{1}{2} : \frac{1}{3} : \frac{1}{4}$. At the end of a year, the total profit was ₹15600. The largest share received in profit will be:

- (a) ₹7200 (b) ₹7000
(c) ₹7500 (d) ₹8000

$$\text{Ans. (a) : } \frac{1}{2} : \frac{1}{3} : \frac{1}{4}$$

On multiplying by 12-

$$6 : 4 : 3$$

According to the question-

$$13 \text{ unit} = ₹15600$$

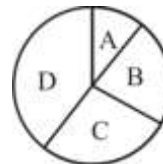
$$1 \text{ unit} = ₹1200$$

The largest share of profit = 6 unit

$$1 \text{ unit} = ₹1200$$

$$6 \text{ unit} = ₹7200$$

61. Of the 360 students who sat for class X Board exams, 10% students scored A grade, 20% students scored B grade, 30% students scored C grade and 40% scored D grade. From the given pie chart, find the total number of students who scored Grade A and Grade B.



- (a) 108 (b) 72
(c) 144 (d) 36

Ans. (a) : Total number of students = 360

$$100\% = 360$$

$$1\% = 3.6$$

Total number of students who scored Grade A and Grade B = 30%

$$1\% = 3.6$$

$$30\% = 108$$

62. Bhabha Atomic Research Centre (BARC) is located in:

- (a) Hyderabad (b) Mumbai
(c) Chennai (d) Tarapur

Ans. (b) : The Bhabha Atomic Research Centre (BARC) is India's premier nuclear research facility, headquartered in Trombay, Mumbai, Maharashtra.

63. What is Net National Product (NNP)?

- (a) NNP = GDP - Income from abroad
(b) NNP = GNP + Depreciation
(c) NNP = GNP - Depreciation
(d) NNP = GDP + Income from abroad

Ans. (c) : Net National Product (NNP) is gross national product (GNP), the total value of finished goods and services produced by a country's citizens overseas and domestically, minus depreciation. It is used to measure a nation's success in continuing minimum production standards.

64. A man invested $\frac{1}{2}$ of his capital at 5% rate of interest per annum, $\frac{1}{3}$ of his capital at 8% per annum and the remaining at 10% rate of interest per annum. His total income from the three investments is ₹820.00 in a year. The total capital invested is:
- (a) ₹16000.00 (b) ₹6400.00
(c) ₹12000.00 (d) ₹8000.00

Ans. (c) : Let, invested capital = ₹x

$$\text{Interest} = \frac{x \times \frac{1}{2} \times 5 \times 1}{100} + \frac{x \times \frac{1}{3} \times 8 \times 1}{100} + \frac{x \times \frac{1}{6} \times 10 \times 1}{100}$$

$$820 = \frac{\frac{5x}{2} + \frac{8x}{3} + \frac{10x}{6}}{100}$$

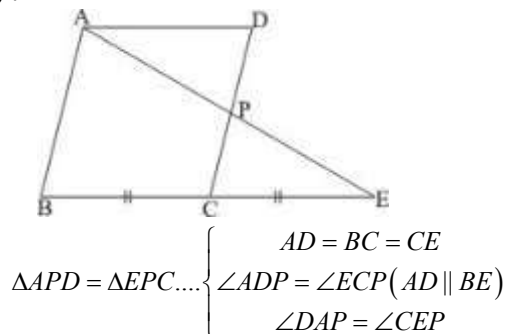
$$820 = \frac{15x + 16x + 10x}{600}$$

$$820 = \frac{41x}{600}$$

$$x = ₹12,000$$

65. ABCD is a parallelogram. Side BC is produced to E such that BC = CE. Join AE, which intersects side CD at P. The area of triangle ABE is:
- (a) equals to $\frac{1}{2}$ of the area of parallelogram ABCD
(b) equals to $\frac{1}{3}$ of the area of parallelogram ABCD
(c) equals to the area of parallelogram ABCD
(d) less than the area of parallelogram ABCD

Ans. (c) :



Area of ΔADP and ΔECP will be equal. ΔABE has the base of line AB i.e. one of the bases of ABCD. Hence, according to base area property, the area of ΔABE will be equal to the area of the parallelogram ABCD.

66. Out of the four number-pair listed, three are alike in some manner and one is different. Select the odd one.
- (a) 9 – 729 (b) 6 – 216
(c) 7 – 27 (d) 4 – 64

Ans. (c) : From the given options-

- (a) $9^3 = 729$
(b) $6^3 = 216$
(c) $7^3 = 343$ and not 27
(d) $4^3 = 64$

Hence, option (c) different from the others.

67. If $\sqrt{2} + \sqrt{x} = \sqrt{3}$, then the value of x is equal to:
- (a) $5 - 2\sqrt{6}$ (b) $5 + 2\sqrt{6}$
(c) $-2\sqrt{6} - 5$ (d) $2\sqrt{6} - 5$

Ans. (a) : Given: $\sqrt{2} + \sqrt{x} = \sqrt{3}$

$$\therefore \sqrt{x} = \sqrt{3} - \sqrt{2}$$

On squaring both sides-

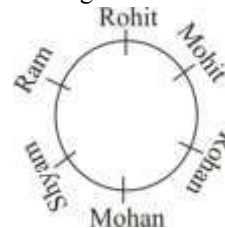
$$(\sqrt{x})^2 = (\sqrt{3} - \sqrt{2})^2$$

$$x = 3 + 2 - 2\sqrt{6}$$

$$x = 5 - 2\sqrt{6}$$

68. Six friends are sitting around a round table. Mohan is sitting opposite Rohit who is sitting between Ram and Mohit. Mohit is sitting opposite Shyam. Who is sitting opposite Rohan?
- (a) Shyam (b) Rohit
(c) Ram (d) Mohit

Ans. (c) : The seating order of six friends is as follows-



Hence, it is clear that 'Ram' is sitting opposite to Rohan.

69. If $x = a \sin t$, $y = b \tan t$, then $\frac{a^2}{x^2} - \frac{b^2}{y^2}$ is:
- (a) 1 (b) 2
(c) 0 (d) -1

Ans. (a) : Given: $x = a \sin t$

$$y = b \tan t$$

$$\frac{a^2}{x^2} - \frac{b^2}{y^2} = \frac{a^2}{a^2 \sin^2 t} - \frac{b^2}{b^2 \tan^2 t}$$

$$\begin{aligned}
 &= \frac{1}{\sin^2 t} - \frac{\cos^2 t}{\sin^2 t} \\
 &= \frac{1 - \cos^2 t}{\sin^2 t} \\
 &= \frac{\sin^2 t}{\sin^2 t} = 1
 \end{aligned}$$

70. The sum of two numbers is 1500. Their LCM is 16379. Two numbers are:

- (a) 1489, 11 (b) 1479, 21
(c) 1053, 447 (d) 1453, 47

Ans. (a) : Let the first number = x

Second number = (1500-x)

LCM = 16379

$x(1500-x) = 16379$

$x^2 - 1500x + 16379 = 0$

$x^2 - 1489x - 11x + 16379 = 0$

$x(x-1489) - 11(x-1489) = 0$

$(x-1489)(x-11) = 0$

$x = 1489, 11$

Therefore, the numbers are 1489 and 11.

71. Who gave the idea of a constituent assembly of India for the first time?

- (a) B R Ambedkar (b) M N Roy
(c) B N Rau (d) Dr. Rajendra Prasad

Ans. (b) : The idea of a constituent assembly was first proposed in 1934 by M.N. Roy. However, the actual constituent assembly was formed in 1946 on the basis of the cabinet mission plan.

72. The length of the longest pole, that could be placed in a room of dimensions 10 m, 8 m and 6 m, is:

- (a) 18 m (b) 15 m
(c) $10 \times \sqrt{2}$ m (d) 14 m

Ans. (c) : The length of the longest pole

$$= \sqrt{10^2 + 8^2 + 6^2}$$

$$= \sqrt{200} = 10\sqrt{2} \text{ m}$$

73. If x satisfies the equation $x^2 - 2x + 1 = 0$, then the value of $x^3 - \frac{1}{x^3}$ is:

- (a) 1 (b) -1
(c) 0 (d) $\frac{1}{3}$

Ans. (c) : Given: $x^2 - 2x + 1 = 0$

$$x \left(x - 2 + \frac{1}{x} \right) = 0$$

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

Putting $x = 1$,

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

$$x^3 - \frac{1}{x^3} = 1 - 1 = 0$$

74. Jan Shikshan Sansthan (JSS) operates under the aegis of:

- (a) Ministry of Human Resource Development
(b) Ministry of Skill Development and Entrepreneurship
(c) Ministry of Home Affairs
(d) Ministry of Defence

Ans. (b) : The Scheme of Jan Shikshan Sansthan (JSS) formerly known as Shramik Vidyapeeth was a unique creation of Government of India is being implemented through NGOs in the country since 1967. The scheme was renamed as Jan Shikshan Sansthan in 2000. JSS scheme was transferred from Ministry of Education (erstwhile Ministry of Human Resource Development) to Ministry of Skill Development & Entrepreneurship in July, 2018.

75. The radius of the circumcircle of an equilateral triangle of $\sqrt{3}$ unit side, is:

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

Ans. (d) : The radius of the circumcircle of an

$$\text{equilateral triangle} = \frac{a}{\sqrt{3}} \text{ unit}$$

$$= \frac{\sqrt{3}}{\sqrt{3}} = 1 \text{ unit}$$

76. A number was increased by 40% and then decreased by 40%. The net change in the number in percentage is:

- (a) 32% decrease (b) 16% increase
(c) no change (d) 16% decrease

Ans. (d) : Percentage

$$\text{change} = 40\% - 40\% - \frac{40\% \times 40\%}{100}$$

$$= -16\%$$

Here, '-' ve sign shows decrement.

77. The smallest square number which is exactly divisible by 12, 15 and 18 is:

- (a) 900 (b) 400
(c) 1225 (d) 625

Ans. (a) : LCM of 12, 15, 18 = $2 \times 2 \times 3 \times 3 \times 5 = 180$
Number = 180, 360, 540, 720, 900 etc are divisible by 180.

Therefore, the smallest number that is divisible by 12, 15, 18 is 900, which is a perfect square number.

78. Who among the following is a famous Santoor instrumentalist?

- (a) Nikhil Banerjee (b) Ustad Binda Khan
(c) Shiv Kumar Sharma (d) Sajjad Hussain

Ans. (c) : Pandit Shivkumar Sharma is an Indian music composer and santoor (a folk instrument) player from the state of Jammu and Kashmir. He is a very famous classical musician who has acquired international fame by playing the classical instrument, Santoor.

79. 49th parallel is a boundary between:

- (a) North Korea and South Korea
- (b) France and Germany
- (c) USA and Canada
- (d) India and Pakistan

Ans. (c) :	
Name of Lines/ Boundaries	Between Countries
49th Parallel	USA and Canada
38th Parallel	South Korea and North Korea
Siegfried Line	France and Germany
Radcliffe Line	India and Pakistan
Hindenburg Line	Poland and Germany
Blue Line	Lebanon and Israel

80. The first Indian Communication satellite is:

- (a) MOM
- (b) Aryabhata
- (c) Rohini
- (d) APPLE

Ans. (d) : APPLE (Ariane Passenger PayLoad Experiment) was the India's first communication satellite, successfully launched by Ariane-1, from Kourou, French Guiana on June 19, 1981.

81. What does NIU stand for in information technology?

- (a) Nominal Internal Unit
- (b) Network Interface Unit
- (c) National Information Usage
- (d) Networking Internal Unit

Ans. (b) : A Network Interface Unit (NIU) (sometimes called a network interface device) is a device that serves as a common interface for various other devices within a local area network (LAN).

82. The disease related with apple is known as:

- (a) fire blight
- (b) red rust disease
- (c) tikka disease
- (d) green ear disease

Ans. (a) : Fire blight is a plant disease, caused by the bacterium Erwinia amylovora, that can give infected plants a scorched appearance. This plant disease is mainly related to apple.

83. Choose the mirror image of CHIVALRY

- (a) YRJVAIHQ
- (b) YRJVAIHC
- (c) CHIAVYBA
- (d) YRAJVHIC

Ans. (b) : The mirror image of CHIVALRY is given in option (b).

84. Lichen is an organism which monitors:

- (a) soil pollution
- (b) air pollution
- (c) gas pollution
- (d) water pollution

Ans. (b) : Lichens are well known as sensitive indicators of air pollution, particularly for sulphur dioxide.

85. Solve the following: $\frac{1}{2} \times \frac{2}{3} - \frac{3}{4} \left(\frac{1}{2} \times \frac{1}{3} + \frac{5}{6} \right) \times \frac{4}{21} = ?$

- (a) $\frac{1}{2}$
- (b) $\frac{1}{3}$
- (c) 2
- (d) $\frac{4}{21}$

$$\text{Ans. (d) : } \frac{1}{2} \times \frac{2}{3} - \frac{3}{4} \left(\frac{1}{2} \times \frac{1}{3} + \frac{5}{6} \right) \times \frac{4}{21}$$

$$\frac{2}{6} - \frac{3}{4} \left(\frac{1}{6} + \frac{5}{6} \right) \times \frac{4}{21}$$

$$\frac{1}{3} - \frac{3}{4} \times 1 \times \frac{4}{21}$$

$$\frac{1}{3} - \frac{1}{7}$$

$$\frac{7-3}{21} = \frac{4}{21}$$

86. In a certain code language, ACCESS is written as 13351919. How will EXCELLENCE be coded as in that language?

- (a) 524351414355
- (b) 53351414123435
- (c) 52435121251435
- (d) 52345121414335

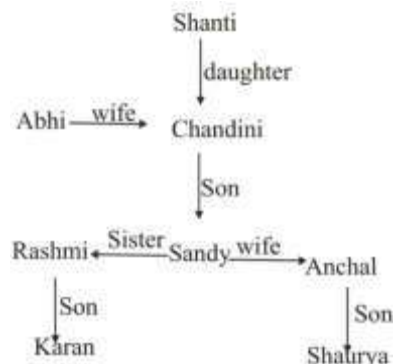
Ans. (c) : Just as,

	E	→	5		
	X	→	24		
A	→	1	C	→	3
C	→	3	E	→	5
C	→	3	L	→	12
E	→	5	L	→	12
S	→	19	E	→	5
S	→	19	N	→	14
			C	→	3
			E	→	5

87. Shanti's daughter Chandini is married to Abhi. Anchal is married to Sandy, the grandson of Shanti. Abhi's grandson is Karan. Rashmi is the mother of Karan. Shaurya is Anchal's son. How is Shaurya related to Karan?

- (a) Nephew
- (b) Son
- (c) Cousin
- (d) Brother

Ans. (c) :



It is clear that Shaurya is Karan's Cousin.

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

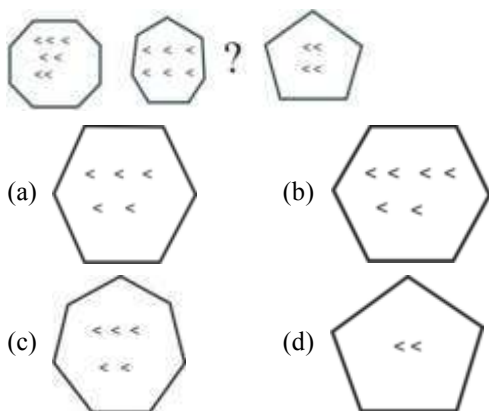
ZaF, YbE, XcD, WdC, VeB, ?

- (a) UeA (b) UaB
(c) UfA (d) UcD

Ans. (c) : The following series is follows as:

Z $\xrightarrow{-1}$ Y $\xrightarrow{-1}$ X $\xrightarrow{-1}$ W $\xrightarrow{-1}$ V $\xrightarrow{-1}$ U
a $\xrightarrow{+1}$ b $\xrightarrow{+1}$ c $\xrightarrow{+1}$ d $\xrightarrow{+1}$ e $\xrightarrow{+1}$ f
F $\xrightarrow{-1}$ E $\xrightarrow{-1}$ D $\xrightarrow{-1}$ C $\xrightarrow{-1}$ B $\xrightarrow{-1}$ A

89. Select the figure that can replace the question mark (?) in the following series.



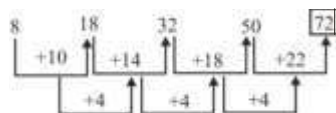
Ans. (a) : The number of signs inside the figure is 1 less than the number of side in the figure.

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

8, 18, 32, 50, ?

- (a) 68 (b) 62
(c) 72 (d) 70

Ans. (c) : The given series is follows as:



91. There are four friends Sharayu, Pinky, Tanisha and Mamta. Two study in J College one each in X College and A College. Each one is definitely good at one subject and one is good at all the subjects. The subjects are English, Science, Maths and Computer. Of those studying in J College, one is good at Maths and the other in all subjects. Tanisha is studying in A college. Pinky is good at Maths. Sharayu is not good at Science.

Find out who is good in all the subjects?

- (a) Tanisha (b) Sharayu
(c) Pinky (d) Mamta

Ans. (d) : Following the order of the college and subject of the students

Students	College	Subject
Sharayu	X	Computer
Pinky	J	Maths
Tanisha	A	Science
Mamta	J	All subjects

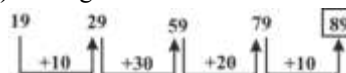
It is clear that Mamta is good at all subjects.

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

19, 29, 59, 79, ?

- (a) 89 (b) 99
(c) 119 (d) 109

Ans. (a) : The given series is follows as:



93. Which of the following conclusions can be derived from the given statement?

Students have to pay fine for late payment of exam fees.

- (a) Students follow deadline only if penalised.
(b) Many students do not pay exam fee on time.
(c) Fines for late payment of exam fees is a large source of revenue.
(d) All fees are to be paid timely, else they must pay penalty.

Ans. (d) : From the given statements only conclusion of option (d) can be correct.

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

Grasshopper : Insect :: Hyena : ?

- (a) Herbivore
(b) Mammal
(c) Reptile
(d) Amphibian

Ans. (b) : Just as Grasshopper comes under Insect. Similarly Hyena comes under Mammal.

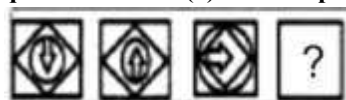
95. Which of the given options best classifies the following items:

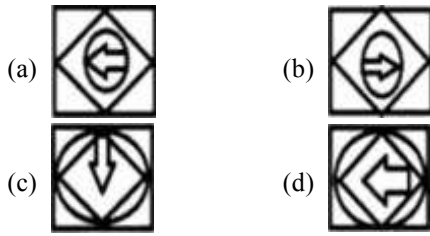
Spear, Catapult, Pistol, Rifle

- (a) Weapons (b) Cannon
(c) Battle (d) Guns

Ans. (a) : Spear, Catapult, Pistol, Rifle all are come under weapons.

96. Select the figure from among the given options that when placed in the blank block with question marks (?) will complete the pattern.





Ans. (d) : The figure given in option (d) will replace the question mark and complete the pattern.

97. Which of the following conclusions can be derived from the given statement?

For applying for the post lecturer, passing NET is mandatory.

- (a) NET is a desirable qualification for college teaching.
- (b) NET helps to make people better teachers.
- (c) NET gives one an advantage in teaching.
- (d) Only those who pass NET qualify for college teaching.

Ans. (d) : It is clear from given statement that those who pass NET are eligible for college teaching.

98. The table below gives the number of students passing an exam in a particular town.

Year	Girls	Boys
2016	128734	115526
2017	130567	124313
2018	129209	122131

Find the approximate average pass percentage in all three years, if the number of students appearing for the exam in any given year is 354000.

- (a) 68%
- (b) 71%
- (c) 74%
- (d) 73%

Ans. (b) :

Total passed students in 2016

$$= 128734 + 115526 = 244260$$

Students appeared for exam in 2016 = 354000

Passed Student's percentage in 2016 exam

$$= \frac{244260}{354000} \times 100 = 69\%$$

Total passed students in 2017 = 130567 + 124313

$$= 254880$$

Students appeared for the exam in 2017 = 354000

$$\text{Passed student's percentage in 2017} = \frac{254880}{354000} \times 100$$

$$= 72\%$$

Total passed students in 2018 = 129209 + 122131

$$= 251340$$

Students appeared for the exam in 2018 = 354000

$$\text{Passed student's percentage in 2018} = \frac{251340}{354000} \times 100 = 71\%$$

Approximate average pass percentage over three years

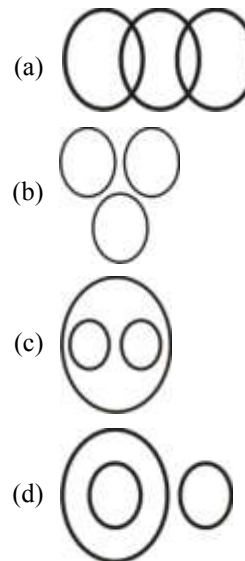
$$= \frac{69 + 72 + 71}{3} = \frac{212}{3}$$

$$= 70.66$$

$$\approx 71\%$$

99. Select the Venn diagram that best represents the relationship between the following classes

Communication, Telephone, Letter



Ans. (c) : Suitable Venn diagram of Letters, Telephone Communication is:



100. Out of the four sports listed, three are alike in some manner and one is different. Select the odd one.

Discus throw, Golf, Shot-put, Hammer throw

- (a) Discus throw
- (b) Shot-put
- (c) Hammer throw
- (d) Golf

Ans. (d) : Discus throw, Shot-put, and Hammer throw are related to each other whereas Golf is different from others.

Railway Non-Technical Popular Categories Exam-2019

Graduate and Under-Graduate Level

[Ist Stage Computer Based Test]

Exam Date : 30.12.2020]

[Time : 03:00 pm-04:30 pm

1. Find the least number, which must be subtracted from 60065 to make it a perfect square.
- (a) 40 (b) 30
(c) 20 (d) 35

Ans. (a) :

$$\begin{array}{r} 245 \\ 2 \overline{) 60065} \\ \underline{24} \\ 44 \\ \underline{44} \\ 00 \\ \underline{00} \\ 65 \\ \underline{48} \\ 17 \\ \underline{16} \\ 1 \\ \underline{0} \\ 40 \end{array}$$

Thus, by subtracting 40 from the number 60065, this number will become a perfect square.

2. What is the theme of World Environment Day 2019?
- (a) Deforestation (b) Soil pollution
(c) Air pollution (d) Water pollution

Ans. (c) : The theme of World Environment Day 2019 is 'Air Pollution' which was hosted by China . World Environment Day celebrated on 5th June every year. The event is organized by the United Nations Environment Program (UNEP). This program was started by the United Nations on 5 June 1972. The theme of World Environment Day 2021, is 'Ecosystem Restoration' which was hosted by Pakistan.

3. When was Swachh Bharat Mission launched?
- (a) 15 August 2015 (b) 2 October 2014
(c) 15 August 2014 (d) 2 October 2015

Ans. (b) : Swachh Bharat Mission was launched on 2 October 2014 in Delhi on the occasion of 145th birth anniversary of Mahatma Gandhi. The objective of Swachh Bharat Abhiyan is to end the problem of open defecation in India and to clean the roads, footpaths etc. Under the mission, all villages, gram panchayats districts, states and UTs in India are to be declared open-defecation-free (ODF), by 2 October 2019.

4. Which countries have been declared malaria-free by WHO in May 2019?
- (a) Belgium and Qatar
(b) Mauritius and Malaysia
(c) Algeria and Argentina
(d) India and Singapore

Ans. (c) : Algeria and Argentina were declared malaria free by WHO in May 2019. Malaria is a mosquito-borne disease caused by a parasite called plasmodium. This is mainly found in Africa, South America and Asia tropics and subtropical regions. This parasite is transmitted by female Anopheles mosquitoes.

5. A and B can complete a piece of work in 20 days. B and C can complete it in 30 days. A is twice as good as C in completing the work. Find in how many days will B alone complete it.

- (a) 60 days (b) 50 days
(c) 55 days (d) 65 days

Ans. (a) : One day work of A and B = $\frac{1}{20}$ part

One day work of B and C = $\frac{1}{30}$ part

Let-

A completes the work in x days.

Then, C will do the work in 2x days. (\because A is twice as good as C.)

And B completes the work in y days.

Hence, $\frac{1}{x} + \frac{1}{y} = \frac{1}{20}$ (1)

And $\frac{1}{2x} + \frac{1}{y} = \frac{1}{30}$

$$\frac{1}{y} = \frac{1}{30} - \frac{1}{2x} \quad \text{----- (2)}$$

From equation (1) and (2),

$$\frac{1}{x} + \frac{1}{30} - \frac{1}{2x} = \frac{1}{20}$$

$$\frac{1}{x} - \frac{1}{2x} = \frac{1}{20} - \frac{1}{30}$$

$$\frac{1}{2x} = \frac{3-2}{60}$$

$$x = 30$$

By putting the value of x in equation (1),

$$\frac{1}{30} + \frac{1}{y} = \frac{1}{20}$$

$$\frac{1}{y} = \frac{1}{20} - \frac{1}{30}$$

$$\frac{1}{y} = \frac{1}{60}$$

$$y = 60 \text{ days}$$

Hence, B alone complete the work = y days
= 60 days.

6. Botanical name of banyan tree is:
- (a) Ficus benghalensis
(b) Ocimum tenuiflorum
(c) Azadirachta indica
(d) Ficus religiosa

Ans. (a) : Botanical name - Vegetation

- Ficus benghalensis - Banyan
- Ocimum tenuiflorum- Holy Basil
- Azadirachta indica -Neem
- Ficus religiosa- Peepal

7. In 2020, How many countries of the world have Veto power in United Nations Security Council?

- (a) 4 (b) 7
(c) 6 (d) 5

Ans. (d) : The United Nations Security Council is the main organ of the United Nations. Its main function is to maintain international peace and security. It consists of 15 members countries, out of which 10 are temporary and 5 are permanent members i.e. (USA, UK, France, Russia and China). The consent or power of 5 permanent member countries is known as veto. The United Nations Organization was established in the year 1945.

8. Among the following words, which one will come in the middle if they are arranged as per their order in an English dictionary?

1. Dance 2. Degree 3. Dare 4. Dear 5. Development

- (a) Degree (b) Dare
(c) Dear (d) Dance

Ans. (c) : On arranging the words according to the English dictionary.

Dance > Dare > **Dear** > Degree > Development

Hence, the word 'Dear' will come in the middle.

9. Buying or selling goods electronically is known as:

- (a) finance (b) multimedia
(c) money control (d) e-commerce

Ans. (d) : The full form of e-commerce is 'electronic commerce'. Buying and selling of goods through electronic means is known as e-commerce.

10. How many members are there in Rajya Sabha?

- (a) 250 (b) 225
(c) 230 (d) 240

Ans. (a) : A provision has been made about the composition of the Rajya Sabha in Article 80 of the Constitution of India. Rajya Sabha is a permanent body. It cannot be terminated. Rajya Sabha consist of 250 members, out of which 238 are elected by the states and 12 members are nominated by the President. The term of its members is 6 years.

11. Four numbers are given, out of which three are a like in some manner and one is different. Select the number that is different from the rest.

- (a) 59 (b) 170
(c) 82 (d) 50

Ans. (a) : All numbers except 59 are composite numbers. Whereas 59 is a prime number.

12. The average salary of the entire staff in an office is ₹3,560 per month. The average salary of the officers is ₹5,400 per month and that of the non-officers is ₹2,600 per month. If the number of officers is 12, find the number of non-officers in the office.

- (a) 24 (b) 25
(c) 22 (d) 23

Ans.(d) : Let- the numbers of non-officers in the office = x
As per the question-

$$2600x + 5400 \times 12 = 3560 (12 + x)$$

$$2600x + 64800 = 42720 + 3560x$$

$$3560x - 2600x = 64800 - 42720$$

$$960x = 22080$$

$$x = \frac{22080}{960} = 23$$

Therefore, the number of non-officers in the office = (x) = 23.

13. Which is the highest literate state of India as per Census 2011?

- (a) Goa (b) Lakshadweep
(c) Mizoram (d) Kerala

Ans. (d) : According to the census 2011, Kerala is the most literate state in India, while Bihar is the least literate state. The first census in India was conducted in the year 1872 during the tenure of Governor-General Lord Mayo and the systematic study of census was done in 1881.

14. Who launched the Golden Quadrilateral Project?

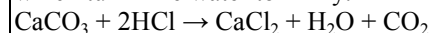
- (a) Atal Bihari Vajpayee (b) Manmohan Singh
(c) Jawaharlal Nehru (d) Narendra Modi

Ans. (a) : The Golden Quadrilateral project was launched by Atal Bihari Bajpayee in 2001. By this project the country's big cities will be connected by road in which the government has covered 5846 km road and launched the Golden Quadrilateral scheme of the four major metropolitan cities of the country - Delhi (North), Chennai (South), Kolkata (East) and Mumbai (West).

15. A solution reacts with chalk powder to give a gas that turns lime-water milky. The solution contains:

- (a) $MgCl_2$ (b) $AlCl_3$
(c) HCl (d) $NaCl$

Ans. (c) : The chalk powder contains calcium carbonate, which on reaction with HCl releases CO_2 gas which turn lime water to milky.



The gas thus formed is an effervescent carbon dioxide gas when calcium carbonate reacts with hydrochloric acid. The carbon dioxide gas also acts as an extinguisher for fires.

16. Which of the following states has implemented 'Kudumbashree', a women oriented community-based poverty education programme?

- (a) Kerala (b) West Bengal
(c) Andhra Pradesh (d) Tamil Nadu

Ans. (a) : In 1998 woman oriented community-based poverty allevation program Kudumbashree was launched by the Kerala Government . Its main objective is to improve the standard of living of women in rural areas by setting up micro credit and productive enterprises.

17. If $x : y = 4 : 9$, find $9x + 4y : 18x + 3y$

- (a) 3 : 2 (b) 2 : 3
(c) 8 : 11 (d) 11 : 8

Ans. (c) : Given- $x : y = 4 : 9$

On putting the value of x and y 4 and 9 respectively,

$$\frac{9x + 4y}{18x + 3y} = \frac{9 \times 4 + 4 \times 9}{18 \times 4 + 3 \times 9}$$

$$= \frac{72}{99}$$

$$= 8 : 11.$$

18. The sum of two positive numbers is 384 and their HCF is 24. How many pairs of such numbers can be formed?

- (a) 4 (b) 3
(c) 8 (d) 5

Ans. (a) : Let-

Both the numbers be $24x$ and $24y$ respectively,

$$384 = 24x + 24y$$

$$384 = 24(x + y)$$

$$x + y = \frac{384}{24}$$

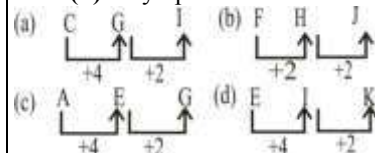
$$x + y = 16$$

Hence, the number of pairs = (1, 15) (3, 13) (5, 11) (7, 9) = 4

19. In the four letter-clusters given below, three are like in some manner and one is different. Select the odd one.

- (a) CGI (b) FHJ
(c) AEG (d) EIK

Ans. (b) : By option-



Hence, option (b) is inconsistent with other letter groups.

20. When was India's first satellite, the Aryabhata spacecraft launched?

- (a) 19 April, 1975 (b) 19 April, 1976
(c) 10 June, 1980 (d) 10 June, 1979

Ans. (a) : The Aryabhata spacecraft, named after the famous Indian astronomer and mathematician Aryabhata was, India's first satellite it was completely designed and fabricated in India and launched by a Soviet Kosmos-3M rocket from Kapustin Yar on April 19, 1975.

21. If '+' = '÷', '×' = '+', '-' = '×' and '÷' = '-', then which of the following equations is correct?

- (a) $36 \times 6 + 7 \div 2 = 20$
(b) $36 - 6 + 3 \times 5 \div 3 = 74$
(c) $36 \div 6 + 3 \times 5 - 3 = 45$
(d) $36 + 6 - 3 \times 7 \div 3 = 24$

Ans. (b) : By option (b)-

$$36 - 6 + 3 \times 5 \div 3 = 74$$

On changing the sign according to the question-

$$36 \times 6 \div 3 + 5 - 3 = 74$$

$$36 \times 2 + 5 - 3 = 74$$

$$72 + 5 - 3 = 74$$

$$77 - 3 = 74$$

$$74 = 74$$

Hence, option (b) is correct option.

22. A and B can complete a work in 40 days and 60 days respectively. They work together for some days and B leaves the job. If A completes the rest of the work in 10 days, find for how many days B worked.

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

Ans. (c) : A's work for 1 day = $\frac{1}{40}$ part

B's work for 1 day = $\frac{1}{60}$ part

Let-

B leave the work after working x days, then the work done by B in x days = $\frac{x}{60}$ part

And work done by A in (x + 10) days = $\frac{x + 10}{40}$ part

Now,

$$\frac{x}{60} + \frac{(x + 10)}{40} = 1$$

$$\frac{2x + 3(x + 10)}{120} = 1$$

$$2x + 3x = 120 - 30$$

$$5x = 90$$

$$x = 18$$

Hence B worked for 18 days.

23. A man travels a distance of 420 km by train which moves at the speed of 75 km/h and returns back by car at the speed of 50 km/h. find his average speed for the whole journey.

- (a) 60 km/h (b) 66 km/h
(c) 68 km/h (d) 65 km/h

Ans. (a) : According to the question-

$$\text{Average Speed} = \frac{2xy}{x + y}$$

$$= \frac{2 \times 75 \times 50}{75 + 50}$$

$$= \frac{7500}{125}$$

$$= 60 \text{ km/h}$$

24. What is total forest cover of India as per ISFR report 2019?

- (a) 21.05% of the total geographical area of the country
(b) 24.39% of the total geographical area of the country

- (c) 24.16% of the total geographical area of the country
(d) 21.67% of the total geographical area of the country

Ans. (d) : The Total Forest Cover is 21.67% of the geographical area of the country. The Total Forest and Tree cover is 24.56% of the geographical area of the country.

Largest forest cover in India: Madhya Pradesh > Arunachal Pradesh > Chhattisgarh > Odisha > Maharashtra.

Forest cover as percentage of total geographical area: Mizoram (85.41%) > Arunachal Pradesh (79.63%) > Meghalaya (76.33%) > Manipur (75.46%) > Nagaland (75.31%).

States/UTs showing significant gain in forest cover: Karnataka > Andhra Pradesh > Kerala > J&K

States showing loss in forest cover: Manipur > Arunachal Pradesh > Mizoram. It is the 16th biennial assessment of India's forests by Forest Survey of India, an organisation under the Ministry of Environment, Forest and Climate Change (MoEFCC).

25. If $x^4 + \frac{1}{x^4} = 194$, find $x^3 + \frac{1}{x^3}$

(a) 54 (b) 56
(c) 52 (d) 62

Ans. (c) : Given-

$$x^4 + \frac{1}{x^4} = 194, \quad x^3 + \frac{1}{x^3} = ?$$

Let,

$$x^4 + \frac{1}{x^4} = 194 = k_1$$

$$\therefore x^2 + \frac{1}{x^2} = \sqrt{k_1 + 2}$$

$$\therefore x^2 + \frac{1}{x^2} = \sqrt{194 + 2}$$

$$x^2 + \frac{1}{x^2} = 14 = k_2$$

$$\text{Again from } x + \frac{1}{x} = \sqrt{k_2 + 2}$$

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

$$x + \frac{1}{x} = 4 \quad \text{----- (i)}$$

On cubing the both side of equation (i),
From equation (i)-

$$4^3 = x^3 + \frac{1}{x^3} + 3 \times 4$$

$$x^3 + \frac{1}{x^3} = 64 - 12$$

$$\boxed{x^3 + \frac{1}{x^3} = 52}$$

26. By selling an article for ₹45,000, a man loses 10%. For what amount should he sell it so as to gain 15%.
- (a) ₹75,500 (b) ₹57,500
(c) ₹55,700 (d) ₹67,500

Ans. (b) : Cost price of the article = $45000 \times \frac{100}{100 - 10}$
 $= 45000 \times \frac{100}{90}$
 $= 50,000$

The selling price of the article when sold at a profit of 15%

$$= \text{Cost price} \times \frac{100 + 15}{100}$$

$$= 50000 \times \frac{115}{100}$$

$$= ₹57500.$$

27. Which of the following is the classical dance form of erstwhile Andhra Pradesh?

- (a) Kuchipudi (b) Kathak
(c) Bharatnatyam (d) Kathakali

Ans. (a) : Kuchipudi is the classical dance form of Andhra Pradesh.

Eight classical dance form of India are-

Classical Dance - States

1. Bharatanatyam - Tamil Nadu
2. Kathak - Northern India (UP)
3. Kathakali - Kerala
4. Kuchipudi - Andhra Pradesh
5. Manipuri - Manipur
6. Mohiniyattam - Kerala
7. Odissi - Odisha
8. Sattriya - Assam

28. Simplify: $\frac{25 + 3 \text{ of } 8 - 4}{27 - 3 \text{ of } (8 - 4)}$

- (a) 5 (b) $\frac{37}{15}$
(c) 3 (d) 4

Ans. (c) : Given-

$$\frac{25 + 3 \text{ of } 8 - 4}{27 - 3 \text{ of } (8 - 4)}$$

$$\Rightarrow \frac{25 + 24 - 4}{27 - 3 \times 4}$$

$$\Rightarrow \frac{25 + 20}{27 - 12}$$

$$\Rightarrow \frac{45}{15} = 3$$

29. $2(\sin^6 \theta + \cos^6 \theta) - 3(\sin^4 \theta + \cos^4 \theta)$ is equal to:

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

Ans. (c) : $2(\sin^6 \theta + \cos^6 \theta) - 3(\sin^4 \theta + \cos^4 \theta) = ?$

Formula- $a^3 + b^3 = (a + b)(a^2 + b^2 - ab)$

$$= 2[(\sin^2 \theta)^3 + (\cos^2 \theta)^3] - 3[\sin^4 \theta + \cos^4 \theta]$$

$$= 2(\sin^2 \theta + \cos^2 \theta)[\sin^4 \theta + \cos^4 \theta - \sin^2 \theta \cos^2 \theta] - 3(\sin^4 \theta + \cos^4 \theta)$$

$$= 2\sin^4 \theta + 2\cos^4 \theta - 2\sin^2 \theta \cos^2 \theta - 3\sin^4 \theta - 3\cos^4 \theta$$

$$= -\sin^4 \theta - \cos^4 \theta - 2\sin^2 \theta \cos^2 \theta$$

$$= -(\sin^2 \theta + \cos^2 \theta)^2 = -1$$

30. Which year was the Beti Bachao, Beti Padhao yojana launched?

- (a) 2017 (b) 2014
(c) 2015 (d) 2016

Ans. (c) : Beti Bachao Beti Padhao (BBBP) Scheme was launched by the Hon'ble Prime Minister Narendra Modi on 22nd January, 2015 in Panipat, Haryana. the scheme was launched in order to prevent gender based sex selective elemination.

31. In Computer field, OLE is the abbreviation of:

- (a) Object Linking and Enabling
(b) Object Location Enabling
(c) Object Linking Extension
(d) Object Linking and Embedding

Ans. (d) : OLE was originally an acronym for Object Linking and Embedding. Parts of OLE is not related to linking and embedding are now the part of active technology. It is a proprietary technology developed by Microsoft.

32. Who devised the policy of Doctrine of Lapse?

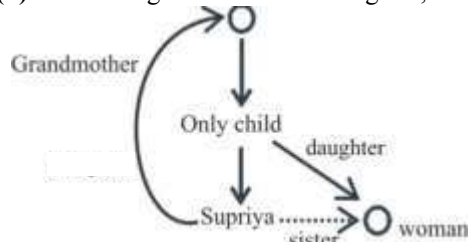
- (a) Lord Hastings (b) General Dyer
(c) Lord Dalhousie (d) Lord Clive

Ans. (c) : Doctrine of lapse, in Indian history, is formula devised by Lord Dalhousie, Governor-General of India (1848–56), to deal with questions of succession to Hindu Indian states. According to Hindu law, an individual or a ruler without natural heirs could adopt a person who would then have all the personal and political rights of a son. Dalhousie asserted the paramount power's right of approving such adoptions and of acting at discretion in their absence in the case of dependent states. The first states that were annexed under this policy was Satara in 1848.

33. Pointing to woman, Supriya said, "This woman is the daughter of the only one child of my grandmother."How is the woman related to Supriya?

- (a) Sister-in-law (b) Mother
(c) Grandmother (d) Sister

Ans. (d) On making blood relations diagram,



So, it is clear that the woman is Supriya's sister.

34. Out of three numbers, first number is twice of the second and thrice of the third number. If the average of the three numbers is 880, what is the smallest number?

- (a) 420 (b) 460
(c) 840 (d) 480

Ans. (d) : Let-

Third number = $2x$
Second number = $3x$
First number = $6x$

According to the question-

$$\frac{2x + 3x + 6x}{3} = 880$$

$$\frac{11x}{3} = 880$$

$$x = 240$$

First number, $6x = 240 \times 6 = 1440$

Second number, $3x = 240 \times 3 = 720$

Third number, $2x = 240 \times 2 = 480$

\therefore Hence, the smallest number is 480.

35. A man walks around a circular pond exactly once. If his step is 44 cm long and he takes 700 steps to complete one round of the pond, find the area of the pond.

- (a) 7546 m^2 (b) 6546 m^2
(c) 7456 m^2 (d) 6574 m^2

Ans. (a) : According to the question-

$$700 \times 44 = 2\pi r$$

$$r = \frac{700 \times 7 \times 44}{22 \times 2}$$

$$r = 4900 \text{ cm}$$

$$\boxed{r = 49 \text{ m}}$$

Hence, area of the pond = πr^2

$$= \frac{22}{7} \times 49 \times 49$$

$$= 7546 \text{ m}^2$$

36. What is the SI unit of force?

- (a) Newton (b) Dyne
(c) Pascal (d) Kip

Ans. (a) : The SI unit of force is Newton, symbol N. Newton's Second Law of Motion is defined as Force is equal to the rate of change of momentum. For a constant mass, force equals mass times acceleration. $F=ma$.

37. Simplify $245 - [135 - \{84 \div 4 \text{ of } 3 - (11 - 12 \div 3)\}]$

- (a) 110 (b) 100
(c) 120 (d) 90

Ans. (a) : $245 - [135 - \{84 \div 4 \text{ of } 3 - (11 - 12 \div 3)\}]$

$$= 245 - [135 - \{84 \div 4 \times 3 - 11 + 12 \times \frac{1}{3}\}]$$

$$= 110 + [84 \div 12 - 11 + 4]$$

$$= 110 + [7 - 7]$$

$$= 110$$

38. When was Indian Space Reserch Committee formed?

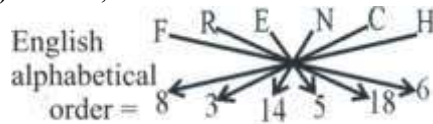
- (a) 1961 (b) 1963
(c) 1965 (d) 1962

Ans. (d) : India decided to go to space when Indian National Committee for Space Research (INCOSPAR) was set up by the Government of India in 1962. With the visionary Dr Vikram Sarabhai at its helm, INCOSPAR set up the Thumba Equatorial Rocket Launching Station (TERLS) in Thiruvananthapuram for upper atmospheric research. Indian Space Research Organisation, (ISRO) formed in 1969, superseded the erstwhile INCOSPAR.

39. In a certain code language, 'FRENCH' is written as '83145186', 'HAPPEN' is written as '145161618'. What is the code for 'GERMAN' in that code language?

- (a) 151121859 (b) 141131857
(c) 151318517 (d) 1411211959

Ans. (b) : Just as,



And,



Similarly,



Hence, 'GERMAN' = 141131857

40. When was the Dowry Prohibition Act commenced?

- (a) 1963 (b) 1960
(c) 1961 (d) 1965

Ans. (c) Dowry Prohibition Act, Indian law, enacted on May 1, 1961, intended to prevent the giving or receiving of a dowry. Under the Dowry Prohibition Act, dowry includes property, goods, or money given by either party to the marriage, by the parents of either party, or by anyone else in connection with the marriage. There is a provision of 5 years imprisonment and fine of ₹15,000 for receiving and giving dowry.

41. How many categories are there of Nobel Prize?

- (a) 5 (b) 7
(c) 6 (d) 4

Ans. (c) : Nobel Prize are given in 6 different fields i.e. Medicine, Economics, Literature, Peace, Physics and Chemistry. The Nobel Prize is given every year on 10 December in memory of Alfred Nobel. It was started in the year 1901.

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

Statements:

I. All D are A.

II. No A is C.

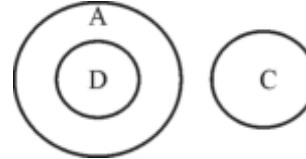
Conclusions:

I. No D is C

II. Some C are D

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

Ans. (c) : The Venn diagram relationship is as follows,



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

43. The sum of two numbers is 5 times their difference. If the smaller number is 24, find the larger number.

- (a) 48 (b) 30
(c) 36 (d) 32

Ans. (c) Let the larger number = x

Smaller number = y

According to the question-

$$(x + y) = 5(x - y)$$

Given-

Smaller number = 24, Larger number = ?

$$\Rightarrow \frac{x + y}{x - y} = \frac{5}{1}$$

$$\Rightarrow \frac{x}{y} = \frac{6}{4}$$

$$\therefore \frac{x}{y} = \frac{3}{2}$$

On putting the value of y = 24,

$$\frac{x}{24} = \frac{3}{2} \Rightarrow x = 36$$

Hence, larger number = 36

44. If $15 \times 71 = 84$, $92 \times 23 = 57$, $37 \times 44 = 84$, then $54 \times 32 = ?$

- (a) 51 (b) 87
(c) 54 (d) 91

Ans. (a) : Just as,

$$15 \times 71 = 84$$

$$(7 + 1)(5 - 1) = 84$$

And $92 \times 23 = 57$

$$(2 + 3)(9 - 2) = 57$$

And $37 \times 44 = 84$

$$(4 + 4)(7 - 3) = 84$$

Similarly,

$$54 \times 32 = ?$$

$$(3 + 2)(5 - 4) = 51$$

Hence, $? = 51$

45. In a firm, the ratio of male and female officers is in the ratio of 4 : 7. If 50 male officers and 100 female officers are shifted to another firm, then the ratio of male and female officers becomes 7 : 12. Find the number of male officers before shifting in the firm.

(a) 450 (b) 400
(c) 300 (d) 500

Ans. (b) : Let-

The the number of male be $4x$ and the number of female in the firm is $7x$.

According to the question-

$$\frac{4x - 50}{7x - 100} = \frac{7}{12}$$

$$48x - 600 = 49x - 700$$

$$x = 100$$

Hence, the number of male executives in the firm before transfer = $4x = 4 \times 100 = 400$.

46. Which is India's newest nuclear power plant?

(a) Kaiga (b) Kalpakkam
(c) Kudankulam (d) Tarapur

Ans. (c) : India's newest nuclear power plant is Kudankulam. The plant was established in collaboration with Russia. Kudankulam is India's first nuclear power plant which is used Pressurized Water Reactor (PWR) technology. It is located in Tamil Nadu, India.

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

8, ?, 30, 105, 472.5

(a) 13 (b) 11
(c) 12 (d) 14

Ans. (c) : The given series are as follows-

$$\begin{array}{ccccccc} 8 & & 12 & & 30 & & 105 & & 472.5 \\ & \nearrow & & \nearrow & & \nearrow & & \nearrow & \\ & 8 \times 1.5 & & 12 \times 2.5 & & 30 \times 3.5 & & 105 \times 4.5 & \end{array}$$

Hence, $[? = 12]$

48. When was the provision of Bharat Ratna introduced?

(a) 1952 (b) 1954
(c) 1955 (d) 1950

Ans. (b) : The provision (initiated) of Bharat Ratna was done by the then President Dr. Rajendra Prasad on January 2, 1954. The first award was given to Chakravarti Raj Gopalachari, CV Raman and Sarvepalli Radha Krishnan in the year 1954. The original statutes did not provide for posthumous awards but were amended in January 1955 to permit them.

49. SAARC comprises how many Member States?

(a) 10 (b) 12
(c) 8 (d) 7

Ans. (c) : The South Asian Association for Regional Cooperation (SAARC) is an economic and political organization of eight countries in South Asia. It was established in 1985 when the Heads of State of Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka formally adopted the charter. Afghanistan joined as the 8th member state of SAARC in 2007. Its headquarters is in Kathmandu, Nepal.

50. Who among the following was the President of Indian National congress in 1931?

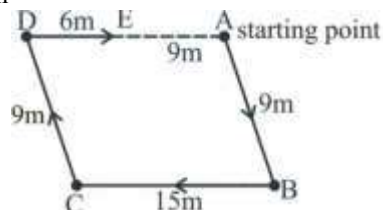
(a) Dr Rajendra Prasad
(b) Nellie Sengupta
(c) Subhash Chandra Bose
(d) Vallabhbhai Patel

Ans. (d) : The Indian National Congress was established in the year 1885. Its first session was held in Mumbai under the chairmanship of Womesh Chandra Bannerjee. The 46th session of the Congress was held in Karachi in the year 1931 under the chairmanship of Sardar Vallabhbhai Patel. Resolution on Fundamental Rights and Economic Programme was drafted by Pt. Nehru in this session.

51. Radha walks a distance of 9m towards the South-East. Then she walks 15 m towards the West. From here, she walks 9 m towards the North-West. Finally she walks 6 m towards the East and stands at the point. How far is she standing from the starting point?

(a) 11 m (b) 13 m
(c) 10 m (d) 9 m

Ans. (d) : On drawing the diagram according to the question-



$$EA = 15m - 6m = 9m$$

Hence, Radha is now at a distance of 9 m from the starting point.

52. Symbol of Methane is

(a) CH_2 (b) CH_1
(c) CH_3 (d) CH_4

Ans. (d) : The symbol for methane is CH_4 , it is a hydrocarbon (contains one carbon and four hydrogen atoms). It is used as a fuel. Methane is a greenhouse gas and it is the first member of the alkane series (C_nH_{2n+2}).

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

70, 72, 78, 80, ?, 88, 94

(a) 86 (b) 80
(c) 74 (d) 96

Ans. (a) : The given series are as follows-

$$\begin{array}{ccccccc} 70 & & 72 & & 78 & & 80 & & 86 & & 88 & & 94 \\ & \nearrow & & \nearrow & & \nearrow & & \nearrow & & \nearrow & & \nearrow & \\ & +2 & & +6 & & +2 & & +6 & & +2 & & +6 & \end{array}$$

Hence, $[? = 86]$

54. Anil Kumar took a loan of ₹24,000 with simple interest for as many years as the rate of interest. If he paid ₹19,440 as interest at the end of the loan period, what was the rate of interest?

(a) 8.5% (b) 10%
(c) 8% (d) 9%

Ans. (d) : According to the question-

$$P = ₹24000$$

$$SI = ₹19440$$

$$T = r \text{ years}$$

$$R = r$$

From-

$$SI = \frac{P \times R \times T}{100}$$

$$19440 = \frac{24000 \times r \times r}{100}$$

$$r^2 = \frac{19440}{240}$$

$$r^2 = 81$$

$$r = 9\%$$

55. When the integer m is divided by 8, the remainder is 5. What is the remainder if $7m$ is divided by 8?

- (a) 4 (b) 6
(c) 3 (d) 5

Ans. (c) Putting $m = 13$ and dividing by 8 leaves a remainder of 5.

$$\frac{13}{8} = 1 \text{ (Remainder = 5)}$$

If $7m$ is divided by 8,

$$\frac{7m}{8} = \frac{7 \times 13}{8} = \frac{91}{8} = 11 \text{ (Remainder = 3)}$$

56. How many wars were fought by the British with Mysore?

- (a) 4 (b) 5
(c) 3 (d) 6

Ans. (a) There were four series of wars fought between the British and the Kingdom of Mysore.

- The FIRST Anglo-Mysore War (1767-69).
- The Second Anglo-Mysore War (1780-84).
- The Third Anglo-Mysore War (1790-92).
- The Fourth Patham Anglo-Mysore War (1799).

57. The length, breadth and height of a cuboid are 27cm, 18 cm and 21 cm respectively. How many cubes of side 3 cm can be cut from the cuboid?

- (a) 278 (b) 368
(c) 378 (d) 738

Ans. (c) : Let- x cube be cut from the cuboid.

According to the question-

$$x = \frac{27 \times 18 \times 21}{3 \times 3 \times 3}$$

$$x = 378$$

58. How many cities were selected in 2016 first batch to be develop as smart cities of India?

- (a) 15 (b) 10
(c) 25 (d) 20

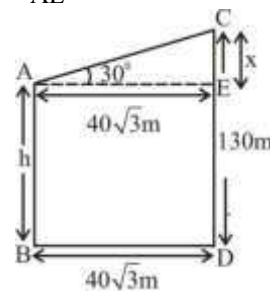
Ans. (d) : Under the Smart City Project in India, 20 cities were selected in the first batch in the year 2016. Smart City Mission was started by the Central Government in June 2015, the objective is to promote those cities which provide basic infrastructure of the country to make 100 such smart cities.

59. The horizontal distance between two towers is $40\sqrt{3}$ m. The angle of depression of the top of the first tower when seen from the top of the second tower is 30° . If the height of the second tower is 130m, find the height of the first tower.

- (a) 85 m (b) 90 m
(c) 80 m (d) 95 m

Ans. (b) : In $\triangle ACE$,

$$\tan 30^\circ = \frac{x}{AE}$$



$$\tan 30^\circ = \frac{x}{40\sqrt{3}}$$

$$x = 40\sqrt{3} \times \frac{1}{\sqrt{3}}$$

$$x = 40\text{m}$$

Hence, the height of second tower $(h) = (130 - x)$
 $= (130 - 40)$

$$h = 90\text{m}$$

60. What is the approximate total length of coastline of India including the coastline of Lakshdweep Islands and Andaman & Nicobar Islands?

- (a) 5717 km (b) 5423 km
(c) 4523 km (d) 7517 km

Ans. (d) : The total length of the coastal border of India is 7517 km. India is the seventh largest country in the world (in terms of area). The state of Gujarat has the longest coastline in India. There are 9 coastal states in India which are Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Odisha and West Bengal and the Union Territories- Puducherry, Daman-Div, Andaman and Nicobar and Lakshadweep.

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

5	4	141
6	2	220
7	3	?

- (a) 328 (b) 352
(c) 284 (d) 296

Ans. (b) : Just as,

In First row-

$$5^3 + 4^2 = 125 + 16 = 141$$

In second row-

$$6^3 + 2^2 = 216 + 4 = 220$$

Similarly-

In third row-

$$7^3 + 3^2 = 343 + 9 = \boxed{352}$$

Hence, $\boxed{? = 352}$

62. In $\triangle ABC$, $\angle A = 90^\circ$, $AB = 6$ cm and $AC = 8$ cm. If AD is perpendicular to BC , then AD is equal to:

- (a) 4.6 cm (b) 4.8 cm
(c) 4.4 cm (d) 3.8 cm

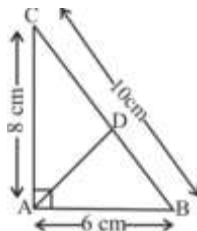
Ans. (b) : From the Pythagoras theorem-

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

$$6^2 + 8^2 = BC^2$$

$$BC^2 = 36 + 64$$

$$\boxed{BC = 10\text{cm}}$$



Now, $AD = \frac{AC \times AB}{BC}$ ($\because \triangle ABC \sim \triangle ADB$)

$$= \frac{8 \times 6}{10}$$

$$= \frac{48}{10} = 4.8\text{cm}$$

63. If $\sqrt{1225 \times \sqrt{32 \div x}} = 70$, find the value of x .

- (a) 16 (b) 4
(c) 8 (d) 2

Ans. (d) : Given-

$$\sqrt{1225 \times \sqrt{32 \div x}} = 70$$

On squaring both sides-

$$1225 \times \sqrt{32 \div x} = 4900$$

Again squaring both sides,

$$(1225)^2 \times 32 \div x = (4900)^2$$

$$x = \frac{(1225)^2}{(4900)^2} \times 32$$

$$x = \frac{48020000}{24010000}$$

$$x = 2$$

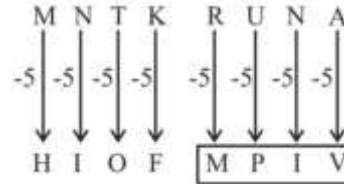
64. Select the option that is related to the third letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster.

MNTK : HIOF :: RUNA : ?

- (a) MPJV (b) VZSF
(c) MPIV (d) NPIU

Ans. (c) : Just as,

Same as,



Hence, $\boxed{? = MPIV}$

65. If the length and breadth of a rectangular plot of land are increased by 10% and 8% respectively, then what will be increase or decrease percentage area.

- (a) 16.8% decrease (b) 18.8% decrease
(c) 16.8% increase (d) 18.8% increase

Ans. (d) : From net percentage change =

$$\left(x + y + \frac{xy}{100} \right) \%$$

$$\text{Required \%} = \left(10 + 8 + \frac{10 \times 8}{100} \right)$$

$$= 18 + \frac{80}{100}$$

$$= 18.8\% \text{ growth}$$

66. What is the freezing point of water on Kelvin scale?

- (a) 173.15 K (b) 373.15 K
(c) 473.15 K (d) 273.15 K

Ans. (d) : The freezing point of water is 273.15 K on the Kelvin scale. SI unit of Temperature measurement is Kelvin. The chemical formula of water is H_2O . At $4^\circ C$ water has maximum density and minimum volume.

67. Where are the Summer Olympic Games going to be held in 2021?

- (a) Tokyo (b) Paris
(c) PyeongChang (d) Beijing

Ans. (a) : In 2021, the Summer Olympic Games were held in Tokyo, Japan. The first Olympic Games were conducted in 1896. The Olympic Games were to be held in Tokyo in 2020, but due to Corona pandemic the event took place in 2021. Its mascot was Miraitowa and Someity. In this Olympic India won 7 medals (1 gold + 2 silver + 4 bronze). Neeraj Chopra won the gold medal in javelin throw.

68. Around which year did the construction of Taj Mahal Complex begin?

- (a) 1641 AD (b) 1632 AD
(c) 1651 AD (d) 1621 AD

Ans. (b) : The construction of the Taj Mahal Complex started in 1632. It was built by the Mughal Emperor Shah Jahan in the memory of his wife Mumtaz Mahal. The architect of Taj Mahal was Ustad Ahmad Lahori. The Taj Mahal is a masterpiece of Mughal architecture. In 1983, UNESCO included the Taj Mahal in the list of World Heritage sites.

69. Who discovered a cell?

- (a) Theodor Schwann (b) Robert Hooke
(c) Matthias Schleiden (d) Rudolf Virchow

Ans. (b) : The cell was discovered by Robert Hooke in 1665. Cell is the structural and functional unit of living things.

70. Kolleru lake is located in which Indian state?

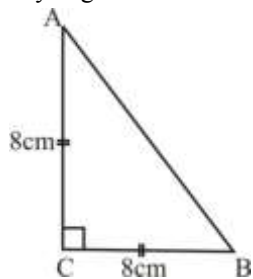
- (a) Andhra Pradesh (b) Maharashtra
(c) Kerala (d) Rajasthan

Ans. (a) : Kolleru Lake is located in the state of Andhra Pradesh. This lake is the one of the largest freshwater lakes in the country. It is situated in the middle of the Godavari and Krishna River. It was considered a wildlife sanctuary under the Wildlife Conservation Act, 1972 in 1999. It was included as a wetland under the International Ramsar Convention. Atapaka is a bird sanctuary in Kolleru which has become the only safe breeding place of migratory birds Stork and Grapellicle.

71. Triangle ABC is an isosceles triangle in which $\angle C = 90^\circ$. If $AC = 8$ cm, find AB.

- (a) 6 cm (b) 8 cm
(c) $8\sqrt{2}$ cm (d) 10 cm

Ans. (c) : Since, triangle ABC is an isosceles triangle. Hence, $AC = BC = 8$ cm
From the Pythagorean theorem-



$$\begin{aligned}(AB)^2 &= (AC)^2 + (BC)^2 \\ &= 8^2 + 8^2 \\ &= 64 + 64 \\ (AB)^2 &= 128 \\ &= \boxed{AB = 8\sqrt{2}\text{cm}}\end{aligned}$$

72. Which part of the Constitution of India contains Fundamental Rights of the citizens of India?

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

Ans. (d) : Citizens of India have Fundamental Rights under Part III of the Constitution of India. Description of Articles 12-35 is included in Part III. Fundamental Rights i.e. Part III of the Constitution is called Magna Carta.

There are six fundamental rights (Article 12-35) recognised by the Indian Constitution:

- Right to Equality (Articles 14-18)
- Right to Freedom (Articles 19-22)
- Right against Exploitation (Articles 23-24)
- Right to Freedom of Religion (Articles 25-28)
- Cultural and Educational Rights (Articles 29-30)
- Right to constitutional remedies (Article 32 and 226).

By the 44th Constitutional Amendment Right to Property was removed from the category of Fundamental Rights in 1978.

73. Which is RK Narayan's first novel?

- (a) Malgudi Days
(b) The English Teacher
(c) Swami and Friends
(d) The Guide

Ans. (c) : R.K. Narayan's first novel 'Swami and Friends' was published in 1935. The full name of R K Narayan is Rasipuram Krishnaswami Narayan. Malgudi Days, The Guide and The English Teacher are the major novels written by him. Sahitya Akademi award was given to the novel 'The Guide' in 1960.

74. If $a + b = 10$ and $a^2 + b^2 = 68$, find $a^3 + b^3$.

- (a) 620 (b) 560
(c) 520 (d) 540

Ans. (c) : Given-

$$a + b = 10$$

And, $a^2 + b^2 = 68$

From the formula: $(a + b)^2 = a^2 + b^2 + 2ab$

$$10^2 = 68 + 2ab$$

$$2ab = 100 - 68$$

$$ab = 16$$

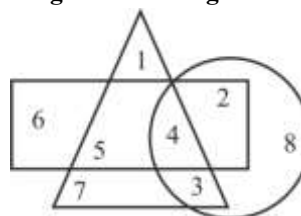
By the formula: $a^3 + b^3 = (a + b)(a^2 + b^2 - ab)$

$$a^3 + b^3 = 10(68 - 16)$$

$$a^3 + b^3 = 10 \times 52$$

$$\boxed{a^3 + b^3 = 520}$$

75. In the given diagram, which number is in all the geometrical figures?



- (a) 5 (b) 8
(c) 3 (d) 4

Ans. (d) : It is clear from the above diagram that the number 4 is included in all the geometrical figure.

76. Who was the co-founder of Ghadar Party?

- (a) Gopal Krishan Gokhale
- (b) Lala Lajpat Rai
- (c) Dada Bhai Naoroji
- (d) Har Dayal

Ans. (d) : The Ghadar Party was founded in 1913. The founder of Ghadar Party was Sohan Singh Bhakna and its co-founder were Lala Hardayal, Kesar Singh, Lala Thakurdas and Pandit Kashi Ram Madroli. The objective of the Ghadar Party was to make India independent from the British, it was established in San Francisco.

77. Simplify: $\frac{12.25 + \frac{7}{8} \text{ of } 56 - 9}{(25 \div 5 \times 10.25) + \frac{10}{9} \text{ of } \left(\frac{7}{2} - \frac{4}{5}\right) - 2}$

- (a) 5
- (b) 2
- (c) 1
- (d) 15

Ans. (c) : Given-

$$\begin{aligned} & \frac{12.25 + \frac{7}{8} \text{ of } 56 - 9}{(25 \div 5 \times 10.25) + \frac{10}{9} \text{ of } \left(\frac{7}{2} - \frac{4}{5}\right) - 2} \\ &= \frac{12.25 + \frac{7}{8} \times 56 - 9}{(5 \times 10.25) + \frac{10}{9} \times \left(\frac{35 - 8}{10}\right) - 2} \\ &= \frac{12.25 + 7 \times 7 - 9}{51.25 + \frac{10}{9} \times \frac{27}{10} - 2} \\ &= \frac{12.25 + 49 - 9}{51.25 + 3 - 2} \\ &= \frac{52.25}{52.25} = 1 \end{aligned}$$

78. Who is the founder of facebook?

- (a) Bill Gates
- (b) Tim Berners Lee
- (c) Mark Zuckerberg
- (d) Michael S Dell

Ans. (c) : Companies and their founders.

- Mark Zuckerberg - Facebook
- Bill Gates - Microsoft
- World Wide Web Federation - Tim Berners Lee
- Dell - Michael S. Dell

79. A sum of money is invested for 2 years at 10% compound interest p.a. It would fetch ₹1,762 more if interest is calculated half yearly. Find the sum invested.

- (a) ₹2,30,000
- (b) ₹3,30,000
- (c) ₹3,20,000
- (d) ₹3,40,000

Ans. (c) : Let-

Principal = P

Interest p.a. = 10% (Given)

Time = 2 years

And on calculating interest half yearly,

$$\text{Rate} = \frac{10}{2}\% = 5\%$$

$$\text{Time} = 2 \times 2 = 4 \text{ Half yearly}$$

According to the question-

$$\Rightarrow P \left(1 + \frac{5}{100}\right)^4 - P \left(1 + \frac{10}{100}\right)^2 = 1762$$

$$\Rightarrow P \left(\frac{21}{20}\right)^4 - P \left(\frac{11}{10}\right)^2 = 1762$$

$$\Rightarrow P \left(\frac{19448100 - 19360000}{16000000}\right)$$

$$\Rightarrow P \times 0.00550625 = 1762$$

$$P = \frac{1762}{0.00550625}$$

$$P = ₹3,20,000$$

80. When was the first session of Indian National Congress held?

- (a) December, 1889
- (b) June, 1885
- (c) November, 1889
- (d) December, 1885

Ans. (d) : The first session of the Indian National Congress was held in Bombay 'Gokuldas Tejpal Sanskrit Pathshala' from December 28, 1885 to December 31, 1885 in which only 72 delegates has participated and most of them belonged to background of lawyers. This session was presided over by WC Bannerjee.

81. A shopkeeper marks his goods at a price so that allowing a discount of 20%, he still makes a profit of 8%. Find the marked price of an article which costs him ₹500.

- (a) ₹765
- (b) ₹875
- (c) ₹575
- (d) ₹675

Ans. (d) : Given-

Cost price = ₹ 500

Discount = 20%

Profit = 8%

$$\frac{\text{Marked price}}{\text{Cost price}} = \frac{100 + \text{Profit}\%}{100 - \text{Discount}\%}$$

$$\frac{\text{Marked price}}{500} = \frac{100 + 8}{100 - 20}$$

$$\text{Marked price} = \frac{108}{80} \times 500$$

$$\text{Marked price} = ₹675$$

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

7	8	5	8
6	5	4	7
5	2	2	3
12	30	12	?

- (a) 35 (b) 24
(c) 28 (d) 49

Ans. (a) : Just as,

In Column I-

$$(7 \times 6) - (6 \times 5) = 42 - 30 = 12$$

In Column II-

$$(8 \times 5) - (5 \times 2) = 40 - 10 = 30$$

In Column III-

$$(5 \times 4) - (4 \times 2) = 20 - 8 = 12$$

Similarly,

In Column IV-

$$(8 \times 7) - (7 \times 3) = 56 - 21 = 35$$

Hence, $?$ = 35

83. Find the greatest number less than 500 that is divisible by 6, 14 and 28.

- (a) 420 (b) 440
(c) 460 (d) 480

Ans. (a) : LCM of 6, 14 and 28-

2	6, 14, 28
2	3, 7, 14
3	3, 7, 7
7	1, 7, 7
	1, 1, 1

Hence, LCM of 6, 14 and 28 = $2 \times 2 \times 3 \times 7 = 84$

84	500	5
	420	
	80	

Required number = $500 - 80 = 420$.

84. Four fifth of a number is 12 more than three fourth of the number. Find the number.

- (a) 120 (b) 160
(c) 200 (d) 240

Ans. (d) : According to the question-

Let, the number = x

$$\frac{4}{5}x - \frac{3}{4}x = 12$$

$$\frac{16x - 15x}{20} = 12$$

$$x = 240$$

Hence, the number is 240.

85. Service sector is a part of -----of an economy.

- (a) public sector
(b) tertiary sector
(c) secondary sector
(d) primary sector

Ans. (b) : The Indian Economy is divided into primary, secondary and tertiary sector. A service sector is related to the tertiary sector. Trade, transport communication, entertainment, health, education etc are the part of tertiary sector. Agriculture, mining, fishing, forestry, dairy etc are the part of primary sector and industrial production; cotton fabric, sugarcane etc. are the part of secondary sector.

86. In a certain code, P is coded as 17 and TMR is coded as 54. How will NARESH be written as in that code?

- (a) 78 (b) 73
(c) 71 (d) 65

Ans. (c) : Just as,

P

↓

$$16 \Rightarrow 16 + 1 = 17$$

T M R

And, ↓ ↓ ↓

$$20 + 13 + 18 \Rightarrow 51 + 3 = 54$$

Similarly,

N A R E S H

↓ ↓ ↓ ↓ ↓ ↓

$$14 + 1 + 18 + 5 + 19 + 8 \Rightarrow 65 + 6 = 71$$

87. If the letters of the word A D I S N H P A N R K A R F A C H T A R K Y A R were written in reverse order, then which would be the third letter to the right of the ninth letter from the left.

- (a) K (b) R
(c) N (d) A

Ans. (b) : Direct order-

A D I S N H P A N R K A R F A C H T A R K Y A R

Reverse order-

R A Y K R A T H C A F R A K R N A P H N S I D A

9th letter from left = C

3rd letter to the right of C = R

88. 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.

COCK : FRFN :: HANG : ?

- (a) KDQJ (b) COBH
(c) JCOI (d) IBOJ

Ans. (a) : Just as,

C O C K
 $+3\downarrow +3\downarrow +3\downarrow +3\downarrow$
 F R F N

Similarly,

H A N G
 $+3\downarrow +3\downarrow +3\downarrow +3\downarrow$
K D Q J

Hence, ? = KDQJ

89. In a class of 36 students, the number of boys are twice the number of girls. In the class, there are 13 boys before Reema whose position is 19th in the class. How many girls are there in the class after Reema?

- (a) 5 (b) 10
 (c) 6 (d) 12

Ans. (c) : Let-

Number of girls = x

So, number of boys = $2x$

According to the question,

$$x + 2x = 36$$

$$x = 12$$

Numbers of girls = 12

Numbers of boys = 24

Number of students before Reema = 18 ---- (Reema is at 19th position)

And number of boys before Reema = 13

Then, the number of girls before Reema = 5

Remaining girls after Reema = $12 - 5 - 1$ (Reema)
 = 6 girls

90. Four numbers have been given, out of which three are alike in some manner and one is different. Select the number that is different from the rest.

- (a) 34 (b) 29
 (c) 25 (d) 16

Ans. (b) : The number given in options (a), (c) and (d) is a composite number and the number given in option (b) is a prime number.

Hence, 29 is the different number from all other given numbers.

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

a c ab/b a bc/bc ab

- (a) bcccab (b) acbabc
 (c) bccaac (d) cbcaaa

Ans. (c) : The sequence of the series will be as follows-
a b c c ab/b c a a bc/a b c c ab

Hence, the combination of letters given in option (c) is correct.

92. If 12 October 1997 was Saturday, then what day was it on the same date in the year 2008?

- (a) Sunday (b) Thursday
 (c) Saturday (d) Monday

Ans. (c) : 12 Oct 1997 = Saturday ----- (Given)

12 Oct 2008 = ?

Number of odd days between 1997 to 2008

Number of leap years = 3(2000, 2004, 2008)

\therefore Number of odd days = $3 \times 2 = 6$

Number of non-leap years = 8

\therefore Number of odd days = $8 \times 1 = 8$

Total odd days = $6 + 8 = 14$

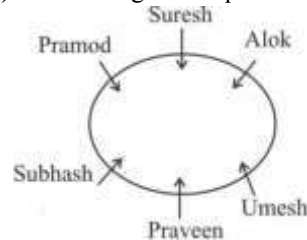
Now = $14 \div 7 =$ No remainder.

Hence, on 12th Oct, 2008 was Saturday.

93. Six friends are playing cards in a circular enclosure facing the centre. Subhash is sitting to the right of Pramod. There is one person sitting in between Umesh and Suresh. Praveen is sitting in between Subhash and Umesh and Praveen is second to the left of Alok. If Alok and Subhash mutually change their places, then who will be sitting second to the right of Praveen?

- (a) Subhash (b) Umesh
 (c) Suresh (d) Pramod

Ans. (a) : According to the question-



It is clear from the diagram that Subhash is sitting second to the right of Praveen after changing the places.

94. Select the option in which the numbers share the same relationship as that shared by the given pair of numbers.

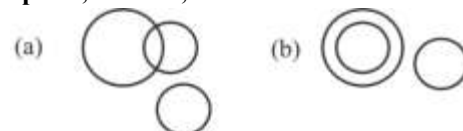
11 : 132

- (a) 6 : 48 (b) 9 : 93
 (c) 8 : 72 (d) 7 : 61

Ans. (c) :

Just as, $11 : 132$ Similarly, $8 : 72$
 $\frac{11}{11^2+11} = \frac{8}{8^2+8}$

95. Select the Venn diagram that best represents the relationship between the following classes. Sports, Cricket, Cockroach





Ans. (b) : The Venn diagram that represents the best relation between the given classes:



Cricket comes under the Sport, while Cockroach is a type of insect.

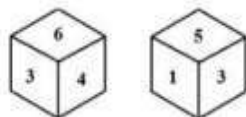
96. In a certain code, LITTLE is coded as 24, PARIS is coded as 23, BOX is coded as 12 and PIN is coded as 12. How will DONE be written as in that code?

- (a) 38 (b) 27
(c) 29 (d) 22

Ans. (d) : Just as,

$$\begin{aligned} \text{LITTLE} &= 24 \quad \text{And,} \quad \text{PIN} = 12 \\ \downarrow & \quad \quad \quad \downarrow \\ 6 &\rightarrow 2+4 = 24 \quad \quad \quad 3 \rightarrow 1+2 = 12 \\ \text{And,} \quad \text{PARIS} &= 23 \\ \downarrow & \\ 5 &\rightarrow 2+3 = 23 \\ \text{And,} \quad \text{BOX} &= 12 \\ \downarrow & \\ 3 &\rightarrow 1+2 = 12 \\ \text{Similarly,} \quad \text{DONE} &=? \\ \downarrow & \\ 4 &\rightarrow 2+2 = 22 \end{aligned}$$

97. Two different positions of the same dice are shown. Select the number that will be on the opposite face to that of number 5.



- (a) 4 (b) 3
(c) 6 (d) 2

Ans. (a) : In both the above cases 3 is the common number so clockwise rotation of 3 gives equidistant surface and then face of the dice which is absent is opposite to the common face.

3	6	4	First dice
3	1	5	Second dice

It is clear that the opposite of 3 will be 2 and the opposite of 5 will be 4.

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

Entomology : Insects :: Etymology : ?

- (a) Plants
(b) Words
(c) Books
(d) Satellites

Ans. (b) : Just as, Insects are studied in Entomology, Similarly Words are studied in Etymology. Hence, option (b) is the right option.

99. From among the given options, identify the number that DOES NOT belong to the following series.

2, 5, 14, 41, 122, 365, 1095

- (a) 41 (b) 122
(c) 365 (d) 1095

Ans. (d) : The given series is as follows-

$$\begin{array}{cccccccc} 2 & 5 & 14 & 41 & 122 & 365 & 1095 \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ +3 & +9 & +27 & +81 & +243 & +730 & \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ 3^1 & 3^2 & 3^3 & 3^4 & 3^5 & (3^6 + 1) & \end{array}$$

Hence, the term 1095 in the series does not belong to the given series.

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

Statements:

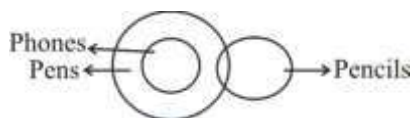
- I. All phones are pens.
II. Some pens are pencils.

Conclusions:

- I. Some phones are pencils.
II. Some pencils are phones.
III. Some pencils are pens.
IV. Some pens are phones.

- (a) Only conclusions III and IV follow.
(b) Neither conclusion I nor II follows.
(c) Only conclusions I and II follow.
(d) Only conclusions II and III follow.

Ans. (a) : According to the question, Venn diagram relation is as follows-



It is clear from the above Venn diagram that only conclusions III and IV logically follow from the statements.

Railway Non-Technical Popular Categories Exam-2019

Graduate and Under-Graduate Level

[Ist Stage Computer Based Test]

Exam Date : 04.01.2021]

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

1. If the ratio between two numbers is 3 : 5 and their LCM is 120. Then the numbers are:
 (a) 30; 50 (b) 24; 40
 (c) 27; 45 (d) 21; 35

Ans. (b) Let the number be $3x$ and $5x$.
 So, LCM of $3x$ and $5x = 3 \times 5 \times x = 15x$
 According to the question-
 $15x = 120$
 $x = 8$
 \therefore Numbers $3x = 3 \times 8 = 24$ and $5x = 5 \times 8 = 40$

2. When did the Simon Commission arrive in India?
 (a) 1930 (b) 1928
 (c) 1931 (d) 1927

Ans. (b) : In November 1927, a commission under sir John Allsebrook Simon was appointed by the British Government. On February 3, 1928 the commission arrived in British India to study the constitutional change. It was boycotted by the Indians because all its members were Englishmen. This was seen as a deliberate insult to the self respect of Indians.

3. The ratio of the number of females to that of male employees in a small company is 2 : 3 If the number of male employees in the company is 90, then the total number of employees working in the company is:
 (a) 120 (b) 90
 (c) 130 (d) 150

Ans. (d) : Let the number of female and male employees in company is $= 2x$ and $3x$
 According to the question-
 $3x = 90 \Rightarrow x = 30$
 \therefore Total number of employees in company $= (3x + 2x)$
 $= 5 \times 30 = 150$

4. Which organ in the human body produces bile juice?
 (a) Liver (b) Pancreas
 (c) Stomach (d) Small intestine

Ans. (a) : The Liver produces a digestive juice called bile. The gallbladder stores bile when a person eat meals, the gallbladder squeezes bile through the bile ducts, which connect the gallbladder and liver to the small intestine.

5. Harish and Bimal can complete a task in 20 days, They worked together for 15 days and then Bimal left. The remaining work was done by Harish alone, in 10 days. Harish alone can complete the entire task in:

- (a) 30 days (b) 35 days
 (c) 45 days (d) 40 days

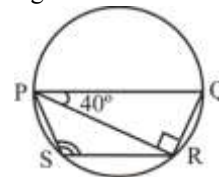
Ans. (d) : Harish = H and Bimal = B
 $\therefore (H + B)$ completed the work = 20 days
 $(H+B)$, 15 days work $= \frac{15}{20}$ part
 Remaining work after 15 days $= 1 - \frac{15}{20} = 1 - \frac{3}{4} = \frac{1}{4}$ part
 \therefore Harish works $\frac{1}{4}$ in = 10 days
 Time taken by Harish to complete the entire work $= 10 \times 4 = 40$ days.

6. Raja Ravi Varma was a famous
 (a) Mathematician (b) Painter
 (c) Singer (d) Poet

Ans. (b) : Raja Ravi Varma was an Indian painter and artist. He was closely related to the royal family of Travancore of present-day Kerala state in India. Ravi Varma's representation of mythological characters has become a part of the Indian imagination of the epics. Many of his fabulous paintings are housed at Laxmi Vilas Palace, Vadodara.

7. PQRS is a cyclic trapezium where PQ is parallel to RS and PQ is the diameter. If $\angle QPR = 40^\circ$ then $\angle PSR$ is equal to:
 (a) 120° (b) 140°
 (c) 130° (d) 110°

Ans. (c) : \therefore Angle made in semicircle is right angle.
 $\therefore \angle PRQ = 90^\circ$ [Angle made in semicircle]



In ΔPQR ,
 $\angle PQR = 180^\circ - (40^\circ + 90^\circ)$
 $= 50^\circ$

\therefore The sum of opposite angles in a cyclic quadrilateral is 180°
 $\therefore \angle PSR + \angle PQR = 180^\circ$
 $\angle PSR = 180^\circ - 50^\circ = 130^\circ$

8. A mango kept in a basket doubles in every one minute. If the basket gets completely filled by mangoes in 30 min then in how many minutes half of the basket was filled?

- (a) 29 (b) 15
(c) 27 (d) 28

Ans. (a) : According to the question in every 1 minute the number of mangoes in the basket doubles and the basket is filled completely in 30 minute. So, 1 minute before 30 minutes, the basket must have been half basket = $30 - 1 = 29$ minute.

9. When was Akbar became the emperor?

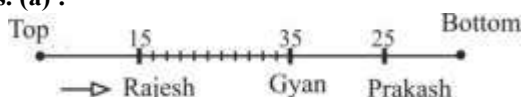
- (a) 1552 AD (b) 1560 AD
(c) 1556 AD (d) 1550 AD

Ans. (c) : Jalaluddin Muhammad Akbar, more famously known as Akbar the Great was the third emperor of the Mughal Empire after Babur and Humayun. He succeeded his father Humayun in the year 1556, at the age of just 13. He remained emperor till 1605.

10. In a class of students, Rajesh ranks 15th from the top and Prakash ranks 25th from the bottom. Gyan is on the 10th place ahead of Prakash. If there are 10 students, exactly in between Rajesh and Gyan, then how many total students are there in the class?

- (a) 60 (b) 50
(c) 55 (d) 40

Ans. (a) :



According to the question-
Gyan's position will be 35th from the bottom.
∴ There are 10 people between Rajesh and Gyan.
If Rajesh comes in place of Gyan then his position will be $(15 + 10 + 1) = 26^{\text{th}}$
Therefore, Total number of students are there in the class = Rajesh position from top + position from bottom - 1 = $(26 + 35 - 1) = 60$

11. The main focus of the First Five-Year Plan was on the _____.

- (a) Agricultural sector
(b) Service sector
(c) Industrial sector
(d) Agricultural and industrial sector

Ans. (a) : The First Five-Year Plan (1951-1956) was based on Harrod-Domar Model and strongly supported agricultural production and its main focus was 'land reforms' through the abolition of the zamindari system.

12. In which form data is stored in a computer?

- (a) Alphabets (b) Picture
(c) Magnetic (d) Binary

Ans. (d) : Computers use binary form to store data. A binary digit or bit, is the smallest unit of data in computing. It is represented by 0 or 1.

13. In which of the following places does the river Godavari originate?

- (a) Hills of Coorg (b) Yamunotri
(c) Brahmagiri Hills (d) Gangotri

Ans. (c) : The River Godavari rises at Brahmagiri hills in the Western Ghats near Trimbak Hills in the Nasik district of Maharashtra. It is the second largest river after Ganga in India. After flowing for about 1465 km, in a generally south-east direction it falls into the Bay of Bengal.

14. When was Revolt of 1857 finally suppressed by British?

- (a) 1859 (b) 1860
(c) 1861 (d) 1857

Ans. (a) : The Revolt of 1857 was the first expression of organized resistance against the British East India Company. This Revolt of 1857 lasted for more than a year. It was suppressed by the middle of 1858. On 8 July 1858, fourteen months after the outbreak at Meerut, peace was finally proclaimed by Lord Canning.

15. The sum of two numbers is 16 and their product is 63. The sum of their reciprocal is equal to:

- (a) $\frac{16}{63}$ (b) $\frac{63}{16}$
(c) $\frac{8}{63}$ (d) $\frac{60}{63}$

Ans. (a) : Let the number is x and y.

According to the question-

$$x + y = 16 \quad \text{--- (i)}$$

$$\text{And } x \times y = 63 \quad \text{--- (ii)}$$

$$\text{Then, } \frac{1}{x} + \frac{1}{y} = ?$$

$$\frac{x + y}{xy} = \frac{16}{63}$$

16. In a symbolic language, 'Surat is a hot place' is written as 'a hot is place Surat' and 'water vapour to air here' is written as 'to air vapour here water', then in the same language, 'Shimla is a hill place' would be written as?

- (a) A hill is place Shimla
(b) Shimla is a hill place
(c) A hill place is Shimla
(d) Shimla is a place hill

Ans. (a) : Just as,

Surat is a hot place → a hot is place Surat

and water vapour to air here → to air vapour here water

Similarly, Shimla is a hill place → A hill is place Shimla.

17. If '+' denotes 'multiplication', '-' denotes 'addition', '×' denotes 'division' and '÷' denotes 'subtraction'. Then which of the following equation is true?

- (a) $15 + 15 \times 3 - 4 \div 5 = 26$
(b) $11 \div 8 \times 2 - 4 + 1 = 42$
(c) $9 + 5 - 16 \times 4 \div 2 = 41$
(d) $10 - 12 \div 18 \times 6 + 2 = 16$

Ans. (d) : According to the question-

$$\begin{aligned} + &\rightarrow \times \\ - &\rightarrow + \\ \times &\rightarrow \div \\ \div &\rightarrow - \end{aligned}$$

In option (d)

$$10 - 12 \div 18 \times 6 + 2 = 16$$

(On changing the symbol according to the question)

$$\text{L.H.S.} = 10 + 12 - 18 \div 6 \times 2$$

$$10 + 12 - 3 \times 2$$

$$22 - 6$$

$$16 = \text{R.H.S.}$$

18. When was the Hindustan Republican Association formed?

- (a) 1920 (b) 1926
(c) 1922 (d) 1924

Ans. (d) : Hindustan Republican Association was a revolutionary organization of India established in 1924 in East Bengal by Sachindra Nath Sanyal, Narendra Mohan Sen and Pratul Ganguly as an off shoot of Anushilan Samiti.

Member \rightarrow Bhagat Singh, Chandra Shekhar Azad, Sukhdev, Ram Prasad Bismil, Roshan Singh, Ashfaqulla Khan, Rajendra Lahiri.

19. The pH range of a human body is:

- (a) 8.35 - 9.45 (b) 2.35-4.45
(c) 5.35-6.45 (d) 7.35-7.45

Ans. (d) : The pH value of the human body lies in a tight range between 7.35-7.45 and the pH of other body fluids are different. pH indicates the level of H^+ ions where low pH indicates too many OH^- ions.

20. Aman is older than Sahu, Sahu is younger than Komal but older than Millan. Komal is older than Aman but younger than Uday. Who is the third oldest among them?

- (a) Sahu (b) Aman
(c) Komal (d) Uday

Ans. (b) : According to the question,

Aman > Sahu

Komal > Sahu > Milan

Uday > Komal > Aman

It is clear from above-

Uday > Komal > Aman > Sahu > Milon

Hence, the third oldest is Aman.

21. The first High Court of India was established in _____.

- (a) Kolkata (b) Delhi
(c) Mumbai (d) Punjab

Ans. (a) : The Calcutta High Court is the oldest High Court in India. It was established on 1st July, 1862 under the High Court's Act, 1861. Bombay High Court and Madras High Court were established in 1862.

22. Train A, running at the speed of 80 km/hr crosses train B, running at the speed of 70 km/hr in the opposite direction. Both trains cross each other in 30 seconds. If the length of train A is 300 m. then the length of train B is:

- (a) 950 m (b) 750 m
(c) 850 m (d) 855 m

Ans. (a) : Relative speed of trains when they running in opposite direction = $(80 + 70) \text{ km/h} = 150 \text{ km/h}$.

$$150 \times \frac{5}{18} = \frac{125}{3} \text{ m/sec}$$

Let the length of train B = x m.

And length of train A = 300 m (given)

$$\therefore \text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

$$30 = \frac{x + 300}{125/3}$$

$$10 \times 125 = x + 300$$

$$1250 = x + 300$$

$$x = 1250 - 300$$

$$x = 950 \text{ m.}$$

Hence, the length of train B = x m = 950 m.

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

DFB: GHC:: LNJ:?

- (a) OPK (b) LOJ
(c) EGC (d) OQM

Ans. (a) : Just as,

$$D \xrightarrow{+3} G$$

$$F \xrightarrow{+2} H$$

$$B \xrightarrow{+1} C$$

Similarly,

$$L \xrightarrow{+3} O$$

$$N \xrightarrow{+2} P$$

$$J \xrightarrow{+1} K$$

24. How many World Heritage Sites have been protected by UNESCO as of June 2020?

- (a) 1056 (b) 1121
(c) 1256 (d) 1273

Ans. (b) : World Heritage Site are judged to contain cultural and natural heritage around the world considered to be of outstanding value to humanity. As of June 2020, a total of 1121 sites exist but as of July 2021, a total of 1154 World Heritage Sites exist. A total of 40 World Heritage Sites are located in India.

25. 27% of 250 - 0.02% of 1000 is equal to:

- (a) 65.52 (b) 76.30
(c) 67.30 (d) 52.56

Ans. (c) : Given that-

$$= 27\% \text{ of } 250 - 0.02\% \text{ of } 1000$$

$$= 27\% \times 250 - 0.02\% \times 1000$$

$$= \frac{27 \times 5}{2} - 0.02 \times 10$$

$$= \frac{135}{2} - 0.2$$

$$= 67.5 - 0.2$$

$$= 67.30$$

26. The sum of two numbers is 25 and their difference is 15. The ratio of the numbers is?

(a) 3:2 (b) 5:3
(c) 4:1 (d) 2:3

Ans. (c) : Let the number is a and b.

According to the question,

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

And $a - b = 15 \quad \text{--- (ii)}$

By equation (i) and (ii)

$$\Rightarrow a = \frac{25+15}{2} = 20$$

$$b = \frac{25-15}{2} = 5$$

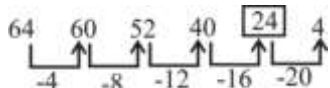
Hence, the ratio of the numbers $a : b = 20 : 5 = 4 : 1$

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

64, 60, 52, 40, ?, 4

(a) 10 (b) 20
(c) 16 (d) 24

Ans. (d) : Series is as follows.



28. 1. Banana price is more than that of lychee.
2. Banana price is less than that of kiwi.
3. Kiwi Price is more than that of banana and lychee.
If both, 1 and 2 statements are true, and then third are:
(a) vague (b) uncertain
(c) false (d) true

Ans. (d) : According to the question-

Bananas > Lychee (i)

Kiwi > Bananas (ii)

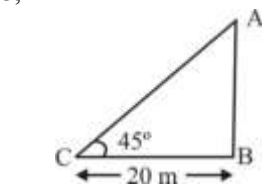
Now the decreasing order of price of Kiwi Banana and Lychee, Kiwi > Bananas > Lychee (iii)

If both statement 1 and 2 are true then the third statement will also be true.

29. The angle of elevation of a pole from a point, which is 20 m away from the foot of the pole is 45° . Find the height of the pole.

(a) 15 m (b) 10 m
(c) 20 m (d) $20\sqrt{2}$ m

Ans. (c) : Let AB be the pole,
In $\triangle ABC$,



$$\tan 45^\circ = \frac{AB}{20}$$

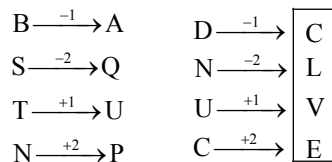
$$AB = 1 \times 20 = 20 \text{ m.}$$

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

BSTN : AQUP :: DNUC : ?

(a) TOUS (b) TSTB
(c) CLVE (d) BSTO

Ans. (c) : Just as, Same as,



31. A businessman purchases 20 articles whose cost is equal to the selling price of 15 articles. The profit or loss percentage of the businessman is:

(a) 15% loss (b) 23.33% loss
(c) 33.33% profit (d) 25% profit

Ans. (c) : According to the question-

$$20 \text{ CP} = 15 \text{ SP}$$

$$\text{CP} : \text{SP} = 3 : 4$$

$$\text{Profit\%} = \frac{1}{3} \times 100 = 33.33\%$$

32. How many environmental activists got the Goldman Environmental Prize 2019?

(a) 5 (b) 3
(c) 4 (d) 6

Ans. (d) : The Goldman Environmental Prize was created in 1989 by civic leaders and philanthropists Richard N. Goldman and Rhoda H. Goldman. It is a prize, awarded annually to grassroots environmental activists. Six environmental activists received the Goldman Environmental Prize 2019. This prize is also called the Green Nobel.

33. The value of $\frac{(0.27)^2 - (0.13)^2}{0.27 + 0.13}$ is:

(a) 0.03 (b) 1.40
(c) 0.40 (d) 0.14

Ans. (d) : Given that-

$$\begin{aligned} &= \frac{(0.27)^2 - (0.13)^2}{0.27 + 0.13} \\ &= \frac{(0.27 + 0.13)(0.27 - 0.13)}{(0.27 + 0.13)} \\ &= 0.27 - 0.13 = 0.14 \end{aligned}$$

34. In which year were the Women Transforming India awards started by NITI Aayog?

(a) 2017 (b) 2015
(c) 2016 (d) 2014

Ans. (c) : On International Women's Day 2016, NITI Aayog, in partnership with MyGov and the United Nations in India, launched the first-ever 'Women Transforming India', an online contest to crowd source stories of women making a difference in form of essays. It was aimed to celebrate the indomitable spirit of women working tirelessly to empower communities and transform India.

35. The ability of metals to be drawn into thin wires is called:

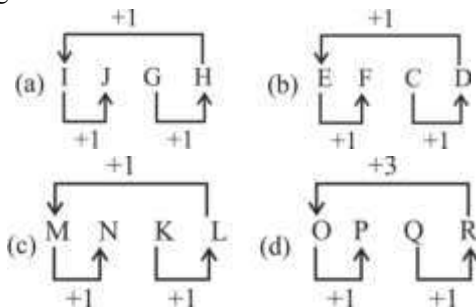
- (a) Reactivity (b) Solubility
(c) Ductility (d) Malleability

Ans. (c) : Ductility is the physical property of a material associated with the ability to be hammered thin or stretched into wire without breaking. Examples are gold, silver, copper etc.

36. Pick the odd one out.

- (a) IJGH (b) EFCD
(c) MNKL (d) OPQR

Ans. (d) : The letter clusters given in the option are arranged such as.



Hence option (d) is odd one.

37. URL stands for:

- (a) Uniform Remote Locator
(b) Universal Resource Locator
(c) Uniform Resource Locator
(d) Universal Remote Land

Ans. (c) : A URL stands for 'Uniform Resource Locator' and is a reference (an address) to a resource on the Internet Tim Berners-Lee invented URL in 1994.

38. Consider the given statement and decide which of the given assumptions is/are implicit in the statement.

Statement:

A wealthy person has a higher chance of having diabetes.

Assumptions:

I. Most of causes of death among wealthy persons are due to diabetes.

II. Poor persons do not have diabetes.

- (a) Both, assumptions (I) and (II) are implicit.
(b) Only assumptions (II) is implicit.
(c) Only assumptions (I) is implicit.
(d) Neither assumption (I) nor (II) is implicit.

Ans. (d) : According to the statement, Neither assumption (I) nor (II) is implicit.

39. In which state the Gandhi Sagar Dam is situated?

- (a) Madhya Pradesh
(b) Himachal Pradesh
(c) Maharashtra
(d) Rajasthan

Ans. (a) : The Gandhi Sagar Dam is built on Chambal River and is located in the Mandsaur & Neemuch district of Madhya Pradesh. The dam have power station of five turbines of 23 MW capacities thus having a total installed capacity of 115 MW.

40. The first Amendment to the constitution of India was made on

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

Ans. (b) : The first Amendment to the Constitution of India was made in 1951. It empowered the state to make special provisions for the advancement of socially and economically backward classes or categories of scheduled castes and scheduled tribes by restricting the application of fundamental rights.

41. When was INSAT 1B commissioned?

- (a) 1980 (b) 1987
(c) 1983 (d) 1985

Ans. (c) : INSAT 1B was an Indian Communications Satellite which formed part of the Indian National Satellite System launched in 1983 and it was operated in geostationary orbit.

42. What was the code name for Pokhran Nuclear Test 2?

- (a) Laughing Buddha
(b) Smiling Buddha
(c) Operation Shakti
(d) Operation Research

Ans. (c) : Pokhran-II consisted of five detonations. The tests were initiated on 11 May, 1998 under the assigned code name 'Operation Shakti'. India on May 18, 1974 conducted its first nuclear test, code named 'Smiling Buddha' in Rajasthan Pokhran.

43. If $x^2y^2 + \frac{1}{x^2y^2} = 83$, then the value of

$xy - \frac{1}{xy}$ is:

- (a) 10 (b) 81
(c) 85 (d) 9

Ans. (d) : According to question-

$$x^2y^2 + \frac{1}{x^2y^2} = 83$$

$$\text{From } \left(xy - \frac{1}{xy}\right)^2 = x^2y^2 + \frac{1}{x^2y^2} - 2$$

$$= 83 - 2 = 81$$

$$xy - \frac{1}{xy} = 9$$

44. Who built the Sanchi Stupa?

- (a) Ashoka (b) Bindusar
(c) Chanakaya (d) Chandragupta

Ans. (a) : The Great Stupa at Sanchi was originally built in the 3rd century BCE by the Mauryan Emperor Ashoka. It is located at Sanchi, Raisen District of Madhya Pradesh.

45. The pistil in the flower is

- (a) Bisexual
- (b) A female reproductive part
- (c) Unisexual
- (d) A male reproductive part

Ans. (b) : Pistil is the female reproductive part of a flower. The pistil centrally located consists of a swollen base, the ovary which contains the potential seeds.

46. There is a carpet of length $20\frac{5}{2}$ m. How many small pieces of carpet, each of length $4\frac{1}{2}$ m, can be cut out of it?

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

Ans. (d) : Total length of carpet = $20\frac{5}{2} = \frac{45}{2}$ meters

Length of $4\frac{1}{2}$ m carpet = $\frac{9}{2}$ meters

Required pieces = $\frac{45/\frac{9}{2}}{\frac{9}{2}} = 5$ Pieces.

47. Which industry uses limestone as raw material?

- (a) Utensils
- (b) Cement
- (c) Plastic
- (d) Automobile

Ans. (b) : The Cement Industry uses limestone as its raw material apart from this industries, it is used in the steel industries in the production process where limestone is used to remove impurities.

48. Who wrote the famous Hindi novel 'Tamas'?

- (a) Yashpal
- (b) Nagendra
- (c) Trilochan
- (d) Bhisham Sahni

Ans. (d) : Bhisham Sahni was an Indian writer, playwright in Hindi and an actor, most famous for his novel and television screenplay 'Tamas' (Darkness, Ignorance) a powerful and passionate account of the Partition of India.

49. A class has 48 students, On a specific day, only $\frac{3}{8}$ of the students were present; the number of absentees on the same day would be:

- (a) 28
- (b) 38
- (c) 30
- (d) 18

Ans. (c) : Total number of students in the class = 48 ---- (Given)

Number of present students = $\frac{3}{8}$ of total student

Number of absent students = $1 - \frac{3}{8} = \frac{5}{8}$ of total student

Total number of absent students = $48 \times \frac{5}{8}$
= 30 students

50. The capacity of a cylindrical tank is 2376 m^3 . If the radius of the tank is 21 m, then the depth of the tank is:

- (a) 1.71 m
- (b) 2.89 m
- (c) 3.72 m
- (d) 5.75 m

Ans. (a) : Volume of cylindrical tank = $\pi r^2 h$
Where r and h are the radius and depth of tank respectively.

According to the question,

$$\frac{22}{7} \times 21 \times 21 \times h = 2376$$

$$h = \frac{2376}{22 \times 21 \times 3}$$

$$h = 1.71 \text{ m.}$$

51. Where was the first nuclear power plant set up in India?

- (a) Tarapur
- (b) Kakrapur
- (c) Kaiga
- (d) Kalapakkam

Ans. (a) : Tarapur Atomic Power Station (TAPS) is located in Tarapur, India. It was the first commercial nuclear power station built in India. Its commissioned date was 28 October 1969.

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

a _bc_ a _bcd_ a _ccd_ bcd _

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

Ans. (a) : The repetitive pattern will be made in following way-

a a b c d / a b c d / a b c c d / a b c d d

53. 15 male employees or 20 female employees of a company can complete a project in 26 days. How many days will 30 male employees and 12 female employees together take to complete the project?

- (a) 8 days
- (b) 10 days
- (c) 12 days
- (d) 14 days

Ans. (b) : As per question-

$$15 \text{ M} = 20 \text{ W}$$

$$\text{M} : \text{W} = 4 : 3$$

Let 30 Male and 12 Female complete the total work in x days.

According to the question-

$$(30 \text{ M} + 12 \text{ W}) \times x = 15 \text{ M} \times 26$$

$$(30 \times 4 + 12 \times 3) \times x = 15 \times 4 \times 26$$

$$(120 + 36) \times x = 60 \times 26$$

$$x = \frac{60 \times 26}{156} = 10$$

54. The difference between the simple interest and the compound interest on ₹5000/- at 10% per annum for 3 years is:

- (a) ₹235
- (b) ₹480
- (c) ₹233
- (d) ₹155

Ans. (d) : The difference between simple interest and compound interest for 3 years if the rates are same,

$$d = \frac{PR^2(300+R)}{(100)^3}$$

$$d = \frac{5000 \times 100 \times 310}{100 \times 100 \times 100}$$

$$d = 5 \times 31 = 155$$

55. The perimeters of two similar triangles, ΔPQR and ΔXYZ are 48 cm and 24 cm respectively. If $XY = 12$ cm. then PQ is:

- (a) 12 cm (b) 8 cm
(c) 24 cm (d) 18 cm

Ans. (c) : $\Delta PQR \sim \Delta XYZ$

$$\therefore \frac{48}{24} = \frac{PQ}{12}$$

$$PQ = 48/2$$

$$PQ = 24 \text{ cm.}$$

56. On which river is the Sardar Sarovar Dam constructed?

- (a) Brahmaputra (b) Ganga
(c) Narmada (d) Yamuna

Ans. (c) : The Sardar Sarovar Dam was built across the Narmada River as a development scheme funded by the World Bank. It is considered to be the second largest concrete dam in the world in terms of the volume of concrete used in this project. It is in Gujarat and was commissioned by J.L. Nehru on 5th April, 1961.

57. The HCF of two numbers is 6 and their LCM is 84 if one of these numbers is 42. Then the second number is:

- (a) 40 (b) 48
(c) 12 (d) 30

Ans. (c) : L.C.M \times H.C.F. = First number \times second number

$$84 \times 6 = 42 \times \text{second number}$$

$$\text{Second number} = \frac{84 \times 6}{42} = 12$$

58. _____ is the largest Bauxite producing state of India.

- (a) Jharkhand (b) Odisha
(c) Gujarat (d) Andhra Pradesh

Ans. (b) : Odisha is the largest bauxite producing state accounting for more than half of the total production of India. The main bauxite belt is in Kalahandi and Koraput district. It accounts for 51% followed by Andhra Pradesh 16% and Gujarat 19%.

59. The marks obtained by 7 students in a class in mathematics are 43, 44, 65, 41, 53, 65, and 62. The mode of the data is:

- (a) 53 (b) 65
(c) 41 (d) 62

Ans. (b) : 43, 44, 65, 41, 53, 65, 62
Mode of data = 65

60. In a school, 60% of the students passed in an examination. If the number of failed candidates is 240, then the number of candidates that have passed is:

- (a) 360 (b) 600
(c) 240 (d) 410

Ans. (a) : Passed students = 60% ----- (Given)

Failed students = 40%

According to the question-

$$40\% = 240$$

$$1\% = 6$$

Hence, 60% = 60 \times 6

$$= 360$$

Hence, number of passed students = 360

61. According to the World Development Report, countries having per capita income of more than US\$ 12,000 per annum as on 2016 are called:

- (a) Poor countries
(b) Low income countries
(c) Lower middle income countries
(d) Rich countries

Ans. (d) : According to the World Bank's Report of 2016 a person earning US\$ 12,000 or more per year belongs to the Rich country. The World Bank assigns the world's economies into four income groups-high, upper-middle, lower-middle and low.

62. The cause of Hepatitis A is a:

- (a) Bacteria (b) Mosquito bite
(c) Protozoa (d) Virus

Ans. (d) : Hepatitis A is an inflammation of the liver caused by the Hepatitis A virus (HAV). The virus is primarily spread when an uninfected person ingests food or water that is contaminated with the faeces of an infected person.

63. Programming language Java was developed by _____.

- (a) Charles Simoni (b) Paul Allen
(c) Jaap Hartzen (d) James Gosling

Ans. (d) : Java was originally developed by James Gosling at Sun Microsystems and released in 1995 as a core component of Sun Microsystems java platform.

64. Which branch of physics deals with properties of fluids at rest?

- (a) Optics (b) Astrophysics
(c) Hydrostatics (d) Thermodynamics

Ans. (c) : For a fluid at rest, the summation of forces acting on the element must be balanced by the gravity force. This is a hydrostatic distribution and is correct for all fluids at rest regardless of viscosity.

65. In which year did India first participate in the Olympic Games?

- (a) 1900 (b) 1914
(c) 1925 (d) 1923

Ans. (a) : India first participated in the Olympics in 1900 in Paris. The country was represented by Norman Pritchard an Anglo Indian who won India's first medal at the Olympics in the 200 meters hurdles.

66. If the area of a circle is 154 cm^2 , then the circumference of the circle is:

- (a) 11 cm (b) 44 cm
(c) 36 cm (d) 22 cm

Ans. (b) : According to the question-

$$\pi r^2 = 154$$

$$r^2 = \frac{154 \times 7}{22} = 49$$

$$r = 7 \text{ cm.}$$

So, circumference of circle = $2\pi r$

$$= 2 \times \frac{22}{7} \times 7 = 44 \text{ cm.}$$

67. Who launched the Sukanya Samridhi Yojana?

- (a) Atal Bihari Vajpayee
(b) Manmohan Singh
(c) Narendra Modi
(d) HD Dev Gowda

Ans. (c) : Sukanya Samridhi Yojana was launched as part of the Beti Bachao Beti Padhao campaign on January 22, 2015 by Prime Minister Narendra Modi. The objective was to encourage families to invest in the education of girl children and save for their marriage expenses.

68. The first national flag of India is said to have hoisted at _____ in 1906.

- (a) Patna (b) New Delhi
(c) Kolkata (d) Ahmedabad

Ans. (c) : The first national flag in India is said to have been hoisted on August 7, 1906 in the Parsee Bagan Square (Green park) in Calcutta now Kolkata. The Flag was composed of three horizontal strips of red, yellow and green.

69. If $\tan\theta + \cot\theta = 5$, then the value of $\tan^2\theta + \cot^2\theta + 2\tan^2 60^\circ$ is:

- (a) $10\sqrt{3}$ (b) $29\sqrt{3}$
(c) 25 (d) 29

Ans. (d) : $\tan\theta + \cot\theta = 5$ -----

$$\left[\because \cot\theta = \frac{1}{\tan\theta} \right]$$

$$\tan\theta + \frac{1}{\tan\theta} = 5$$

$$\tan^2\theta + \frac{1}{\tan^2\theta} + 2 = 25 \text{(Squaring on both side)}$$

$$\tan^2\theta + \cot^2\theta = 23$$

$$\text{then, } \tan^2\theta + \cot^2\theta + 2\tan^2 60^\circ = ?$$

$$23 + 2 \times 3 = 29$$

70. When did the RTI Act came into effect?

- (a) September 2005 (b) December 2005
(c) November 2006 (d) October 2005

Ans. (d) : The Right to Information (RTI) is an act of the parliament of India which sets out the rules and procedures regarding citizen's right to information. The RTI Bill was passed by Parliament of India on 15 June 2005 and came into force with effect from 12 October 2005.

71. How many non-permanent members does the UN Security Council have?

- (a) 12 (b) 15
(c) 14 (d) 10

Ans. (d) : The Security Council consists of ten Non-Permanent and five Permanent Members- China, USA, France, UK and the Russia. The Security Council have primary responsibility is to maintain "International Peace and Security", according to Article 24 of UN Charter.

72. Who among the following is the youngest Nobel Laureate?

- (a) Nadia Murad (b) Tsung Dao Lee
(c) Malala Yousufzai (d) Lawrence Bragg

Ans. (c) : In October 2014 Malala along with Indian children's rights activist Kailash Satyarthi, was named as Noble Peace Prize winner. At the age of 17, she became the youngest person to receive this prize.

73. When a smaller number divides a larger number, we get a quotient of 6 and a remainder of 5. Find the smaller number if the difference between the two numbers is 1540.

- (a) 620 (b) 735
(c) 307 (d) 580

Ans. (c) : Let larger number = x
then smaller number = y

According to the question-

$$x = 6y + 5 \text{ (i)}$$

$$\text{And, } x - y = 1540 \text{ (Given)}$$

$$x = 1540 + y \text{ (ii)}$$

By equation (i) and (ii)

$$6y + 5 = 1540 + y$$

$$5y = 1535 \Rightarrow y = 307$$

$$\text{Hence smaller number (y) = 307}$$

74. With which state is the Nabakalebara festival associated?

- (a) Assam (b) Odisha
(c) West Bengal (d) Sikkim

Ans. (b) : The famous Nabakalebara festival celebrating in Odisha. It is associated with the Jagannath Temples in Odisha. Gajapati Ramachandra Deba is considered as the founder of the Nabakalebara festival.

75. The value of $15 \times 14 - 30 + (3^2 + 17)$ is?

- (a) 154 (b) 266
(c) 124 (d) 206

Ans. (d) : Given that-

$$15 \times 14 - 30 + (3^2 + 17) = ?$$

$$210 - 30 + 26$$

$$210 - 4 = 206$$

76. If $\sqrt{3^n} = 729$, then the value of n is equal to:
 (a) 8 (b) 12
 (c) 6 (d) 9

Ans. (b) : $\sqrt{3^n} = 729$

$$\sqrt{3^n} = 3^6$$

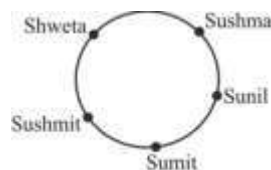
$$3^n = 3^{12} \dots\dots \text{(On squaring both side)}$$

On comparing the both sides-

$$n = 12$$

77. Five students are sitting in a circle facing the center. Sumit is between Sunil and Sushmit. Sushma is on the left side of Shweta. Sushmit and Sushma are not sitting next to each other. Who is sitting next to Sumit on his right side?
 (a) Sunil (b) Sushma
 (c) Shweta (d) Sushmit

Ans. (a) :



Hence, it is clear from diagram that Sunil is sitting next to Sumit on his right side.

78. As per Now 2020, How many countries have membership in the World Trade Organization?
 (a) 168 (b) 165
 (c) 160 (d) 164

Ans. (d) : The World Trade Organization (WTO) has 164 members and 25 observer members. Afghanistan is the newest member. The WTO came into being in 1995. The WTO is the successor to the General Agreement on Tariffs and Trade (GATT) established in the wake of 2nd World War.

79. Read the given statements and conclusions carefully and decide which of the conclusions logically follow(s) from the statements.

Statements:

Some women are wise:

All wise are engineers:

Conclusion:

I. Some women are engineers.

II. All engineers are wise.

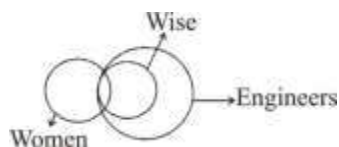
(a) Both, conclusion (I) and (II) follow.

(b) Only conclusion (I) follows.

(c) Only conclusion (II) follows.

(d) Neither conclusion I nor conclusion II follows.

Ans. (b) : According the question by drawing a Venn diagram



According to the diagram only conclusion I follows.

80. Pradhan Mantri Swasthya Suraksha Yojana (PMSSY) was launched in the year _____.

(a) 2003 (b) 2006
 (c) 2005 (d) 2004

Ans. (a) : The Pradhan Mantri Swasthya Suraksha Yojana was announced in 2003 with the objectives of correcting regional imbalances in the availability of affordable tertiary healthcare services and also to augment facilities for quality medical education in the country.

81. The value of $\frac{\sin 23^\circ}{\cos 67^\circ} + \frac{\cos 71^\circ}{\sin 19^\circ}$ is?

(a) 2 (b) 3
 (c) 0 (d) 1

Ans. (a) : $\frac{\sin 23^\circ}{\cos 67^\circ} + \frac{\cos 71^\circ}{\sin 19^\circ}$

[From $\cos(90^\circ - \theta) = \sin \theta$, $\sin(90^\circ - \theta) = \cos \theta$]

$$\frac{\sin 23^\circ}{\sin 23^\circ} + \frac{\cos 71^\circ}{\cos 71^\circ}$$

$$= 1 + 1 = 2$$

82. A bank provides a loan as the rate of 5% per annum to a trader on an amount of ₹12,50,000 for 5 years. The simple interest to be paid is:

(a) ₹4,20,250 (b) ₹3,12,500
 (c) ₹2,25,400 (d) ₹2,40,600

Ans. (b) : Simple Interest = $\frac{\text{Principal} \times \text{Rate} \times \text{Time}}{100}$

$$SI = \frac{1250000 \times 5 \times 5}{100}$$

$$SI = ₹312500$$

83. The value of $\left[(3\sqrt{2} + 2) \times (3\sqrt{2} - 2)\right]$ of $13+15$ is:

(a) 197 (b) 140
 (c) 616 (d) 414

Ans. (a) : According to the question-

$$\left[(3\sqrt{2} + 2) \times (3\sqrt{2} - 2)\right] \text{ of } 13+15$$

$$= \left[(3\sqrt{2})^2 - 2^2\right] \times 13+15$$

$$= 14 \times 13 + 15$$

$$= 182 + 15 = 197$$

84. If $x + \frac{1}{x} = 9$, then the value of $x^2 + \frac{1}{x^2}$ is:

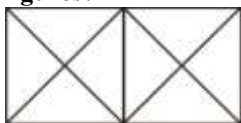
(a) 81.01 (b) 81
 (c) 83 (d) 79

Ans. (d) : $\because x + \frac{1}{x} = 9$ (squaring on both side).

$$\therefore x^2 + \frac{1}{x^2} = 9^2 - 2 = 79$$

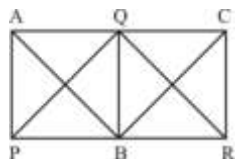
$$x^2 + \frac{1}{x^2} = 79$$

85. How many triangles are there in the following figures?



- (a) 18 (b) 22
(c) 20 (d) 16

Ans. (a) :

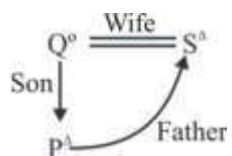


Total triangles in the first square = 8
Total triangles in the second square = 8
Other Δ square = 2 (ΔABC , ΔPQR)
 \therefore Total triangle = $(8 + 8 + 2) = 18$

86. If 'A+B' means 'A is daughter of B', 'A - B' means 'A is wife of B', 'A \times B' means 'A is the son of B' then which is right from following about P \times Q - S.

- (a) Q is the father of P (b) P is a daughter of Q
(c) S is the wife Q (d) S is the father of P

Ans. (d) :



Hence, it is clear that S is the father of P.

87. Read the given statements and conclusions carefully and decide which of the conclusions logically follow(s) from the statements.

Statements:

Regularity is a cause for success in exams.

Some irregular students pass in the examinations.

Conclusions:

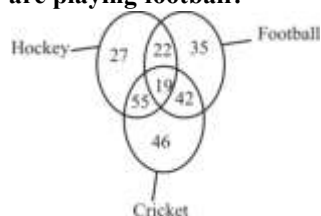
I. All irregular students pass in exams.

II. Some irregular students fail in the exam.

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

Ans. (b) : According to question, only conclusion II follows.

88. In the given figure, how many hockey players are playing football?



- (a) 35 (b) 22
(c) 41 (d) 55

Ans. (c) : Hockey players who plays football
 $22 + 19 = 41$

89. Select the number that is different from the rest.

- (a) 52637 (b) 63754
(c) 72563 (d) 56372

Ans. (b) : (a) $52637 \Rightarrow 5 + 2 + 6 + 3 + 7 = 23$

(b) $63754 \Rightarrow 6 + 3 + 7 + 5 + 4 = 25$

(c) $72563 \Rightarrow 7 + 2 + 5 + 6 + 3 = 23$

(d) $56372 \Rightarrow 5 + 6 + 3 + 7 + 2 = 23$

Hence, it is clear that option (b) is different from all others.

90. Pick the odd one out?

- (a) Tiger (b) Cow
(c) Deer (d) Leopard

Ans. (b) : 'Cow' is domestic animal while Tiger, Deer and Leopard are wild animals. Hence in given option 'cow' is odd one.

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

90	80	120
5	4	6
7	6	10
25	?	30

- (a) 23 (b) 55
(c) 26 (d) 25

Ans. (c) : Just as-

In first column $\rightarrow 25 \times 5 - 5 \times 7 = 125 - 35 = 90$

second column $\rightarrow ? \times 4 - 4 \times 6 = 80$

$$? \times 4 - 24 = 80 \Rightarrow ? = 26$$

Same as,

In third column $\rightarrow 6 \times 30 - 6 \times 10 \Rightarrow 180 - 60 = 120$

92. Select the option in which the words share the same relationship as that shared by the given pair of words.

Cat : Mew::?

- (a) Duck : Quack (b) Owl : Hiss
(c) Jackal : Hoot (d) Bull : Crow

Ans. (a) : Just as,

Cat's voice is Mew

Same as,

Duck's voice is Quack.

93. In a certain code. INTEREST is written as TSERETNI, then in the same code, REMEMBER would be written as:

- (a) MEMBARAI (b) REWOLFES
(c) SATATATION (d) REBMEMER

Ans. (d) : Just as,

I N T E R E S T

T S E R E T N I

Same as,

R E M E M B E R

R E B M E M E R

Note :- The order of alphabets has been reversed.

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

20	16	33
22	?	15
27	19	23

- (a) 34 (b) 36
(c) 42 (d) 32

Ans. (d) : First row $\rightarrow 20 + 16 + 33 = 69$

Second row $\rightarrow 22 + ? + 15 = 69$

$$\Rightarrow ? = 69 - 37 = 32$$

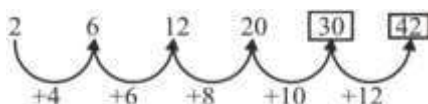
Third row $\rightarrow 27 + 19 + 23 = 69$

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

2, 6, 12, 20, ?, ?

- (a) 32, 48 (b) 27, 36
(c) 25, 30 (d) 30, 42

Ans. (d) : Series is as follows-



So, in place of both the question mark there will be 30 and 42.

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

25 : 16 :: 41 : ?

- (a) 32 (b) 30
(c) 51 (d) 31

Ans. (a) : Just as-

$$25 : 16 \Rightarrow 25 - 9 = 16$$

Same as-

$$41 : ? \Rightarrow 41 - 9 = 32 = ?$$

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

8, 27, 64, 125, 216, ?

- (a) 343 (b) 337
(c) 341 (d) 353

Ans. (a) : Series is as follows-

$$\begin{array}{cccccc} 8 & 27 & 64 & 125 & 216 & ? \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ 2^3 & 3^3 & 4^3 & 5^3 & 6^3 & 7^3 = 343 \end{array}$$

98. In one of the following letter-clusters, the number of letter skipped in between the adjacent letters is in a decreasing sequence. Identify the letter cluster.

- (a) UNSOB (b) OJEBG
(c) VQMJH (d) UPGIG

Ans. (c) :

(a) $U \xrightarrow{-7} N \xrightarrow{+5} S \xrightarrow{-4} O \xrightarrow{-13} B$

(b) $O \xrightarrow{-5} J \xrightarrow{-5} E \xrightarrow{-3} B \xrightarrow{+5} G$

(c) $V \xrightarrow{+5} Q \xrightarrow{+4} M \xrightarrow{+3} J \xrightarrow{+2} H$

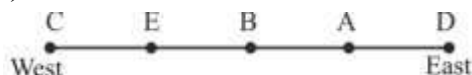
(d) $U \xrightarrow{-5} P \xrightarrow{-9} G \xrightarrow{+2} I \xrightarrow{-2} G$

Hence, option (c) letter clusters are in decreasing sequence.

99. A, B, C, D and E are sitting in a row. C is sitting at the west end and E is the neighbour of B and C. Between A and C there are two persons. Who is sitting at the east end?

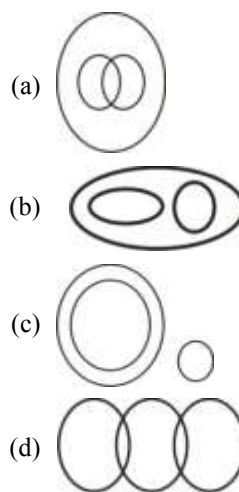
- (a) A (b) C
(c) D (d) B

Ans. (c) :

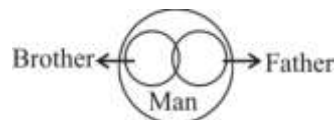


It is clear from the diagram that D is at the last point of the east.

100. Which of the following diagrams best represents the relationship between Man, Father and Brother?



Ans. (a) : Venn diagram of Man, Father and Brother are as follows-



Railway Non-Technical Popular Categories Exam-2019

Graduate and Under-Graduate Level

[Ist Stage Computer Based Test]

Exam Date : 07.01.2021]

[Time : 03:00 pm-04:30 pm

1. Which of the following is a Maharatna PSU?

- (a) BSNL (b) BCCL
(c) HAL (d) BHEL

Ans. (d) : At present, List of Maharatna Companies in India are:-

1. Bharat Heavy Electricals Limited (BHEL)
2. Bharat Petroleum Corporation Limited (BPCL)
3. Coal India Limited (CIL)
4. GAIL (India) Limited
5. Hindustan Petroleum Corporation Limited (HPCL)
6. Indian Oil Corporation Limited (IOCL)
7. National Thermal Power Corporation (NTPC) Limited
8. Oil and Natural Gas Corporation (ONGC)
9. Power Grid Corporation of India Limited
10. Steel Authority of India Limited (SAIL)
11. Power Finance Corporation (PFC)

Note:- 'Maharatna' status is granted to a company which has recorded more than Rs 5000 crore of net profit for three consecutive years, an average annual turnover of Rs 25,000 cr. for 3 years.

2. Who presented the Interim Union Budget on 1 February 2019?

- (a) Manmohan Singh (b) Arun Jaitley
(c) Shiv Pratap Shukla (d) Piyush Goyal

Ans. (d) : On 01 February, 2019 the Interim Union Budget was presented by then finance minister Piyush Goyal. In this Interim Union Budget, the government had proposed to exempt income up to Rs 5 lakh from income tax.

3. There are six toys arranged one above the other in form of a stack, the lowermost is numbered 1 and the toy above it as 2 and so on. Each toy is of a different colour Purple, Pink, White, Yellow, Red and Grey. Purple toy is at the even position but not at the top. Red toy is not adjacent to white or yellow toy. Grey toy is at the 5th position. There are two toys between pink and white toy where pink toy is above the white one. White toy is not at the bottommost position. At which position is the Pink toy?

- (a) 3rd (b) 4th
(c) 6th (d) 2nd

Ans. (c) : According to the question- Toys arrangements are as the following,

- 6 → Pink
5 → Grey
4 → Yellow
3 → White
2 → Purple
1 → Red

Hence, Pink toy position is 6th

4. The National Rural Health Mission was launched in the year:

- (a) 2005 (b) 2007
(c) 2012 (d) 2002

Ans. (a) : The National Rural Health Mission (NRHM) was launched by the Government of India on 12 April, 2005. This mission was launched mainly to provide primary health care facilities to rural persons, women and especially children.

5. A train is travelling 50% faster than a bus. Both start from Karnal at the same time and reach Panipat, which is 75 km from Karnal at the same time. On the way however, the train stopped at a station for about 12.5 minutes. The speed of the bus is:

- (a) 110 km/h (b) 100 km/h
(c) 120 km/h (d) 130 km/h

Ans. (c) : Let the speed of the bus = x km/h

$$\therefore \text{Speed of train} = x \times \frac{150}{100} = \frac{3x}{2} \text{ km/h}$$

$$\text{Time taken by bus to cover the distance of 75 km} = \frac{75}{x} \text{ h}$$

$$\text{And time taken by train to cover the distance of 75 km} = \frac{75}{3x/2} = \frac{50}{x} \text{ h}$$

According to the question-

$$\frac{75}{x} = \frac{50}{x} + 12.5 \text{ min}$$

$$\frac{75}{x} = \frac{50}{x} + \frac{12.5}{60}$$

$$\frac{75 - 50}{x} = \frac{12.5}{60}$$

$$12.5x = 25 \times 60$$

$$x = 120 \text{ km/h}$$

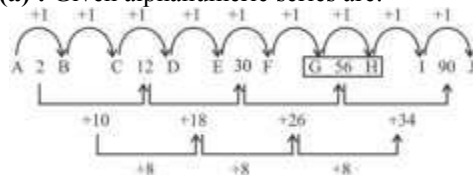
\therefore Speed of the Bus = 120 km/h

6. Find the missing term in given alphanumeric series

A2B, C12D, E30F, _____, I90J

- (a) G56H (b) G48H
(c) G49H (d) G64H

Ans. (a) : Given alphanumeric series are:-



\therefore Missing term in series = G56H

7. The smallest unit of the life capable of independent existence is:

- (a) Cell (b) Cytoplasm
(c) Vacuoles (d) Protoplasm

Ans. (a) : The smallest unit of an organism capable of independent existence is the cell. Human being and other animals and plants have been created from the cell itself. Without a cell the life of any organism is impossible. Cells are found in all animals from amoeba to giant.

8. Ali can complete a piece of work in 8 days. Balvinder can complete the same work in 10 days. In order to complete the work in 4 days, they asked Chander to join them and were able to finish the work in time. In how many days can Chander alone finish the work?

- (a) 20 days (b) 40 days
(c) 14 days (d) 12 days

Ans. (b) : Let Chander's one day work = $\frac{1}{x}$ unit

Ali's one day work = $\frac{1}{8}$ unit

Balvinder's one day work = $\frac{1}{10}$ unit

According to the question-

$$\frac{1}{8} + \frac{1}{10} + \frac{1}{x} = \frac{1}{4}$$

$$\frac{1}{x} = \frac{1}{4} - \frac{1}{10} - \frac{1}{8}$$

$$\frac{1}{x} = \frac{10-5-4}{40}$$

$$\frac{1}{x} = \frac{1}{40}$$

\therefore Chander alone can complete the work in 40 days.

9. Which of the following states lie along the border of Pakistan?

- (a) Gujarat (b) Punjab
(c) Rajasthan (d) Haryana
(a) a, b and d (b) a, b and c
(c) d, c and a (d) b, c and d

Ans. (b) : The states adjacent to Pakistan are- Jammu and Kashmir, Ladakh, Punjab, Gujarat, Rajasthan. The boundary line between India and Pakistan is named Radcliffe Line. Pakistan shares a border of 3323 km with India. The boundary division between India and Pakistan was done by Sir Radcliffe in 17 August, 1947.

10. Anuj plants 5,625 plants in his garden in such a way that the number of rows and the number of plants in each row remains the same. The number of plants in each row will be.

- (a) 2812 (b) 2813
(c) 11250 (d) 75

Ans. (d) : Let no. of rows = x

\therefore No. of plants = x

$$x \times x = 5625$$

$$x^2 = 5625$$

$$x = \sqrt{5625}$$

$$x = 75$$

\therefore No. of plants = 75

11. Which of the following devices is used to measure relatively high temperature, such as are encountered in furnances?

- (a) Bolometer (b) Pyrometer
(c) Ammeter (d) Fluxmeter

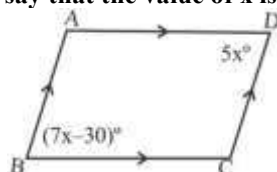
Ans. (b) : Pyrometer is an instrument used to measure high temperature, such as are encountered in furnances. When the temperature of an object is very high its temperature cannot be measured with a normal thermometer.

12. Which of the following is application software?

- (a) Graphics (b) macOS
(c) UNIX (d) LINUX

Ans. (a) : Graphics is a application software that creates images on a computer screen. Creating pictures with the help of computer is called computer graphics. In this process many software techniques are used to create, modify and store two or three dimensional pictures.

13. Looking at the following figure, where angle B and D are $(7x-30)^\circ$ and $5x^\circ$ respectively, we can say that the value of x is:



- (a) 15° (b) 105°
(c) 65° (d) 75°

Ans. (a) : We know that, the opposite angles of a parallelogram are equal.

\therefore From above diagram-

$$\angle B = \angle D$$

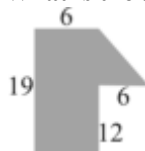
$$7x - 30^\circ = 5x$$

$$2x = 30^\circ$$

$$x = 15^\circ$$

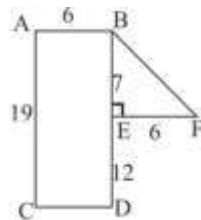
\therefore x is equal to 15°

14. What is the area of the compound shape?



- (a) 114 units (b) 21 units
(c) 135 square units (d) 114 square units

Ans. (c) :



From above diagram,

Area of the given figure = Area of rectangle ABCD + Area of triangle BEF

$$= 19 \times 6 + \frac{1}{2} \times 6 \times 12 = 114 + 36 = 150 \text{ square unit}$$

15. How many ministers can be included in the Council of Ministers of the Union?

- (a) Ten to fifteen percent of the total number of members of the House of People
- (b) Fifteen percent of the total number
- (c) As many as wished by the Prime Minister of India
- (d) Fifty percent of the total number of members of the House of People

Ans. (b) : The number of ministers in the Union Council of Ministers of the Lok Sabha is fifteen percent of the total number of members. The maximum number of member in the Lok Sabha is 552. According to this, the number of ministers in the cabinet cannot exceed 81. Article 74, 75 and 77 of constitution related to the formation of the cabinet are important in the Indian Constitution.

16. The _____ were the first to discover a sea-route to India.

- (a) Portuguese
- (b) French
- (c) English
- (d) Dutch

Ans. (a) : The Portuguese were the first to discover a sea-route to India. The sea-route to India was first discovered by Vasco da Gama. He was a Portuguese explorer and the first European to reach India by sea. He first reached the Port of Calicut on 20 May, 1498 with the help of the guide Ahmad Ibn Majeed. Other then this, the sea-route to America was discovered by Columbus in 1492.

17. A statement is followed by two assumptions. You have to consider the statement and the following assumptions and decide the correct option.

Statement: "If you are a computer engineer, we want you as our senior consultant" an advertisement by company XYZ.

Assumption 1: Engineers are expected to be better performers by company XYZ.

Assumption 2: The Company XYZ needs a senior consultant.

- (a) Only Assumption 2 is Implicit
- (b) Only Assumption 1 is Implicit
- (c) Both Assumption 1 & Assumption 2 are Implicit
- (d) Neither Assumption 1 nor Assumption 2 are Implicit

Ans. (a) : It is clear from the above statement that company XYZ needs a senior consultant. Hence, only assumption 2 is implicit.

18. Decimal expansion of $\frac{109}{100}$ is:

- (a) $1 + \frac{0}{10} + \frac{9}{100}$
- (b) $10 + \frac{9}{100}$

$$(c) 1 + \frac{9}{100}$$

$$(d) 100 + 9 + \frac{0}{100}$$

Ans. (a) : Decimal expansion of $\frac{109}{100} = \frac{100}{100} + \frac{0}{10} + \frac{9}{100}$

$$= \frac{100 + 0 + 9}{100}$$

$$= \frac{109}{100}$$

Hence, option (a) is required answer.

19. What is URL?

- (a) A web browser
- (b) A computer software
- (c) Address of the web page displayed on the internet
- (d) Search engine

Ans. (c) : URL is the address of a web page displayed on the Internet. The full form of URL is 'Uniform Resource Locator'. URL consists of three parts:-

1. Protocol Designation
2. Host Name or Address
3. File or Resource Location

20. Where is Pakhal Wildlife Sanctuary located?

- (a) Warangal
- (b) Chandauli
- (c) Seoni
- (d) Lakhimpur

Ans. (a) : Pakhal Wildlife Sanctuary is located in the Warangal region of Telangana. It is spread around Pakhal Lake. Pakhal Lake is a man-made lake. This lake was built in 1213 AD by the rulers of the Kakatiya dynasty.

21. Who is considered as the 'Father of Geography'?

- (a) Aristotle
- (b) Ptolemy
- (c) Eratosthenese
- (d) Thales

Ans. (c) : Eratosthenese (276-194 BC), the ancient greek scholar, is called the 'Father of Geography'. He was the first one to use the word geography and he also had a small-scale notion of the planet that helped him to determine the circumference of the Earth. He also calculated the tilt axis of the Earth.

22. Read the following information carefully and answer the questions that follow:

A word number arrangement machine, when given input as set of words and numbers, rearranges them following particular rule and generate a stepwise output until the rearrangement is complete following that rule. Following is an illustration of the input and steps of rearrangement until the last step.

Input : Tokyo 7 Rio @ 5 Salva We

Step 1 : Tokyo 7 Rio @ We 5 Salva

Step 2 : Tokyo 7 Rio We @ 5 Salva

Step 3 : 7 Rio We @ 5 Salva Tokyo

Step 4 : Rio 7 We @ 5 Salva Tokyo

In addition step 4 is the last step.

For the input, "When % SSR 2 meet shall you", What is Step 2?

- (a) When % SSR 2 you meet shall
- (b) SSR 2 when % you meet shall

- (c) SSR when % you 2 meet shall
(d) When % SSR you 2 meet shall

Ans. (d) : Input : "When % SSR 2 meet shall you",
According to the question illustration,
Step 1 : When % SSR 2 you meet shall
Step 2 : When % SSR you 2 meet shall
Hence, option (d) is correct.

23. The 'Yellow Vest' protests are associated with which country?

- (a) China (b) Russia
(c) Japan (d) France

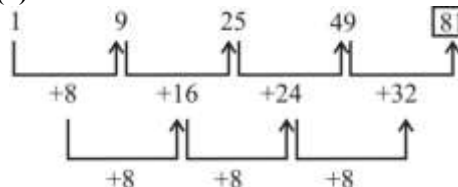
Ans. (d) : The 'Yellow Vest' protest began in France on 17 Nov, 2018. The reason of this protest is rise of Oil prices due to High fuel taxes, Traffic enforcement, Cameras, Immigration, Class conflicts and High living costs etc. The protest became known as 'Yellow vest' or 'gilets jaunes' movement because protesters took to the streets wearing the high visibility yellow jackets that are required to be carried in every vehicle by France law.

24. Which the number given below would come next in the following series of numbers?

1, 9, 25, 49, ?

- (a) 16 (b) 81
(c) 64 (d) 36

Ans. (b) : Given series are as follows-



Hence, **[? = 81]**

25. To gain 25% after announcing a discount of 10%, the shopkeeper must mark the price of the article with cost price ₹ 360 as:

- (a) ₹460 (b) ₹486
(c) ₹500 (d) ₹450

Ans. (c) : Let the mark price of the article = ₹x
Cost price of the article = ₹360
According to the question-

$$CP = \frac{MP(100 - D)}{100 + \text{Profit}\%}$$

$$360 = \frac{x \times (100 - 10)}{(100 + 25)}$$

$$x = \frac{360 \times 125}{90}$$

$$x = ₹ 500$$

∴ Mark price of the article = ₹500

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

China : Beijing : Brazil

- (a) Shanghai (b) Buenos Aires
(c) Rio de Janeiro (d) Brasilia

Ans. (d) : Just as, China's capital is Beijing. Same as, Brazil capital is Brasilia.

27. If a pie chart is drawn based on the data given below, what will be the central angle for food?

No. of families	Item of expenditure
150	Education
400	Food
40	Rent
250	Electricity
160	Miscellaneous

- (a) 150° (b) 208°
(c) 144° (d) 90°

Ans. (c) : Total number of families = 150 + 400 + 40 + 250 + 160 = 1000

If we make pie chart, 1000 = 360°

Expenditure on food = 400

$$\text{Hence, central angle for food} = \frac{360^\circ}{1000} \times 400$$

$$= 144^\circ$$

28. As of October 2020, who is the President of Nepal?

- (a) Nand Kishor Pun (b) K P Oli
(c) Bidhya Devi Bhandari (d) Madhav Kumar

Ans. (c) : Bidhya Devi Bhandari is the current President of Nepal. Rambaran Yadav is the first President of Nepal. The present Prime Minister of Nepal is Sher Bahadur Deuba. The Capital of Nepal is Kathmandu. Nepal has not become a slave of any country till date.

29. What is correct about the Khilafat Movement in India?

- (a) It was a movement to restore the Mughal Royal family in India
(b) It was a movement in demand of Pakistan
(c) It was a movement against the massacre of Jallianwala Bagh
(d) It was a movement in support of the Turkish Sultan

Ans. (d) : Khilafat Movement was a movement in support of the Turkish Sultan. The Khilafat Movement was started on October 27, 1919 under the leadership of Maulana Shaukat Ali and Mohammad Ali Jauhar and was fully supported by Mahatma Gandhi. There were two demands of this movement.

1. The partition of Turkey should removed.
2. The post of Khalifa should be re-established.

30. Since the HCF of (48, 144) = 48, therefore that LCM of (48, 144) = ?

- (a) 48 × 144 (b) 3
(c) 48 (d) 144

Ans. (d) : LCM of 48 and 144 is-

2	48, 144
2	24, 72
2	12, 36
2	6, 18
3	3, 9
3	1, 3
	1, 1

$$= 2 \times 2 \times 2 \times 2 \times 3 \times 3 = 144$$

31. Who was the first Chairman of Rajya Sabha?

- (a) Ganesh Vasudev
- (b) Dr. Sarvepalli Radhakrishnan
- (c) S.V. Krishnamoorthy Rao
- (d) Smt. Violet Alva

Ans. (b) : The first Chairman of Rajya Sabha was Dr. Sarvepalli Radhakrishnan. The vice president of the country is the ex-officio chairman of Rajya Sabha. Presently the chairman of Rajya Sabha is M. Venkaiah Naidu. The country's first Deputy Chairman of Rajya Sabha was SV Krishnamoorthy. At present, the Deputy Chairman of Rajya Sabha is Harivansh Narayan Singh.

32. Amit alone can complete a piece of work in 15 days and Balbir alone can do the same work in 10 days. If Amit alone works for 3 days after which Balbir joins him, then the work will be finished in how many days?

- (a) $\frac{1}{6}$ days
- (b) $4\frac{4}{5}$ days
- (c) $7\frac{4}{5}$ days
- (d) $\frac{4}{5}$ days

Ans. (c) : Let- the work will be finished in x days.

Amit one day work = $\frac{1}{15}$ unit

Balbir one day work = $\frac{1}{10}$ unit

According to the question,

$$\frac{x}{15} + \frac{x-3}{10} = 1$$

$$2x + 3x - 9 = 30$$

$$5x = 39$$

$$x = \frac{39}{5} = 7\frac{4}{5} \text{ days}$$

33. Who won gold medal in the 25 m Pistol Category at Asian Games 2018?

- (a) Rahi Sarnobat
- (b) Tessa Virtue
- (c) Bobby Aloysius
- (d) Satyajit Prasad

Ans. (a) : Rahi Sarnobat won the gold medal in the 25m pistol category in 2018. She is an Indian female shooter. She is the first Indian pistol shooter to win a gold medal in a World Cup.

34. Moving along circular path, Ansh takes 18 minutes to complete one round and Siddhi takes 12 minutes for the same. If they start from the same point and at the same time, then after what time they will meet again at the starting point?

- (a) 1.5 minutes
- (b) 216 minutes
- (c) 36 minutes
- (d) 6 minutes

Ans. (c) : LCM of 18 minutes and 12 minutes = 36 minutes

If Ansh and Siddhi started from same point and same time then they will meet again at the same point after 36 minutes.

35. The Nobel prize awarding institute, Swedish Academy, is associated with:

- (a) Peace
- (b) Medicine
- (c) Literature
- (d) Physiology

Ans. (c) : The Swedish Academy of Nobel prize awarding body, belongs to the field of 'Literature' because the Nobel Laureates in Literature is selected by the committee of the Academy.

36. The quartzite is a _____ type of rock.

- (a) Sedimentary
- (b) Igneous
- (c) Basalt
- (d) Metamorphic

Ans. (d) : Quartzite is a metamorphic rock. Pure quartzite is usually white brown in colour. However quartzites are often various shades of pink and red due to varying amounts of hematite.

37. Which of the following numbers has a terminating decimal?

$$\frac{15}{600}, \frac{29}{343}, \frac{7}{2^2 \times 7^2}, \frac{77}{210}$$

- (a) $\frac{7}{2^2 \times 7^2}$
- (b) $\frac{29}{343}$
- (c) $\frac{15}{600}$
- (d) $\frac{77}{210}$

Ans. (c) : Go through option, converting the fractions into decimals

$$(a) \frac{7}{2^2 \times 7^2} = \frac{7}{196} = 0.0357.....$$

$$(b) \frac{29}{343} = 0.0845.....$$

$$(c) \frac{15}{600} = 0.025$$

$$(d) \frac{77}{210} = 0.3\bar{6}$$

Hence, from above $\frac{15}{600}$ is terminating decimal.

38. At which place in Haryana is the Government of India developing a nuclear power plant?

- (a) Kalka
- (b) Gorakhpur
- (c) Ballabgarh
- (d) Palwal

Ans. (b) : 'Gorakhpur Haryana Anu Vidyut Project' is being established in a village named Gorakhpur (Fatehabad district) by the Government of India in Haryana. The foundation stone of this project was laid by the former Prime Minister of India Manmohan Singh on 13 February 2014.

39. How many countries are the members of OPEC as of November 2020?

- (a) 28
- (b) 20
- (c) 18
- (d) 13

Ans. (d) : Organization of the Petroleum Exporting Countries (OPEC) is an organization of 13 petroleum producing countries. It had a total of 14 countries, but due to the exit of Qatar in 2018, it has a total of 13 member countries. It's member countries are:- Venezuela, Gabon, Equatorial Guinea, Congo, Libya, Nigeria, United Arab Emirates, Angola, Kuwait, Iraq, Iran, Saudi Arabia and Algeria. It is founded in 1960 at Baghdad headquartered in Vienna, Austria.

40. Who of the following is one of the nine gems of Chandragupta II?

- (a) Varahamihira (b) Moggallana
(c) Vishakhadatta (d) Brahmagupta

Ans. (a) : Chandragupta II is also known as Vikramaditya. He ruled from 375 to 414 AD. This period of the Gupta Empire is also called the Golden age of India. In the Sanchi inscription, he has been called 'Devraj'. Navratnas resided in Chandragupta's court among who were Kalidasa, Varahamihira, Dhanvantari, Gahatkharrour, Shanku, Amarasingha, Vetala Bhatta, Kshapanaka, Varuchi.

41. The Bharatmala Pariyojana is associated with:

- (a) Ports (b) Highways
(c) Telecom (d) Railways

Ans. (b) : Bharatmala Project is a National Highway Development Project. Under this, apart from new highways, those projects will also be completed which are still incomplete. This included the development project with border and international connectivity.

42. India's first railway university is located at:

- (a) Thane, Maharashtra
(b) Varanasi, Uttar Pradesh
(c) Vadodara, Gujarat
(d) Raurkela, Odisha

Ans. (c) : India is the third country in the world to establish a Railway University after Russia and China. India's first Railway University was started in Vadodara, Gujarat on the day of Teacher's Day on 05 September 2018.

43. The ranking of India in the Global Innovation Index 2020 is:

- (a) 66 (b) 58
(c) 48 (d) 84

Ans. (c) : Global Innovation Index 2020 is the 13th edition of the Global Innovation Index released by World Intellectual Property Organization (WIPO) in which India has been ranked 48th. For the first time India has joined the group of top countries in the Global Innovation Index (GII). In this Switzerland got first place. Sweden got 2nd place and America got third place. Yemen was ranked last in this index of 131 countries.

44. The inter-governmental-treaty-based organisation having its headquarters in India is:

- (a) ATS (b) NATO
(c) ISA (d) OECD

Ans. (c) : International Solar Alliance (ISA) is a cooperation organization of 124 countries based on solar energy, headquartered in Gurugram (Gurgaon), Haryana. This organization will bring the nations situated between the Tropic of Cancer and Capricorn on one platform. The availability of sunlight is in abundance in such countries. In this organization, all these countries will work together in the field of solar energy.

45. Let $f(x) = x^2$ in R , then the range of f will be:

- (a) Whole numbers
(b) Non negative numbers

- (c) Positive real numbers
(d) Negative real numbers

Ans. (c) : Any number square is always positive real numbers.

$$\therefore f(x) = x^2$$

$$\Rightarrow \text{Range of } f = [0, \infty] = R^+$$

Hence, the range of f will be positive real numbers.

46. If one substitutes @ with either "+" or "x" (multiplication) in the expression 1@2@3@4@5@6, what is the maximum value that can be derived assuming that the correct order of mathematical operations are followed.

- (a) 612 (b) 721
(c) 720 (d) 732

$$\begin{aligned} \text{Ans. (b) : Maximum value} &= 1 + 2 \times 3 \times 4 \times 5 \times 6 \\ &= 1 + 720 \\ &= 721 \end{aligned}$$

47. By selling a watch for a certain amount, Deepika suffered loss of 10%. By selling the same watch for ₹ 140 more, they would have gained 4%. What was the cost price of the watch?

- (a) ₹ 760 (b) ₹ 1140
(c) ₹ 1000 (d) ₹ 860

Ans. (c) : Let CP of the watch = ₹x

$$\begin{aligned} \therefore \text{SP} &= x \times \frac{(100-10)}{100} \\ &= \frac{9x}{10} \end{aligned}$$

If it was sold to ₹140 then

$$\text{SP} = \frac{9x}{10} + 140$$

According to the question-

$$\begin{aligned} \frac{9x}{10} + 140 &= x \times \frac{(100+4)}{100} \\ \frac{9x + 1400}{10} &= \frac{104x}{100} \\ \frac{9x + 1400}{10} &= \frac{26x}{25} \end{aligned}$$

$$225x + 35000 = 260x$$

$$35x = 35000$$

$$x = ₹1000$$

\therefore CP of the watch = ₹1000

48. If the mean is 25 and the standard deviation is 5 then the coefficient of variation is:

- (a) 48% (b) 27%
(c) 20% (d) 60%

Ans. (c) : Given,

$$\text{Mean} = 25$$

$$\text{Standard deviation} = 5$$

We know that,

$$\begin{aligned} \text{Coefficient of variation} &= \frac{\text{Standard deviation}}{\text{Mean}} \times 100 \\ &= \frac{5}{25} \times 100 = 20\% \end{aligned}$$

49. The fractions $\frac{1}{3}, \frac{4}{7}, \frac{2}{5}$ written in ascending order are:

- (a) $\frac{1}{3}, \frac{4}{7}, \frac{2}{5}$
 (b) All the fractions are equivalent fractions
 (c) $\frac{1}{3}, \frac{2}{5}, \frac{4}{7}$
 (d) $\frac{4}{7}, \frac{1}{3}, \frac{2}{5}$

Ans. (c) : Converting the fractions into decimals,

$$\frac{1}{3} = 0.33$$

$$\frac{4}{7} = 0.57$$

$$\frac{2}{5} = 0.4$$

$$\therefore \text{Ascending order} = \frac{1}{3}, \frac{2}{5}, \frac{4}{7}$$

50. The earliest deciphered epigraphy of Ashoka's inscription in India was written in which script?

- (a) Kharoshthi (b) Harappan
 (c) Brahmi (d) Devnagri

Ans. (c) : The earliest records of Ashoka were written in the Brahmi Script. So far, a total of 33 inscriptions of Ashoka have been received. For the first time in 1837, a scholar named James Prinsep had succeeded in reading Ashoka's inscription. The inscriptions of Shahbazgarhi and Mansehra are inscribed in Kharoshthi script and the Afghan inscriptions near Taxila and Laghman are in Aramaic and Greek. Apart from this, all the inscriptions of Ashoka small stone pillar inscriptions and small inscriptions are engraved in Brahmi script.

51. Pick the odd pair of words from the below options

- (a) Steadfast : irresolute
 (b) Monotonous : exciting
 (c) Stringent : Flexible
 (d) Docile : submissive

Ans. (d) : The word pairs given in option (a), (b) and (c) are opposite to each other whereas the word pair given in option (d) are synonyms of each other. Hence, option (d) is inconsistent.

52. The nearest Spiral galaxy to Milky way is:

- (a) Dwarf galaxy
 (b) Sun flower galaxy
 (c) Andromeda galaxy
 (d) Pinwheel galaxy

Ans. (c) : The nearest spiral galaxy to the Milky way is Andromeda Galaxy. The Andromeda Spiral Galaxy is the closest galaxy to us. The Andromeda galaxy or Devayani Galaxy is a great constellation located 2500000 light years away from Earth, located in the Andromeda constellation which can be seen with the naked eye in clear skies.

53. Who is the Attorney General of India as of October 2020?

- (a) V.K Sharma (b) K.V Chowdhary
 (c) Rajnish Kumar (d) K.K. Venugopal

Ans. (d) : The present Attorney General of India is K.K. Venugopal. The Attorney General of India is also the primary lawyer who represents the central government in the Supreme Court of India. The Attorney General of India (Article 76) is appointed by the President of India.

54. The total number of articles that were present originally in the Indian Constitution during its implementation is:

- (a) 396 (b) 391
 (c) 392 (d) 395

Ans. (d) : At the time of the coming into force of the Constitution of India, it basically consisted of 395 articles, 12 schedules and 22 parts since its adoption in 1949. It has been amended for 103 times. Total no. of Amendment Bills introduced till today in parliament is 126.

55. Bhawna borrowed ₹ 4,500 from a lender at the rate of 15% per annum simple interest on 26 March 2018 and cleared the loan on 7 June of the same year. What amount did she pay to clear her loan?

- (a) ₹4,635 (b) ₹53,775
 (c) ₹135 (d) ₹49,275

Ans. (a) : Given-

$$R = 15\%$$

$$P = ₹4500$$

$$T = 26 \text{ March } 2018 \text{ to } 7 \text{ June } 2018$$

$$= 5 + 30 + 31 + 7$$

$$= 73 \text{ days}$$

$$SI = \frac{P \times R \times T}{100}$$

$$= \frac{4500 \times 15 \times 73}{100 \times 365}$$

$$SI = 45 \times 3$$

$$SI = 135$$

$$A = P + SI$$

$$= 4500 + 135$$

$$= ₹4,635$$

Hence, It is clear she pay ₹4,635 to clear her loan.

56. The population of a town increases by 10% every year. If the present population is 20,000, in the next year it will be:

- (a) 18,000 (b) 22,000
 (c) 2,200 (d) 1,800

$$\begin{aligned} \text{Ans. (b) : Next year population of the town} &= 20,000 \times \frac{110}{100} \\ &= 22,000 \end{aligned}$$

57. Value of A for the equation:

$$\tan A + \tan 2A + \tan 3A = \tan A \tan 2A \tan 3A$$

- (a) $\frac{\pi}{3}, \frac{2\pi}{3}$ (b) $\frac{5\pi}{6}$

(c) Only $\frac{\pi}{3}$

(d) Only $\frac{2\pi}{3}$

Ans. (a) : Given,

$$\tan A + \tan 2A + \tan 3A = \tan A \tan 2A \tan 3A$$

$$\tan A + \tan 2A = \tan A \tan 2A \cdot \tan 3A - \tan 3A$$

$$\tan A + \tan 2A = \tan 3A (\tan A \tan 2A - 1)$$

$$\frac{\tan A + \tan 2A}{1 - \tan A \tan 2A} = -\tan 3A$$

$$\tan(A + 2A) = -\tan 3A$$

$$2 \tan 3A = 0$$

$$\tan 3A = 0$$

$$\tan 3A = \tan n\pi$$

$$3A = n\pi$$

$$A = \frac{n\pi}{3}$$

Put the value of $n = 1$

$$A = \frac{\pi}{3}$$

Put the value of $n = 2$

$$A = \frac{2\pi}{3}$$

$$A = \frac{\pi}{3}, \frac{2\pi}{3}$$

Hence, required value of A is $\frac{\pi}{3}$ and $\frac{2\pi}{3}$.

58. A statement is given by an immediate conclusion. Choose the correct option regarding the conclusion.

Statement: All farmers are very hard working.
Conclusion: Some very hardworking persons are farmers.

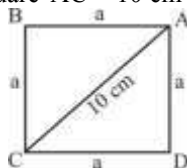
- (a) True
(b) Information irrelevant
(c) Probably false but not sure
(d) False

Ans. (a) : In this question the statement say that all farmers are very hardworking that means some or few hardworking persons are farmers because all farmers are hardworking. So we can say that the conclusion, 'some very hardworking persons are farmers', is true. Hence "option (a)" is the correct answer.

59. The length of each side of a square whose diagonals are 10 cm each is:

- (a) $10\sqrt{2}$ cm (b) 5 cm
(c) 7 cm (d) $5\sqrt{2}$ cm

Ans. (d) : Let each side of square = a cm and diagonal of square $AC = 10$ cm (Given)



In $\triangle ADC$

$$(\text{Hypotenuse})^2 = (\text{Base})^2 + (\text{Perpendicular})^2$$

$$(10)^2 = a^2 + a^2$$

$$100 = 2a^2$$

$$a^2 = 50$$

$$a = \sqrt{50}$$

$$a = \sqrt{25 \times 2}$$

$$a = 5\sqrt{2}$$

\therefore Each side of square = $5\sqrt{2}$ cm

60. Which of the two colours of spectrum forms the extremes?

- (a) Violet and Red (b) Blue and Green
(c) Yellow and Orange (d) Red and Orange

Ans. (a) : In Spectrum there are 7 colours and at top there is Violet and at bottom there is Red:-

V \rightarrow Violet

I \rightarrow Indigo

B \rightarrow Blue

G \rightarrow Green

Y \rightarrow Yellow

O \rightarrow Orange

R \rightarrow Red

Hence, Violet and Red colour forms the extremes.

61. Simplify the following equation:

$$\left(4\frac{3}{4} - 3\frac{1}{3}\right) \div \left(\frac{3}{4} - \frac{3}{5}\right) + \frac{3}{5} \times \frac{5}{7} \times \frac{7}{9}$$

- (a) $9\frac{7}{9}$ (b) $\frac{85}{29}$
(c) $\frac{452}{135}$ (d) $\frac{131}{240}$

$$\begin{aligned} \text{Ans. (a) : } & \left(4\frac{3}{4} - 3\frac{1}{3}\right) \div \left(\frac{3}{4} - \frac{3}{5}\right) + \frac{3}{5} \times \frac{5}{7} \times \frac{7}{9} \\ & = \left(\frac{19}{4} - \frac{10}{3}\right) \div \left(\frac{3}{4} - \frac{3}{5}\right) + \frac{3}{5} \times \frac{5}{7} \times \frac{7}{9} \\ & = \left(\frac{57 - 40}{12}\right) \div \left(\frac{15 - 12}{20}\right) + \frac{3}{5} \times \frac{5}{7} \times \frac{7}{9} \\ & = \frac{17}{12} \times \frac{20}{3} + \frac{1}{3} = \frac{85}{9} + \frac{1}{3} = \frac{85 + 3}{9} = \frac{88}{9} = 9\frac{7}{9} \end{aligned}$$

62. Select the number that can replace the question mark (?) in the following equation.

$$12 + 8 - 5 \times \frac{1}{2} \times 12 - \{45 \div (34 - 19)\} = ?$$

- (a) -10 (b) -25
(c) 13 (d) -13

$$\text{Ans. (d) : } 12 + 8 - 5 \times \frac{1}{2} \times 12 - \{45 \div (34 - 19)\} = ?$$

According to BODMAS,

$$12 + 8 - 5 \times \frac{1}{2} \times 12 - \{45 \div 15\} = ?$$

$$12 + 8 - 5 \times \frac{1}{2} \times 12 - 3 = ?$$

$$12 + 8 - 30 - 3 = ?$$

$$20 - 3 - 30 = ?$$

$$20 - 33 = ?$$

$$-13 = ?$$

63. Two statements are followed by two given conclusion. Choose the correct option considering the statement to be true irrespective of the commonly known facts.
Statement 1 : Only cows are mammals.
Statement 2 : No scientists are mammals.
Conclusion 1 : Some cows are scientists.
Conclusion 2 : Some scientist are mammals.
 (a) Only conclusion 2 follows
 (b) Both conclusion 1 and conclusion 2 follow
 (c) Neither conclusion 1 nor conclusion 2 follow
 (d) Only conclusion 1 follows

Ans. (c) :



∴ From above diagram it is clear that neither conclusion I nor conclusion II follows.

64. In any triangle ABC, $a + b + c = 2s$ with usual notation, then the value $\sin\left(\frac{A}{2}\right)$ is

- (a) $\sqrt{\frac{(s-b)(s-c)}{s(s-a)}}$ (b) $\sqrt{\frac{(s-c)(s-a)}{ac}}$
 (c) $\sqrt{\frac{(s-b)(s-c)}{bc}}$ (d) $\sqrt{\frac{s(s-a)}{bc}}$

Ans. (c) : Given-

$$a + b + c = 2s \quad \dots(i)$$

$$\text{Area of triangle} = \frac{1}{2}bc \sin A$$

By formula:-

$$\text{Area of triangle} = \sqrt{s(s-a)(s-b)(s-c)}$$

$$\frac{1}{2}bc \sin A = \sqrt{s(s-a)(s-b)(s-c)}$$

$$\sin A = \frac{2 \times \sqrt{s(s-a)(s-b)(s-c)}}{bc} \quad \left\{ \begin{array}{l} \text{formula -} \\ \sin x = 2 \sin \frac{x}{2} \cos \frac{x}{2} \end{array} \right\}$$

$$\sin \frac{A}{2} \cos \frac{A}{2} = \frac{\sqrt{s(s-a)(s-b)(s-c)}}{bc} \quad \dots (ii)$$

We know that-

$$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

$$2 \cos^2 \frac{A}{2} - 1 = \frac{b^2 + c^2 - a^2}{2bc} \quad \left(\begin{array}{l} \text{Formula - } \cos 2A = 2 \cos^2 A - 1 \\ \cos A = 2 \cos^2 \frac{A}{2} - 1 \end{array} \right)$$

$$2 \cos^2 \frac{A}{2} = \frac{b^2 + c^2 - a^2 + 2bc}{2bc}$$

$$\cos^2 \frac{A}{2} = \frac{(b+c-a)(b+c+a)}{4bc}$$

$$\cos^2 \frac{A}{2} = \frac{(2s-a-a)2s}{4bc} \quad [\text{From equ}^n(i)]$$

$$\cos^2 \frac{A}{2} = \frac{(2s-2a)2s}{4bc}$$

$$\cos^2 \frac{A}{2} = \frac{s(s-a)}{bc}$$

$$\cos \frac{A}{2} = \sqrt{\frac{s(s-a)}{bc}}$$

Putting the value of $\cos \frac{A}{2}$ in equation (ii)-

$$\sin \frac{A}{2} \sqrt{\frac{s(s-a)}{bc}} = \frac{\sqrt{s(s-a)(s-b)(s-c)}}{bc}$$

$$\sin \frac{A}{2} = \sqrt{\frac{(s-b)(s-c)}{bc}}$$

65. Assuming that the given statement is true; find out which of the four alternative (s) is definitely true.

Statement: No newspaper is read by an illiterate.

- A. All newspaper that are read, are read by post graduates.
 B. Some newspapers that are read, are read by post graduates.
 C. Some newspapers are not read, are read by Illiterates.
 D. No Illiterate ever reads a newspaper.
 (a) Only A & B (b) Only B
 (c) Only A (d) Only C & D

Ans. (d) : From above statement, it is clear that only conclusion C and D is absolutely true.

66. In which year was the Setu Bharatam Programme launched?

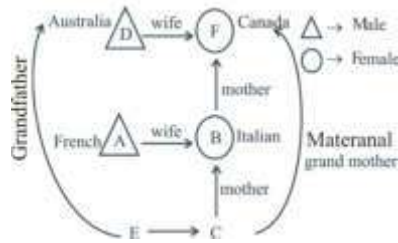
- (a) 2013 (b) 2018
 (c) 2017 (d) 2016

Ans. (d) : Setu Bharatam is a project of the Government of India, which was started on 4 March, 2016. Setu Bharatam aims to make all National Highways in India free of railway crossing by 2019. It was launched by the Indian Prime Minister Shri Narendra Modi.

67. There is a group of six persons, A, B, C, D, E and F in a room. In the group, there are two married couples. B is Italian and is the mother of C. F is the grandmother of C. F is from Canada. D is the grandfather of E and D is from Australia. There is one Italian, one Canadian, one Australian, one French and two Irish people in the group. The French person is a male and married. Nobody who is a grandchild is married. What is the nationality of A and who is his wife?

- (a) French, F (b) Italian, B
 (c) Irish, F (d) French, B

Ans. (d) : As per question, blood relation diagram is as follows-



It is clear from above diagram that the nationality of A is French and B is his wife.

68. Pragma invited male and females to her birthday party in the ratio of 7 : 6. If the number of males in the party were 56, then the total number of guests attending the party were?
- (a) 48 (b) 104
(c) 108 (d) 112

Ans. (b) : Let number of males = $7x$
and, number of female = $6x$
According to the question-

$$7x = 56$$

$$x = 8$$

$$\therefore \text{Total number of guests} = 7x + 6x$$

$$= 13x$$

$$= 13 \times 8$$

$$= 104$$

69. $3 + 2\sqrt{5}$ is :
- (a) Rational number (b) Irrational number
(c) Composite number (d) Natural number

Ans. (b) : Irrational number: The set of real numbers that cannot be represented in form of p/q is called irrational number means that the number which is not rational is called irrational number.

Example- $\sqrt{2}$, $\sqrt{3}$

$\therefore 3 + 2\sqrt{5}$ is irrational number.

70. The Space diagonal of a cube measures $8\sqrt{3}$ cm. What is the volume of the cube?
- (a) 1536 cm^3 (b) $512\sqrt{3} \text{ cm}^3$
(c) 512 cm^3 (d) $1536\sqrt{3} \text{ cm}^3$

Ans. (c) : Using the diagonal of a cube formula,
Length of Diagonal of a cube = $a\sqrt{3}$

$$8\sqrt{3} = a\sqrt{3}$$

$$a = 8 \text{ cm}$$

$$\therefore \text{Volume of cube} = a^3$$

$$= 8^3$$

$$= 512 \text{ cm}^3$$

71. The zoological name of the common housefly is:
- (a) *Musca domestica* (b) *Triticum aestivum*
(c) *Fannia* (d) *Homo sapiens*

Ans. (a) : The scientific name of the house fly is *Musca domestica*. Other than this, *Triticum aestivum* is the scientific name of wheat. *Homo sapiens* is the scientific name of human.

72. The first island to operate seaplane service is:
- (a) Andaman and Nicobar (b) Neil Island
(c) Majuli (d) Diu

Ans. (a) : Andaman and Nicobar Islands service is the first island to operate a sea plane. In the year 2010, 4 sea plane services were started in Andaman and Nicobar named 'Jal Hans'.

73. Select the number from among the given options that can replace the question mark (?) in the following series.
- 1, 5, 29, ?
- (a) 259 (b) 256
(c) 196 (d) 324

Ans. (a) : Given series is follows as:-

$$\begin{array}{cccc} 1 & 5 & 29 & 259 \\ \downarrow & \downarrow & \downarrow & \downarrow \\ 1^1+0 & 2^2+1 & 3^3+2 & 4^4+3 \end{array}$$

Hence, $[?] = 259$

74. Read the following information carefully and answer the questions that follows:

A word number arrangement machine, when given input as set of words and numbers, rearranges them following particular rule and generate a stepwise output until the rearrangement is complete following that rule. Following is an illustration of the input and steps of rearrangement until the last step.

Input : Tokyo 7 Rio @ 5 Salva We
Step 1 : Tokyo 7 Rio @ We 5 Salva
Step 2 : Tokyo 7 Rio We @ 5 Salva
Step 3 : 7 Rio @ We 5 Salva Tokyo

Step 4 : Rio 7 @ We 5 Salva Tokyo

In addition, step 4 is the last step.

For the input, "Let 1 mail & check me and", what is Step 4?

- (a) mail 1 me Let & and check
(b) and check me Let mail 1 &
(c) 1 & and check me Let mail
(d) mail 1 & and check me Let

Ans. (d) : Input : "Let 1 mail & check me and" for

According to the question illustration,

Step 1 : Let 1 mail & and check me.

Step 2 : Let 1 mail and & check me.

Step 3 : 1 mail & and check me Let.

Step 4 : mail 1 & and check me Let.

75. The momentum of an object of mass 'm' moving with a velocity 'v' is given by:

- (a) mv^2 (b) $\frac{1}{2}mv^2$
(c) $(mv)^2$ (d) mv

Ans. (d) : Momentum is the product of the mass (m) and velocity (v) of an object. It is a vector quantity, possessing a magnitude and a direction.

In form of formula-

Momentum = mass \times velocity

$$P = m \times v$$

$$P = mv$$

SI unit of momentum = kg.m/sec

76. The sides of a triangle are in the ratio 3 : 4 : 5
The triangle is :
(a) Obtuse angle
(b) Right angle
(c) Acute angle
(d) Either acute angle or right angle

Ans. (b) : Given:

Ratio of the sides of a triangle = 3 : 4 : 5

Let sides are 3x, 4x and 5x

By Pythagoras theorem,

$$(5x)^2 = (3x)^2 + (4x)^2$$

$$25x^2 = 9x^2 + 16x^2$$

$$25x^2 = 25x^2$$

Hence, this triangle is right angle triangle.

77. The Indian Space Programme is said to have begun in _____ with the setting up of INCOSPAR by the Indian government.
(a) 1968 (b) 1970
(c) 1960 (d) 1962

Ans. (d) : The Indian Space Programme began in 1962 with the establishment of Indian National Committee for Space Research (INCOSPAR) by the Government of India, when India decided to go into space with its leader, visionary Dr. Vikram Sarabhai. INCOSPAR established the Thumba Equatorial Rocket Launch Center at Thiruvananthapuram for upper atmospheric research.

78. In a certain code, MAD = 56, CAT = 80, then DEN = _____ ?
(a) 208 (b) 126
(c) 100 (d) 29

Ans. (b) : Just as,

$$\begin{array}{ccc} M & A & D \\ \downarrow & \downarrow & \downarrow \\ (13+1) \times 4 & & \\ = 56 & & \end{array}$$

And

$$\begin{array}{ccc} C & A & T \\ \downarrow & \downarrow & \downarrow \\ (3+1) \times 20 & & \\ = 80 & & \end{array}$$

Similarly,

$$\begin{array}{ccc} D & E & N \\ \downarrow & \downarrow & \downarrow \\ (4+5) \times 14 & & \\ = 126 & & \end{array}$$

Hence, **DEN = 126**

79. Who coined the word "Artificial Intelligence"?
(a) John McCarthy (b) David Bradley
(c) John Berger (d) Charles Bachman

Ans. (a) : John McCarthy, who coined the term 'Artificial Intelligence' in 1956, defines it as 'the science and engineering of making intelligent machines.' AI is 'the study and design of intelligent agents' where an intelligent agent is a system that perceives its environment and takes action which maximizes its chances of success.

80. $\sqrt{8-2\sqrt{15}}$ is equal to:

- (a) $5-\sqrt{3}$ (b) $3-\sqrt{5}$
(c) $\sqrt{5}+\sqrt{3}$ (d) $\sqrt{5}-\sqrt{3}$

Ans. (d) : $\sqrt{8-2\sqrt{15}}$

$$= \sqrt{5+3-2\sqrt{5 \times 3}}$$

$$= \sqrt{(\sqrt{5})^2 + (\sqrt{3})^2 - 2\sqrt{5 \times 3}}$$

$$= \left(\sqrt{(\sqrt{5}-\sqrt{3})^2} \right)$$

$$= \sqrt{5}-\sqrt{3}$$

81. Which of the following individuals is NOT associated with the musical instrument santoor?
(a) Bhajan Sopori
(b) Ustad Amjad Ali Khan
(c) Pt. Shiv Kumar Sharma
(d) Tarun Bhattacharya

Ans. (b) : Amjad Ali Khan is a famous sarod player who was awarded the Padma Bhushan by the Government of India in 1991 in the field of Art. In 1963 at the age of just 18 year, he made his first visit to America, in which Amjad Ali Khan's sarod was also played along with the performance of Pandit Birju Maharaj's dance troupe.

82. The selling price of 9 articles is equal to the cost price of 15 articles. In this transaction there is a:
(a) loss of 40%
(b) gain of 66.6% nearly
(c) loss of 66.6% nearly
(d) gain of 40%

Ans. (b) : According to the question-

$$9 \times SP = 15 \times CP$$

$$\frac{SP}{CP} = \frac{15}{9}$$

$$SP > CP$$

$$\therefore \text{Profit\%} = \frac{15-9}{9} \times 100$$

$$= \frac{6}{9} \times 100$$

$$= \frac{200}{3}$$

$$= 66.66\%$$

83. Who among the following is NOT a nationalist extremist leader of Indian National Congress?
(a) Bipin Chandra Pal
(b) Sri Aurobindo Ghosh
(c) Bal Gangadhar Tilak
(d) Surendra Nath Banerjee

Ans. (d) : Surendra Nath Banerjee was not an extremist leader of the Indian National Congress. He was one of the early Indian political leaders during the British Raj. He was also known as Rashtraguru (teacher of the nation).

84. Which of the following projects is being implemented by C-DAC, Pune?
- Project Bharatmala
 - Project JATAN
 - Project Zojila
 - Project SATH-E

Ans. (b) : Project JATAN is a software that enables the creation of a digital collection management system for Indian museums. The software is designed and developed by the Centre for Development of Advanced Computing (C-DAC) based in Pune.

85. A certain sum of money was divided among three friends : Rajeev, Kewal and Amit in the ratio of 2 : 3 : 7. If Amit's share is ₹ 15 more than that of Kewal, then what is the sum of money which was divided:
- ₹45
 - ₹57
 - ₹27
 - ₹180

Ans. (a) : Let, Shares of Rajeev, Kewal and Amit are $2x$, $3x$ and $7x$.

According to the question-

$$7x = 3x + 15$$

$$4x = 15$$

$$x = \frac{15}{4}$$

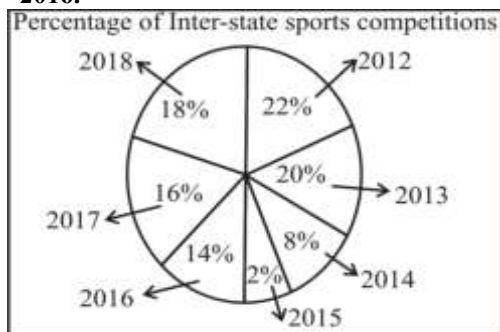
Divided money = $2x + 3x + 7x$

$$= 12x$$

$$= 12 \times \frac{15}{4}$$

$$= ₹45$$

86. The pie-chart shows the percentage of inter-state sports competitions in different years from 2012 to 2018. Considering the total number of inter-state sports competitions to be 200, find the difference in the number of inter-state sports competitions in 2015 and that in 2016.



- 26
- 22
- 24
- 28

Ans. (c) : \because Number of inter state sports competition in

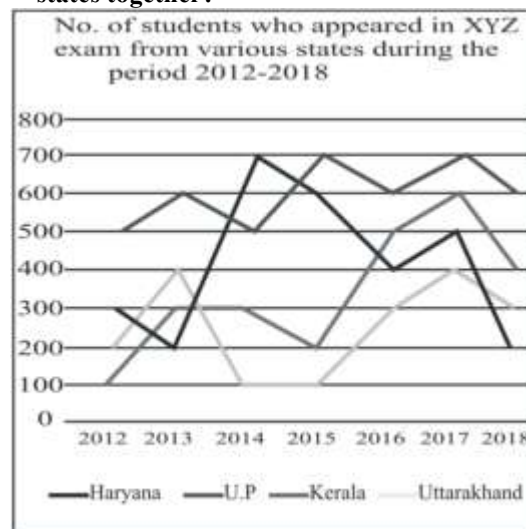
$$2015 = 200 \times \frac{2}{100} = 4$$

Number of inter state sports competition in 2016 =

$$200 \times \frac{14}{100} = 28$$

$$\text{Required difference} = 4 \sim 28 = 24$$

87. The line graph shows the number of students who appeared in XYZ exam from various states during the period 2012- 2018. What is the average number of students who appeared in the XYZ exam in the year 2012 from all the states together?



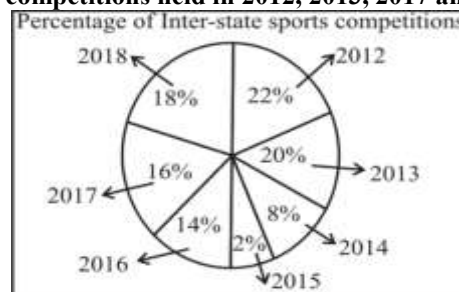
- 285
- 270
- 275
- 280

Ans. (c) : Total number of students from all states who appeared in exam = $100 + 200 + 300 + 500$

$$= 1100$$

$$\text{Required average} = \frac{1100}{4} = 275$$

88. The pie-chart shows the percentage of inter-state sports competitions in different years from 2012 to 2018. Considering the total number of inter-state sports competitions to be 200, find the total number of inter-state sports competitions held in 2012, 2013, 2017 and 2018.



- 154
- 168
- 152
- 148

Ans. (c) : Number of inter-state sports competition in

$$2012 = 200 \times \frac{22}{100} = 44$$

Number of inter-state sports competition in 2013 =

$$200 \times \frac{20}{100} = 40$$

Number of inter-state sports competition in 2017 =

$$200 \times \frac{16}{100} = 32$$