

Railway Non-Technical Popular Categories Exam - 2019

Graduate and Under-Graduate Level

[Ist Stage Computer Based Test]

Exam Date : 11.01.2021]

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

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

(a) 7 (b) 5
(c) 10 (d) 2

Ans. (c) : 10 is a composite number while 2, 5 and 7 are prime numbers.

2. Which of the following is not a desert in India ?

(a) Indus Valley desert
(b) Spiti Valley cold desert
(c) The Thar desert
(d) Rann of Kutch

Ans. (a) : Indus Valley Desert is an almost uninhabited desert ecoregion of northern Pakistan. It is in north western Punjab province between the Chenab and the Indus river. The Rann of Kutch is a large area of salt marshland located in the district of Kutch in the western State of India, Gujarat.

3. The symbol used for Magnesium is :

(a) Mo (b) Ma
(c) Mn (d) Mg

Ans. (d) : The symbol used for Magnesium is Mg. Mo is a symbol of the Molybdenum element and Mn stands for Manganese. Magnesium is a shiny, silver or gray coloured metal that is light in weight and strong. The density of magnesium is 1738 g/ml. Magnesium is required for energy production, oxidative phosphorylation and glycolysis.

4. In a certain code language, 'FIKA' is written as 'URPZ'. How will 'EHJZ' be written as in that language ?

(a) VSQA (b) VQSZ
(c) ZSQV (d) AQSV

Ans. (a) : Such as, Same as,

F	Opposite letter →	U	Opposite letter →	V
I	Opposite letter →	R	Opposite letter →	S
K	Opposite letter →	P	Opposite letter →	Q
A	Opposite letter →	Z	Opposite letter →	A

5. On which day is World Day to Combat Desertification and Drought observed ?

(a) 22nd April (b) 5th June
(c) 17th June (d) 22nd May

Ans. (c) : World Desertification and Drought Prevention Day is observed on 17th June every year. In 1994, the United Nations General Assembly declared it to be celebrated on June 17. World Environment Day is observed every year on June 5, Earth Day on April 22, and International Day for Biodiversity on May 22.

6. Who is the co-founder of Apple computers?

(a) Paul Allen (b) Bill Gates
(c) Charles Flint (d) Steve Jobs

Ans. (d) : Steve Jobs was the co-founder of Apple Computers. He was previously an American business tycoon and inventor. He was the co-founder and Chief Executive Officer of Apple Inc. He resigned from this post in August, 2011. Together with them Steve Wozniak (Woz) and Ronald Wayne contributed to the founding of Apple on April 1, 1976. He died in the year 2011. Bill Gates and Paul Allen are the founders of Microsoft. Charles Flint was the founder of the Computing-Tabulating Recording Company which later became IBM.

7. A swimmer, whose speed in 9 km/h in still water, goes 9 km downstream in 45 minutes. Find the speed of the stream.

(a) 12 km/h (b) 6 km/h
(c) 3 km/h (d) 9 km/h

Ans. (c) : Swimmer's speed in still water = 9 km/h

$$\text{Swimmer's speed in downstream} = \frac{9\text{km}}{45/60\text{h}}$$

$$= \frac{9}{45} \times 60 = 12\text{km/h}$$

Speed of stream = Speed in down stream – swimmer's speed in still water

$$= (12-9) \text{ km/h}$$

$$= 3\text{km/h}$$

8. The Congress annual session of December 1929 in Lahore was significant because of :

(a) Indians becoming self-reliant
(b) commitment to Purna Swaraj
(c) the work done by the people of the country
(d) the overwhelming majority

Ans. (b) : The Lahore session held on 31 December 1929 was significant because of its commitment to Purna Swaraj. Pt Jawaharlal Nehru presided over this session. In this, session complete independence (purna Swaraj) was declared. On 26 January 1930, it was announced to celebrate the first Independence day in the whole nation.

9. In the following series, how many times is the number 8 not followed by the number 4 but is preceded by the number 5 ?

6 5 8 2 3 5 8 1 2 5 8 3 4 3 5 6 5 4 5 8 6 5 8 4 5 8

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

Ans. (c) : 6 5 8 2 3 5 8 1 2 5 8 3 4 3 5 6 5 4 5 8 6 5 8 4 5 8

Such number is 5 that the number 8 not followed by the number 4 but it is preceded by the number.

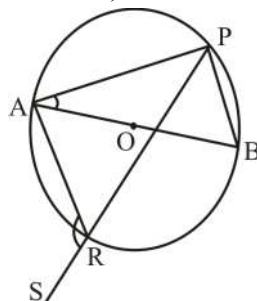
10. As of October 2020, which of the following is NOT in the World Heritage list?

- (a) Sun Temple (b) Elephanta Caves
(c) Agra Fort (d) Hawa Mahal

Ans. (d) : As of October 2020, Hawa Mahal has not been included in the list of World Heritage Sites. Other sites that have been included in the World Heritage Sites are.

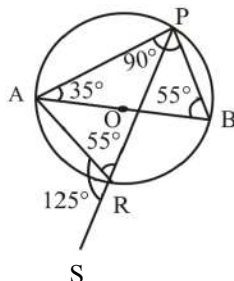
Heritage Sites	Year
Fort of Agra, UP	1983
Konark Sun Temple, Odisha	1984
Elephanta Caves, Maharashtra	1987
Recently Ramappa Temple of Telangana and Dholavira, a Harappan site of Gujarat has been included in UNESCO World Heritage Sites in 2021.	

11. In the given figure O is the centre of the circle. If $\angle PAB = 35^\circ$, then find $\angle ARS$.



- (a) 65° (b) 55°
(c) 115° (d) 125°

Ans. (d) :



$\angle PAB = 35^\circ$ [Given]

$\angle ARS = ?$

$\angle APB = 90^\circ$ (The angle in a semicircle is 90°)

$\angle ABP = 180^\circ - 125^\circ = 55^\circ$

$\angle ABP$ and $\angle ARP$ subtended by arc \widehat{AP} will be equal to each other.

Now, $\angle ABP = \angle ARP$

$\angle ARS = 180^\circ - 55^\circ = 125^\circ$

12. The length of a hall is 7m more than its breadth. If its perimeter is 62m, find the length of the hall.

- (a) 27.5 m (b) 19 m
(c) 12 m (d) 34.5 m

Ans. (b) : Let,

Breadth of hall = x m

Length of hall = (x + 7) m

Perimeter of hall = 2 (length + breadth)

According to the question,

$$62 = 2(x + x + 7)$$

$$62 = 4x + 14$$

$$4x = 48$$

$$x = 12$$

Now, the length of hall = x + 7 = 12 + 7 = 19 m

13. Shah Jahan's daughter ——— participated in many architectural projects of the new capital of Shajahanabad (Delhi).

- (a) Begum Ishrat (b) Gulbadan Begum
(c) Roshanara (d) Jahanara

Ans. (d) : Jahanara (Shah Jahan's daughter) participated in many architectural projects of the new capital established at Shahjahanabad, Delhi. Jahanara, Roshan Ara, were sisters. Roshanara supported Aurangzeb in the war of succession. Gulbadan Begum was the daughter of Babur who wrote 'Humayunnama'.

14. Find the value of the given expression.

$$6 + 4 \times 10 \div 2 - 9$$

- (a) 17 (b) 42
(c) 18 (d) 41

Ans. (a) : $6 + 4 \times 10 \div 2 - 9 = ?$

$$6 + 4 \times 5 - 9 = ?$$

$$6 + 20 - 9 = ?$$

$$26 - 9 = ?$$

$$? = 17$$

15. The mean of ages of group of 35 school students is 16 years. A 52 year old teacher joined the group. Find the mean of the ages of the students and the teacher.

- (a) 43.5 years (b) 36 years
(c) 34 years (d) 17 years

Ans. (d) :

The mean of age of group of 35 school students = 16 years

Total age of group of 35 school students = 35×16
= 560 years

Teacher's age = 52 years

Mean of the age of the students and the teacher =
$$\frac{560 + 52}{36}$$
$$= \frac{612}{36}$$
$$= 17 \text{ years}$$

16. The LCM of two numbers is 24 times their HCF. The sum of the HCF and LCM is 750. If one of the numbers is 90, then find the other number.

- (a) 240 (b) 25
(c) 30 (d) 720

Ans. (a) : Let HCF = x

and second number = a

LCM = 24x

According to the question,

LCM + HCF = 750

$24x + x = 750$

$25x = 750$

$x = 30$

HCF = 30

LCM = 24x

= 24×30

= 720

HCF \times LCM = First number \times Second number

$720 \times 30 = 90 \times a$

$a = 240$

17. Asia's largest Indira Gandhi Memorial Tulip garden is situated in which city ?

- (a) Shimla (b) Manali
(c) Gangtok (d) Srinagar

Ans. (d) : The largest garden in Asia-Indira Gandhi Memorial Tulip Garden is located in the city of Sri Nagar. Its former name was Siraj Bagh. It was opened in 2008 by the then Chief Minister Ghulam Nabi Azad. This garden is situated at the foot hills of the Zabarwan Mountain Range.

18. How many numbers between 100 and 1000 are completely divisible by 11 ?

- (a) 80 (b) 81
(c) 82 (d) 79

Ans. (b) : Numbers divisible by 11 between 100 and 1000 are

110, 121, 132, 143,979, 990

l = last term, a = first term, d = common difference

$$\begin{aligned}\text{Number of terms (n)} &= \frac{l-a}{d} + 1 \\ &= \frac{990-110}{11} + 1 \\ &= \frac{880}{11} + 1 \\ &= 80 + 1 \\ &= 81\end{aligned}$$

19. Ram Sagar and Bhagat Ram enter into a partnership by investing in the ratio 10 : 13. Find Bhagat Ram's share in a profit of ₹ 8,050.

- (a) ₹4,025 (b) ₹4,550
(c) ₹3,500 (d) ₹1,550

Ans. (b) : Let, money invested by Ram Sagar and Bhagat Ram is 10x and 13x respectively.

According to the question,

$$10x + 13x = ₹ 8050$$

$$23x = 8050$$

$$x = ₹ 350$$

Bhagat Ram's share $13x = 13 \times 350 = ₹ 4550$

20. Four parts of the human body have been listed, out of which three are alike in some manner and one is different. Select the odd one.

- (a) Eyes (b) Hair
(c) Ears (d) Nose

Ans. (b) : The Eyes, Ears and Nose are the sense organs of our body where as Hair is not.

Hence, option (b) is different.

21. The earlier name of Bhabha Atomic Research Centre was

- (a) Nuclear Power Corporation of India Limited
(b) Indira Gandhi Centre for Atomic Research
(c) Atomic Energy Establishment, Trombay
(d) Bharatiya Nabhikiya Vidyut Nigam

Ans. (c) : The former name of Bhabha Atomic Research Center was Atomic Energy Establishment, Trombay. This nuclear research was dedicated to the nation by Pandit Jawaharlal Nehru on January 20, 1957. It is a multidisciplinary nuclear research centre for nuclear science and engineering and other related fields under the Atomic Energy Division of the Government of India, located in Mumbai. The Institute of Atomic Energy was renamed as Bhabha Atomic Research Center on 12 January 1967.

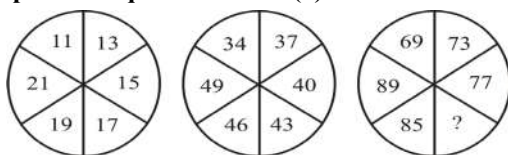
22. Which of the following is the tallest tree in the world?

- (a) Redwood (b) Pine
(c) Spruce (d) Cedar

Ans. (a) : Redwood is the tallest tree in the world. This tree is situated in Redwood National Park (California). It was discovered in 2006.

Cedar is an example of an evergreen tree. Pines are coniferous trees of the genus *Pinus* in the family of *Pinaceae*. As conifers they are seed bearing and thus vascular plant. It is found in temperate and tropical cold regions. The spruce tree is the companion of the cedar. It is an evergreen coniferous tree.

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



- (a) 78 (b) 81
(c) 80 (d) 74

Ans. (b) : Such as,

11 $\xrightarrow{+2}$ 13 $\xrightarrow{+2}$ 15 $\xrightarrow{+2}$ 17 $\xrightarrow{+2}$ 19 $\xrightarrow{+2}$ 21
34 $\xrightarrow{+3}$ 37 $\xrightarrow{+3}$ 40 $\xrightarrow{+3}$ 43 $\xrightarrow{+3}$ 46 $\xrightarrow{+3}$ 49

Same as,

69 $\xrightarrow{+4}$ 73 $\xrightarrow{+4}$ 77 $\xrightarrow{+4}$ 81 $\xrightarrow{+4}$ 85 $\xrightarrow{+4}$ 89

Hence, the question mark (?) will be replaced by 81.

24. Which of the following companies stopped making personal computers in 2005 ?

- (a) Ace (b) IBM
(c) Asus (d) Dell

Ans. (b) : IBM (International Business Machines Corporation) is a multinational technical company, which stopped manufacturing computers in 2005. Lenovo Acer Asus, Dell, these are the leading multinational companies in the computer manufacturing world.

25. What is the full form of FORTRAN ?

- (a) Fortitude Translation (b) Foreign Translation
(c) Formula Translation (d) FoxPro Translation

Ans. (c) : The full form of FORTRAN is 'Formula Translation'. It was created by John Backus in 1957 as the first high level programming language. It was fundamentally designed to write high- Performance computing programming and suited explicitly to computational computing and scientific application requiring detailed math calculations in numerical computing.

26. The sum of the digits of a two-digit number is 12. If the digits are reversed, seven times the new number equals to four times the original number. Find the number.

- (a) 84 (b) 75
(c) 48 (d) 57

Ans. (a) : Let the unit digit of the number = y
and tens digit of the number = x

Now, number = $10x + y$

$$x + y = 12 \quad \dots(i)$$

Number formed after reversing the digits

$$10y + x$$

According to the question,

$$4(10x + y) = 7(10y + x)$$

$$40x + 4y = 70y + 7x$$

$$33x = 66y$$

$$x = 2y$$

On putting value of x in equation (i), we get-

$$x + y = 12$$

$$2y + y = 12$$

$$3y = 12$$

$$y = 4$$

and, $x = 2y$

$$\therefore x = 8$$

Hence, the original number = $10x + y = 10 \times 8 + 4 = 84$

27. In the UN Security Council there are :

- (a) 10 permanent and 5 non-permanent members
(b) 5 permanent and 5 non-permanent members
(c) 5 permanent and 10 non-permanent members
(d) 10 permanent and 10 non-permanent members

Ans. (c) : The United Nations Security Council has 5 permanent member states (China, America, Britain, France and Russia) and 10 non-permanent member states. Non-permanent members do not have veto power. It keeps on changing, but the permanent members have veto power. The United Nations Organization was established on 24 October, 1945.

28. World Health Organisation (WHO) is headquartered in :

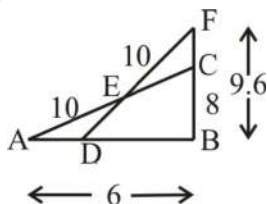
- (a) Amsterdam, Netherlands
(b) New York City, America
(c) Vienna, Austria
(d) Geneva, Switzerland

Ans. (d) : The headquarters of the World Health Organization is in Geneva, Switzerland. The International Atomic Energy Agency is headquartered in Vienna, Austria. The headquarter of UNICEF is located in New York. The headquarter of Green Peace International is located in Amsterdam, Netherlands.

29. A 10 feet long ladder leaning against a wall, reaches the wall at a point 8 feet height. By how much distance should the ladder be moved towards the wall so that its top reaches a point at 9.6 feet high ?

- (a) 2.8 ft (b) 4.4 ft
(c) 3.2 ft (d) 3.92 ft

Ans. (c) :



In $\triangle ABC$ —

From the Pythagoras theorem,

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

$$(10)^2 = (AB)^2 + (8)^2$$

$$AB^2 = 100 - 64 = 36$$

$$AB = 6 \text{ feet}$$

In $\triangle DBF$ —

From the Pythagoras theorem

$$(DF)^2 = (DB)^2 + (BF)^2$$

$$(10)^2 = (DB)^2 + (9.6)^2$$

$$(DB)^2 = 100 - 92.16$$

$$(DB)^2 = 7.84$$

$$DB = 2.8 \text{ feet}$$

Distance moved by the ladder towards the wall (AD) =
 $6 - 2.8 = 3.2 \text{ feet}$

30. Sarva Shiksha Abhiyan is a Government of India flagship programme, making free and compulsory education to children in the age group of — a Fundamental Right.

- (a) 8-14 years (b) 5-14 years
(c) 6-14 years (d) 7-14 years

Ans. (c) : Sarva Shiksha Abhiyan is a program of the Government of India, which was started by former PM of India Atal Bihari Vajpayee in 2001-02. Under this, children in the age group of 6-14 years have been declared their fundamental right to be provided free and compulsory education. It is included under Article 21 (A). In 2002 through the 86th Constitutional Amendment Act the Right to Education came to be recognized as a fundamental right.

31. In an examination Mohit got 30% of the maximum marks but failed by 25 marks. Another student who scored 38% got 15 marks more than the pass marks. The necessary pass percentage required is :

- (a) 34% (b) 35%
(c) 50% (d) 53%

Ans. (b) : Let, maximum marks be x.

According to the question,

$$x \times \frac{30}{100} + 25 = x \times \frac{38}{100} - 15$$

$$\frac{38x}{100} - \frac{30x}{100} = 25 + 15$$

$$\frac{8x}{100} = 40$$

$$x = 500$$

$$\text{Marks required to pass} = x \times \frac{30}{100} + 25$$

$$= 500 \times \frac{30}{100} + 25$$

$$= 175$$

$$\text{Percentage of marks required to pass} = \frac{175}{500} \times 100$$

$$= 35\%$$

32. Which of the following IITs has been declared one among the seven Eat Right Campus by FSSAI ?

- (a) IIT Ropar (b) IIT Gandhinagar
(c) IIT Kanpur (d) IIT Delhi

Ans. (b) : FSSAI has declared IIT Gandhinagar as one of the Seven Eat Right Campus. Food Safety Mitra (FSM) scheme along with Eat Right Jacket and 'Eat Right Jhola' in the direction of Eat Right Campus campaign of Food Safety and Standards Authority of India (FSSAI) launched in standards. The motto of this campaign is 'Right Food, Better Life'.

33. One of the most important contributions of the British to India in 1853 which enabled people to travel long distance was :

- (a) the airways (b) the railways
(c) the roadways (d) the waterways

Ans. (b) : The most important contributions of the British to India in 1853 which enabled people to travel long distance was first passenger train started from Mumbai (Bori Bunder) to Thane. It was started in 16 April, 1853 and ran for 34 km with 400 people.

34. Who wrote the novel 'The White Tiger' ?

- (a) Khushwant Singh (b) Chetan Bhagat
(c) Vikram Seth (d) Aravind Adiga

Ans. (d) : Arvind Adiga is an Indian writer. He has written a novel named 'The White Tiger' based on the Indian caste and Varna system. Writing on a world-class standard and placing it in the world scene his book was published in 2008. In the same year, he also received the 40th Man Booker Prize. Arvind Adiga is a writer by profession as well as a well known journalist.

35. 16 men can complete a work in 12 days, 12 women can complete the same work in 32 days. 16 men and 16 women together worked for 4 days, after which the women dropped out and 16 more men joined. In how many days will the men be able to complete the remaining work ?

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

Ans. (a) : $M_1 D_1 = W_1 D_2$ [M = man, W = women]

$$16M \times 12 = 12W \times 32$$

$$1M = 2W$$

Let, number of days to complete the remaining work be D_2

According to the question,

$$16M \times 12 = (16M + 16W) 4 + (16M + 16M) D_2$$

$$16M \times 12 = (16M + 8M) \times 4 + 32M \times D_2$$

$$16M \times 12 = 96M + 32M \times D_2$$

$$16M \times 12 - 96M = 32M \times D_2$$

$$16[12 - 6] M = 32M \times D_2$$

$$96 = 32 \times D_2$$

$$D_2 = 3 \text{ Days.}$$

36. Kumud borrowed some amount at simple interest of 10% per annum for $1\frac{1}{2}$ year. Sneha

borrowed the same amount at the same rate on compound interest (compounded semiannually) for the same period. If Sneha paid ₹ 61 more than Kumud as interest, then how much money did each of them borrow ?

- (a) ₹ $\frac{1261}{80}$ (b) ₹8,000
(c) ₹ $\frac{61}{80}$ (d) ₹4,000

Ans. (b) : For Kumud

Let, Principal = ₹ x

Rate (R) = 10 %

Time = $1\frac{1}{2}$ year

$$\begin{aligned} S.I &= \frac{P \times R \times t}{100} \\ &= \frac{x \times 10 \times 3}{100 \times 2} \\ &= \frac{3x}{20} \end{aligned}$$

For Sneha,

Rate = 10% = 5% (half-yearly)

Time = $1\frac{1}{2}$ year = 3 half-year

Principal = ₹ x

$$\begin{aligned} C.I &= P \left[\left(1 + \frac{r}{100} \right)^n - 1 \right] \\ &= x \left[\left(1 + \frac{5}{100} \right)^3 - 1 \right] \\ &= x \left[\frac{9261}{8000} - 1 \right] \\ &= \frac{1261}{8000} x \end{aligned}$$

According to the question,

$$\frac{1261x}{8000} - \frac{3x}{20} = 61$$

$$\frac{1261x - 1200x}{8000} = 61$$

$$\frac{61x}{8000} = 61$$

$$x = ₹ 8000$$

37. Aryan takes twice as much time as Vipin to finish a piece of work. Together they finish the same piece of work in 2 days. In how much time can Vipin do the same work ?

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

Ans. (c) :

	Aryan	Vipin	
Time	2	1	
Work – efficiency	1	2	$\left[\text{Work – efficiency} \propto \frac{1}{\text{Time}} \right]$
Work done by both Aryan and Vipin in two days			
$= (1 + 2) \times 2 = 6 \text{ unit}$			
Time taken by Vipin alone to do 6 unit work			
$= \frac{6}{2} = 3 \text{ days.}$			

38. The conversion of $0.\overline{037}$ in the form $\frac{P}{Q}$ is :

- (a) $\frac{37}{999}$ (b) $\frac{37}{1000}$
(c) $\frac{37}{990}$ (d) $\frac{37}{100}$

Ans. (c) : Let,

$$x = 0.\overline{037} \dots\dots\dots(i)$$

Multiply by 10 in equation (i),

$$10x = 0.3737 \dots\dots\dots(ii)$$

Again, multiply by 1000 in equation (ii),

$$1000x = 37.3737 \dots\dots\dots(iii)$$

From, equation (iii) – equation (ii)

$$1000x - 10x = 37.3737 \dots\dots - 0.3737 \dots\dots$$

$$990x = 37$$

$$x = \frac{37}{990}$$

39. In the First Five Year Plan ———, the government of India sought to get the country's economy out of the cycle of poverty.

- (a) 1961-1965 (b) 1955-1960
(c) 1951-1956 (d) 1947-1952

Ans. (c) : In the First Five Year Plan (1951-56) the Government of India made up a lot of reforms in relation to the economy of the country to get out of the cycle of poverty. The objective of the scheme was to control the inflation, resettlement of refugees, development in the agricultural sector. Till now 13 Five Year Plan have been implemented in our country. In the second Five Year Plan maximum emphasis was on the development of primary sector. This five year plan was based on the Harrod-Domar Model.

40. Each element has a name and ———.

- (a) a unique shape
(b) a unique colour
(c) a unique physical symbol
(d) a unique chemical symbol

Ans. (d) : Each element has a chemical name and a unique chemical symbol like—

Sodium (Na), Potassium (K) Hydrogen (H) Calcium (Ca), Chlorine (Cl), Lithium (Li) etc. The Periodic table is a tabular arrangement of the chemical elements. Ordered by their atomic number (number of Protons), electronic configurations and recurring chemical properties.

41. In the parliamentary system, the legislative, judicial and emergency are actually exercised by the President on the advice of—

- (a) Members of Parliament
(b) Vice President
(c) Chief Minister
(d) Council of Ministers

Ans. (d) : In the parliamentary system, the legislative judicial, emergency powers are actually exercised by the President on the advice the Council of Ministers. Article 74 of the Constitution provides that there shall be a Council of Ministers, headed by the PM to aid and advise the President in the exercise of his powers. The President can require the advice of the Council of Ministers to be reconsidered. Specially after the 42nd and 44th Constitutional Amendments it has become compulsory to the President that he has to accept the advice of the council of ministers.

42. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide

which of the given conclusions logically follow (s) from the statements.

Statements :

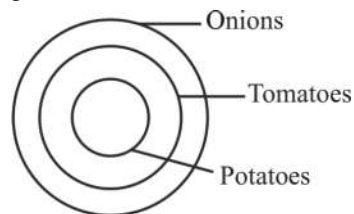
1. All the potatoes are tomatoes.
2. All the tomatoes are onions.

Conclusions :

- I. All the onions are tomatoes.
II. All the potatoes are onions.

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

Ans. (b) : On drawing the Venn diagram relation according to the statement.



It is clear from the above Venn diagram that only conclusion (II) logically follows from the statements.

43. Which of the following Indian National Congress (INC) sessions was the National Anthem sung for the first time ?

- (a) 1911, Kolkata (b) 1907, Surat
(c) 1916, Lucknow (d) 1917, Kolkata

Ans. (a) : The national anthem was sung for the first time at the 1911, Kolkata session of the Indian National Congress (INC). The Indian National Congress was founded in 1885 by A.O. Hume. It's first session was held in Mumbai. It was headed by Vyomesh Chandra Banerjee. Surat session 1907 divided the INC into two parts, The Extremists and the Moderates. Lucknow session 1916, presided over by Ambika Charan Mazumdar in which the Extremists and the Moderates merged. The Lucknow Pact was signed between Indian National Congress and the Muslim League.

44. Gandhiji's campaign against the ——— was in response to the British censorship of the press and detention without trial.

- (a) British Rule
(b) World War I
(c) Rowlatt Act
(d) Jallianwala Bagh Massacre

Ans. (c) : Gandhi's Rowlatt Act satyagraha was the first national level movement against the Rowlatt Act. This was done in response to the British government enacting the Anarchical and Revolutionary Offences Act in 1919. This act empowered British censorship on the press and suppressing other political activities by the government. It allowed the detention of political prisoners without trial for two years.

45. If the sum of five consecutive numbers is 90, then what is the middle number ?

- (a) 19 (b) 17
(c) 18 (d) 16

Ans. (c) : Let the five consecutive numbers be $x, x + 1, x + 2, x + 3$ and $x + 4$

According to the question,

$$x + x + 1 + x + 2 + x + 3 + x + 4 = 90$$

$$5x = 90 - 10$$

$$5x = 80$$

$$x = 16$$

Middle number = $x + 2$

$$= 16 + 2$$

$$= 18$$

46. Anita and Vineeta divide an amount of ₹ 1,950 between themselves in the ratio 6 : 7. If an amount of ₹ 100 is added to each of their shares, what will be the new ratio of their shares ?

- (a) 900 : 1050 (b) 20 : 23
(c) 600 : 700 (d) 106 : 107

Ans. (b) : Let the amount of Anita and Vinita be Rs. $6x$ and Rs. $7x$ respectively.

According to the question,

$$6x + 7x = 1950$$

$$13x = 1950$$

$$x = 150$$

Anita's amount = $6x = 6 \times 150 = ₹ 900$

Vinita's amount = $7x = 7 \times 150 = ₹ 1050$

Ratio on adding amount of Rs. 100 to each

$$\frac{\text{Anita}}{\text{Vinita}} = \frac{900+100}{1050+100} = \frac{1000}{1150} = \frac{20}{23}$$

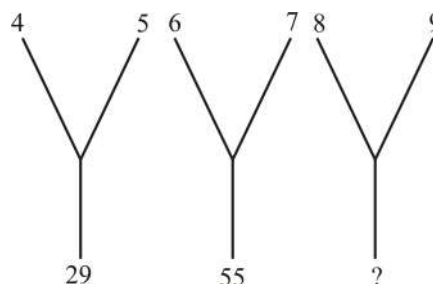
Anita : Vinita = 20 : 23

47. As of November 2020, which team is number one in the ICC Men's T20 Cricket rankings ?

- (a) Australia (b) West Indies
(c) England (d) India

Ans. (a) : As of November 2020, Australia was in the first place in the ICC in Men's T-20 cricket ranking. Currently in the ICC Men's T-20 ranking, England is at the first place and India is at second position.

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



- (a) 79 (b) 88
(c) 78 (d) 89

Ans. (d) : Such as,

$$4 \times 5 + (4 + 5) = 29$$

$$6 \times 7 + (6 + 7) = 55$$

Same as,

$$8 \times 9 + (8 + 9) = 89$$

49. By selling an article for ₹ 2,340, the dealer loses 10%. At what price should he sell the article to gain 15% ?

- (a) ₹ 2,350 (b) ₹ 2,990
(c) ₹ 2,365 (d) ₹ 2,600

Ans. (b) : Let CP = ₹ x where CP = Cost price

$$SP = ₹ 2340$$

SP = Selling price

$$L = 10\%$$

L% = Loss percentage

$$SP = CP \times \frac{(100 \pm P/L)}{100}$$

$$CP = 2340 \times \frac{100}{(100 - 10)}$$

$$CP = ₹ 2600$$

Selling Price to get 15% profit

$$SP = 2600 \times \frac{115}{100}$$

$$SP = ₹ 2990$$

50. If people cannot be used as a resource they naturally appear as ——— to the economy.

- (a) an asset (b) important
(c) indispensable (d) a liability

Ans. (d) : If people cannot be used as a resource then they naturally appear as a liability to the economy. In financial accounting, an asset is an economic resource a tangible or intangible thing that is owned or controlled to produce value. That is held to have positive economic value is considered as an asset.

51. When is the 'World Environment Day' celebrated ?

- (a) 31st May (b) 30th September
(c) 5th June (d) 12th April

Ans. (c) : World Environment Day is celebrated on 5th June. The first World Environment Day was celebrated on 5 June, 1974. The theme of World Environment 2021 is 'Ecosystem Restoration'. So on Environment Day, a pledge should be taken to restore the environment. The theme of the first World Environment Day was 'Only One Earth'.

World No Tobacco Day – 31 May

International Translation Day – 30 September

International Day of Human Space Flight – 12 April

52. Which movie won the 'Best Motion Picture of the Year' award at the Oscars 2020 ?

- (a) Bohemian Rhapsody (b) Black Panther
(c) Parasite (d) A Star is Born

Ans. (c) : The film 'Parasite' won the Best Motion Picture of the Year award at the Oscars 2020. Parasite is a South Korean film made in 2019. Its director is Bong Joon-ho. The Black Panther is an American Superhero based film of 2018. The Film Oscar Academy Awards began on 16 May, 1929, by the American Academy of Motion Picture Arts and Sciences, in recognition of the excellence of professional, including directors, actors and writers of film industry.

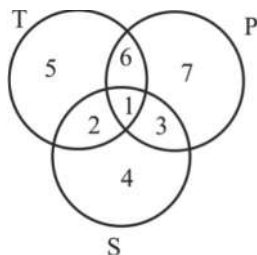
53. Simplify :

$$1.1 + 1.001 + 10.01 + 11.11$$

- (a) 23.221 (b) 4.213
(c) 3.124 (d) 23.14

Ans. (a) : $1.1 + 1.001 + 10.01 + 11.11 = ?$
 $23.221 = ?$

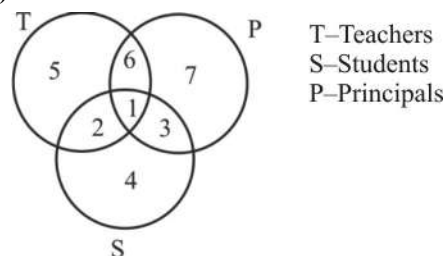
54. In the given diagram, circle T represents 'Teacher', circle S represents 'Students' and circle P represents 'Principal', The regions are denoted by numbers from 1 to 7. Answer the question given below on the basis of the diagram.



Select the field that represents the teachers who are neither students nor principals.

- (a) 2 (b) 1
(c) 6 (d) 5

Ans. (d) :



The number 5 represents the teachers who are neither students nor principals.

55. Which vitamin activates proteins and calcium essential for blood clotting ?

- (a) Vitamin B1 (b) Vitamin K
(c) Vitamin D (d) Vitamin C

Ans. (b) : Deficiency of Vitamin K leads to a decrease in blood clotting. Its deficiency also weakens the bones. Vitamin K activates the protein and calcium required for blood clotting.

Vitamins	Disease caused by deficiency
Vitamin B ₁	Beri-beri
Vitamin D	Rickets
Vitamin C	Scurvy
Vitamin A	Night Blindness
Vitamin E	Decreased fertility

56. Clearance of snow in high altitude areas is undertaken by :

- (a) Public Works Department
(b) Snow Authority of India
(c) Inland Waterways Authority
(d) The Border Road Organisation

Ans. (d) : Snow clearance in high altitude area is done by Border Road Organisation (BRO). The BRO was established on 7 May, 1960 to build and manage the road network in the border areas of India. Its headquarters is in New Delhi. It was founded by Jawaharlal Nehru.

Departments	Founding year	Headquarters
Public Works Department (U.P)	1923	Lucknow
Conservation Authority of India	2006	New Delhi
Inland Waterways Authority	1986	Noida (U.P)

57. _____ is the process by which farmers grow trees on their land for commercial and non-commercial purposes.

- (a) Tree forestry (b) Forest preservation
(c) Agro forestry (d) Tree protection

Ans. (c) : The process by which farmers grow trees on their land for commercial and non-commercial purposes is called agro-forestry. It is an important part of social forestry. Under agro forestry Centre crops are grown along with trees on the same land. World Agro forestry was established in 1978 as the International centre for Research in Agro forestry (ICRAF). Its headquarterd in Nairobi, Kenya.

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

2	5	8
3	6	9
4	7	10
29	110	?

- (a) 190 (b) 240
(c) 245 (d) 145

Ans. (c) : Such as,

$$2^2 + 3^2 + 4^2 = 29$$

$$5^2 + 6^2 + 7^2 = 110$$

Same as,

$$8^2 + 9^2 + 10^2 = 245$$

59. Mohan borrowed an amount of ₹ 18,000 and paid a simple interest of ₹ 2,700 at 10% per annum. Find the duration for which he kept the borrowed amount.

- (a) 3 years (b) $\frac{3}{2}$ years
(c) $\frac{3}{20}$ years (d) $\frac{2}{3}$ years

Ans. (b) : Amount borrowed by Mohan (P) = ₹ 18,000

Annual rate = 10%

Simple Interest = ₹ 2,700

Let, Time = t year

$$S.I = \frac{P \times R \times t}{100}$$

$$2700 = \frac{18000 \times 10 \times t}{100}$$

$$t = \frac{2700}{1800}$$

$$t = \frac{3}{2} \text{ years}$$

60. Which body is responsible to regulate, promote and ensure orderly, growth of the insurance industry in India ?

- (a) ICICI (b) RBI
(c) IRDAI (d) CRISIL

Ans. (c) : The organization IRDAI is responsible for regulating, promoting and ensuring its gradual development of the insurance industry in India. Its full name is Insurance Regulatory and Development Authority of India. Its headquarters is in Hyderabad. Before 2001 its headquarters was in Delhi. Its present president is Subhash Chandra Khuntia.

61. In a certain code language, 'RAHUL' is written as '60'. How will 'ARUN' be written as in that language ?

- (a) 45 (b) 56
(c) 52 (d) 54

Ans. (d) : Such as,

$$\begin{array}{ccccc} R & A & H & U & L \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ 18 & + & 1 & + & 8 & + & 21 & + & 12 & = & 60 \end{array}$$

Same as,

$$\begin{array}{ccccc} A & R & U & N \\ \downarrow & \downarrow & \downarrow & \downarrow \\ 1 & + & 18 & + & 21 & + & 14 & = & \boxed{54} \end{array}$$

62. A hollow metallic sphere has internal and external radius of 3 cm and 5 cm respectively. It is melted and recast as a solid cylinder with radius 7 cm. What is the height of the cylinder ?

- (a) 3 cm (b) $\frac{8}{3}$ cm
(c) 8 cm (d) $\frac{2}{3}$ cm

Ans. (b) : According to the question,

Volume of hollow sphere = Volume of solid sphere

$$\frac{4}{3} \pi [r_1^3 - r_2^3] = \pi r^2 h$$

$$\frac{4}{3} \pi [(5)^3 - (3)^3] = \pi (7)^2 \times h$$

$$\frac{4}{3} \times 98 = 49 \times h$$

$$h = \frac{8}{3} \text{ cm}$$

63. Demonetisation was announced by Prime Minister Narendra Modi on :

- (a) 8 October, 2016 (b) 8 November, 2016
(c) 8 September, 2016 (d) 8 December, 2016

Ans. (b) : Demonetisation was announced by Prime Minister Narendra Modi on 8 November, 2016. Even before this, demonetization has happened twice in India. The British government did demonetization for the first time in 1946. After that, in January 1978, the Janata Party government of Morarji Desai did demonetization.

High denomination notes were discontinued by bringing ordinances in 1946 and 1978.

In 2005, Manmohan Singh (the then Prime Minister) had demonetized 500 notes. Under Section (2612) of the Reserve Bank of India Act, 1934, on the recommendation of the RBI Governor Central Board.

64. Tea and coffee fall under which category of crops in India ?

- (a) Horticulture crops (b) Cash crops
(c) Food crops (d) Plantation crops

Ans. (d) : In India, tea and coffee crops fall under the category of plantation crops.

Crops of India	Crop
Horticultural Crops	Banana, Grapes, Potato, Onion, Cassava, Cardamom, Ginger, Turmeric etc,
Cash Crops	Jute, Cotton, Sugarcane, Orange, Mango, Cocoa etc.
Food crops	Wheat, Barley, Paddy, Maize, Pulses etc.

65. In a certain code language 'LEGAL' is written as '37'. How will 'EAGLE' be written as in that language ?

- (a) 35 (b) 25
(c) 30 (d) 36

Ans. (c) : Such as,

$$\begin{array}{ccccc} L & E & G & A & L \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ 12 & + & 5 & + & 7 & + & 1 & + & 12 = 37 \end{array}$$

Same as,

$$\begin{array}{ccccc} E & A & G & L & E \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ 5 & + & 1 & + & 7 & + & 12 & + & 5 = 30 \end{array}$$

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

- (a) Goat (b) Dog
(c) Sheep (d) Cow

Ans. (b) : Dog is different from other three options because animals of other three options come under herbivorous category where as dog is omnivorous.

67. As a social reformer, Gandhiji believed that Indians had to get rid of social evils. Which of the following is NOT a social evil ?

- (a) Illiteracy (b) Child marriage
(c) Untouchability (d) Inflation

Ans. (d) : As a social reformer, Mahatma Gandhi believed that Indians would have to get rid of the many evils prevalent in Indian society like untouchability, child marriage, plight of widows, denial of education of girls etc. Gandhi strongly opposed all these evils. He said that these evils had made Hindu society in shambles.

68. Which of the following cities is not in Madhya Pradesh ?

- (a) Raipur (b) Bhopal
(c) Jabalpur (d) Gwalior

Ans. (a) : Raipur city is not in Madhya Pradesh. It is the capital of the state of Chhattisgarh whereas Bhopal, Jabalpur, Gwalior are the cities of Madhya Pradesh. Bhopal is the capital of Madhya Pradesh. Chhattisgarh was carved out of Madhya Pradesh on November 1, 2000 and became the 26th state of India.

69. Simplify :

$$\left(1 - \frac{1}{2}\right)\left(1 - \frac{1}{3}\right) \dots \dots \dots \left(1 - \frac{1}{9}\right)\left(1 - \frac{1}{10}\right)$$

(a) $\frac{5}{6}$ (b) $\frac{1}{10}$
(c) $-\frac{1}{10}$ (d) 0

Ans. (b) :

$$\begin{aligned} &\left(1 - \frac{1}{2}\right)\left(1 - \frac{1}{3}\right) \dots \dots \dots \left(1 - \frac{1}{9}\right)\left(1 - \frac{1}{10}\right) = ? \\ &\frac{1}{2} \times \frac{2}{3} \dots \dots \dots \frac{8}{9} \times \frac{9}{10} = ? \\ &? = \frac{1}{10} \end{aligned}$$

70. Viticulture is :

- (a) vegetable cultivation (b) mango cultivation
(c) grape cultivation (d) flower cultivation

Ans. (c) : Viticulture is the cultivation of grapes.

Vegetable cultivation – Olericulture

Cultivation of flowers – Floriculture

71. Simplify :

$$\sqrt{51 + \sqrt{134 + 5\sqrt{42 + \sqrt{16 + \sqrt{9}}}}}$$

(a) 8 (b) 64
(c) 520 (d) 197

Ans. (a) :

$$\begin{aligned} &\sqrt{51 + \sqrt{134 + 5\sqrt{42 + \sqrt{16 + \sqrt{9}}}}} \\ &= \sqrt{51 + \sqrt{134 + 5\sqrt{42 + 4 + 3}}} \\ &= \sqrt{51 + \sqrt{134 + 5\sqrt{49}}} \end{aligned}$$

$$\begin{aligned}
 &= \sqrt{51 + \sqrt{134 + 5 \times 7}} \\
 &= \sqrt{51 + \sqrt{134 + 35}} \\
 &= \sqrt{51 + \sqrt{169}} \\
 &= \sqrt{51 + 13} \\
 &= \sqrt{64} \\
 &= 8
 \end{aligned}$$

72. Simplify :

$$5 + [7^2 - 6 \times 4(12 \div 6)] + 7 \times (5 - 3)$$

- (a) 363 (b) 20
(c) -2 (d) 19

Ans. (b) :

$$\begin{aligned}
 &5 + [7^2 - 6 \times 4(12 \div 6)] + 7 \times (5 - 3) = ? \\
 &5 + [49 - 6 \times 4(2)] + 7 \times 2 = ? \\
 &5 + [49 - 48] + 14 = ? \\
 &20 = ?
 \end{aligned}$$

73. What does PSLV stand for ?

- (a) Partner Satellite Launch Vehicle
(b) Private Satellite Launch Vehicle
(c) Public Satellite Launch Vehicle
(d) Polar Satellite Launch Vehicle

Ans. (d) : Polar Satellite Launch Vehicle (PSLV) is the third generation launch vehicle of India. It is the first Indian launch vehicle to be equipped with liquid stages. After its first successful launch in October 1994, PSLV emerged as the reliable and versatile workhorse launch vehicle of India.

74. Select the term that will come next in the following series.

Mercury, Venus, Earth, ?

- (a) Saturn (b) Mars
(c) Jupiter (d) Uranus

Ans. (b) : The planet that comes after Mercury, Venus and Earth is 'Mars'. Because these four planets are located at the closest distance to the Sun and they are also called inner planets.

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

1, 8, 27, 64, 125, ?

- (a) 236 (b) 264
(c) 216 (d) 256

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

$$\begin{array}{cccccc}
 1, & 8, & 27, & 64, & 125, & ? \\
 \uparrow & \uparrow & \uparrow & \uparrow & \uparrow & \uparrow \\
 (1)^3 & (2)^3 & (3)^3 & (4)^3 & (5)^3 & (6)^3 \\
 \uparrow & \uparrow & \uparrow & \uparrow & \uparrow & \uparrow \\
 +1 & +1 & +1 & +1 & +1 & +1
 \end{array}$$

76. If the sum of the square of the zeroes of the polynomial $x^2 + 9x + 3k$ is 21, then find the value of k.

- (a) ` (b) -17
(c) 10 (d) 20

Ans. (c) :

$$x^2 + 9x + 3k = 0$$

$$\therefore \alpha^2 + \beta^2 = 21$$

$$\text{Sum of Zeros } (\alpha + \beta) = (-9)$$

$$\text{product of Zeros } (\alpha \beta) = 3k$$

$$(\alpha + \beta)^2 = \alpha^2 + \beta^2 + 2\alpha\beta$$

$$81 = 21 + 2 \times 3k$$

$$60 = 6k$$

$$k = 10$$

77. Anil buys an article with 20% discount on the marked price and sells it at 8% discount on the marked price. Find his profit/loss percent.

- (a) 15% loss (b) 12% loss
(c) 15% profit (d) 12% profit

Ans. (c) : Let, Marked price of the article = ₹100

$$\text{Discount on marked price} = 20\%$$

$$\text{Cost price of article} = 100 \times \frac{80}{100} = ₹80$$

8% discount on the marked price

$$\text{Selling price of article} = 100 \times \frac{92}{100} = ₹92$$

$$\text{Cost price} < \text{Selling price}$$

$$\text{Profit} = \text{SP} - \text{CP}$$

$$= 92 - 80 = ₹12$$

$$P\% = \frac{P}{CP} \times 100$$

$$= \frac{12}{80} \times 100 = 15\%$$

78. Simplify :

$$5 \times 42 - 3 + 27 \div 3$$

- (a) 218 (b) 204
(c) 216 (d) 110

Ans. (c) : $5 \times 42 - 3 + 27 \div 3$

$$= 5 \times 42 - 3 + 9$$

$$= 210 - 3 + 9$$

$$= 219 - 3$$

$$= 216$$

79. Aedes mosquito is a carrier of :

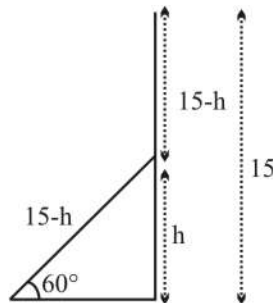
- (a) Cholera (b) Dengue
(c) Malaria (d) Typhoid

Ans. (b) : The Aedes mosquito (*Aedes aegypti*) is the yellow fever mosquito that carries dengue fever, chikungunya and zika fever. Aedes is a genus of mosquitoes. Mosquitoes of this genus cannot fly very high. Malaria is spread by the bite of the Anopheles mosquito. Cholera is caused by the consumption of contaminated food or water by a person. It is an intestinal disease caused by *Vibrio cholera* bacteria.

80. A 15 m high tree is broken by the wind in such a way that its top touches the ground and makes an angle of 60° with the ground. At what height from the bottom is the tree broken ?

- (a) $\frac{30\sqrt{3}}{2+\sqrt{3}}$ m (b) $\frac{15\sqrt{3}}{2+\sqrt{3}}$ m
(c) $\frac{15}{1+\sqrt{3}}$ m (d) 5 m

Ans. (b) :



$$\begin{aligned}\sin 60^\circ &= \frac{h}{15-h} \\ \frac{\sqrt{3}}{2} &= \frac{h}{15-h} \\ 15\sqrt{3} - h\sqrt{3} &= 2h \\ 15\sqrt{3} &= 2h + h\sqrt{3} \\ 15\sqrt{3} &= h(2 + \sqrt{3}) \\ h &= \frac{15\sqrt{3}}{2 + \sqrt{3}} \text{ m}\end{aligned}$$

81. The median of 11, 13, 10, 9, 8, 20, 13 is :

- (a) 13 (b) 9
(c) 12 (d) 11

Ans. (d) : Given numbers– 11, 13, 10, 9, 8, 20, 13
on writing the number in ascending order.

8, 9, 10, 11, 13, 13, 20

No. of terms (n) = 7 odd number

$$\begin{aligned}\text{Median} &= \left(\frac{n+1}{2} \right)^{\text{th}} \text{ term} \\ &= \left(\frac{7+1}{2} \right)^{\text{th}} \text{ term} \\ &= 4^{\text{th}} \text{ term} = 11\end{aligned}$$

82. What is the LCM of 14, 21 and 28 ?

- (a) 588 (b) 7
(c) 48 (d) 84

Ans. (d) : LCM of 14, 21 and 28

$$14 = 2 \times 7$$

$$21 = 3 \times 7$$

$$28 = 2 \times 2 \times 7$$

$$\text{LCM of 14, 21 and 28} = 2 \times 2 \times 3 \times 7 = 84$$

83. If $\sin \theta - \sqrt{3} \cos \theta = 0$ (θ is an acute angle), then the value of $\sin^2 \theta - \cos^2 \theta$ is :

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

Ans. (b) : $\sin \theta - \sqrt{3} \cos \theta = 0$

$$\sin \theta = \sqrt{3} \cos \theta$$

$$\frac{\sin \theta}{\cos \theta} = \sqrt{3}$$

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

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

$$\theta = 60^\circ$$

$$\begin{aligned}\sin^2 \theta - \cos^2 \theta &= \sin^2 60^\circ - \cos^2 60^\circ \\ &= 1 - \cos^2 60^\circ - \cos^2 60^\circ \quad [\sin^2 \theta = 1 - \cos^2 \theta] \\ &= 1 - 2 \cos^2 60^\circ \quad [\cos 60^\circ = \frac{1}{2}] \\ &= 1 - 2 \times \left(\frac{1}{2} \right)^2 \\ &= 1 - 2 \times \frac{1}{4} \\ &= 1 - \frac{1}{2} \\ &= \frac{1}{2}\end{aligned}$$

84. The organ of the government that primarily looks after the implementation and administration is called the:

- (a) Parliament (b) Legislature
(c) Judiciary (d) Executive

Ans. (d) : The executive is that part of the government that mainly performs the functions of implementation and administration. There are mainly three parts of the government–

1. Legislature
2. Executive
3. Judiciary

The legislative organ of the state makes laws, the executive enforces them and the Judiciary applies them to the specific cases arising out of the breach of law.

85. Travelers in deserts often tend to have an optical illusion of a sheet of water where none actually exists. What is this called ?

(a) Mirage (b) Reflection
(c) Diversion (d) Scattering

Ans. (a) : Mirages – Mirages happen when the ground is very hot and the air is cool. The hot ground warms the layer of air just above the ground. When the light moves through the cold air and into the layer of hot air it is refracted. A layer of very warm air near the ground refracts the light from the thus mirage occurs.

Direction: (Question 86-89)

The following table shows CFC emissions (in million metric tons) from various sectors for an industry for a period of 5 years. Based on the table answer the question given below.

Sector Year	Cement	Fertilizer	Foam	Pesticides
2015	200	500	80	100
2016	300	600	90	110
2017	320	650	100	120
2018	400	700	150	150
2019	450	800	200	180

86. Which sector has recorded the maximum percentage growth in CFC emissions from 2015 to 2019 ?

(a) Pesticides (b) Fertilizer
(c) Cement (d) Foam

Ans. (d) : According to the question,
Percentage increase in CFC emissions in various sector.
Percentage growth in cement sector

$$= \left(\frac{450 - 200}{200} \right) \times 100 = 125\%$$

Percentage growth in fertilizer sector

$$= \left(\frac{800 - 500}{500} \right) \times 100 = 60\%$$

Percentage increase in foam sector

$$= \frac{(200 - 80)}{80} \times 100 = 150\%$$

Percentage increase in pesticide sector

$$= \left(\frac{180 - 100}{100} \right) \times 100 = 80\%$$

It is clear from the above that the highest percentage increase (150%) has been recorded in CFC emissions in foam sector.

87. The contribution of CFC emissions from the fertilizer sector, in comparison to the total CFC emissions from all the sectors, was the least in which year ?

(a) 2017 (b) 2015
(c) 2016 (d) 2019

Ans. (d) : From the given options

(a) for year 2017,

Total CFC emissions from all sectors

$$= 320 + 650 + 100 + 120 = 1190$$

CFC emissions from the fertilizer sector = 650

$$\text{Percentage} = \frac{650}{1190} \times 100 = 54.62\%$$

(b) for year 2015

Emissions of CFC from all sector

$$= 200 + 500 + 80 + 100 = 880$$

Emission of CFC from fertilizer sector = 500

$$\text{Percentage} = \frac{500}{880} \times 100 = 56.81\%$$

(c) for year 2016

Emissions of CFC from all sectors

$$= 300 + 600 + 90 + 110 = 1100$$

CFC emission from fertilizer sector

$$= 600$$

$$\text{Percentage} = \frac{600}{1100} \times 100 = 54.54\%$$

(d) for the year 2019

Emissions of CFC from all sectors

$$= 450 + 800 + 200 + 180 = 1630$$

CFC emission from fertilizer sector = 800

$$\text{Required Percentage} = \frac{800}{1630} \times 100 = 49.07\%$$

So it is clear from the above that in the year 2019 the total CFC emissions from all the sector from fertilizer sector is lowest.

88. What is the percentage growth in CFC emissions from the pesticides sector from 2015 to 2019 ?

(a) 90% (b) 70%
(c) 50% (d) 80%

Ans. (d) : Percentage increase in CFC emission from

$$2015 \text{ to } 2019 \text{ in pesticides sector} = \frac{(180 - 100)}{100} \times 100$$

$$= \frac{80}{100} \times 100 \\ = 80\%$$

89. What is the approximate contribution in percentage in CFC emissions from the cement sector, in comparison to that of the total CFC emissions from all the sectors in 2017 ?

(a) 19% (b) 27%
(c) 60% (d) 24%

Ans. (b) : Total CFC emission from all sectors in the year 2017 = 320 + 650 + 100 + 120
= 1190

CFC emission from cement sector in 2017 = 320

$$\text{Required percentage} = \frac{320}{1190} \times 100$$

26.890%
≈ 27% (approx)

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

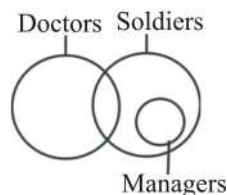
Statements :

- (a) Some doctors are soldiers.
(b) All managers are soldiers.

Conclusions :

- (i) All doctors are soldiers.
(ii) Some soldiers are managers.
(iii) All soldiers are doctors.
(iv) Some doctors are managers.
(a) Only conclusions (ii) and (iv) follow
(b) Only conclusion (ii) follows
(c) Only conclusions (iii) and (iv) follow
(d) Only conclusion (i) follows

Ans. (b) : On drawing Venn diagram according to the statements.



Hence, only conclusion (ii) follows.

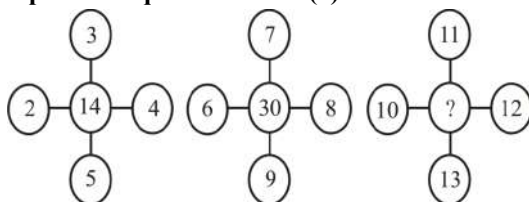
91. Select the option which is related to the third term in the same way as the second term is related to the first term.

Apple : Fruit :: Bottle Gourd : ?

- (a) Fruit (b) Snack
(c) Vegetable (d) Food

Ans. (c) : Just as Apple is a type of fruit same as Bottle Gourd is a type of vegetable.

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



- (a) 46 (b) 62
(c) 26 (d) 64

Ans. (a) : Such as,

$$2 + 3 + 4 + 5 = 14$$

$$\text{and, } 6 + 7 + 8 + 9 = 30$$

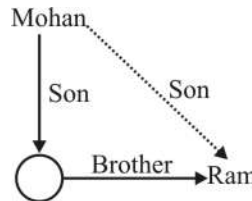
Same as,

$$10 + 11 + 12 + 13 = \boxed{46}$$

93. If Ram is the brother of the son of Mohan, then how is Ram related to Mohan ?

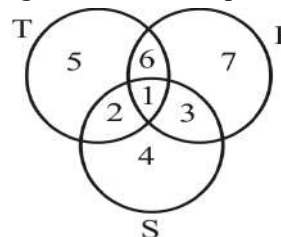
- (a) Son (b) Grandson
(c) Brother (d) Father

Ans. (a) : According to the question,



It is clear from the blood-relation diagram that Ram is Mohan's son.

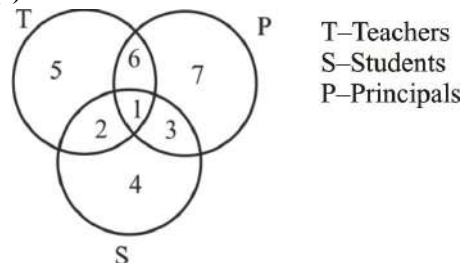
94. In the given diagram, circle T represents 'teachers', circle S represents 'students' and circle P represents 'principals'. The regions are denoted by the numbers 1 to 7. Based on the diagram answer the question given below.



Select the region that represents principals who are students but not teachers.

- (a) 6 (b) 2
(c) 3 (d) 1

Ans. (c) :



T-Teachers
S-Students
P-Principals

The region shown by 3 represents principals who are students but not teachers.

95. If all the odd numbers are removed from 3 to 39, then how many numbers remain ?

- (a) 17 (b) 16
(c) 18 (d) 19

Ans. (c) : Total number of terms from 3 to 39 = 37

Where $l \rightarrow$ last term, $a \rightarrow$ first term, $d \rightarrow$ common difference

$$\begin{aligned}\text{No. of odd terms from 3 to 39 (n)} &= \frac{l-a}{d} + 1 \\ &= \frac{39-3}{2} + 1 \\ &= \frac{36}{2} + 1 \\ &= 19\end{aligned}$$

No. of total terms = No. of even terms + No. of odd terms

$$37 = \text{No. of even terms} + 19$$

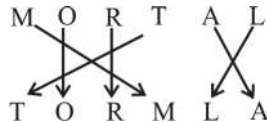
$$\text{No. of even terms} = 37 - 19$$

$$= 18$$

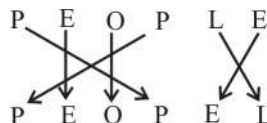
96. In a certain code, if MORTAL is rearranged as TORMLA, how would PEOPLE be rearranged in the same code ?

- (a) PEOPEL (b) PEOLEP
(c) PEPOEL (d) PPOELE

Ans. (a) : Such as,



Same as,



97. Read the given statements and decide if the given conclusion is true, false or irrelevant with respect to the statements.

Statements :

I. A is the sister of B.

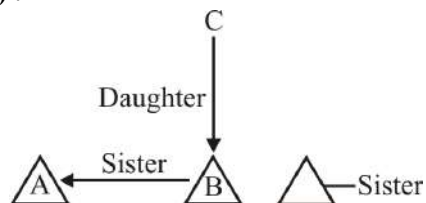
II. B is the daughter of C.

Conclusion :

B is the enemy of C.

- (a) Conclusion drawn is definitely false
(b) Conclusion drawn is probably true
(c) Conclusion drawn is definitely true
(d) Conclusion cannot be drawn

Ans. (d) :



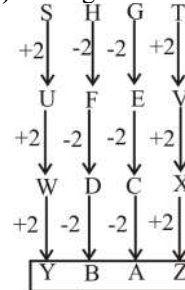
Conclusion cannot be drawn because in the statement it is said that B is the daughter of C, while the enemy is not mentioned in the statements.

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

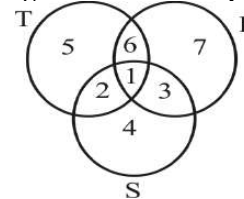
SHGT, UFEV, WDCX, ?

- (a) ZABY (b) AZYB
(c) ZAYB (d) YBAZ

Ans. (d) : The given series is as follows—



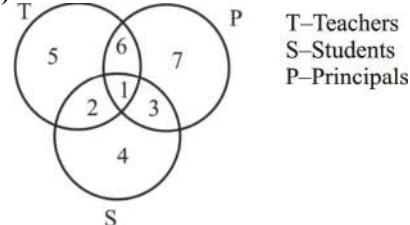
99. In the given diagram, circle T represents 'teachers', circle S represents 'students' and circle P represents 'principals'. The regions are denoted by the numbers 1 to 7. Based on the diagram answer the question given below.



Select the region that represents principals who are both, teachers and students.

- (a) 1 (b) 3
(c) 6 (d) 7

Ans. (a) :



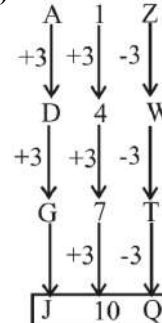
The region that represents principals who are both teachers and students are shown by 1.

100. Select the alphanumeric cluster from among the given options that can replace the question mark (?) in the following series.

A1Z, D4W, G7T, ?

- (a) Q17J (b) Q10J
(c) J10Q (d) J17S

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



Railway Non-Technical Popular Categories Exam - 2019

Graduate and Under-Graduate Level

[Ist Stage Computer Based Test]

Exam Date : 20.01.2021]

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

1. The HCF of 24 and 144 is ' $10p + 4$ ', then the value of ' p ' is :
- (a) 3 (b) 1
(c) 2 (d) 4

Ans. (c) : $24 = 2 \times 2 \times 2 \times 3$
 $144 = 2 \times 2 \times 2 \times 2 \times 3 \times 3$
H.C.F. = 24
 $10p + 4 = 24$
 $10p = 20$
 $p = 2$

2. Which of the following pairs of numbers is co-prime?
- (a) 6 and 35 (b) 39 and 65
(c) 14 and 21 (d) 9 and 12

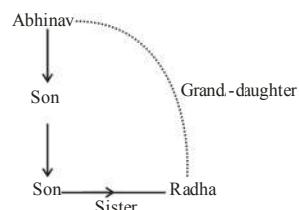
Ans. (a) : Co-prime numbers are the numbers whose common factor is only 1.
Example- (2, 3), (3, 4), (5, 6) etc.
From option (a),
 $6 = 2 \times 3 \times 1$
 $35 = 5 \times 7 \times 1$
Hence, 6 and 35 are the co-prime numbers.

3. In a row of girls, Rajeshwari is fifth from one extreme and sixth from the other end. Find the total number of girls present in the row.
- (a) 10 (b) 9
(c) 12 (d) 11

Ans. (a) : Position of Rajeshwari from the left side of the row = 5th
Position of Rajeshwari from the right side of the row = 6th
Total number of girls in the row
 $T = L + R - 1 = 5 + 6 - 1 = 10$

4. Radha is the sister of the son of Abhinav's son. How is Radha related to Abhinav?
- (a) Grand daughter (b) Aunt
(c) Sister (d) Grand mother

Ans. (a) : According to the question,



Hence, Radha is Abhinav's Grand-daughter.

5. At which university did Mahatma Gandhi make his first public appearance in 1916 after returning from South Africa to India ?
- (a) Banaras Hindu University
(b) Allahabad University
(c) Aligarh Muslim University
(d) University of Mumbai

Ans. (a) : Mahatma Gandhi's first public address in India was on the occasion of the opening ceremony of the Banaras Hindu University in February 1916. After over 21 years stay in South Africa, Gandhiji returned to India on January 9, 1915 with his wife Kasturba.

Note: Pravasi Bharatiya Divas (Non-Resident Indian Day) is a celebratory day observed (starting in 2003) on 9 January to commemorate the return of Mahatma Gandhi from South Africa to Mumbai on 9 January, 1915.

6. The HCF of the least prime number and the least composite natural number is :
- (a) 3 (b) 2
(c) 4 (d) 1

Ans. (b) : The smallest prime number = 2
The smallest composite number = 4
HCF = 2

7. 20 years ago, the average age of a husband and his wife was 23 years. Now, the average age of the family consisting of the husband, wife and their son is 34 years. The present age of the son is :
- (a) 42 years (b) 24 years
(c) 34 years (d) 16 years

Ans. (d) : Let the present age of the husband = x years and, Present age of wife = y years
again, Present age of son = z years

∴ According to the question,

$$\text{Age of husband 20 years ago} = x - 20$$

$$\text{Age of wife 20 years ago} = y - 20$$

$$\therefore \frac{x - 20 + y - 20}{2} = 23$$

$$\Rightarrow x + y - 40 = 46$$

$$\Rightarrow x + y = 86 \quad \dots (i)$$

$$\text{and, } \frac{x + y + z}{3} = 34$$

$$\Rightarrow x + y + z = 102 \quad \dots (ii)$$

On putting value of ' $x + y$ ' in equation (ii), we get-

$$z = 16 \text{ years}$$

Hence, the present age of the Son = 16 years

8. What will be the compound interest on ₹25000 at the rate of 6% per annum in 2 years?

(a) ₹3,090 (b) ₹1,950
(c) ₹1,560 (d) ₹2,560

Ans. (a) : Rate (r) = 6% annually

Principal, (P) = ₹ 25,000

Time, (T) = 2 years

Compound Interest = ?

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

$$= 25000 \left(1 + \frac{6}{100} \right)^2$$

$$= 25000 \times \frac{53}{50} \times \frac{53}{50}$$

$$= 10 \times 53 \times 53$$

$$= 28090$$

Compound Interest = Amount – Principal

$$= ₹28090 - 25000$$

$$= ₹3090$$

9. If $\sin 3\theta = \cos (\theta - 6^\circ)$, then θ is:

(a) 12° (b) 26°
(c) 3° (d) 24°

Ans. (d) : $\sin 3\theta = \cos (\theta - 6^\circ)$

$$\sin 3\theta = \sin (90 - (\theta - 6^\circ))$$

$$3\theta = 90 - \theta + 6^\circ$$

$$4\theta = 96^\circ$$

$$\theta = 24^\circ$$

10. If an article is sold at a gain of 5% instead of being sold at a loss of 5%, a man gets ₹5 more. What is the cost price of the article?

(a) ₹50 (b) ₹80
(c) ₹40 (d) ₹60

Ans. (a) : Let the C.P = ₹x

According to the question,

$$\frac{105 \times x}{100} - \frac{95 \times x}{100} = 5$$

$$\frac{10x}{100} = 5$$

$$x = ₹50$$

11. Find the value of :

$$(0.63 \div 1.26) \times 4 + 5 \times 3$$

(a) 17 (b) 18

(c) 16 (d) 15

Ans. (a) : $(0.63 \div 1.26) \times 4 + 5 \times 3$

$$\frac{0.63}{1.26} \times 4 + 5 \times 3$$

$$0.5 \times 4 + 5 \times 3$$

$$2 + 15 = 17$$

12. In April, the profit of a book store is increased by 25%, and in May, it is decreased by 20%. How did the profit of the store at the end of May compare to that in the beginning of April?

(a) It was 25% greater
(b) It was same
(c) It was 5% greater
(d) It was less

Ans. (b) : $x = +25\%$ and $y = -20\%$

$$\text{Profit/Loss} = \left(\pm x \pm y \pm \frac{xy}{100} \right) \%$$

$$= +25 - 20 - \frac{25 \times 20}{100}$$

$$= 25 - 25$$

$$= 0$$

So, the profit was the same.

13. If J is coded as N, R is coded as V and X is coded as B, then how will you code JOY?

(a) NSC (b) NRA
(c) NOB (d) NSA

Ans. (a) : Just as,

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

$$R \xrightarrow{+4} V$$

$$X \xrightarrow{+4} B$$

Similarly,

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

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

$$Y \xrightarrow{+4} C$$

14. The International Criminal Police Commission (ICPC), predecessor to INTERPOL was founded at _____ in 1923.

(a) New York (b) Geneva
(c) Washington (d) Vienna

Ans. (d) : International Criminal Police Commission (ICPC) was established in 1923 in Vienna. Now it is headquartered in Lyon, France. In 1956 the ICPC ratified a new constitution under which it was renamed the International Criminal Police Cooperation and Crime Central. It is the world's largest International Police Organization with 194 member countries.

15. In 1930, who organised the Dalits into the Depressed Classes Association and demanded separate electorates for them ?

(a) Abdul Gaffar Khan (b) BR Ambedkar
(c) Mahatma Gandhi (d) Jawahar Lal Nehru

Ans. (b) : Dr. B.R. Ambedkar organised the dalits into the depressed classes Association in 1930. He participated in all three round table conferences and demanded separate electorate for Dalits.

Note—The Poona Pact was an agreement between Mahatma Gandhi and B.R. Ambedkar on the reservation of electoral seats for the depressed classes on 24 September, 1932 at Yerwada Central Jail in Poona.

16. A photograph of a bacteria enlarged 60000 times attains a length of 6 cm. The actual length of bacteria is:

- (a) $\frac{1}{100}$ cm (b) $\frac{1}{10000}$ cm
(c) 1000 cm (d) $\frac{1}{1000}$ cm

Ans. (b) : Let the length of the bacteria = x cm
 $\therefore x \times 60000 = 6$
 $\Rightarrow x = \frac{6}{60000} = \frac{1}{10000}$ cm

17. From which Constitution has the Fundamental Rights in the Indian Constitution drawn ?

- (a) United States (b) Switzerland
(c) Britain (d) Soviet Union

Ans. (a) : In Part -III, Article 12-35 of the Indian Constitution deals with the Fundamental Rights. These rights are taken from America's Constitution. There are 6 Fundamental Rights in Indian Constitution.

Note : Name of countries	Borrowed features of constitution
1. Britain	Parliamentary government, Single Citizenship
2. Ireland	Directive Principles of state policy
3. Australia	Concept of Concurrent list
4. USSR (Russia)	Fundamental Duties
5. Germany	Emergency Provisions
6. South Africa	Amendment of Constitution

18. The first Pressurised Heavy Water Reactor (PHWR) of India in 1964 was a Collaborative venture between Atomic Energy of ____ Ltd and NPCIL of India.

- (a) USSR (b) Israel
(c) Canada (d) France

Ans. (c) : In 1964, India's first Pressurized Heavy Water Reactor (PHWR), and this prototype-Rajasthan 1, which had Canada's Douglas point reactor as a reference unit, was built as a collaborative venture between. Atomic Energy of Canada Limited and NPCIL all were a Unified Undertakings.

Note: PHWR is an Indian Reactor designed by the Bhabha Atomic Research Centre. All its main components for the first unit were supplied by Canada in 1960s.

19. The ratio of the area of a circle and that of an equilateral triangle, where the diameter of the circle is equal to the sides of the equilateral triangle, is :

- (a) $\sqrt{3} : \pi$ (b) $\pi : \sqrt{2}$
(c) $\pi : \sqrt{3}$ (d) $\pi : 1$

Ans. (c) : Area of circle = πr^2

Area of equilateral triangle = $\frac{\sqrt{3}}{4} a^2$

According to the question,

Diameter of circle, $2r$ = Side of equilateral triangle

$$\Rightarrow 2r = a$$

$$\Rightarrow r = a/2$$

$$\begin{aligned} \text{Required ratio} &= \frac{\pi r^2}{\frac{\sqrt{3}}{4} a^2} = \frac{\pi (a/2)^2}{\frac{\sqrt{3}}{4} \times a^2} = \frac{\pi}{\sqrt{3}} \\ &= \pi : \sqrt{3} \end{aligned}$$

20. What is the language spoken by a majority of the people in Lakshadweep ?

- (a) Konkani (b) Kannada
(c) Malayalam (d) Marathi

Ans. (c) : The most common spoken language in Lakshadweep is Malayalam. They use the modern script of Malayalam known as Grandha.

Note: Lakshadweep is the smallest union territory of India. It is located in the Arabian Sea and is formed of coral islands and is famous for its lagoon.

21. A dealer lists goods at 40% above cost price and allows a discount of 20%. His profit is:

- (a) 12% (b) 10%
(c) 40% (d) 20%

Ans. (a) : Let the cost price = ₹100

\therefore Marked price = ₹140

$$\text{Selling price} = \frac{140 \times 80}{100} = ₹112$$

$$\text{Profit} = 112 - 100$$

$$\text{Profit \%} = \frac{\text{Profit}}{\text{CP}} \times 100$$

$$\begin{aligned} &= \frac{12}{100} \times 100 \\ &= 12\% \end{aligned}$$

22. In which of the following states in India the 'rat hole mining' is still practised?

- (a) Meghalaya (b) Gujarat
(c) Maharashtra (d) Jharkhand

Ans. (a) : Rat-Hole Mining is a primitive and hazardous method of mining for coal. Rat-Hole Mining is done with tunnels that are only 3-4 feet in diameter, leading to pits ranging from 5-100 sq. mt deep coal reserves are predominantly found in north east regions Meghalaya. It was banned soon after a petition submitted on pollution issues in the Kopili River due to the acidic discharge from the mines.

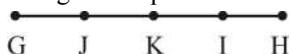
23. Five friends G, H, I, J and K are standing in a row (not necessarily in the same order).

1. The person in the middle is between J and I.
2. G is at the left end.
3. K is the neighbour of both J and I.

Who among the following is standing at the right end ?

- (a) H (b) I
(c) J (d) K

Ans. (a) : According to the question—



Hence, 'H' is standing at the right end.

24. Who among the following Nobel Prize winners is the founder of a grassroots movement to combat deforestation ?

- (a) May-Britt Moser (b) Francoise Barre
(c) Wangari Maathai (d) Linda Buck

Ans. (c) : Wangari Maathai was a Kenyan social environmental and political activist and the first African woman to win the Nobel Peace Prize. In 1977, Mathai founded the Green Belt Movement, an environmental non-governmental organization focused on the planting of trees, environmental conservation and women's rights.

25. Name the book written by Mahatma Gandhi in 1909 that suggested the British rule would come to an end if Indians didn't cooperate with them.

- (a) Village Swaraj
(b) Hind Swaraj
(c) Construtive Programme - Its Meaning and Place
(d) India of My Dreams

Ans. (b) : Hind Swaraj or Indian Home Rule is a book written by Mohandas K. Gandhi in 1909, in Gujarati language. In this book, he expresses his views on Swaraj and modern civilization. The book was banned in 1910 by the British government in India as a seditious text. In the book it is also suggested that if Indians do not cooperate, British rule will end.

26. A 600 m long train is running at the speed of 72 km/h. How much time will it take to cross a 200 m long bridge ?

- (a) 10 s (b) 30 s
(c) 20 s (d) 40 s

Ans. (d) : Length of train (L_T) = 600 m.

Speed of train (S) = 72 km/h

$$= 72 \times \frac{5}{18} = 20 \text{ m/s}$$

Length of bridge (L_B) = 200 m

$$\text{Time, } T = \frac{L_T + L_B}{S} = \frac{600 + 200}{20} = 40 \text{ seconds}$$

27. Consider the given statements and decide which of the given assumptions is/are implicit in the statement.

Statement:

To expand their business, a budding company now requires more staff.

Assumptions:

I. The current staff is incompetent.

II. Business can only be expanded by always hiring new staff.

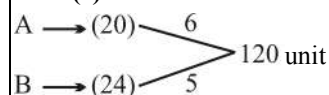
- (a) Both the assumptions are implicit.
(b) Only assumption I is implicit.
(c) Only assumption II is implicit.
(d) Neither assumption I nor II is implicit.

Ans. (d) : According to the given statement neither assumption I nor II is implicit.

28. A can finish a piece of work in 20 days and B can finish it in 24 days. They work together for 10 days then A leaves. In how many days will B finish the remaining work?

- (a) Half day (b) 1 day
(c) 2 days (d) 3 days

Ans. (c) :



Work done by A and B = $11 \times 10 = 110$ unit

Remaining work = $120 - 110 = 10$ unit

\therefore Time taken by B to complete the remaining work

$$10 = 5 \times B$$

$$B = 2 \text{ days}$$

29. In February 2019, which communication satellite was launched by ISRO to help in bulk data transfer for telecommunication applications ?

- (a) GSAT-31 (b) GSAT-30
(c) GSAT-32 (d) GSAT-13

Ans. (a) : India's telecommunication satellite, GSAT-31 was successfully launched on February 06, 2019 from Kourou launch base, French Guiana in South America. The Satellite will provide connectivity to very small aperture terminals (VSAT) for ATII, Stock exchange e-governance applications and Direct-to-Home (DTH) Services.

30. The mean of the first twelve prime numbers is :

- (a) 16.42 (b) 12.00
(c) 20.45 (d) 10.50

Ans. (a) : The first 12 prime numbers are as follows—
= 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37

$$\text{Mean} = \frac{\text{Sum of terms}}{\text{Number of terms}}$$

$$= \frac{2+3+5+7+11+13+17+19+23+29+31+37}{12}$$

$$= \frac{197}{12} = 16.42$$

31. On heating gypsum at 373K, it loses water molecules and becomes calcium sulphate hemihydrate. This substance is used to make toys, material for decoration and smooth surfaces. What is this substance commonly known as ?

- (a) Clay (b) Plaster of Paris
(c) Cement (d) Alabaster

Ans. (b) : On heating gypsum, it loses one and a half molecules of water and forms calcium sulphate hemihydrate also known as Plaster of Paris.



Note :—Uses of Plaster of Paris

- Plaster of Paris is used by doctors for supporting fractured bones in the right position.
- It is used for making toys and decorative materials.
- It is also used for increasing smoothness of surfaces.

32. Which Mughal monument was designed by Ustad Ahmed Lahori and declared a UNESCO World Heritage Site in 1983 ?

- (a) Agra Fort (b) Taj Mahal
(c) Red Fort (d) Humayun's Tomb

Ans. (b) : The Taj Mahal was designated as a UNESCO World Heritage Site in 1983 for being "the Jewel of Muslim Art in India". It is regarded by many as the best example of Mughal architecture and a symbol of India's rich history. This Monument was designed by Ustad Ahmed Lahori.

33. Yakshagana is a folk performance of which Indian state ?

- (a) Karnataka (b) Maharashtra
(c) Assam (d) Gujarat

Ans. (a) : Yakshagana is a dance-drama of South Indian associated most strongly with the state of Karnataka. Elaborate and colourful costumes, make-up and masks constitute some of the most-striking features of this art form.

State	Folk Dance
Maharashtra	— Lavani, Tamasha
Assam	— Bihu, Jhumur
Gujarat	— Garba, Dandiya

34. Median of 14, 14, 15, 17, 16, 17, 17, 22, 13 is:

- (a) 15 (b) 14
(c) 17 (d) 16

Ans. (d) : 14, 14, 15, 17, 16, 17, 17, 22, 13

On writing in ascending order,
13, 14, 14, 15, 16, 17, 17, 17, 22
n = 9 (odd)

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

$$= \left(\frac{9+1}{2} \right)^{\text{th}} \text{ term} = \frac{10}{2} \text{ term}$$

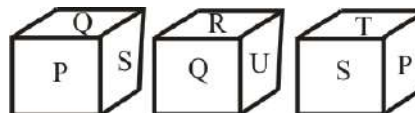
$$= 5^{\text{th}} \text{ term} = 16$$

35. Name the creation of Devaki Nandan Khatri which is considered to be the first authentic work of prose in Hindi.

- (a) Chandrakanta (b) Gitanjali
(c) Ratnavali (d) Gita Govinda

Ans. (a) : Chandrakanta is an epic fantasy Hindi novel by Devaki Nandan Khatri. Chandrakanta is the story of eternal love set against the battle and strife between two kingdoms Naugarh & Vijaygarh.

36. Three different positions of the same dice are shown. Select the letter that will be on the face opposite of the one having U ?



- (a) T (b) R
(c) S (d) P

Ans. (d) : From dice (i) and (ii)

	Q	S	P
Opposite face	↓	↓	↓
	Q	R	U

Hence, letter 'P' will be on the face opposite to U.

37. The quadratic equation whose one root is $3 + \sqrt{5}$, is :

- (a) $x^2 + 6x - 4 = 0$ (b) $x^2 - 6x - 4 = 0$
(c) $x^2 - 6x + 4 = 0$ (d) $x^2 + 6x + 4 = 0$

Ans. (c) : \because A root of a quadratic equation, $\alpha = 3 + \sqrt{5}$

\therefore Second root, $\beta = 3 - \sqrt{5}$

From,

$$x^2 - (\alpha + \beta)x + \alpha\beta = 0$$

$$\Rightarrow x^2 - (3 + \sqrt{5} + 3 - \sqrt{5})x + (3 + \sqrt{5})(3 - \sqrt{5}) = 0$$

$$\Rightarrow x^2 - 6x + 4 = 0$$

38. x% of y is y% of ____ :

- (a) $\frac{y}{10}$ (b) $100x$
(c) x (d) $\frac{x}{10}$

Ans. (c) : According to the question,

x% of y = ? of y%

$$\Rightarrow \frac{y \times x}{100} = \frac{? \times y}{100}$$

$$\Rightarrow \frac{xy}{100} = \frac{?y}{100}$$

$$? = x$$

39. From where did India's Polar Satellite Launch Vehicle (PSLV-C45) successfully launch EMISAT and 28 international customer satellites on 1st April 2019 ?

- (a) Satish Dhawan Space Center
(b) Spaceport in French Guiana
(c) U R Rao Satellite Centre
(d) Centre Spatial Guyanais, Kourou

Ans. (a) : The PSLV-C45 is the 47th mission of the India's Polar Satellite Launch Vehicle Program. The Polar Satellite Launch Vehicle-C45 was launched on 1 April 2019 with a payload of 29 satellites, including one for electronic intelligence, along with 28 customer satellites from other countries.

40. Name the drainage pattern where the river originates from a hill and flows in all directions.

- (a) Trellis (b) Dendritic
(c) Centripetal (d) Radial

Ans. (d) : When the rivers originate from a hill and flow in all directions, the drainage pattern is known as 'Radial'. For example the rivers originating from the Amarkantak Range; Narmada and Son (tributary of Ganga).

41. What is the scale for measuring a hydrogen ion concentration in solution ?

- (a) dB scale (b) OH scale
(c) pH scale (d) Hydrogen scale

Ans. (c) : A scale for measuring hydrogen ion concentration in a solution is called pH scale. The p in pH stands for 'Potenz' in German, meaning power. pH should be thought of simply as a number which indicates the acidic or basic nature of a solution. Ranging from 0 to 14, with 7 being neutral for an aqueous solution.

42. If $x + \frac{1}{x} = 6$, then value of $x^2 + \frac{1}{x^2}$ is:

- (a) 36 (b) 38
(c) 12 (d) 34

Ans. (d) : Given,

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

On squaring both the sides,

$$\left(x + \frac{1}{x}\right)^2 = (6)^2$$

$$x^2 + \frac{1}{x^2} + 2 \times x \times \frac{1}{x} = 36$$

$$x^2 + \frac{1}{x^2} = 36 - 2 = 34$$

43. $\sqrt{2} - \sqrt{3}$ is:

- (a) An irrational number (b) A natural number
(c) A rational number (d) A whole number

Ans. (a) : Irrational numbers are the real numbers that cannot be represented as a simple fraction. It cannot be expressed in the form of a ratio such as p/q, where p and q are integers, $q \neq 0$.

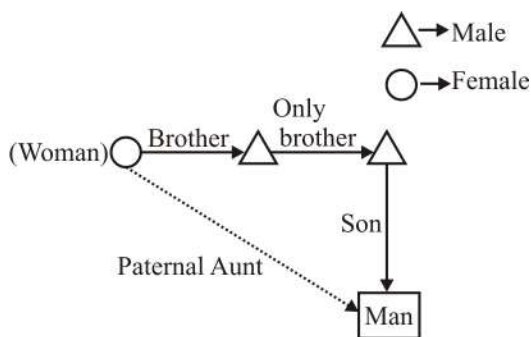
Example- $\sqrt{2}, \sqrt{3}, \sqrt{6}, \pi$ etc

Hence, $\sqrt{2} - \sqrt{3}$ is an irrational number.

44. Pointing to a photograph of man, a woman said, "That man is the son of the only brother of my husband". How is the woman related to the man in the photograph?

- (a) Sister (b) Paternal Aunt
(c) Mother (d) Maternal Aunt

Ans. (b) : The given blood-relation diagram is as follows–



So, it is clear that the woman will be the paternal aunt of the man.

45. Name the German chemist who grouped elements into triads in 1817.

- (a) John Newlands
- (b) Henry Moseley
- (c) Johann Wolfgang Dobereiner
- (d) Dmitri Ivanovich Mendeleev

Ans. (c) : In 1817, a German Chemist Johann Wolfgang Dobereiner arranged the elements with similar properties in a group. Dobereiner Triad is based on three elements group. He was the first person who started grouping of elements on the basis of atomic weight.

Note: He has also discovered the halogen triad of Chlorine, Bromine and Iodine and the alkali metal triad of Lithium, Sodium and Potassium.

46. In the expansion of $(x + 3)^3$, the co-efficient of x is :

- (a) 1
- (b) 18
- (c) 27
- (d) 9

Ans. (c) : $(x + 3)^3$

Formula – $(a+b)^3 = a^3 + b^3 + 3ab(a+b)$

$$\begin{aligned}
 (x + 3)^3 &= x^3 + 27 + 3 \times x \times 3(x + 3) \\
 &= x^3 + 27 + 9x(x + 3) \\
 &= x^3 + 27 + 9x^2 + 27x \\
 &= x^3 + 9x^2 + 27x + 27
 \end{aligned}$$

Hence, coefficient of x = 27

47. A number exceeds 25% of itself by 60 the number is :

- (a) 45
- (b) 65
- (c) 75
- (d) 80

Ans. (d) : Let, the number is x.

According to the question,

$$x = x \times 25\% + 60$$

$$x = x \times \frac{25}{100} + 60$$

$$x = \frac{x}{4} + 60$$

$$x = \frac{x + 240}{4}$$

$$4x - x = 240$$

$$3x = 240$$

$$x = 80$$

Hence, the number will be 80.

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

- (a) $\frac{65}{16}$
- (b) $\frac{62}{15}$
- (c) $\frac{49}{12}$
- (d) $\frac{37}{9}$

Ans. (b) : From the given options,

(a) $\frac{65}{16} = \text{Quotient } 4, \text{ Remainder } 1$

(b) $\frac{62}{15} = \text{Quotient } 4, \text{ Remainder } 2$

(c) $\frac{49}{12} = \text{Quotient } 4, \text{ Remainder } 1$

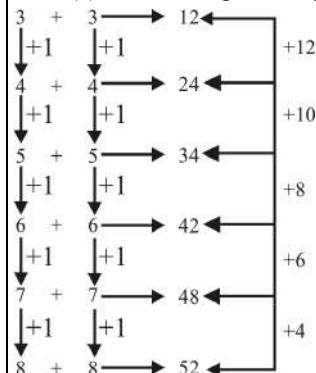
(d) $\frac{37}{9} = \text{Quotient } 4, \text{ Remainder } 1$

Hence the option (b) is odd.

49. If $2+2 = 12$, $3+3 = 24$, $4+4 = 34$ and $5+5 = 42$, then what will be the value of $8+8 = ?$

- (a) 56
- (b) 50
- (c) 54
- (d) 52

Ans. (c) : According to the question,



Hence, it is clear that the number 52 will be correct.

50. Where is the office of the United Nations Environment Programme (UNEP) located in India ?

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

Ans. (b) : The office of United Nations Environmental Programme is situated in New Delhi. UNEP is headquartered in Nairobi, Kenya, and was established in June, 1972. UNEP is the leading environmental authority in the United Nations system. It strengthens environmental standard and practices while helping implement environmental obligations at the country & global levels.

51. Which of the following river's section was declared as National Waterway-2 in 1988 ?

- (a) Narmada (b) Brahmaputra
(c) Krishna (d) Ganga

Ans. (b) : National Waterway-2 is a section of the Brahmaputra River having a length of 897 km between the Bangladesh border near Assam. It was opened on 1 September, 1988.

NW	Year	Related	Length
NW-1	1986	Prayagraj-Haldia	1620 km
NW-3	1993	Kollam-Kottapuram	205 km
NW-4	2008	Kakinada-Puducherry	1095 km

52. Who among the following is not a Cabinet Minister ?

- (a) Minister of Law and Justice
(b) Minister of Home Affairs
(c) Minister of External Affairs
(d) Minister of State in the Ministry of Defence

Ans. (d) : Current Union Council of Ministers in Indian Parliament.

- Cabinet Ministers
- Ministers of State (Independent Charge)
- Minister of State.

State Ministers in Defence Ministry does not come under the Cabinet Minister.

Note:—Article 74 of the Constitution of the Republic of India provides for a Council of Ministers which shall aid the President in the exercise of the President's functions.

53. Government of India has set ambitious target of building ____ Kms of highways in FY21.

- (a) 1000 (b) 10000
(c) 15000 (d) 5000

Ans. (c) : The government has set a target of constructing 15,000 km of highways in financial year 21. On march 2021 total length of National Highways are 1.37 lakh km.

54. Which of the following is a property of an ionic compound ?

- (a) It has a high melting point and boiling point
(b) It is hard and does not break easily
(c) It conducts electricity in the solid state
(d) It is soluble in solvents such as kerosene and petrol

Ans. (a) : Ionic compounds have high melting and boiling points because there is a strong electrostatic force of attraction between the oppositely charged ions and hence a large amount of energy is required to break the strong bonding force between ions.

55. The decimal expansion of $\frac{27}{25}$ will terminate after :

- (a) More than three decimal places
(b) Three decimal places
(c) One decimal place
(d) Two decimal places

Ans. (d) : From the question,

$$\frac{27}{25} = 1.08$$

Hence, the decimal expansion of $\frac{27}{25}$ will terminate after two decimal places.

56. The ratio of the cost price and the selling price of an article is 4 : 5. What is the percentage gain or loss?

- (a) 20% loss (b) 25% gain
(c) 20% gain (d) 25% loss

Ans. (b) : Cost Price : Selling Price = 4 : 5

$$\therefore \text{Profit \%} = \frac{1}{4} \times 100 = 25\%$$

57. The radius of semicircular compound is 35m. What will be its circumference ?

- (a) 90 m (b) 125 m
(c) 180 m (d) 45 m

Ans. (c) : Circumference of semicircle = $\pi r + 2r$
 $= \frac{22}{7} \times 35 + 2 \times 35$
 $= 110 + 70$
 $= 180\text{m.}$

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

12, 49, 197, 789, ?

- (a) 4029 (b) 2341
(c) 1845 (d) 3157

Ans. (d) : The given series is as follows—

$$\begin{array}{ccccccc} 12 & 49 & 197 & 789 & ? & = & 3157 \\ \boxed{} & \boxed{} & \boxed{} & \boxed{} & \boxed{} & & \\ \times 4 + 1 & \times 4 + 1 & \times 4 + 1 & \times 4 + 1 & & & \end{array}$$

Hence, in place of the question mark there will be 3157.

59. Rahul is shorter than Raman. Ramesh is shorter than Ravi but taller than Raman. Who among them is the tallest ?

- (a) Raman (b) Ravi
(c) Rahul (d) Ramesh

Ans. (b) : According to the question,

Rahul < Raman < Ramesh < Ravi

Hence, Ravi is the among them tallest.

60. Which of the following is not a part of the National Social Assistance Programme ?

- (a) Annapurna
(b) Indira Gandhi National Widow Pension Scheme
(c) AYUSH
(d) Indira Gandhi National Disability Pension Scheme

Ans. (c) : National Social Assistance Programme (NSAP) was launched on 15th August, 1995. NSAP is a social security and welfare programme to provide support to aged persons, widows, disabled persons.

The Ministry of Ayurveda, Yoga, and Naturopathy Unani, Siddha and Homeopathy (AYUSH) is purposed with developing education, research and propagation of indigenous alternative medicine systems in India.

61. If the Quantity A is the number of ways to assign a number from 1 to 5 without repetition and the Quantity of B is to assign a number from 1 to 5 to each of the five people without repetition. then which of the following statements is true with respect to Quantities A and B ?

- (a) Quantity A is greater
(b) Both quantities A and B are equal.
(c) Quantity B is greater
(d) Cannot be determined

Ans. (b) : According to the question, both the Quantities A and B are equal.

62. What is another name for calcium oxide?

- (a) Quick lime (b) Cement
(c) Lime soda (d) Baking soda

Ans. (a) : Calcium oxide, (CaO), also known as lime or more specifically quicklime, is a white or grayish white solid produced in large quantities by heating calcium carbonate so as to drive off carbon dioxide.

63. Solve the following.

$$(\sqrt{3} - \sqrt{2}) \times (\sqrt{3} + \sqrt{2}) = ?$$

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

Ans. (b) : $(\sqrt{3} - \sqrt{2}) \times (\sqrt{3} + \sqrt{2})$

$$\begin{aligned} &= (\sqrt{3})^2 - (\sqrt{2})^2 \quad \text{From, } [(a-b)(a+b) = a^2 - b^2] \\ &= 3 - 2 \\ &= 1 \end{aligned}$$

64. Rationalising factor of $\sqrt[3]{40}$ is:

- (a) $5^{\frac{2}{3}}$ (b) $10^{\frac{1}{3}}$
(c) $2^{\frac{2}{3}}$ (d) $40^{\frac{1}{3}}$

Ans. (a) : $\sqrt[3]{40} = (40)^{\frac{1}{3}}$

$$\begin{aligned} &= (8 \times 5)^{1/3} \\ &= 2 \times 5^{1/3} \end{aligned}$$

to get rational number,

$$\begin{aligned} &= 2 \times 5^{1/3} \times 5^{2/3} \quad (\text{on multiplying by } 5^{2/3}) \\ &= 2 \times 5 \end{aligned}$$

Hence, rationalizing factor of $\sqrt[3]{40}$ is $5^{2/3}$

65. When was the first Indian Cricket Club-the calcutta Cricket Club established?

- (a) 1791 (b) 1793
(c) 1790 (d) 1792

Ans. (d) : The first Indian Cricket Club, the Calcutta Cricket Club was established in the year 1792. Cricket was introduced to India by European merchant sailors in the 18th century.

Note: In fact, Calcutta Cricket Club is the second oldest cricket club in the world, after the Marylebone Cricket Club (1787).

66. The National TB programme (NTP) was launched by the Government of India in year — in the form of District TB Centre Model involved with BCG Vaccination and TB treatment.

- (a) 1962 (b) 1961
(c) 1960 (d) 1963

Ans. (a) : The National TB Programme (NTP) was launched by the Government of India in 1962 in the form of District TB Centre Model involved with BCG vaccination and TB treatment.

Note:—Around the time in 1993, the WHO declared TB as a global emergency devised the directly observed treatment and recommended to follow it by all countries.

67. Who was one of the founders of American computer Sun Microsystems later acquired by Oracle ?

- (a) Satya Nadella (b) Sabeer Bhatia
(c) Vinod Khosla (d) Sunder Pichai

Ans. (c) : Vinod Khosla is a co-founder of Sun-Microsystems and the founder of Khosla Ventures. He is an Indian American billionaire businessman and venture capitalist.

Note: On April 20, 2009, it was announced that Oracle corporation would acquire Sun for US\$ 7.4 billion. The deal was completed on January 27, 2010.

68. The value of $\tan 5^\circ \tan 25^\circ \tan 45^\circ \tan 65^\circ \tan 85^\circ$ is equal to:

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

Ans. (d) : $\tan 5^\circ \tan 25^\circ \tan 45^\circ \tan 65^\circ \tan 85^\circ$
 $= \tan (90^\circ - 85^\circ) \tan (90^\circ - 65^\circ) \tan 45^\circ \tan 65^\circ \tan 85^\circ$
 $= \cot 85^\circ \cot 65^\circ \tan 45^\circ \tan 65^\circ \tan 85^\circ$
 $= \frac{1}{\tan 85^\circ} \times \frac{1}{\tan 65^\circ} \times \tan 45^\circ \times \tan 65^\circ \times \tan 85^\circ$
 $= \tan 45^\circ$
 $= 1$

69. Which flagship programme under the Ministry of Rural Development aims to organise the rural poor into their own institutions like self-help groups and their federations producers' collectives etc and also ensure their financial inclusion and livelihood support ?

- (a) Rashtriya Krishi Vikas Yojana
(b) Mahatma Gandhi National Rural Employment Guarantee Programme (MGNREGA)
(c) The National Social Assistance Programme (NSAP)
(d) Deendayal Antyodaya Yojana-National Rural Livelihoods Mission (DAY-NRLM)

Ans. (d) : Deendayal Antyodaya Yojana-National Rural Livelihoods Mission (DAY-NRLM) is the flagship program of Government of India for promoting poverty reduction through building strong institutions of the poor especially women to access financial services and livelihoods.

70. Who along with Motilal Nehru formed the Swaraj Party within the Congress to argue for a return to council politics ?

- (a) CR Das (b) Jawaharlal Nehru
(c) Subhas Chandra Bose (d) BR Ambedkar

Ans. (a) : Swaraj Party was an Indian political party established in early 1923 by members of Indian National Congress notably Motilal Nehru and CR Das. Their first session was held at Allahabad. C.R. Das and Motilal Nehru formed the Swaraj Party within the congress to argue for a return to council politics. **Aim**—The main purpose was to oppose British policies within the councils argue for reform and also demonstrate that these councils were not truly democratic.

71. Name the British chemist who presented his atomic theory in 1808, on conservation of mass and law of definite proportions, which was a turning point in the study of matter.

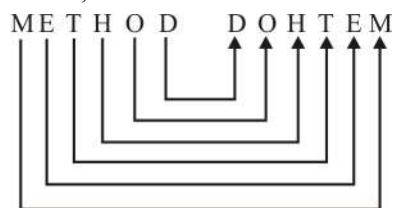
- (a) Proust (b) Lavoisier
(c) Ernest Rutherford (d) John Dalton

Ans. (d) : Dalton's 1808 Atomic Theory—John Dalton's proposed that all matter was composed of atoms, indivisible and indestructible building blocks. While all atoms of an element were identical different elements had atoms of differing size and mass.

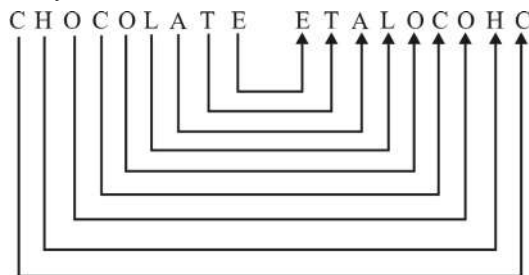
72. In a certain code, METHOD is written as DOHTEM. How will CHOCOLATE be written as in that code?

- (a) ETALOCOHC (b) ETLAOCOCH
(c) ETALCOHOC (d) TELAOCOCH

Ans. (a) : Just as,



Similarly,

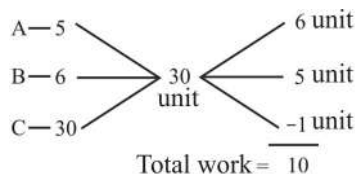


Hence, CHOCOLATE can be written as ETALOCOHC

73. A tank has two inlets A and B that can fill it in 5 h and 6 h respectively. An outlet C can empty the full tank in 30h. If all the three are opened together in the empty tank, how much time will the pipes take to fill the tank ?

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

Ans. (c) :



Time taken to fill the tank completely = $\frac{30}{10} = 3\text{h}$

74. Name the Shiva temple near Taliparamba in Kerala, where women are allowed to enter only after 8 pm. A unique feature of this temple is the absence of a flagstaff.

- (a) Rajarajeshwara Temple
(b) Rameswaram Mahadeva temple
(c) Mallikarjun Temple
(d) Gokarnanatheshwara Temple

Ans. (a) : Sri Rajarajeswara Temple is a Shiva temple located in Maitriramba in Kannur district of Kerala India. The temple is regarded as one of the existing 108 ancient Shiva Temples of Kerala.

As per the custom, only men enter the temple during daytime. Women are allowed to enter only after 8 pm.

75. The mean of the first ten even natural numbers is :

- (a) 11 (b) 9
(c) 10 (d) 8

Ans. (a) : The first 10 even natural numbers are—
2, 4, 6, 8, 10, 12, 14, 16, 18, 20

$$\text{Mean} = \frac{\text{Sum of terms}}{\text{Number of terms}}$$

$$= \frac{2+4+6+8+10+12+14+16+18+20}{10}$$

$$= \frac{110}{10} = 11$$

76. Which place in India was known as 'Kaala Paani' ?

- (a) Lakshadweep (b) Kerala's backwaters
(c) Gulf of Kutch (d) Andaman Islands

Ans. (d) : Cellular Jail of Andaman was known as Kaala Paani because the Jail was surrounded by sea and hence no prisoner could hope to escape. This jail was especially used by the British to exile political prisoners to remote archipelago, during the struggle for Indian Independence.

77. The Ministry of Human Resource Development has designed a one stop education portal which caters to the needs of students, starting from elementary students to research, scholars, teachers and life-long learners. What is the name of this portal ?

- (a) Prashikshak (b) Sakshat
(c) Padhai (d) Diksha

Ans. (b) : The Ministry of Human Resource Development has designed an education helpline named 'Sakshat' as part of the National Mission in Education through Information and Communication Technology. It was launched on October 30, 2006. Sakshat is perceived to be a one stop education portal for addressing the needs of students scholars, teachers and life long learners.

78. Which of the following special trains can be taken to travel to Lumbini, Bodhgaya, Sarnath and Kushinagar?

- (a) Buddhist Circuit Tourist Train
(b) Buddhist Train
(c) Buddha Express Special Tourist Train
(d) Buddhist Tourist Train

Ans. (a) : In the Mahaparinirvana Sutra the Buddha tells his followers that they can attain merit and a noble rebirth by going on pilgrimage to the places where he was born (Lumbini), gained enlightenment (Bodhgaya), first taught (Sarnath) and attained Nirvana (Kushinagar). The Buddhist Circuit Tourist Train takes us to these places and helps in feeling self disciplined and legendary life of Lord Buddha.

79. Name the writ under which the court orders that the arrested person should be presented before it or can order to set free an arrested person if the manner or grounds of arrest are not lawful or satisfactory.

- (a) Certiorari (b) Quo Warranto
(c) Mandamus (d) Habeas Corpus

Ans. (d) : Habeas Corpus is writ which ensures that no one can be imprisoned unlawfully. The word Habeas Corpus, Literally means 'You shall have the body'

Note: A person can move to Supreme Court, to get their Fundamental Rights protected. This right comes under Article 32 for Supreme Court and Article 226 for High Court, under five types of writs – Habeas Corpus, Mandamus, Prohibition, Certiorari and Quo warranto.

80. Which Indian state has declared Mallakhamb as its state sport ?

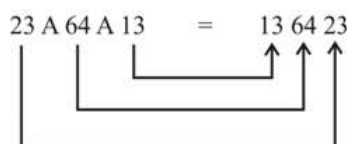
- (a) Madhya Pradesh (b) Haryana
(c) Uttarakhand (d) Uttar Pradesh

Ans. (a) : The name Mallakhamb derives from the terms malla, Meaning wrestler and Khamb means a pole. Wrestling pole refers to a traditional training implement used by wrestlers. On April 9, 2013 the Indian state of Madhya Pradesh declared Mallakhamb as its state sport.

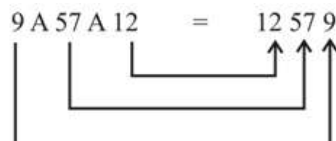
81. If $23\ A\ 64\ A\ 13 = 136423$ and $9\ A\ 57\ A\ 12 = 12579$, then $29\ A\ 4\ A\ 6 = ??$

- (a) 6924 (b) 6492
(c) 6429 (d) 6249

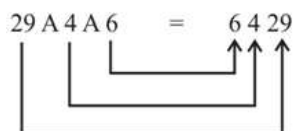
Ans. (c) : Just as,



And,



Similarly,



82. Which among the following is NOT an extension for a video file?

- (a) .avi (b) .mov
(c) .jpeg (d) .mp4

Ans. (c) : JPEG (Joint Photographic experts group) is not a video file extension. MP4, .AVI (Audio Video Interleave) and .MOV are video file extension.

83. Tendu, Amaltas, Bel are common trees found in which type of forests in India?

- (a) Tropical thorny forests
(b) Moist deciduous forests
(c) Montane forests
(d) Dry deciduous forests

Ans. (d) : **Dry Deciduous Forest** :—These forests are found in western Bihar, eastern Uttar Pradesh, Maharashtra, Madhya Pradesh, Karnataka, Tamil Nadu and in arid regions of Deccan plateau.

Characteristics—These are prevalent in warm, arid regions, where the annual average rainfall ranges between 50 on 100 cms. The temperature also remains high throughout the year.

Species—The important trees found are Teak, Sal, Tendu, Palas, Rosewood, Satinwood, Amaltas, Bel, Lendi etc.

84. Two boxes, A and B, have the capacity of holding 85 and 68 units of an article respectively. However, these articles have to be first packed into uniformly sized smaller packets that fit into the boxes. What is the maximum number of units that should be put into each of these packets such that both boxes A and B are filled to their full capacity?

- (a) 85 units per packet
(b) 17 units per packet
(c) 68 units per packet
(d) 1445 units per packet

Ans. (b) : HCF of 85 and 68

$$85 = 5 \times 17$$

$$68 = 2 \times 2 \times 17$$

$$\text{HCF} = 17$$

Hence, maximum 17 pieces can be kept in each packet.

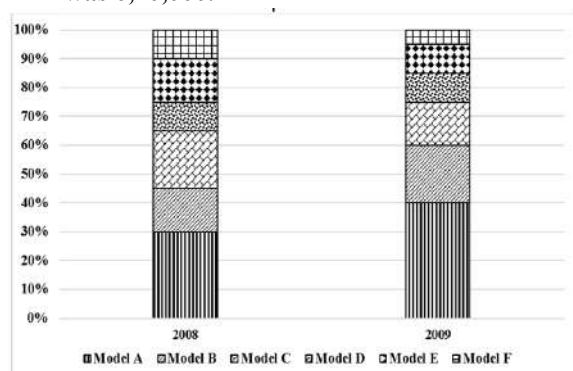
85. 'The Nice Guy Who Finished First' is the biography of which famous sportsperson?

- (a) David Beckham (b) Rahul Dravid
(c) Michael Phelps (d) Tiger Woods

Ans. (b) : 'The Nice Guy Who finished First' is the biography of Rahul Dravid. This book is written by Devendra Prabhudesai and published in 2005.

Direction : Question (86 to 89)

The given graph shows the percentage-wise distribution of different mobile phone models (A to F) produced by a mobile company in 2008 and 2009. The total number of mobile phones produced in 2008 was 4,50,000 and that in 2009 was 6,40,000.



(If a value for any model is between a range, consider it to be at midpoint, e.g. any point between 10 and 20 should be considered 15)

86. What is the total number of mobile phones produced of models C, D and F in 2008?

- (a) 2,25,000 (b) 1,35,000
(c) 1,80,000 (d) 2,02,500

Ans. (c) : Total number of mobile phones manufactured in the year 2008 = 4,50,000

Percentage share of model C = 20% (65–45) %

Percentage share of model D = 10% (75–65) %

Percentage share of model F = 10% (100–90) %

Percentage share of model C, D and F

$$= (20 + 10 + 10)\%$$

$$= 40\%$$

∴ Total number of mobile phones produced of model C, D and F in 2008.

$$= \frac{450000 \times 40}{100} = 1,80,000$$

87. For which model was the increase/decrease in production volume between 2008 and 2009 the minimum ?

(a) Model C (b) Model E
(c) Model A (d) Model B

Ans. (b) : Increase/decrease in production volume between 2008 and 2009 the minimum

Model A = $40+30 = 70\%$

Model B = $15+20 = 35\%$

Model C = $20+15 = 35\%$

Model E = $10+5 = 15\%$

It is clear that increase/decrease in production volume of Model E between 2008 and 2009 minimum.

88. What is the difference between the numbers of Model B sets produced in 2008 and 2009 ?

(a) 65,000 (b) 121,000
(c) 60,500 (d) 22,000

Ans. (c) :

Percentage share of Model B in the year 2008 = 15%

Percentage share of Model B in the year 2009 = 20%

Total production of mobile phones in the year 2008 = 4,50,000.

So, the total production of Model B in the year 2008 =

$$4,50,000 \times \frac{15}{100} = 6,7,500$$

Total production of mobile phone in the year 2009 = 6,40,000

So, the total production of Model B in

$$2009 = 6,40,000 \times \frac{20}{100} = 1,28,000$$

Required difference = $1,28,000 - 67,500 = 60,500$

89. If 90% of Model C sets produced by the company were sold each year, then how many of them were remaining at the end of 2009 ?

(a) 6,000 (b) 1,67,400
(c) 18,600 (d) 96,000

Ans. (c) : According to the question,

Mobile set left at the end of 2008

$$450000 \times \frac{20}{100} \times \frac{10}{100} = 9000$$

Mobile set left at the end of 2009

$$\begin{aligned} &= 9000 + 640000 \times \frac{15}{100} \times \frac{10}{100} \\ &= 9000 + 9600 \\ &= 18,600 \end{aligned}$$

90. Select the word from the following options that cannot be formed using the letters of the given word.

CATASTROPHE

(a) CASTOR (b) STAR
(c) TRAP (d) TROPHY

Ans. (d) : The word TROPHY cannot be formed from the given word CATASTROPHE. Because letter 'Y' is not used in the given word.

91. Anuj, Ankit, Anu and Alka are teachers who teach Biology, History and Mathematics. Biology is the only subject taught by two teachers, one of whom is male. Two of the four are married to each other and they teach History and Biology respectively. Ankit teaches Biology and is unmarried.

Which subject does Anuj teach ?

(a) Mathematics
(b) Biology
(c) Cannot be determined
(d) History

Ans. (d) According to the question—

Teachers	Subjects	Marital Status
Anuj	History	Married
Ankit	Biology	Unmarried
Anu/Alka	Biology	Married
Alka/Anu	Maths	Unmarried

Hence, it is clear that Anuj teaches History.

92. If GOES is coded as 715519, then what will be the code for FAST ?

(a) 511620 (b) 611519
(c) 512620 (d) 611920

Ans. (d) : Just as,

G $\xrightarrow{\text{Alphabetical number}}$ 7
O $\xrightarrow{\text{Alphabetical number}}$ 15
E $\xrightarrow{\text{Alphabetical number}}$ 5
S $\xrightarrow{\text{Alphabetical number}}$ 19

Similarly,

F $\xrightarrow{\text{Alphabetical number}}$ 6
A $\xrightarrow{\text{Alphabetical number}}$ 1
S $\xrightarrow{\text{Alphabetical number}}$ 19
T $\xrightarrow{\text{Alphabetical number}}$ 20

Hence, FAST is coded as 611920.

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

(a) BDG (b) JLO
(c) RTW (d) MOQ

Ans. (d) : From the given options,

(a) B $\xrightarrow{+2}$ D $\xrightarrow{+3}$ G
(b) J $\xrightarrow{+2}$ L $\xrightarrow{+3}$ O
(c) R $\xrightarrow{+2}$ T $\xrightarrow{+3}$ W
(d) M $\xrightarrow{+2}$ O $\xrightarrow{+2}$ Q

Hence, option (d) is different.

94. If $x = -2$, $y = 3$, Quantity $A = -x^2y^3$ and Quantity $B = 0$, then which of the following statements is correct with respect to Quantities A and B ?

- (a) Quantity A is greater
(b) Impossible to determine
(c) Quantity B is greater
(d) Both Quantities A and B are equal

Ans. (c) : Given, $x = -2$

$$y = 3$$

$$A = -x^2y^3 \quad \dots(i)$$

$$B = 0 \quad \dots(ii)$$

On putting the value of x and y , we get–

$$A = -(-2)^2(3)^3$$

$$A = -4 \times 27$$

$$A = -108$$

So, Quantity B is greater

95. Select the option in which the words share the same relationship as that shared by the given set of words.

Whisper : Singing : Sound

- (a) Road : Vehicle : Destination
(b) Babies : Soft : Cute
(c) Sea : Underneath : Large
(d) Magazine : Book : Read

Ans. (d) : Just as, whisper and singing both are related to Sound. Same as, Magazine and Book both are related to Read.

96. H has three times as many cards as R has. If H gives 50 cards to R, R will have three times as many cards as H has. How many cards does H. Have?

- (a) 25
(b) 75
(c) 100
(d) 50

Ans. (b) : Let R have x cards.

$$\therefore \text{Number of cards H have} = 3x$$

According to the question,

$$3(3x - 50) = x + 50$$

$$9x - 150 = x + 50$$

$$8x = 200$$

$$x = 25$$

$$\therefore \text{Number of cards H have} = 3 \times 25 \\ = 75 \text{ cards}$$

97. 'Minute' is related to 'Hour' in the same way as 'Inch' is related to '_____'.
(a) Measure (b) Foot
(c) Centigrade (d) Metre

Ans. (b) : Just as 'Minute' is related to 'Hour'. Similarly 'Inch' is related to 'Foot'.

98. In a certain code language, 'VLGH' is written as '52', 'QBNZ' is written as '62'. What is the code for 'XPRF' in that code language ?

- (a) 67 (b) 73
(c) 69 (d) 71

Ans. (a) : Just as

$$\begin{array}{cccc} V & L & G & H \\ \downarrow & \downarrow & \downarrow & \downarrow \\ 22 & + & 12 & + & 7 & + & 8 & = & 49 & + & 3 & = & 52 \end{array}$$

and,

$$\begin{array}{cccc} Q & B & N & Z \\ \downarrow & \downarrow & \downarrow & \downarrow \\ 17 & + & 2 & + & 14 & + & 26 & = & 59 & + & 3 & = & 62 \end{array}$$

similarly,

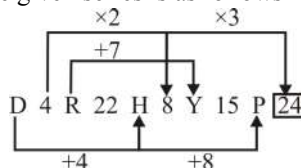
$$\begin{array}{cccc} X & P & R & F \\ \downarrow & \downarrow & \downarrow & \downarrow \\ 24 & + & 16 & + & 18 & + & 6 & = & 64 & + & 3 & = & 67 \end{array}$$

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

D4R22H8Y15P?

- (a) 7 (b) 24
(c) 20 (d) 18

Ans. (b) : The given series is as follows–



Hence, $[?] = 24$

100. Read the given statement and conclusions carefully and decide which of the conclusions logically follow(s) from the statement.

Statement:

The postal system of India was started by the Britishers in 1764.

Conclusions:

I. Postal mails are often delayed or go missing.

II. Postmen are poorly paid, so they tend to make mistakes.

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

Ans. (a) : According to the statement neither conclusion I nor II follows.

Railway Non-Technical Popular Categories Exam - 2019

Graduate and Under-Graduate Level

[Ist Stage Computer Based Test]

Exam Date : 22.01.2021]

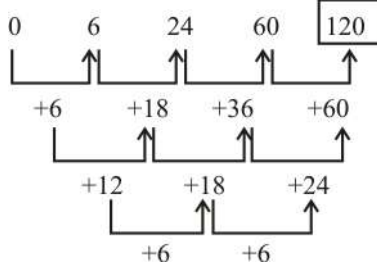
[Time : 10:30 am-12:00 pm

1. Select the number from the given options that will come next in the following series.

0, 6, 24, 60, ____.

- (a) 114 (b) 144
(c) 126 (d) 120

Ans. (d) : The given series is as follows,



Hence, the next number of series is 120.

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

Day : Week :: Month : ?

- (a) Calendar (b) Annual
(c) Weeks (d) Year

Ans. (d) : Just as there are 7 days in a week. Similarly there are 12 month in a year.

Hence option (d) will be correct answer.

3. Which of the following fundamental rights is NOT guaranteed by the Constitution of India?

- (a) Right to freedom
(b) Right to freedom of religion
(c) Right to equality
(d) Right to profession

Ans. (d) : The Constitution of India provides its citizens the right to practice any occupation and profession as per Article 19. But, it doesn't guarantees the right to profession. Total 6 fundamental rights have been mentioned in Constitution.

1. Right to Equality (Article 14-18)
2. Right to Freedom (Article 19-22)
3. Right against exploitation (Article 23-24)
4. Right to freedom of religion (Article 25-28)
5. Cultural and Educational Rights (Article 29-30)
6. Right to Constitutional Remedies (Article 32)

4. Which part of the human body is formed by the fusing of the illium, ischium and the pubis?

- (a) Jaw (b) Hip bone
(c) Cranium (d) Feet

Ans. (b) : The hip bone of the human body is formed by fusing of the illium, ischium and pubis. It lies in the hip of the human body. At the end of the teenage the illium, ischium and pubis converge and form hip bone.

5. An irrational number between 3 and 5 is :

- (a) $\sqrt{17}$ (b) $\sqrt{5}$
(c) $\sqrt{3}$ (d) $\sqrt{27}$

Ans. (a) : From option,

$$\sqrt{5} = 2.236$$

$$\sqrt{27} = 5.196$$

$$\sqrt{3} = 1.732$$

$$\sqrt{17} = 4.123$$

Hence, it is clear that $\sqrt{17}$ is an irrational number between 3 and 5.

6. Among the given numbers, all are alike in some manner, except one. Select the odd number.

2, 28, 48, 58, 128

- (a) 128 (b) 28
(c) 48 (d) 2

Ans. (d) : The given all above number in the option, 2 is a prime number. While all others composite numbers, Hence option (d) is an inconsistent number.

7. Who among the following did NOT ever preside over the Indian National Congress as a President?

- (a) Surendranath Banerjee
(b) Dr. B R Ambedkar
(c) Sarojini Naidu
(d) Dada Bhai Naoroji

Ans. (b) : Surendranath Banerjee– President of 1902 session of INC at Ahmedabad.

Sarojani Naidu– President of 1925 session of INC at Kanpur

Dadabhai Naoroji– President of many INC sessions

Hence, among the following only BR Ambedkar was the one who had never been on the post of president of an INC session.

8. The weights (in kg) of 7 men are 64, 63, 62, 65, 67, 66 and 61. The median of weight is:

- (a) 64 kg (b) 66 kg
(c) 63 kg (d) 65 kg

Ans. (a) : On arranged the given data in ascending order,

61, 62, 63, 64, 65, 66, 67

Number of terms (n) = 7 (odd)

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

Median = $\left(\frac{7+1}{2}\right)^{\text{th}}$ term

= 4th term

Median = 64 kg.

9. Select the option that is related to the 'Paisa' in the same way as the 'centimetre' is related to the metre.

- (a) Capital (b) Wealth
(c) Rupee (d) Coin

Ans. (c) : Just as 100 cm makes 1 meter, in the same way 100 paise makes 1 rupee.

Hence option (c) will be correct answer.

10. Farman has to secure 60% marks to pass an examination. He got 60 marks and failed by 60 marks. What are the maximum marks?

- (a) 180 (b) 120
(c) 100 (d) 200

Ans. (d) : Let, the maximum marks of the exam is x. then, according to the question,

$$60 + 60 = x \times \frac{60}{100}$$

$$120 = \frac{60x}{100}$$

$$x = \frac{120 \times 100}{60}$$

$$x = 200$$

Hence, the maximum marks = 200

11. Consider the given statement and decide which of the given assumptions is/are implicit in the statement.

Statement :

"Buy pure and natural honey of company Z" - an advertisement.

Assumptions :

I. Artificial honey can be prepared.

II. People can pay maximum prices for pure and natural honey.

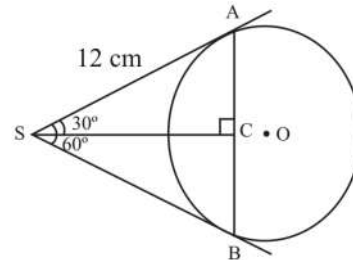
- (a) Both assumptions I and II are implicit.
(b) Only assumption I is implicit.
(c) Neither assumption I nor II is implicit.
(d) Only assumption II is implicit.

Ans. (b) : It is clear from the above statements that only assumption I implicit.

12. If SA and SB are tangents to a circle from an outside point S, such that SA = 12 cm and angle ASB = 60°. What will be the length of chord AB be?

- (a) 12 cm (b) 3 cm
(c) 6 cm (d) 24 cm

Ans. (a) :



Given,

$$SA = 12 \text{ cm}$$

$$\angle ASB = 60^\circ$$

In $\triangle SAB$,

$$SA = SB$$

(\because tangents drawn from an external point to a circle are of equal length)

$$\therefore \text{Here, } \angle ASC = \frac{1}{2} \times 60^\circ$$

$$\angle ASC = 30^\circ$$

$$\text{and } \angle ACS + \angle BCS = 180^\circ$$

$$\angle ACS = \frac{1}{2} \times 180^\circ$$

$$\angle ACS = 90^\circ$$

Hence, In $\triangle ACS$,

$$\sin 30^\circ = \frac{AC}{SA}$$

$$\frac{1}{2} = \frac{AC}{12}$$

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

$$\therefore AC = BC$$

Hence,

$$AB = AC + BC$$

$$= 6 + 6 = 12 \text{ cm}$$

13. In which city of India, did Dr. K. Kasturirangan, former Chairman of ISRO, inaugurate the Human Space Flight Centre in 2019?

- (a) Bhopal (b) Bhuvneshwar
(c) Bangaluru (d) Bhadrawati

Ans. (c) : The former President of ISRO Dr. K. Kasturirangan inaugurated the Human Space flight centre in the ISRO headquarters Bangaluru on 30th Jan, 2019. The current president K. Sivan was also an observer of the event.

14. From which country has the Indian constitution derived the provision of a Five-Year Plan?

- (a) USA (b) Ireland
(c) South Africa (d) USSR

Ans. (d) : In India the model of five year plan was taken from USSR. Former Indian PM Pt. Nehru presented the first Five Year Plan in Indian Parliament in 1951. The first Five Year Plan (1951-56) was based on Harrod-Domer Model which was mainly focused on agriculture. The 2nd Five Year Plan (1956-61) was based on P.C. Mahalanobis Model.

15. The HCF of $28p^5q^2$ and $70p^3q^4$ is:

- (a) $28p^3q^2$ (b) $14p^3q^2$
(c) $14p^5q^4$ (d) $70p^3q^4$

Ans. (b) : The HCF of $28p^5q^2$ and $70p^3q^4$
 $28p^5q^2 = 2 \times 2 \times 7 \times p \times p \times p \times p \times q \times q$
 $70p^3q^4 = 2 \times 5 \times 7 \times p \times p \times p \times q \times q \times q \times q$
Hence, HCF = $2 \times 7 \times p \times p \times p \times q \times q$
 $= 14p^3q^2$

16. If each entry of a piece of data is increased by 7, then what will be the effect on its arithmetic mean.

- (a) remains the same (b) decreases by 7
(c) increases by 7 (d) increases by 49

Ans. (c) : Let, n data is as follows—

$a_1, a_2, a_3, \dots, a_n$

Mean of the above data

$$\bar{X}_n = \frac{a_1 + a_2 + a_3 + \dots + a_n}{n}$$

$$a_1 + a_2 + a_3 + \dots + a_n = n\bar{X}_n$$

when 7 is added to each entry then the new data

$$= (a_1 + 7), (a_2 + 7), (a_3 + 7), \dots, (a_n + 7)$$

Mean of the above data

$$\bar{X} = \frac{(a_1 + 7) + (a_2 + 7) + (a_3 + 7) + \dots + (a_n + 7)}{n}$$

$$\bar{X} = \frac{(a_1 + a_2 + a_3 + \dots + a_n) + 7 \times n}{n}$$

$$\bar{X} = \frac{n\bar{X}_n + 7n}{n}$$

$$\bar{X} = \frac{n[\bar{X}_n + 7]}{n}$$

$$\bar{X} = \bar{X}_n + 7$$

Hence, it is clear that the arithmetic mean will increase by 7.

17. Which of the following countries is NOT a Permanent Member of the Security Council of United Nations ?

- (a) Russia (b) Canada
(c) France (d) China

Ans. (b) : United Nations Security Council consists of five permanent members viz. USA, Russia, France, UK and China. United Nations was formed on 24th October, 1945, H.Q in New York, Hence, Canada is not a part of it.

18. The mean of 20 observations is 22.5. One observation was wrongly noted as (–25) instead of 25. The correct mean is :

- (a) 20 (b) 25
(c) 21.75 (d) 23.75

Ans. (b) : The mean of 20 observation = 22.5

$$\therefore \text{The sum of 20 observation} = 22.5 \times 20 = 450$$

wrong observation = –25 instead of 25

correct observation = 25

The correct sum of the observation, = $450 + 25 + 25 = 500$

$$\text{Hence, the correct mean} = \frac{500}{20} = 25$$

19. Which of the following states has more than one seat in the Lok Sabha?

- (a) Sikkim (b) Mizoram
(c) Meghalaya (d) Nagaland

Ans. (c) : Meghalaya state holds 2 Lok Sabha seats. Sikkim, Nagaland and Mizoram have 1 seat of Lok Sabha each. Uttar Pradesh holds maximum number of seats of Lok Sabha i.e. 80.

20. Clement Attlee who later became Prime Minister of Britain came to India as a member of _____.

- (a) Wavell Plan
(b) Simon Commission
(c) Cripps Mission
(d) Cabinet Mission

Ans. (b) : Clement Attlee came to India as a member of Simon Commission. Simon Commission came into India on 3rd February, 1928 and was greeted with slogan of "Go back Simon". Attlee became the P.M. of Britain from 1945-51.

21. In order to encourage more young voters to take part in the political process, Government of India has decided to celebrate _____ as "National Voters Day".

- (a) 28th January (b) 26th January
(c) 27th January (d) 25th January

Ans. (d) : Every year 25th January is celebrated as "National Voters Day". The main objective behind such initiative is to aware youth and others about their right of forming a government and establish a welfare democracy for the people of Nation.

22. Which city of Punjab was earlier known as Ramdasapur.

- (a) Kapurthala (b) Ludhiana
(c) Amritsar (d) Jalandhar

Ans. (c) : Previously, Amritsar was known as Ramdasapur. Amritsar is a famous and holy site of Punjab. The Swarna Mandir (Golden Temple) lies in Amritsar. Also the Jallianwala bagh Massacre took place here on 13 April, 1919.

23. Mission Indradhanush is related with which of the following government schemes?

- (a) E - Banking (b) E -Trading
(c) Child Vaccination (d) Child Education

Ans. (c) : The main objective of mission Indradhanush is to ensure the vaccination of children below two years of age, and pregnant women of the nation. It was started on 25th December, 2014, by the Ministry of Health and Family Welfare of the Government of India. It is a vaccination booster programme, which was started in 201 Vaccination coverage districts of the nation.

24. Which of the following has been declared as a Marine National Park by the Government of India for Marine conservation in 1982?

- (a) Gulf of Kutch (b) Bay of Mahim
(c) Gulf of Mannar (d) Gulf of Khambhat

Ans. (a) : Marine National Park situated in Gulf of Kutch in Jamnagar district of Gujarat is the first National Park of country lying in marine area. It was declared as Marine National Park by the Government of India in 1982 under the provisions of the Wildlife Protection Act, 1972 of India.

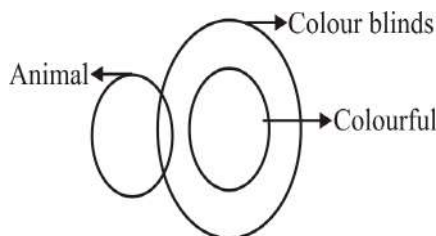
25. Consider the given statements and decide which of the assumptions given in the options is implicit in the statements.

A. Some animals are colour-blind.

B. All colourfuls are colour-blind but not animals.

- (a) All colour-blinds are animals.
(b) Some colour-blinds are animals.
(c) All colour-blinds are colourful.
(d) Some animals are colourful.

Ans. (b) : According to the question, Venn diagram is as follows—



Hence, it is clear from the Venn diagram that some colour-blinds are animals.

26. Consider the given statements and decide which of the assumptions given in the options is NOT implicit in the statements.

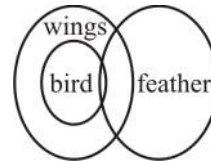
All birds are wings.

Some wings are feathers.

Some feathers are birds.

- (a) Some birds are feathers.
(b) Some birds are wings and feathers.
(c) Some feathers are wings.
(d) All wings are birds.

Ans. (d) : According to the statements, Venn diagram is as follows—



Hence, it is clear from the Venn diagram that All wings are birds is not implicit in the statements.

27. What is the third proportion of 12 and 30?

- (a) 150 (b) 750
(c) 75 (d) 360

Ans. (c) : Let, x is third proportion of 12 and 30.

then, $12 : 30 :: 30 : x$

$$12x = 30 \times 30$$

$$x = \frac{30 \times 30}{12}$$

$$x = 75$$

28. Which article of the Indian Constitution deals with the protection of interests of minorities?

- (a) Article 29 (b) Article 26
(c) Article 28 (d) Article 27

Ans. (a) : Article 29— Protection of interests of minorities.

Article 26— Freedom to manage religious affairs subject to public order.

Article 27—Freedom as to payment of taxes for promotion of any particular religion.

Article 28—Freedom as to attendance at religious instruction or religious worship in certain educational institutions.

29. Which of the following statements is NOT the purpose for Swadhar Greh Scheme?

- (a) To Provide support to women to enable them to take up new ventures.
(b) Provide legal aid to Women
(c) To provide housing, food, cloth to the women of backward classes.
(d) Provide Government jobs to socially backward women

Ans. (d) : As per the Swadhar Greh Scheme, the orphan, homeless women and those free from imprisonment are given the commercial training. It is for women above the age of 18 years. It has following provisions.

1. To provide food, shelter and medicine to such women
2. To provide them commercial skill training
3. To provide legal aid to women facing domestic violence. The scheme was launched by Ministry of Women and Child Development in 2015 for primary needs of women facing difficult circumstances.

30. The population of a town increases by 5% annually and its present population is 640000. What will be its population after 2 years?

(a) 745880 (b) 705600
(c) 744880 (d) 704600

Ans. (b) : Population of a city after 2 years

$$= 640000 \left(1 + \frac{5}{100}\right)^2$$

$$= 640000 \times \frac{105}{100} \times \frac{105}{100} = 64 \times 105 \times 105 = 705600$$

31. By selling an articles at ₹ 31, a shopkeeper makes a loss of 7%. What will be the profit percentage when he sells the same article at ₹ 35?

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

Ans. (b) : There is a loss of 7% by selling the item at ₹ 31

$$\text{Hence, cost price} = 31 \times \frac{100}{93}$$

$$= \frac{100}{3}$$

$$= ₹33.33$$

When, selling price = ₹35

$$\text{then, Profit\%} = \left(\frac{\text{S.P} - \text{C.P}}{\text{C.P}} \right) \times 100$$

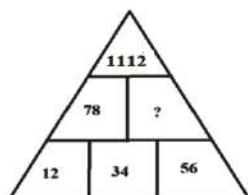
$$= \frac{35 - 33.33}{33.33} \times 100$$

$$= \frac{167}{33.33}$$

$$= 5.01$$

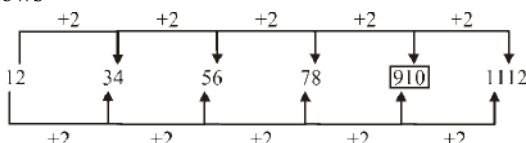
$$\approx 5\%$$

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



(a) 190 (b) 808
(c) 910 (d) 901

Ans. (c) : In the given pattern order of number is as follows—



Hence, ? = 910

33. The diameters of the bases of two cones are equal. If their slant heights are in the ratio of 3:4, then what will be the ratio of their curved surface areas?

(a) 9 : 16 (b) 4 : 3
(c) 16 : 9 (d) 3 : 4

$$\text{Ans. (d) : Radius (r)} = \frac{\text{diameter}}{2}$$

Let the slant height of first cone (ℓ_1) = 3x

and slant height of second cone (ℓ_2) = 4x

$$\frac{\text{Curved surface area of first cone (A}_1\text{)}}{\text{Curved surface area of second cone (A}_2\text{)}} = \frac{\pi r \ell_1}{\pi r \ell_2}$$

$$= \frac{\text{diameter}/2 \times 3x}{\text{diameter}/2 \times 4x}$$

$$\frac{A_1}{A_2} = \frac{3}{4}$$

Hence $A_1 : A_2 = 3 : 4$

34. _____ refers to unsolicited commercial emails that flood the Internet.

(a) Spyware (b) Trojan Horse
(c) Malware (d) Spam

Ans. (d) : Spam is digital Junk mail unsolicited communications sent in bulk over the internet or through any electronic messaging system.

Spam folder—This folder is used to store the spams so they may be kept at a different place from the individuals inbox.

35. Which of the following has terminating decimal representation?

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

Ans. (b) : From option,

$$(a) \frac{2}{7} = 0.285714...$$

$$(b) \frac{2}{5} = 0.40$$

$$(c) \frac{2}{3} = 0.\overline{66}$$

$$(d) \frac{2}{9} = 0.\overline{22}$$

Hence, it is clear that option (b) has terminating decimal representation.

36. If the arithmetic mean of 16, 18, 15, 17, p and 14 is 17, then the value of p is :

(a) 23 (b) 22
(c) 21 (d) 24

Ans. (b) : According to the question,

$$17 = \frac{16+18+15+17+P+14}{6}$$

$$102 = 80 + P$$

$$P = 102 - 80$$

$$P = 22$$

37. Which great freedom fighter was known as Deshbandhu?

- (a) Chittaranjan Das
- (b) Aurobindo Ghosh
- (c) Gopal Krishna Gokhale
- (d) Bal Gangadhar Tilak

Ans. (a) : Chittaranjan Das was popularly known as "Deshbandhu". He was a famous lawyer and a freedom fighter from Bengal province. In 1923, he founded the Swaraj Party at Allahabad (Modern Prayagraj). He was born in November 1870 in Kolkata.

38. The diameter of a hemisphere is 7 cm. What will be its total surface area?

- (a) 154 cm^2
- (b) 105.50 cm^2
- (c) 77 cm^2
- (d) 115.50 cm^2

Ans. (d) : Given, diameter = 7 cm

$$\text{radius } (r) = \frac{7}{2}$$

$$= 3.5 \text{ cm}$$

$$\begin{aligned} \text{Total surface area of hemispheres} &= 3\pi r^2 \\ &= 3 \times \frac{22}{7} \times 3.5 \times 3.5 \\ &= \frac{3 \times 11 \times 7}{2} \\ &= 115.50 \text{ cm}^2 \end{aligned}$$

39. The roots of the equation $y^2 - \sqrt{5}y - y + \sqrt{5} = 0$ are :

- (a) $\sqrt{5}; -1$
- (b) $\sqrt{5}; 1$
- (c) $-\sqrt{5}; -1$
- (d) $-\sqrt{5}; 1$

Ans. (b) : $y^2 - \sqrt{5}y - y + \sqrt{5} = 0$

$$y(y - \sqrt{5}) - 1(y - \sqrt{5}) = 0$$

$$(y - \sqrt{5})(y - 1) = 0$$

$$y - \sqrt{5} = 0$$

$$y = \sqrt{5}$$

$$\text{and } y - 1 = 0$$

$$y = 1$$

Hence, roots of the given equation = $\sqrt{5}, 1$

40. Four options are given below, out of which three are alike in same manner while one is different. Find the odd one.

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

Ans. (d) : $\sqrt{3} = 1.732$ = irrational number

$\sqrt{5} = 2.236$ = irrational number

$\sqrt{7} = 2.645$ = irrational number

$\sqrt{9} = 3.0$ = rational number

Hence, $\sqrt{9}$ is different from all.

41. A and B working alone can finish a task in 12 and 16 days respectively. In how many days will the task be finished if they work for one day each alternatively, and A start the work?

- (a) $12\frac{1}{3}$ days
- (b) $12\frac{2}{3}$ days
- (c) $13\frac{1}{3}$ days
- (d) $13\frac{2}{3}$ days

Ans. (d) : Let, total work = LCM of 12 and 16
= 48 unit

$$\text{A's 1 days work} = \frac{48}{12} = 4 \text{ unit}$$

$$\text{B's 1 days work} = \frac{48}{16} = 3 \text{ unit}$$

If they work alternately one day at a time, they will complete $(4 + 3 = 7)$ unit work in 2 days.

In 12 days they will complete $(6 \times 7 = 42)$ unit of work

On the 13th day will finish 4 more units of works by A

\therefore time taken to complete 46 units of works = 13 day

time taken by B to do the remaining 2 units of work =

$$\frac{2}{3} \text{ day}$$

Hence, time taken to complete the total work = $13 +$

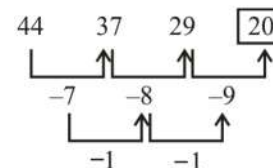
$$\frac{2}{3} = 13\frac{2}{3} \text{ days}$$

42. Select the number from among the following options that will come next in the following series

44, 37, 29, _____.

- (a) 16
- (b) 20
- (c) 55
- (d) 11

Ans. (b) : Given series is as follows—



Hence ? = 20

43. Sohan and Mohan start from the school with a speed of 3.5 km/hr and 4 km/hr. What time will they take to be 1.5 km apart, if they start in the same direction?

- (a) 90 min
- (b) 3 hours
- (c) 1 hour
- (d) 12 min

Ans. (b) : Relative speed of Sohan and Mohan = $(4 - 3.5) \text{ km/hr} = 0.5 \text{ km/hr}$
 Distance = 1.5 km
 Time = $\frac{1.5}{0.5}$
 = 3 hours

44. Which of the following is a plant hormone?

- (a) Estrogen (b) Chlorophyll
 (c) Thyroxin (d) Auxin

Ans. (d) : Auxin is a plant hormone which is responsible for all division in plants. It regulates growth, particularly by stimulating cell elongation in stems. 5 kinds of hormones present in plants are-

1. Auxin
2. Gibberellins
3. Cytokinin
4. Absciscic Acid
5. Ethylene.

45. _____ is known as "Saffron Town" of Kashmir.

- (a) Srinagar (b) Jammu
 (c) Pampore (d) Sopore

Ans. (c) : Pampore is situated in Pulwama district of Jammu and Kashmir. It is also known as "Saffron Town" of Kashmir. In Pampore, more than 16,000 families are directly dependent on Saffron for their livelihood.

46. Reena and Jaya together can complete a piece of work in 6 days and Jaya alone can complete it in 8 days. In how many days can Reena alone complete it?

- (a) 48 days (b) 12 days
 (c) 2 days (d) 24 days

Ans. (d) : Reena's and Jaya's one day work = $\frac{1}{6}$ part

Jaya's one day work = $\frac{1}{8}$ part

$$\begin{aligned} \text{Reena's one day work} &= \frac{1}{6} - \frac{1}{8} \\ &= \frac{4-3}{24} \\ &= \frac{1}{24} \text{ part} \end{aligned}$$

Hence, Reena will complete alone this work in $\frac{1}{1/24} = 24$ days

47. Which of the following is NOT a part of the area to be developed under Digital India Programme?

- (a) Broadband highways
 (b) E-governance for reforming India.
 (c) Universal access to mobile services
 (d) Education in government schools for all

Ans. (d) : Digital India is an initiative of Government of India, whose main objective is to link government departments with people. It has several factors.

1. Construction of digital infrastructure.
2. Providing e-services to citizens.
3. Digital literacy promotion.

The plan was started on 1st July, 2015. It has 9 pillars.

- Broadband highways
- Universal access to mobile connectivity
- Public internet access programme
- e-Governance : Reforming Government through Technology.
- e-Kranti-Electronic Delivery of Services
- Information for all
- Electronics Manufacturing.
- IT for jobs
- Early Harvest Programmes.

48. Who founded the Visva Bharati which later became a Central University?

- (a) Sri Aurobindo
 (b) Raja Ram Mohan Roy
 (c) Sarojini Naidu
 (d) Rabindranath Tagore

Ans. (d) : Vishwa Bharti was established by Rabindranath Tagore in 1929, which later became a Central University. Till, 1947 it was an ordinary college. And later on Parliament via Act of 1951 declared it as a Central University.

49. $(\sqrt{5} + \sqrt{7})^2$ is a:

- (a) whole number (b) natural number
 (c) rational number (d) irrational number

Ans. (d) : Those numbers which can not express in the form of p/q are called irrational number.

Ex. $\sqrt{2}, \sqrt{5}, \dots$

$$\begin{aligned} &(\sqrt{5} + \sqrt{7})^2 \\ &= (\sqrt{5})^2 + (\sqrt{7})^2 + 2\sqrt{5}\sqrt{7} \\ &= 5 + 7 + 2\sqrt{35} = 12 + 2\sqrt{35} \end{aligned}$$

Hence, $(\sqrt{5} + \sqrt{7})^2$ is a irrational number.

50. In order to raise public awareness about the environment and pollution of the earth. Which of the following days is celebrated every year across the world as Earth Day?

- (a) 11th February (b) 22nd July
 (c) 22nd April (d) 11th November

Ans. (c) : In order to spread the public awareness about the Earth's environment and pollution, and inspire people to save and protect, every year 22nd April is celebrated as "Earth Day". It was established by American Senator Gaylord Nelson in 1970, as an environmental study. The theme for 2021 is "Restore our Earth".

51. In which of these cities of India the famous 'Elephant Festival' is celebrated every year on the day of Holi?

- (a) Ajmer (b) Jaisalmer
(c) Jodhpur (d) Jaipur

Ans. (d) : Elephant festival is popularly celebrated among large masses in Jaipur city of Rajasthan. Most Probably it is celebrated on the day of Holi. World Elephant Day was launched in August 12, 2012 to bring attention to the urgent plight of Asian and African elephant.

52. In which city of India the central AGMARK laboratory is located?

- (a) Mumbai (b) New Delhi
(c) Nagpur (d) Chennai

Ans. (c) : The Central AGMARK Laboratory is situated in Nagpur, Maharashtra. Agmark Laboratory Directorate of Marketing and Inspection has set up for quality certification of agriculture produce through the network of 22 Regional Agmark Laboratory at different place in the country with Central Agricultural Laboratory, Nagpur as the apex Laboratory.

53. Which of the following is bio-degradable Substance?

- (a) Polythene (b) Aluminium Cans
(c) Glass (d) Plants

Ans. (d) : The material or products which may be degraded by the action of the micro-organisms are known as biodegradable products means these products are easily degraded naturally by the actions of micro-organisms.

Examples—Green plants and other organic materials.

54. Which of the given layer of the atmosphere has the lowest density ?

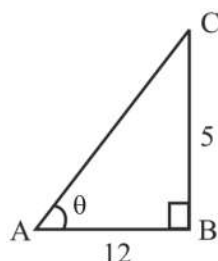
- (a) Ionosphere (b) Exosphere
(c) Stratosphere (d) Mesosphere

Ans. (b) : In all of the layers of atmosphere the exosphere has the lowest density while the troposphere holds the highest density among all.

55. If the ratio of the sine of an acute angle to its cosine is 5 : 12, then what will be the value of sine of that angle?

- (a) $\frac{5}{13}$ (b) $\frac{12}{13}$
(c) $\frac{12}{5}$ (d) $\frac{5}{12}$

Ans. (a) : Given,



$$\frac{\sin \theta}{\cos \theta} = \frac{5}{12}$$

$$\tan \theta = \frac{5}{12} = \frac{\text{Perpendicular}}{\text{Base}}$$

From Pythagoras theorem

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

$$AC^2 = (12)^2 + (5)^2$$

$$AC^2 = 144 + 25$$

$$AC^2 = 169$$

$$AC = 13$$

$$\text{Hence } \sin \theta = \frac{\text{Perpendicular}}{\text{Hypotenuse}}$$

$$= \frac{5}{13}$$

56. The map of a city is drawn according to the scale of 0.05 cm = 1 kilometer, if the area of a country is 8000 square kilometers, then how much area will it be shown on the map?

- (a) 10 cm² (b) 5 cm²
(c) 20 cm² (d) 25 cm²

Ans. (c) : According to the question,

$$1 \text{ km} = 0.05 \text{ cm}$$

$$\text{then, } 1 \text{ km}^2 = 0.0025 \text{ cm}^2$$

$$\therefore 8000 \text{ km}^2 = \frac{0.0025}{1} \times 8000 \text{ cm}^2$$

$$= 20 \text{ cm}^2$$

Hence, 20 cm² area will be shown on the map.

57. Which of the following cities does not have Jantar Mantar?

- (a) Indore (b) Jaipur
(c) Varanasi (d) Ujjain

Ans. (a) : Maharaja Sawai Jai Singh II of Jaipur built the 5 observatories in country on the basis of Hindu astronomy. The observatories or Jantar Mantar were built in Jaipur, Ujjain, Mathura, Delhi, Varanasi. The first observatory was constructed in Delhi in 1724.

58. Sita's income is 25% more than Rahim's income. By how much % does Rahim earn less than Sita ?

- (a) 20% (b) 10%
(c) 5% (d) 25%

Ans. (a) : Let Rahim's income = ₹ 100

then, according to the question, Sita's income =

$$100 \times \frac{125}{100}$$

$$= ₹ 125$$

$$\text{Required decrease \%} = \frac{125 - 100}{125} \times 100$$

$$= \frac{25}{125} \times 100$$

$$= 20\%$$

59. The Dada Saheb Phalke Award is the highest award, given to the remarkable contributions of famous personalities in the field of:

- (a) Social work (b) Education
(c) Cinema (d) Sports

Ans. (c) : Dada Saheb Phalke is an annual award given by the Government of India to the persons who have made many significant contributions towards the Indian Cinema. The award was started in 1969 and was firstly given to actress "Devika Rani". On October 25, 2021 the prestigious 51st Dada Saheb Phalke Award was honoured to Rajnikant.

60. Which two rivers are linked by the Pattiseema Lift Irrigation Project?

- (a) Godavari and Kaveri
(b) Godavari and Mahanadi
(c) Godavari and Krishna
(d) Godavari and Narmada

Ans. (c) : The two rivers Godavari and Krishna are linked by pattiseema lift Irrigation Project. It was started by Andhra Pradesh government on 24th March, 2016. This project become the first such irrigation type of project in the country, which will be complete on time without any augmentation.

61. Cyclone-30, a particle accelerator is used in medical application. It will help the patients suffering from _____.

- (a) Heart disease
(b) Cancer
(c) Blood Pressure
(d) Diabetes

Ans. (b) : On 18th September, 2018 in the Variable Energy Cyclotron Centre Kolkata. India's biggest cyclotron i.e. "Cyclone-30" was launched for big medical applications. It is mainly used for taking care of cancer patients and their medical Cyclone-30 is the biggest cyclotron in India for medical application.

62. Which of the following statements is false?

- (a) There is no largest natural number.
(b) 1 is the smallest natural number.
(c) Only all natural numbers are called integers.
(d) There is no largest whole number.

Ans. (c) : The collection of all positive whole numbers and negative whole numbers and Zeros is called integer. For example, (-5, -4, 3, 2, -1, 0, 1, 2, 3, 4, 5) etc. Here zero is neither a positive nor a negative integer so only all the natural numbers (1, 2, 3, 4,∞) are not called integers.

63. The Modern Periodic Table is based on _____ of the elements.

- (a) Equivalent Weight (b) Valency
(c) Atomic Mass (d) Atomic Number

Ans. (d) : In the modern periodic table the elements have been placed on the basis of their respective atomic number. It contains 18 groups and 7 period. In any particular group of a periodic table, the number of electrons present in its outermost shell is same with reference to all other elements.

64. Rani spent 6.25% of the money she had. If the amount spent by him is ₹75 then what amount did she have?

- (a) ₹1200 (b) ₹120
(c) ₹100 (d) ₹1000

Ans. (a) : Let Rani had the money = ₹ x

According to the question,

$$x \times \frac{6.25}{100} = 75$$

$$x = \frac{75 \times 100 \times 100}{625}$$

$$x = ₹ 1200$$

Hence, she had ₹ 1200

65. One-sixth part of a number is 100 more than its one-ninth part. Find the number?

- (a) 3600 (b) 1800
(c) 180 (d) 360

Ans. (b) : Let number = x

According to the question,

$$\frac{x}{6} = \frac{x}{9} + 100$$

$$\frac{x}{6} = \frac{x + 900}{9}$$

$$9x = 6x + 5400$$

$$3x = 5400$$

$$\text{or } x = 1800$$

66. A question is given, followed by two arguments. Decide which of the arguments is/are strong with respect to the question.

Question:

Should electronic gadgets be allowed in an examination hall?

Arguments :

I. No, it is easy to cheat with their help in an examination.

II. Yes, electronic gadgets are costly and it is not safe to leave them outside the examination hall

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

Ans. (d) : Electronics gadgets should not be allowed in the examination hall as they are used for cheating in the examination becomes easier. Hence only arguments I is strong.

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

4	7	13
5	7	13
6	9	?

- (a) 13 (b) 12
(c) 24 (d) 9

Ans. (d) : The given pattern is follows in such manner

$$\text{Row I : } \frac{7+13}{4} = \frac{20}{4} = 5$$

$$\text{Row II : } \frac{7+13}{5} = \frac{20}{5} = 4$$

$$\text{Row III : } \frac{9+9}{6} = \frac{18}{6} = 3$$

Hence, replace the question mark will be 9.

68. Where is Indira Gandhi Institute of Development Research (IGIDR) situated?

- (a) Ranchi (b) Mumbai
(c) Bhopal (d) Bengaluru

Ans. (b) : Indira Gandhi Development Research Institute is situated in Mumbai. It is a highly advanced research institution. It was established in 1987. Dr. Kirit Parikh was the first director of the institution.

69. Which community has the Adi Granth as their religious Book?

- (a) Buddhists (b) Jains
(c) Sikhs (d) Jews

Ans. (c) : Adi Granth is a religious text of Sikhism. The text is also known as Guru Granth Sahib. First the collection of Adi Granth was made by 5th Sikh Guru Arjun Dev. It is a collection of nearly 6000 hymns of the Sikh Gurus religious leaders and various early and medieval Saints of different religious and castes.

70. Which of the following may be considered as appropriate definition of a natural resource?

- (a) A natural resource is available only in forests.
(b) A natural resource is a man-made commodity.
(c) A natural resource is a gift of nature that is useful for mankind.
(d) A natural resource is available only on land.

Ans. (c) : The resource which are directly obtain from nature are called natural resources Ex–Air, Water, Land, Forest, Coal etc. A natural resource is a gift of nature that is useful for mankind. The natural resources are not only obtained from forest but from water, land and air also.

71. The value of $p^2 - 7p + 12$ at $p = 3$ is

- (a) 42 (b) 8
(c) 0 (d) –6

Ans. (c) : Given, $p = 3$
then $p^2 - 7p + 12$
 $= (3)^2 - 7 \times 3 + 12$
 $= 9 - 21 + 12$
 $= 9 - 9$
 $= 0$

72. Which structure was built as a war memorial to soldiers of the undivided Indian Army who sacrificed in the First World War?

- (a) Lahori Gate in the Red Fort
(b) India Gate
(c) Gateway of India
(d) Buland Darwaza

Ans. (b) : The India Gate was built in the memory of soldiers who got martyred during the first World War. Its construction was completed in 1921. Earlier its name was All India War Memorial. Its design was prepared by Edwin Lutyens. It is located in Delhi and is termed as a "Heritage of Nation".

73. Which of the following is NOT a micro blogging site?

- (a) Pinterest (b) Twitter
(c) Mouse (d) Tumblr

Ans. (c) : Micro blogging is related to post created for conversation with audience. Other than text, the audios, image and video may also be used in micro blogging. Twitter, Pinterest, Instagram, Facebook are the examples of micro blogging sites.

74. Which of the following element is a greenish yellow gas with a characteristic odor at room temperature?

- (a) Iodine (b) Chlorine
(c) Carbon monoxide (d) Hydrogen sulphide

Ans. (b) : Chlorine is a greenish yellow gas with a characteristic odor at room temperature. It's a chemical element whose atomic number is 17 and has chemical sign "Cl". It is present in simple salt NaCl (Sodium Chloride).

75. Four letter cluster are given, out of which three are alike in some manner, while the fourth is different. Select the different letter-cluster.

- (a) HIKNR (b) EFGIK
(c) FGILP (d) JKMP T

Ans. (b) :

$$(a) H \xrightarrow{+1} I \xrightarrow{+2} K \xrightarrow{+3} N \xrightarrow{+4} R$$

$$(b) E \xrightarrow{+1} F \xrightarrow{+1} G \xrightarrow{+2} I \xrightarrow{+2} K$$

$$(c) F \xrightarrow{+1} G \xrightarrow{+2} I \xrightarrow{+3} L \xrightarrow{+4} P$$

$$(d) J \xrightarrow{+1} K \xrightarrow{+2} M \xrightarrow{+3} P \xrightarrow{+4} T$$

It is clear from above that option (b) is odd one.

76. If the HCF of 85 and 153 is expressible in the form of $85x - 153$, then find the value of x :

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

Ans. (d) : HCF of 85 and 153 = 17

According to the question,

$$17 = 85x - 153$$

$$85x = 170$$

$$x = \frac{170}{85}$$

$$x = 2$$

77. If A = 26 and T = 7, then AUTHENTIC = ?

- (a) 266719221371824
(b) 266719221471824
(c) 266719221371825
(d) 266719221371823

Ans. (a) : Such as,

A $\xrightarrow{\text{Opposite letters}}$ Z \rightarrow 26
and T $\xrightarrow{\text{Opposite letters}}$ G \rightarrow 7

Same as,

A	\rightarrow	Z	\rightarrow	26
U	\rightarrow	F	\rightarrow	6
T	\rightarrow	G	\rightarrow	7
H	\rightarrow	S	\rightarrow	19
E	\rightarrow	V	\rightarrow	22
N	\rightarrow	M	\rightarrow	13
T	\rightarrow	G	\rightarrow	7
I	\rightarrow	R	\rightarrow	18
C	\rightarrow	X	\rightarrow	24

Hence, ? = 266719221371824

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

FLPX : GJST :: HMRW : ?

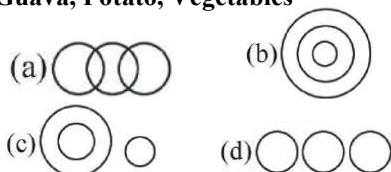
- (a) WDHO (b) NSTG
(c) ZKYR (d) IKUS

Ans. (d) : Such as,

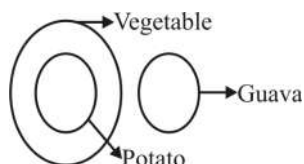
F	$\xrightarrow{+1}$	G	H	$\xrightarrow{+1}$	I
L	$\xrightarrow{-2}$	J	M	$\xrightarrow{-2}$	K
P	$\xrightarrow{+3}$	S	R	$\xrightarrow{+3}$	U
X	$\xrightarrow{-4}$	T	W	$\xrightarrow{-4}$	S

Hence, ? = I K U S

79. Select the Venn diagram that best represents the relationship between the following classes. Guava, Potato, Vegetables



Ans. (c) : Potato comes under vegetables while Guava is a fruit



It is clear that option (c) satisfies the relations of given classes.

80. Travelling from the North Arctic Circle to the Equator what sequence of biomes would a person pass through?

- (a) Tropical Rain Forests, Temperate Forests, Taiga, Tundra

- (b) Taiga, Tundra, Temperate Forests, Tropical Rain Forests
(c) Tundra, Taiga, Temperate Forests, Tropical Rain Forests
(d) Tundra, Temperate Forests, Taiga, Tropical Rain Forests

Ans. (c) : Travelling from the North Arctic Circle to the Equator, Tundra, Taiga, Temperate Forests, Tropical Rain Forests sequence of biomes would a person pass through.

- Tundra are found in the highest latitudes, mostly in northern hemisphere.
- Taiga is situated just below the Tundra.
- Temperate broadleaf forests are found in mid latitudes along the coasts.
- Tropical rainforests are situated at the equator and up to around 10 degrees North or South.

81. Who invented HTML in 1990?

- (a) Tim Berners - Lee
(b) David Noble
(c) Kane Kramer
(d) Niklaus Wirth

Ans. (a) : HTML was discovered by Tim Berners Lee in 1990. The full form of HTML is Hyper Text Markup Language.

82. Which of the following sportspersons was conferred the Padma Bhushan Award in 2020?

- (a) Sunil Chhetri (b) Bombayla Devi
(c) PV Sindhu (d) Gautam Gambhir

Ans. (c) : In the given options P.V. Sindhu was the sportsperson who got Padma Bhushan Awards in 2020. She is a famous badminton player. She got silver in 2016, Olympics and Bronze in 2020, Tokyo Olympics in Women's singles.

83. Which of the following languages is one of the six official languages of the United Nations?

- (a) Japanese (b) Urdu
(c) Chinese (d) Hindi

Ans. (c) : United Nations recognized 6 languages as official languages- Arabian, Chinese, English, French, Russian, Spanish, but out of which only English and French are used in executive works of UN.

84. The value of $0.\overline{23} + 0.\overline{22}$ is :

- (a) $0.\overline{45}$ (b) 0.45
(c) $0.\overline{43}$ (d) $0.\overline{45}$

Ans. (a) : $0.\overline{23} + 0.\overline{22}$

$$= \frac{23}{99} + \frac{22}{99} = \frac{45}{99} = 0.\overline{45}$$

85. $(\sqrt{5} + \sqrt{11})(\sqrt{5} - \sqrt{11})$ is equal to :

- (a) -6 (b) 6
(c) 25 (d) -121

Ans. (a) : $(\sqrt{5} + \sqrt{11})(\sqrt{5} - \sqrt{11})$

[Formula $\rightarrow a^2 - b^2 = (a+b)(a-b)$]

$$= (\sqrt{5} + \sqrt{11})(\sqrt{5} - \sqrt{11}) = (\sqrt{5})^2 - (\sqrt{11})^2 = 5 - 11 = -6$$

86. Study the given table and answer the question that follows.

The number of cycles produced in a factory during five consecutive weeks is given in the table.

If the factory had produced the same number of cycles in all 5 weeks as they produced in the week with the maximum production, how many additional cycles would the factory have produced?

Week	First	Second	Third	Fourth	Fifth
Number of cycles produced	800	1360	1000	900	1400

- (a) 1350 (b) 7000
(c) 1540 (d) 5640

Ans. (c) : Number of cycles produced in all 5 weeks.
= 800 + 1360 + 1000 + 900 + 1400 = 5460
No. of cycles produced in the week of highest production
= 1400

According to the question,
then if number of cycles produced in all the five weeks is equal to 1400
then the number of cycles produced in all five weeks
= 1400 × 5 = 7000
Hence, required answer = 7000 – 5460 = 1540

87. Study the given table and answer the question that follows.

Institution	Girls	Boys	Teachers
School	3000	2500	690
College	9000	11000	1500
University	15000	16000	2000

What is the ratio of college teachers to school girls?

- (a) 1 : 2 (b) 2 : 1
(c) 3 : 15 (d) 1.5 : 30

Ans. (a) : No of teachers in colleges = 1500

No of girls in school = 3000

Hence, required ratio = $\frac{1500}{3000}$
= $\frac{1}{2}$ = 1:2

88. Study the given table and answer the question that follows.

The information related to the sale (in rupees) of different items of a baker's shop in one day is given in the table.

Items	Ordinary bread	Fruit bread	Cakes and pastries	Biscuits	other
Sales (in rupees)	400	320	210	120	100
Customers	40	16	14	12	4

What would be the maximum amount of increase in sales for the baker, if all customers who bought any type of bread would also have bought either Cakes and Pastries OR biscuits?

- (a) 560 (b) 600
(c) 700 (d) 840

Ans. (d) : Required increase = 400 + 320 + 120 = 840
Note– Baker will sell maximum number of all the products to the customer for maximum increase.

89. Study the given table and answer the question that follows.

Institution	Girls	Boys	Teachers
School	3000	2500	690
College	9000	11000	1500
University	15000	16000	2000

What is ratio of total students to college and university teachers?

- (a) 7 : 113 (b) 113 : 7
(c) 11 : 5 (d) 5 : 11

Ans. (b) : No. of total students
= 3000 + 2500 + 9000 + 11000 + 15000 + 16000
= 56500

No. of teachers of colleges and universities = 2000 + 1500 = 3500

Required ratio = $\frac{56500}{3500} = \frac{113}{7}$

90. In a certain code language, 'HUNGER' is written as 'UHATRE'. How will 'SWIMMING' be written as in that language?

- (a) UBFCFCFW (b) FJVZZVAT
(c) GAPTPTL (d) FCKSSKSM

Ans. (b) : Such as, Same as,

	S	$\xrightarrow{+13}$	F		
H	$\xrightarrow{+13}$	U	W	$\xrightarrow{+13}$	J
U	$\xrightarrow{+13}$	H	I	$\xrightarrow{+13}$	V
N	$\xrightarrow{+13}$	A	M	$\xrightarrow{+13}$	Z
G	$\xrightarrow{+13}$	T	M	$\xrightarrow{+13}$	Z
E	$\xrightarrow{+13}$	R	I	$\xrightarrow{+13}$	V
R	$\xrightarrow{+13}$	E	N	$\xrightarrow{+13}$	A
	G	$\xrightarrow{+13}$	T		

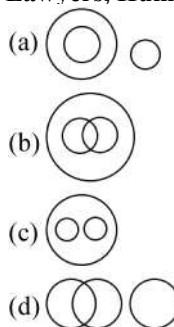
91. Select the option that is related to the third term in the same way as the second term is related to the first term.

Radio : Sound :: Television : ?

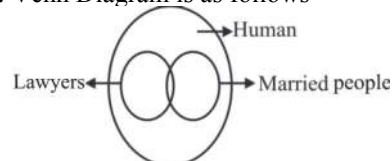
- (a) Images (b) Channels
(c) Colour (d) Serials

Ans. (a) : Just as a sound is made when the radio is turned on, similarly a picture appears when the television is turned on.

92. Select the Venn diagram that best represents the relationship between the following classes. Lawyers, Human, Married People



Ans. (b) : Venn Diagram is as follows–



Hence, it is clear that option (b) satisfies the relationship between the given classes.

93. Study the given pattern carefully and select the number that can replace the question mark (?) in it.

3	?	4
7	121	8
6	9	5

- (a) 12 (b) 114
(c) 9 (d) 8

Ans. (c) : Such as,

$$\text{Row II } 7 \times 8 = 56 \Rightarrow (5 + 6)^2 = 121$$

$$\text{Row III } 6 \times 5 = 30 \Rightarrow (3 + 0)^2 = 9$$

Same as,

$$\text{In Row I } \Rightarrow 4 \times 3 = 12 \Rightarrow (1 + 2)^2 = 9$$

Hence, ? = 9

94. Identify the day from the options that belongs to the followings classes.

15 -08, 02-10, 26-01

- (a) Wednesday (b) Tuesday
(c) Monday (d) Sunday

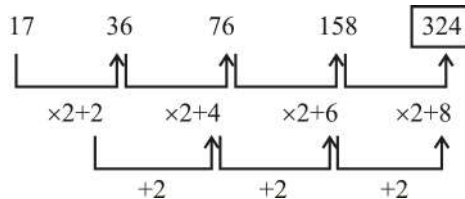
Ans. (d) :

95. Select the number from among the given options that will come next in the following series.

17, 36, 76, 158, ____.

- (a) 324 (b) 344
(c) 316 (d) 350

Ans. (a) : Given series as follows—



Hence, Next term = 324

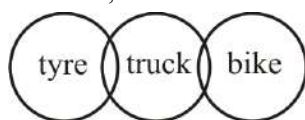
96. Consider the given statements and decide which of the assumptions from the options is NOT implicit in the statements.

Some trucks are bikes.

Some tyres are not bikes but trucks.

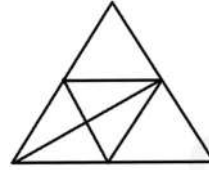
- (a) Some tyres are not trucks.
(b) Some bikes are tyres.
(c) Some bikes are trucks.
(d) Some trucks are tyres.

Ans. (b) : Venn diagram relation according to the statements is as follows,



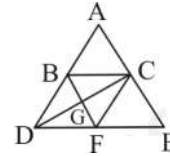
It is clear that option (b) is not implicit in the given statements.

97. How many triangles does this figure have?



- (a) 11 (b) 13
(c) 15 (d) 9

Ans. (b) :



Triangle in given figure = $\triangle ABC$, $\triangle BDF$, $\triangle CFE$, $\triangle BFC$, $\triangle BCD$, $\triangle CDE$, $\triangle ACD$, $\triangle BCG$, $\triangle CGF$, $\triangle DGF$, $\triangle BGD$, $\triangle ADE$, $\triangle CDF$

Hence, no. of triangle = 13

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

Navy : Ship :: Army : ?

- (a) Guns (b) Tanks
(c) Soldier (d) War

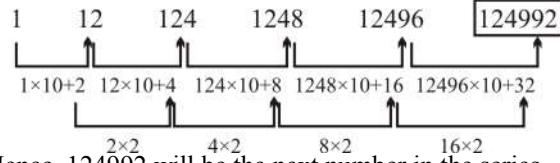
Ans. (b) : Just as a ship (water ship) is used in the Navy similarly a tank is used in the Army

99. Select the number from the given options that can come next in the following series.

1, 12, 124, 1248, 12496, ____.

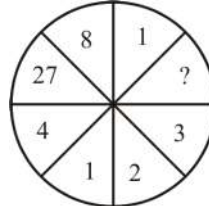
- (a) 124982 (b) 124962
(c) 124992 (d) 124978

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



Hence, 124992 will be the next number in the series.

100. Study the given pattern carefully and select the number from the given options that can replace the question mark (?) in it.



- (a) 22 (b) 64
(c) 32 (d) 48

Ans. (b) : Just as,

$$(1)^3 = 1$$

$$(2)^3 = 8$$

$$(3)^3 = 27$$

Same as,

$$(4)^3 = 64$$

Hence, ? = 64

Railway Non-Technical Popular Categories Exam - 2019

Graduate and Under-Graduate Level

[Ist Stage Computer Based Test]

Exam Date : 22.01.2021]

[Time : 3:00 pm-4:30 pm

1. Area of a square is equal to ten times the area of a rectangle of edge 5 cm × 8 cm. What is the perimeter of the square ?

(a) 60 cm (b) 40 cm
(c) 120 cm (d) 80 cm

Ans. (d) : According to the question,

Area of square = 10 × area of rectangle

$$a^2 = 10 \times 5 \times 8$$

$$a^2 = 400 \text{ cm}^2$$

$$a = 20 \text{ cm}$$

$$\{\therefore \text{Area of square} = (\text{side})^2\}$$

$$\text{Perimeter of square} = 4a$$

$$= 4 \times 20$$

$$= 80 \text{ cm}$$

2. How many times does the second hand of a clock meet 12 in 6 hours?

(a) 360 (b) 240
(c) 120 (d) 60

Ans. (a) : \therefore The second hand of a clock will come once at 12 in a minute and will come 60 times in an hour.

$$\therefore \text{The number of times 12 comes in 6 hr} = 6 \times 60 = 360$$

Hence the number of times 12 comes in 6 hr = 360

3. UN World Wildlife day is celebrated on ____.

(a) 7th July (b) 11th November
(c) 5th June (d) 3rd March

Ans. (d) : Every year on 3rd March "World Wildlife Day" is celebrated. Its theme in 2021 was "Forests and Livelihoods : Sustaining People and Planet". On the same day World Hearing Day is also observed to raise awareness about how to prevent deafness.

4. Name the campaign launched in January 2018 by the Union Minister for environment, forest and climate change, which lauds small positive actions performed by individuals or organisations to strengthen the cause of environmental protection.

(a) Green Good Deeds
(b) Clean Air Campaign
(c) Champions of the Earth
(d) Green Skill Development Programme

Ans. (a) : "Green Good Deeds" is an initiative to raise environmental awareness and ensure people's participation for conservation of environment. It was launched in January 2018 by the Union Minister for Environment, Forest and Climate Change.

5. Which fundamental right is violated if a group of people are NOT given permission to the open a Telugu-medium school in Kerala?

(a) Right to Freedom of Religion
(b) Right to Freedom
(c) Right to Equality
(d) Cultural and Educational Rights

Ans. (d) : As per the Article 30 (i) of the Indian Constitution all religious and linguistic minorities have the right to establish and administer educational institution of their choice. So in a situation where a group of people are denied to do so, then it must be a violation of cultural and educational rights provided by the constitution and no any state is permitted to breach the law.

6. Select the word pair that shares a similar relationship as the word pair shown below.

Word : Book

(a) Song : Music (b) Leaf : Tree
(c) Sweet : Sugar (d) Sleep : Bed

Ans. (b) : Just as a Book has many number of Words, similarly Tree has many number of leaves. Hence, option (b) is right.

7. In a transaction, profit percentage is 20% of the cost. If the cost increases by 5% but selling price remains the same, percentage profit will be:

(a) 14% (b) 8%
(c) 14.2% (d) 7%

Ans. (c) : Let the cost price (CP) = ₹100

$$\therefore \text{Selling price (SP)} = ₹120$$

According to the question,

New cost price after 5% increases on old cost price = ₹105

Required profit % =

$$= \frac{\text{selling price} - \text{new cost price}}{\text{new cost price}} \times 100$$

$$= \frac{120 - 105}{105} \times 100$$

$$= 14.2\%$$

8. PETA India started in the year ____.

- (a) 2001 (b) 2000
(c) 2003 (d) 2002

Ans. (b) : PETA (People for the Ethical Treatment of Animals) India was founded in 2000. It is based in Mumbai, India. It focuses on issues about animals in laboratories, the food industry, the leather trade and entertainment.

9. The secret code for TREE GOES UNDER THE FLOOR MAT is 'ASEE JKEZ VMCES ATE DRKKS NQA.' What will the code for 'DRAGON' be?

- (a) BSQJKM (b) CSQJKM
(c) CSOVRE (d) JSQCMN

Ans. (b) : Just as,

T R E E , G O E S , U N D E R
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
A S E E , J K E Z , V M C E S

And,

T H E , F L O O R , M A T
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
A T E , D R K K S , N Q A

Similarly,

D R A G O N
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
C S Q J K M

10. Who received the Padma Bhushan for Arts in the year 2020?

- (a) Chhannulal Mishra
(b) Venu Srinivasan
(c) Ajay Chakravorty
(d) Guru Shashadhar Acharya

Ans. (c) : The Padma Bhushan award was instituted on 2 January 1954 and is considered as the third highest civilian award of the Republic of India. In 2020, total 16 persons were given the award. Ajay Chakravorty was a recipient of Padma awards in 2020 in field of Arts.

11. With which country's Ministry of Road Transport and Highways, has India signed a MoU in March, 2019 on Technology Co-operation in the road infrastructure sector?

- (a) Australia (b) Austria
(c) Canada (d) France

Ans. (b) : India signed a Memorandum of Understanding (MoU) in March 2019 on technology cooperation in the road infrastructure sector with Austria. It aims to create an effective framework for bilateral cooperation in the field of road transportation, infrastructure development, road safety and intelligent transport system etc.

12. Name of the scheme initiated to protect elderly persons aged 60 years and above against a future fall in their interest income due to the uncertain market conditions.

- (a) Varishtha Pension Bima Yojana 2003
(b) Varishtha Pension Bima Yojana 2014 (VPBY-2014)
(c) Pradhan Mantri Vaya Vandana Yojana
(d) Atal Pension Yojana (APY)

Ans. (c) : The Pradhan Mantri Vaya Vandana Yojana was launched on 4th May 2017. It is a government pension scheme for senior citizens which is managed and operated by Life Insurance Corporation (LIC). The scheme was initiated to protect elderly persons aged 60 years and above against a future fall in their interest income due to the uncertain market conditions.

13. Study the given pattern carefully and select the number that represents the value of x.

36 25 16 9 4
361 x 289 256 225

- (a) 336 (b) 298
(c) 316 (d) 324

Ans. (d) : Just as,

36, 25, 16, 9, 4
↑ ↑ ↑ ↑ ↑
 6^2 , 5^2 , 4^2 , 3^2 , 2^2

Similarly,

361, 324, 289, 256, 225
↑ ↑ ↑ ↑ ↑
 19^2 , 18^2 , 17^2 , 16^2 , 15^2

14. Lala Lajpat Rai died protesting which British government decision?

- (a) Simon Commission
(b) Government of India Act, 1919
(c) Morley-Minto Reforms
(d) Rowlatt Act

Ans. (a) : The Simon commission was a statutory commission including a group of members of Parliament under the chairmanship of Sir John Simon. It included no any Indian for the constitutional reforms. Though, it was appointed in 1927, but came to India in 1928 and was greeted with the slogan of "Go Back Simon". During this protest Lala Lajpat Rai died.

15. Considering India's global leadership in environmental protection and climate change sectors, which organisation had chosen India as the global host for World Environment Day (WED) on 5th June, 2018?

- (a) International Union for Conservation of Nature
- (b) European Environment Agency
- (c) United Nations Environment Programme
- (d) Global Green Growth Institute

Ans. (c) : Considering India's global leadership in environmental protection and climate change sectors, United Nations Environment Programme (UNEP), had chosen India as the global host for World Environment Day on 5th June 2018. It was founded on 5th June 1972 by Maurice Strong and is headquartered in Nairobi, Kenya.

16. Who among the following scientists received the Nobel Prize for physiology and medicine for discovery of bacterium, Helicobacter Pylori which was responsible for peptic ulcers?

- (a) William C. Campbell and Satoshi Omura
- (b) James P. Allison and Tasuku Honjo
- (c) Robin Warren and Barry Marshall
- (d) Bruce A. Beutler and Jules A. Hoffmann

Ans. (c) : Among the given scientists, Robin Warren and Barry Marshall were the personality cult who received Nobel Prize for Physiology and Medicine for discovery of bacterium, Helicobacter Pylori which was responsible for peptic ulcers. They received award in 2005.

17. Which was the last Indian movie to have received a nomination for the Oscars in the best foreign language film category?

- (a) Village Rockstars
- (b) Lagaan
- (c) Salaam Bombay
- (d) Mother India

Ans. (b) : Lagaan was the last Indian movie to have received a nomination for the Oscars in the best foreign language film category. The movie was released on 15th June 2001 and was directed by Ashutosh Gowariker. Only three Indian movies have been nominated for the award so far. They are Mother India (1957), Salaam Bombay (1988), Lagaan.

18. Which ministry launched the website e-Sahaj that allows organizations/firms/companies / individuals to apply for security clearance, anywhere over the internet?

- (a) Ministry of External Affairs
- (b) Ministry of Corporate Affairs
- (c) Ministry of Home Affairs
- (d) Ministry of Electronics and Information Technology

Ans. (c) : Website e-Sahaj was launched by the Ministry of Home Affairs which allows organizations|firms| companies individuals to apply for security clearance, any where over the internet. The main objective of e-Sahaj portal is to provide security clearance.

19. The 'Animal Welfare Board of India' established in the year 1962, under Section 4 of the 'Prevention of Cruelty to Animals Act, 1960', is a statutory advisory body, formed for advising the Government of India, on animal welfare laws, falls under which ministry?

- (a) Ministry of Law and Justice
- (b) Ministry of Earth Science
- (c) Ministry of Food and Agriculture
- (d) Ministry of Environment and Forest and Climate change

Ans. (d) : The Animal Welfare Board of India falls under the Ministry of Environment and Forest and Climate Change. It was established in 1962 under Section 4 of the "Prevention of Cruelty to Animals Act, 1960", for advising the Government of India on animal welfare laws.

20. What was the previous name of the Department of AYUSH?

- (a) Department of Health and Family Welfare
- (b) Department of Pharmaceuticals
- (c) Department of Indian System of Medicine and Homeopathy
- (d) Department of Health Science

Ans. (c) : The previous name of Department of Ayush was Department of Indian System of Medicine and Homeopathy.

21. Who was the first Vice-President of India to be elected as President by second preference count of votes in the presidential elections?

- (a) KR Narayanan
- (b) VV Giri
- (c) Shankar Dayal Sharma
- (d) Ramaswami Venkataraman

Ans. (b) : V.V. Giri was the first Vice-President of India to be elected as President by second preference count of votes in the Presidential elections. V. V. Giri was the 4th Indian president served from 24th Aug 1969 to 24th Aug 1947. He was the only President to be elected as an independent candidate.

22. A and B together can complete a task in 20 days while B alone can complete the same task in 60 days. A alone will be able to complete the same task in:

- (a) 20 days
- (b) 15 days
- (c) 45 days
- (d) 30 days

Ans. (d) : A and B together complete a work in 20 days.

$$\therefore (A+B)\text{'s 1 day work} = \frac{1}{20}$$

B alone can do the same work in 60 days

$$\therefore B\text{'s 1 day work} = \frac{1}{60}$$

Let A complete that work in x days.

$$\therefore A\text{'s 1 day work} = \frac{1}{x}$$

According to the question,

$$\frac{1}{x} + \frac{1}{60} = \frac{1}{20}$$

$$\frac{1}{x} = \frac{1}{20} - \frac{1}{60} = \frac{2}{60} = \frac{1}{30}$$

$$x = 30 \text{ days}$$

Hence, A complete that work in 30 days.

23. Tsangpo and Dihang are other names of which river?

- (a) Brahmaputra (b) Indus
(c) Yamuna (d) Ganga

Ans. (a) : The river Brahmaputra is attributed with several names when it passes through different regions.

Tsangpo → In Tibet

Dihang → In Arunachal Pradesh

Dilao → In Assam

It is originated in Mansarovar lake near Mt. Kailash. Its right bank tributaries are Kameng, Manas, Beki, Teesta while Lhasa, Nyang, Lohit are its left bank tributaries.

24. 50% of a number added to 20% of 40 gives a sum of 20. What is the number?

- (a) 24 (b) 40
(c) 20 (d) 32

Ans. (a) : Let that no. be x.

According to the question,

$$40 \times \frac{20}{100} + x \times \frac{50}{100} = 20$$

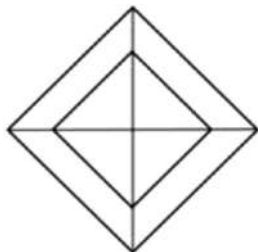
$$8 + \frac{x}{2} = 20$$

$$16 + x = 40$$

$$x = 24$$

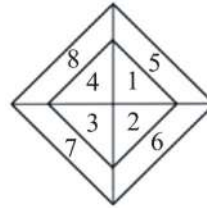
Hence, that no. is 24.

25. Find the total number of triangles in the following figure.



- (a) 20 (b) 12
(c) 16 (d) 8

Ans. (c) :



No. of triangles.

$$= 1, 2, 3, 4, (1,2), (2,3), (3,4), (4,1),$$

$$(1,5), (2,6), (3,7), (4,8), (1,2,5,6),$$

$$(3,4,7,8), (2,3,6,7), (1,4,5,8)$$

$$= 16$$

Hence, total no. of triangles = 16

26. Which of the following causes Kala-Azar?

- (a) Protozoa (b) Bacteria
(c) Virus (d) Fungi

Ans. (a) :

Agents	Diseases
Protozoa	Kala Azar, Malaria, Chagas
Virus	Mumps, HIV, Chicken pox,
Bacteria	Tetanus, Plague, Tuberculosis, Gonorrhoea
Fungi	Athlete's foot, Baldness, Aspergillosis.

27. Which of the following dates is commemorated as National Technology Day in India?

- (a) 1 May (b) 2 May
(c) 11 May (d) 7 May

Ans. (c) :

1st May → International Labour Day

8th May → World Red Cross Day

11th May → National Technology Day

7th May → World Athletics Day

28. Which of the following methods did Holt Mackenzie develop for collecting revenue in India?

- (a) Ryotwari system
(b) Zamindari system
(c) Permanent settlement system
(d) Mahalwari system

Ans. (d) : In 1822, Holt Mackenzie introduced Mahalwari system for collecting revenue in India. Just because the policy contained previous elements of zamindari, hence it became popular with its name as modified zamindari system. It was introduced in North-West Frontier, Agra, Central Province and Punjab regions.

29. A can complete a task in 20 days while B can complete task in 30 days. In how many days can A and B working together complete it?

(a) 12 days (b) 6 days
(c) 4 days (d) 8 days

Ans. (a) : A complete the work in 20 days.

$$\therefore \text{A's 1 day work} = \frac{1}{20}$$

B complete the work in 30 days

$$\therefore \text{B's 1 days work} = \frac{1}{30}$$

$$\begin{aligned} \text{(A+B)'s 1 day work} &= \frac{1}{20} + \frac{1}{30} \\ &= \frac{3+2}{60} = \frac{5}{60} = \frac{1}{12} \end{aligned}$$

Hence, A and B together complete the work in 12 days.

30. Out of the four letter-clusters listed, three are alike in some manner and one is different. Select the odd one.

(a) MOQS (b) SUWY
(c) BDFH (d) JLMP

Ans. (d) :

$$\begin{aligned} \text{(a): } & \text{M} \xrightarrow{+2} \text{O} \xrightarrow{+2} \text{Q} \xrightarrow{+2} \text{S} \\ \text{(b): } & \text{S} \xrightarrow{+2} \text{U} \xrightarrow{+2} \text{W} \xrightarrow{+2} \text{Y} \\ \text{(c): } & \text{B} \xrightarrow{+2} \text{D} \xrightarrow{+2} \text{F} \xrightarrow{+2} \text{H} \\ \text{(d): } & \text{J} \xrightarrow{+2} \text{L} \xrightarrow{+1} \text{M} \xrightarrow{+3} \text{P} \end{aligned}$$

Hence, option (d) is odd one.

31. Who among the following musicians won the Best Contemporary World Music Album - Global Drum Project Award in the year 2008?

(a) Sivamani (b) Ranjit Barot
(c) Allah Rakha (d) Zakir Hussain

Ans. (d) : Zakir Hussain won the best contemporary World Music Album global Drum project Award in year 2008. "Global Drum Project" is the second collaboration between Hart and Hussain after their compilation "Planet Drum".

32. In which year did AR Rahman win two Oscars?

(a) 2011 (b) 2017
(c) 2010 (d) 2009

Ans. (d) : AR Rahman won two Oscar Awards in 2009. AR Rahman is one of most known composers of India and is dominant in Tamil and Hindi films. In 2010, he also got the Padma Bhushan Award. He earned a huge fame by his composing skill in a film Slumdog Millionaire in 2008.

33. 15% of a number is 165. Find the number.

(a) 1200 (b) 1500
(c) 1100 (d) 1350

Ans. (c) : Let that no. be x.

According to the question,

$$x \times \frac{15}{100} = 165$$

$$x = 1100$$

Hence, that no is 1100.

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

(Mother) : (Nurturing) :: (Doctor) : ?

(a) Operating (b) Diagnosing
(c) Curing (d) Prescribing

Ans. (c) : Such as Mother related to the Nurturing, same as Doctor is related to the Curing.

Hence, option (c) is correct.

35. What is the value of $\sqrt{\frac{1+\sin A}{1-\sin A}}$?

(a) $\cos A + \tan A$ (b) $\sec A + \tan A$
(c) $\cos A + \sin A$ (d) $\sec A - \tan A$

Ans. (b) :

$$\begin{aligned} \sqrt{\frac{1+\sin A}{1-\sin A}} &= \sqrt{\frac{1+\sin A}{1-\sin A} \times \frac{1+\sin A}{1+\sin A}} \\ &= \sqrt{\frac{(1+\sin A)^2}{1-\sin^2 A}} = \sqrt{\frac{(1+\sin A)^2}{\cos^2 A}} \\ &= \frac{1+\sin A}{\cos A} = \frac{1}{\cos A} + \frac{\sin A}{\cos A} \\ &= \sec A + \tan A \end{aligned}$$

36. When you reverse the digits of the number 14, the number increases by 27. How many other two-digit numbers increases by 27 when their digits are reversed?

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

Ans. (c) : Let, two digit no. is a b. when the numbers are reversed, the number increases by 27.

$$(10a+b) - (10b-a) = 27$$

$$a - b = 3$$

All such number whose unit digit is 3 more than tens digit. (except 14)

\therefore Such numbers are (25,36,47,58 and 69)

Hence, option (c) is the right.

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

abc— d cde d — e — b

- (a) d; e; a; b; c (b) b; c; e; a; a
(c) c; d; e; a; c (d) b; c; e; a; c

Ans. (b) : a b c/b c d/c d e/d e a/e a b

Hence, option (b) is correct.

38. If $a+b = 5$ and $ab=13$, then what will be the value of $a^3 + b^3$?

- (a) -70 (b) 30
(c) 12 (d) 60

Ans. (a) : Given $a+b = 5$

On cubing both sides.

$$(a+b)^3 = (5)^3$$

$$a^3+b^3+3ab(a+b) = 125$$

$$a^3+b^3+3 \times 13 \times 5 = 125 \quad \{\because ab = 13 \text{ given}\}$$

$$a^3+b^3+195 = 125$$

$$a^3+b^3 = 125-195$$

$$a^3+b^3 = -70$$

39. Which Constitutional Amendment led to inclusion of Sikkim in the Indian Union?

- (a) 37th Amendment (b) 33rd Amendment
(c) 36th Amendment (d) 34th Amendment

Ans. (c) : The 36th amendment was made to the Indian Constitution in 1975 and included Sikkim as the 22nd state of India. Sikkim is the north-eastern state of India having its capital Gangtok. It shares its boundary with Bhutan, Tibet, Nepal.

40. $25.12 \times 37.5 = 942$. What is the value of 2512×0.00375 ?

- (a) 0.0942 (b) 9.42
(c) 0.942 (d) 94.2

Ans. (b) : Given—

$$25.12 \times 37.5 = 942$$

According to the question,

$$2512 \times 0.00375$$

$$= 2512 \times \frac{37.5}{10000}$$

$$= \frac{2512}{100} \times \frac{37.5}{100}$$

$$= \frac{25.12 \times 37.5}{100}$$

$$= \frac{942}{100} \quad (\text{putting the value})$$

$$= 9.42$$

41. An article is purchased for ₹200 and sold for ₹350. The percentage gain will be:

- (a) 25% (b) 75%
(c) 50% (d) 100%

Ans. (b) : Cost price (CP) = ₹200

Selling price (SP) = ₹350

$$\therefore \text{Profit percentage} = \frac{SP - CP}{CP} \times 100$$

$$= \frac{350 - 200}{200} \times 100$$

$$= \frac{150}{200} \times 100$$

$$= 75\%$$

42. As of October 2020, name the head of Instagram who oversees all functions of the business including engineering, production and operations.

- (a) Adam Mosseri (b) Ronald Wayne
(c) Mark Zuckerberg (d) Steve Wozniak

Ans. (a) : As of October 2020, and as per the modern times also, Adam Mosseri is the head of Instagram who oversees all functions of the business including engineering, production and operation. Previously he used to be an executive of Facebook (Meta).

43. If $x = a \operatorname{cosec} \theta + b \cot \theta$, $y = b \operatorname{cosec} \theta + a \cot \theta$ then what will be the value of $x^2 - y^2$?

- (a) $a^2 + b^2$ (b) $a^2 - b^2$
(c) $a + b$ (d) 0

Ans. (b) : $x = a \operatorname{cosec} \theta + b \cot \theta$ (i)

$y = b \operatorname{cosec} \theta + a \cot \theta$ (ii)

By subtracting the square of both the sides in equation (i) and equation (ii).

$$x^2 - y^2 = a^2 \operatorname{cosec}^2 \theta + b^2 \cot^2 \theta - b^2 \operatorname{cosec}^2 \theta - a^2 \cot^2 \theta$$

$$= \operatorname{cosec}^2 \theta (a^2 - b^2) - \cot^2 \theta (a^2 - b^2)$$

$$= (a^2 - b^2) [\operatorname{cosec}^2 \theta - \cot^2 \theta]$$

$$= (a^2 - b^2) \times 1 \quad \{\because \operatorname{cosec}^2 \theta - \cot^2 \theta = 1\}$$

$$= a^2 - b^2$$

44. What is the value of $\frac{1 - \tan^2 A}{1 + \tan^2 A}$?

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

Ans. (d) :

$$\frac{1 - \tan^2 A}{1 + \tan^2 A} = \frac{1 - \frac{\sin^2 A}{\cos^2 A}}{1 + \frac{\sin^2 A}{\cos^2 A}} = \frac{\cos^2 A - \sin^2 A}{\cos^2 A + \sin^2 A}$$

$$= \cos^2 A - \sin^2 A \quad \{\because \cos^2 A + \sin^2 A = 1\}$$

$$= \cos 2A \quad \{\because \cos 2A = \cos^2 A - \sin^2 A\}$$

45. To complete a task, A and B take 24 days, B and C take 12 days and A, B and C take 6 days. In how many days will A and C take to complete the same work ?

- (a) $\frac{24}{5}$ days (b) 4 days
(c) 2 days (d) 24 days

Ans. (a) : Let (A+C)'s 1 day work = $\frac{1}{x}$

\therefore (A+C) will finish the work in x days.

Given, (A+B) finish the work in 24 days.

\therefore (A+B)'s 1 day work = $\frac{1}{24}$

(B+C) finish the same work in 12 days.

\therefore (B+C)'s 1 day work = $\frac{1}{12}$

(A+B+C) finish the same work in 6 days.

\therefore (A+B+C)'s 1 day work = $\frac{1}{6}$

According to the question,

$$2 \times \frac{1}{(A+B+C)} = \frac{1}{A+B} + \frac{1}{B+C} + \frac{1}{A+C}$$

$$2 \times \frac{1}{6} = \frac{1}{24} + \frac{1}{12} + \frac{1}{x}$$

$$\frac{1}{3} = \frac{x+2x+24}{24x}$$

$$\frac{1}{3} = \frac{3x+24}{24x}$$

$$9x+72 = 24x$$

$$15x = 72$$

$$5x = 24$$

$$x = 24/5 \text{ days}$$

46. If 10% of 980 – x% of 450 = 5% of 160, then what will be the value of x?

- (a) 25 (b) 15
(c) 20 (d) 22

Ans. (c) : 10% of 980 – x% of 450 = 5% of 160

$$980 \times \frac{10}{100} - 450 \times \frac{x}{100} = 160 \times \frac{5}{100}$$

$$98 - \frac{9x}{2} = 8$$

$$9x = 196 - 16$$

$$9x = 180$$

$$x = 20$$

47. Name the Governor-General under whom a new policy of 'paramountcy' was initiated.

- (a) Lord Wellesley (b) Lord Dalhousie
(c) Lord Cornwallis (d) Lord Hasting

Ans. (d) : The policy of paramountcy was introduced by Lord Hasting. Under this policy the company became the supreme law, the paramount power and to safeguard its interest, the company justified the annexations of any Indian Kingdom.

48. Which of the following is an animal hormone?

- (a) Cytokinins (b) Gibberellins
(c) Auxin (d) Insulin

Ans. (d) : In the given options, Cytokinins, Gibberellins, Auxins are plant hormones.

Insulin → It is found in animals and human beings and is released by pancreas. Insulin allows your body to use glucose for energy. It also balances the blood glucose level.

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

- (a) Raj Ghat (b) Shantivan
(c) Kisan Ghat (d) Smriti Sthal

Ans. (d) :

Raj Ghat → Memorial of Mahatma Gandhi.

Kisan Ghat → Memorial of Chaudhari Charan Singh

Shantivan → Cremation spot of Jawahar Lal Nehru

Smriti Sthal → Cremation spot of Atal Bihari Vajpayee.

But Smriti Sthal is different among these as it has been chosen as a common cremation spot for Presidents, Vice Presidents & Prime Ministers.

50. Read the given statement and conclusions carefully and decide which of the conclusions logically follows (s) from the statement.

Statement :

The patient who was brought to the emergency during the last night would have survived if the surgery was done sometime before.

Conclusions :

I. Surgery was the only option for survival.

II. Patient was brought to the hospital late.

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

Ans. (b) : Only conclusion I follows as the given statement.

Hence option (b) is correct.