1. The sum of five consecutive numbers is 260. What will be the sum of the first and the last numbers?

(a) 116
(b) 126
(c) 96
(d) 104 **[d]**

व्याख्या:-

Let there be five consecutive numbers x, x+1, x+2, x+3 and x+4.
Their sum is 260:
x+(x+1)+(x+2)+(x+3)+(x+4)=260
5x+10=260
5x=260−10
5x=250
x=50
First number = x=50
Final Number = x+4=54
First number + Last number = 50+54=104

2. The square of the length of the diagonal of a closed cube is 2175 cm². What will be the total surface area (in cm²) of the cube?

(a) 4305
(b) 4530
(c) 4272
(d) 4350 **[d]**

व्याख्या:-

The formula for the length of the diagonal of a closed cube is $d = a\sqrt{3}$.

$d^2 = (a\sqrt{3})^2$

$d^2 = a^2 \times 3$

$3a^2 = 2175$

$a^2 = 725$

The formula for the total surface area of a cube is $6a^2$.
Total Surface Area $=6\times a^2$
Total Surface Area $=6\times 725$
Total Surface Area = 4350

3. Identify the unicellular organism.

(a) Liver fluke
(b) Leech
(c) Seaweed
(d) Amoeba **[d]**

Explanation –

Unicellular organisms are organisms whose entire body is made up of only one cell. In these organisms, all the basic processes of life — such as nutrition (eating and drinking), respiration (breathing), excretion (waste removal), and reproduction — take place within that single cell.

Amoeba is a type of unicellular organism that belongs to the group of protozoa. It is known for its unique, constantly changing shape and mode of movement.

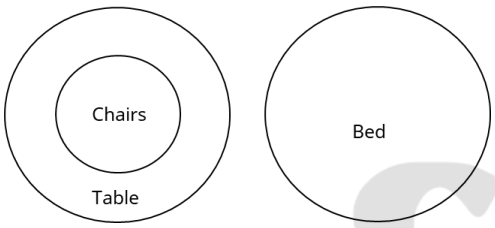
The entire body of an amoeba is made up of only one cell. This single cell performs all the important functions of life. Amoeba does not have a fixed shape. It constantly changes its shape as it moves and consumes food. Amoeba projects temporary, finger-like projections from its cell membrane called pseudopodia (false feet). These are used for movement and to surround food.

4. Read the statements and conclusions given below carefully. You have to assume that the given statements are true even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follows from the given statement(s).

Statements:
All chairs are tables.
No table is bed.
Conclusions:
(I) Some beds are chairs.
(II) No bed is table.

(a) Only conclusion (I) follows from the statements.
(b) Both conclusions (I) and (II) follow from the statements.
(c) Neither conclusion (I) nor (II) follows from the statements.
(d) Only conclusion (II) follows from the statements. **[d]**

व्याख्या:-



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

5. Choose the correct statement.

a. The energy released in this aerobic process is much greater than in the anaerobic process.
b. ATP is broken down to release a certain amount of energy that can drive the endothermic reactions in the cell.
c. Pyruvate is converted into lactic acid. It is also a carbon molecule. a

(a) a, b and c
(b) only b and c

(c) only a
(d) only a and b **[a]**

Explanation -

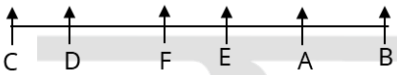
In aerobic respiration, there is complete oxidation of glucose using oxygen, yielding about 36-38 ATP molecules per glucose molecule. Whereas in anaerobic respiration, there is incomplete breakdown of glucose in the absence of oxygen, yielding very little energy (only 2 ATP molecules per glucose molecule). Therefore, much more energy is released in aerobic process than in anaerobic process.

ATP (adenosine triphosphate) is called the "energy currency" of the cell. When a phosphate group of ATP breaks down (i.e. ATP is broken down into ADP and phosphate), a certain amount of energy (about 30.5 kJ/mol) is released. This energy is used to drive various endothermic reactions (requiring energy) taking place within the cell, such as protein synthesis, muscle contraction, active transport, etc.

In anaerobic respiration (especially in muscles when there is lack of oxygen), glucose is first broken down into pyruvate (a three-carbon molecule) by glycolysis. Then, pyruvate is converted into lactic acid (which is also a three-carbon molecule) in the absence of oxygen.

6. Six persons A, B, C, D, E and F are sitting in a straight row facing north.
Only three persons are sitting to the left of E. B is sitting second to the right of E. Only three persons are sitting between A and C. C is sitting immediate left of D.
How many persons are sitting between D and F?
(a) two
(b) none
(c) one
(d) three **[b]**

व्याख्या:-



It is clear from the diagram that not a single person is sitting between D and F.

7. If A means +, B means -, C means ×, and D means ÷, then what will come in place of question mark (?) in the following equation?
14 B 5 C 5 A 30 D 2 = ?
(a) 3
(b) 2
(c) 4
(d) 1 **[c]**

व्याख्या:-

14 B 5 C 5 A 30 D 2 = ?
according to question
14 – 5 × 5 + 30 ÷ 2 = ?
14 – 25 + 15 = ?
29 – 25 = ?
4 =?

8. If the magnification produced by a spherical mirror is +0.75, then the image will be like
(a) Real, inverted and small
(b) Real, inverted and large
(c) Virtual, erect and large
(d) Virtual, erect and small **[d]**

Explanation –

Given that the magnification produced by a spherical mirror is +0.75.

Analysis of sign: The sign of magnification is positive (+). This means that the image will be virtual and erect.

Analysis of Magnitude: The magnitude of magnification is 0.75. Since 0.75 < 1, it means that the image will be smaller than the object.

The magnification (m) produced by a spherical mirror gives us information about the nature and size of the image.

Formulas of Magnification and its Meaning:

Sign of Magnification:

When the sign of magnification is positive (+), it means that the image is virtual and erect.

When the sign of magnification is negative (-), it means that the image is real and inverted.

Magnitude of Magnification (Absolute Value):

When the absolute value of magnification is less than 1 ($|m|<1$), the image is smaller than the object.

When the absolute value of magnification is equal to 1 ($|m|=1$), the image is the same size as the object.

When the absolute value of magnification is greater than 1 ($|m|>1$), the image is magnified than the object.

9. Find the volume of a sphere whose diameter is 84 m.[Use $\pi = \frac{22}{7}$]
(a) 338,808 m^3
(b) 313,418 m^3
(c) 323,434 m^3
(d) 310,464 m^3 **[d]**

व्याख्या:-

Diameter of the sphere (d) = 84m

Radius of sphere (r) = $\frac{\text{Diameter}}{2} = \frac{84}{2} = 42m$

The formula for the volume (v) of a sphere is:

$V = \frac{3}{4}\pi r^3$

Putting the given values in the formula:

$V = \frac{4}{3} \times \frac{22}{7} \times (42)^3$

$V = \frac{4}{3} \times \frac{22}{7} \times 42 \times 42 \times 42$

Now, let's do the calculation:

$V = \frac{4}{3} \times 22 \times 6 \times 42 \times 42$ (Because $\frac{42}{7} = 6$)

$V = 4 \times 22 \times 2 \times 42 \times 42$ ($\frac{6}{3} = 2$ Because)

$V = 176 \times 1764$

$V = 310464$

10. Two successive discounts of 10% and 5% are equal to a single discount of _____.

(a) 15%
(b) 14.5%
(c) 15.5%
(d) 14% **[b]**

व्याख्या:-

has given

Two successive discounts are 10%, 5% respectively

Single Discount = $x + y - \frac{xy}{100}$

Single Discount = $10 + 5 - \frac{10 \times 5}{100} = 14.5\%$

11. In a certain code language, 'HAIR' is written as '9715' and 'AGED' is written as '8612'. How is 'A' written in that code language?

(a) 7
(b) 2
(c) 8
(d) 1 **[d]**

व्याख्या:-

Just as

H [A] I R - 9 7 [1] 5

[A] G E D - 8 6 [1] 2

similarly

A = 1

12. In the following number-pairs, the second number is obtained by performing some mathematical operations on the first number. What numbers should come in place of X and Y so that the pattern followed by the two numbers on the left of :: is followed by the same pattern on the right of ::?

(Note: Operations must be performed on whole numbers without breaking the numbers into their constituent digits. Ex. 13 - Operations on number 13 such as addition/subtraction/multiplying 13 etc. can be performed. Breaking 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

X : 1988 :: Y

(a) x = 6, Y = 488
(b) x = 4, Y = 512
(c) X = 7, Y = 538
(d) X = 5, Y = 546 **[a]**

व्याख्या:-

X : 198 :: 8 : y

$(6)^3 - 6 \times 3 = 198$

$(8)^3 - 8 \times 3 = 488$

Hence x = 6 and Y = 488.

13. Which of the following statements is incorrect?

(a) When the pH of rainwater is more than 5.6, it is called acid rain.
(b) Living organisms can survive only within a narrow range of pH changes.
(c) When the pH of rainwater is less than 5.6, it is called acid rain.
(d) When the pH of the mouth falls below 5.5, tooth decay begins. **[a]**

Explanation -

Acid rain occurs when the pH of rainwater falls below 5.6. Normal rainwater has a pH of about 5.6 (due to the dissolution of carbon dioxide in the atmosphere), which is slightly acidic.

Most living organisms and their biological processes (such as enzyme activities) function best within a specific and narrow pH range. Large changes in pH can denature enzymes and disrupt life processes, making it difficult for organisms to survive. Bacteria present in our mouths break down food particles (especially sugars) to produce acids. If the pH of the mouth falls below 5.5, demineralization of tooth enamel (which is made up of calcium phosphate) starts, leading to tooth decay.

14. If a regular polygon has 65 diagonals, then what will be the number of sides of this polygon?

(a) 14
(b) 12

(c) 10
(d) 13 **[d]**

व्याख्या:-

Formula for the number of diagonals D = $\frac{n(n-3)}{2}$

has given D = 65:

$65 = \frac{n(n-3)}{2}$

$130 = n^2 - 3n$

$n^2 - 3n - 130 = 0$

$(n-13)(n+10) = 0$

Since the number of sides cannot be negative n = 13

15. If we add 1 to the numerator of a given fraction and subtract 1 from the denominator, it becomes 1. If 1 is added to the denominator of the given fraction, and the numerator is left unchanged, it becomes $\frac{2}{3}$. Find the positive difference of the numerator and denominator of the fraction.

(a) 7
(b) 5
(c) 3
(d) 2 **[d]**

व्याख्या:-

From the first condition:

$(x+1)/(y-1) = 1$

$x+1 = y-1 \Rightarrow x - y = -2 (Eq.1)$

From the second condition:

$x/(y+1) = 2/3$

$3x = 2y + 2 \Rightarrow 3x - 2y = 2 (Eq.2)$

Solve:

Substitute x = y − 2 from Eq.1 into Eq.2:

$3(y-2) - 2y = 2$

$3y - 6 - 2y = 2$

$y = 8$

Putting y = 8 in Eq.1:

$x - 8 = -2$

$x = 6$

The original fraction is 6/8.

Positive difference of numerator and denominator:

|8 − 6 | = 2

16. A gardener increases the area of his rectangular garden by increasing its length by 40% and decreasing its width by 20%. What percent is the area of the new garden more than the area of the old garden?

(a) 20%
(b) 12%
(c) 8%
(d) 0% **[b]**

व्याख्या:-

Let's say initial length = 100, initial width = 100

Initial area = 100×100=10000

New length = 100+40%=140

New width = 100−20%=80

New area = 140×80=11200

Increase in area = New area − Initial area

=11200−10000=1200

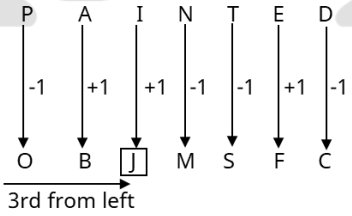
Percentage increase = (Increase in area / Initial area) ×100

=(1200/10000)×100 = 12 %

17. If each vowel of the word PAINTED is replaced by the letter following it in the English alphabetical order and each consonant is replaced by the letter preceding it in the English alphabetical order, then in the new group of letters thus formed, which letter will be at the third position from the left?

(a) M
(b) B
(c) J
(d) F **[c]**

व्याख्या:-



Therefore, in the new letter group, the third letter from the left will be J.

18. Which of the following statements is true about carbon?

(a) Carbon is tetravalent.
(b) Carbon is trivalent.
(c) Carbon is bivalent.
(d) Carbon is monovalent. **[a]**

Explanation -

Carbon is tetravalent. The atomic number of carbon is 6. Its electronic configuration is 2, 4. This means that it has 4 electrons in its outermost orbit (valence shell).

To attain stability (to have complete 8 electrons as per octet rule), carbon can neither lose 4 electrons (this will require a lot of energy) nor gain 4 electrons (it will be difficult for the nucleus to hold them as it has more electrons than protons).

So, carbon shares its valence electrons with other atoms (carbon or other elements like hydrogen, oxygen, nitrogen etc.) to form covalent bonds. It can form four covalent bonds simultaneously. This property is called tetravalency.

This tetravalency is the main reason for the vast variety of organic chemistry and the formation of complex structures of organic compounds.

19. The concept of 'Technology' in Yuva Sangam Programme (2023) mainly focuses on which of the following?

(a) Political awareness
(b) Economic development
(c) Technology
(d) Cultural preservation **[c]**

व्याख्या –

The concept of 'technology' in the Yuva Sangam Program (2023) focuses mainly on 'technology'. The program aims to empower youth through modern technical skills, digital literacy, and innovation. It organizes workshops and sessions on topics such as Artificial Intelligence (AI), Robotics, Blockchain, Data Science, Cloud Computing, and Cyber Security. By providing training to the youth in these areas, they are prepared for entrepreneurship, job opportunities, and global competition.

20. Who is the author of the book 'Neeraj Chopra: The Man Who Made History'?

(a) Shamya Dasgupta
(b) Sameer Chopra
(c) Norris Pritam
(d) Navdeep Singh Gill **[c]**

व्याख्या –

The book 'Neeraj Chopra: The Man Who Made History' is authored by Norris Pritam. This biography depicts the inspirational journey of Indian javelin throw champion Neeraj Chopra, who rose from a small Haryana village Khandra to become an Olympic gold medalist. The author has written this book by taking detailed interviews from Chopra's family, coaches, rivals and other related persons. The book presents the story of Chopra's struggle, dedication and success in a simple and effective manner.

21. When force and displacement are in the same direction, the work done is _____?

(a) Negative
(b) Zero
(c) Positive
(d) Either positive or negative **[c]**

Explanation -

When force and displacement are in the same direction, the work done will be positive.

Work is defined in physics as the dot product of force and displacement. Its formula is:

$W = F \cdot d = Fd\cos\theta$

Where:

W = Work done

F = Force applied

d = Displacement

θ = Angle between force (F) and displacement (d)

When force and displacement are in the same direction, the angle between them θ is 0 degrees.

We know that $\cos(0^\circ) = 1$

So,

$W = Fd \times 1$

$W = Fd$

Since the values of both force (F) and displacement (d) are positive, their product (Fd) will also always be positive.

Example -When you push a box and it moves in the same direction in which you are pushing.

When an object falls down due to gravity, both the gravitational force and displacement are downward.

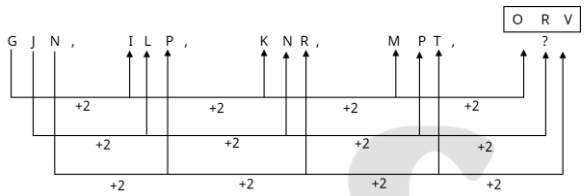
So, the work done will be positive.

22. Which of the following options should come in place of the question mark (?) in the given series based on the English alphabetical order?

GJN, ILP, KNR, MPT, ?

(a) ROV
(b) OVR
(c) RVO
(d) ORV **[d]**

व्याख्या:-



? = ORV

23. Study the following table and answer the question.

The table shows the expenditure of a family in the given years.

Year	Expenses (in ₹)				
	Food	Clothing	Education	Rent	Other
2011	2000	1200	3300	2000	4000
2012	2500	1100	3200	2300	4100

What is the total expenditure (in ₹) on food by the family for the years 2011 and 2012?

(a) 5500
(b) 5000
(c) 4500
(d) 6000 **[c]**

व्याख्या:-

Expenditure on food in the year 2011 = ₹ 2000
Expenditure on food in the year 2012 = ₹ 2500
Total Expenditure = (Expenditure on Food in the year 2011) + (Expenditure on Food in the year 2012)
Total Expenses = ₹2000 + ₹2500
Total Expenses = ₹4500
Therefore, the total expenditure on food by the family for the years 2011 and 2012 is ₹4500.

24. What determines the chemical properties of a carbon compound?

(a) Length of the carbon chain
(b) Functional group
(c) Molecular mass
(d) Number of Hydrogen atoms **[b]**

Explanation -

The chemical properties of a carbon compound are mainly determined by (b) functional group.
Functional Group: It is a specific group of atoms within an organic molecule that is responsible for specific chemical reactions of that molecule. It determines how the molecule will react with other substances. For example:
-OH (hydroxyl group) makes a compound an alcohol, giving it properties such as solubility in water (for small alcohols) and reactivity with sodium.
-COOH (carboxyl group) makes a compound a carboxylic acid, giving it acidic properties and the ability to react with bases.
-CHO (aldehyde group) makes a compound an aldehyde, giving it specific oxidation and reduction reactions.

25. What is the use of high performance computing systems 'Arka' and 'Arunika'?

(a) Monitoring unwanted content on social media
(b) Tracking location of medicines
(c) Detecting cyber crime
(d) Weather forecasting **[d]**

व्याख्या –

Arka and Arunika are India's high performance computing (HPC) systems developed for weather and climate research. They are intended to improve the accuracy and lead time of forecasting of tropical cyclones, heavy rainfall, heat waves, drought, hailstorms, and other extreme weather events.
Key facts:
Location: Arka is located at the Indian Institute of Tropical Meteorology (IITM) in Pune and Arunika is located at the National Centre for Medium Range Weather Forecasting (NCMRWF) in Noida.
Computing Capacity: Arka has a capacity of 11.77 petaflops, while Arunika has a capacity of 8.24 petaflops.
Investment: Around ₹850 crore has been invested in this project.
Use: These HPC systems will be used to improve the horizontal resolution of weather forecast models up to 6 km and regional models to 1 km or less.

26. In 2024, Air Marshal Tejinder Singh took over as _____ at Air Headquarters (Vayu Bhawan).

(a) Deputy Chief of the Air Staff
(b) Chief of the Air Staff
(c) Chief of Defence Staff
(d) Air Officer Commanding-in-Chief **[a]**

व्याख्या –

Air Marshal Tejinder Singh assumed charge as Deputy Chief of the Air Staff at Air Headquarters (Vayu Bhawan) on 1 September 2024. On the occasion, he paid tribute to the martyrs at the National War Memorial. He is a veteran officer of the IAF, having been commissioned in the fighter stream on 13 June 1987. He has over 4,500 hours of flying experience and has held various important positions at Air Headquarters. He has been awarded the Vayu Sena Medal and the Ati Vishisht Seva Medal for his services.

27. Seven boxes, P, Q, R, S, X, Y and Z, are placed one above the other but not necessarily in the same order. Only P is placed above X. Only two boxes are placed between X and S. Only R is placed below Z. Y is not placed immediately above S. Which box is placed fourth from the top?

(a) Z
(b) R
(c) Q
(d) X **[c]**

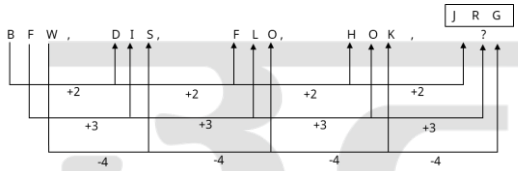
व्याख्या:-

P
X
Y
Q
S
Z
R

It is clear from the above that box Q is placed at the 4th position from the top.

28. Which of the following options should come in place of the question mark (?) in the given series based on the English alphabetical order?
BFW, DIS, FLO, HOK,?
(a) JRG
(b) KRF
(c) JSG
(d) KQE **[a]**

व्याख्या:-



? = JRG

29. As of October 2024, what is the rank of India in the Corruption Perceptions Index?
(a) 89
(b) 93
(c) 96
(d) 86 **[b]**

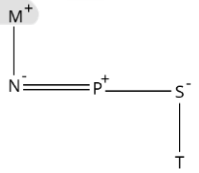
व्याख्या –
In 2023, India was ranked 93rd in the Corruption Perceptions Index (CPI). India's overall score this year was 39, slightly lower than 40 in 2022. The index ranks 180 countries based on the perception of corruption in the public sector, with 0 indicating highly corrupt and 100 extremely clean. India's rank has declined from 2022 to 2023, indicating that there has been no significant improvement in corruption perceptions.

30. Milk is a mixture of?
(a) only fat
(b) only water
(c) water, fat, protein etc.
(d) Proteins only **[c]**

Explanation -
Milk is a complex mixture containing many components. It is a colloidal dispersion, not a pure substance or made up of only one component.
Its main components include:
Water: The largest component of milk, about 87%.
Fats: Suspended in the form of tiny droplets that give milk its creamy texture.
Proteins: Mainly casein (which gives milk its white colour) and whey protein. These are also present in colloidal form.
Carbohydrates: Mainly lactose (milk sugar).
Vitamins: Vitamin A, D, B12, riboflavin etc.
Minerals: Calcium, phosphorus, potassium etc.
Therefore, it would be wrong to say that milk is only fat, only water, or only protein. It is a complex mixture of all these components.

31. In a certain code language,
'A + B' means 'A is the mother of B',
'A - B' means 'A is the brother of B',
'A × B' means 'A is the wife of B' and
'A ÷ B' means 'A is the father of B'.
If 'M ÷ N × P – S + T', then how is M related to T?
(a) Mother's father
(b) Mother's brother's wife's father
(c) Mother's brother
(d) Mother's brother's wife's brother **[b]**

व्याख्या:-



It is clear from the above diagram that M is the father of the wife of the brother of T's mother.

32. In the following number-pairs, the second number is obtained by performing some mathematical operations on the first number. What numbers should come in place of X and Y so that the pattern followed by the two numbers on the left of :: is followed by the same pattern on the right of ::?
(Note: Operations must be performed on whole numbers without breaking the numbers into their constituent digits. Ex. 13 - Operations on number 13 such as addition/subtraction/multiplying 13 etc. can be performed. Breaking 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)
X : 140.4 :: 38 : Y
(a) X = 34, Y = 225.8
(b) X = 23, Y = 240.6

(c) X = 26, Y = 205.2
(d) X = 21, Y = 218.4 **[c]**

व्याख्या:-

X : 140.4 : : 38 : y

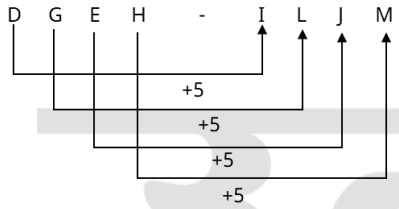
$26 \times \frac{54}{10} = 140.4$ $38 \times \frac{54}{10} = 205.2$

Hence, X = 26 and y = 205.2.

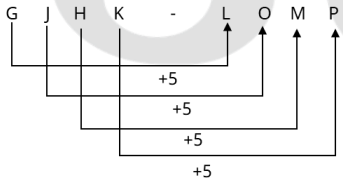
33. DGEH is related to ILJM in a certain way based on the English alphabetical order. In the same way GJHK is related to LOMP. Following the same logic, PSQT is related to which of the following options?

(a) VUWY
(b) UXVY
(c) UVXZ
(d) UXWY **[b]**

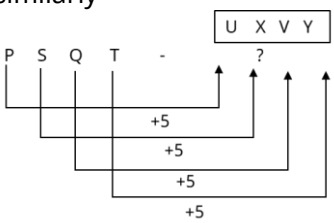
Just as



and



similarly



34. If ₹2,400 is distributed between A and B in the ratio of 7 : 5 then find the share of B.

(a) ₹1,300
(b) ₹1,900
(c) ₹1,000
(d) ₹1,600 **[c]**

व्याख्या:-

Total amount = ₹2,400
Ratio = A : B = 7 : 5
Sum of the Parts of a Ratio = 7+5=12
To find B's share:
B's share = (B's share / sum of the parts of the share) × total amount
Part of B = (5/12)×2400
2400/12=200
Part of B = 5×200
Part of B = ₹1000
Therefore, B's share is ₹1000.

35. In which Indian state, a 1,300-year-old stupa was discovered by the Archaeological Survey of India (ASI) in February 2023?

(a) Madhya Pradesh
(b) Odisha
(c) Bihar
(d) West Bengal **[b]**

व्याख्या –

In February 2023, the Archaeological Survey of India (ASI) discovered a nearly 1,300-year-old Buddhist stupa in a Khondalite stone quarry located in Sukhuapada village in Jajpur district of the state of Odisha. The stupa is believed to date back to the 7th or 8th century and dates back to the Bhaumakara dynasty. The site is located near the famous Buddhist complex of Lalitgiri, which is already of archaeological importance. Locals and Buddhist scholars had already warned against mining operations in the area, as the area is of historical importance.

36. Which of the following is not a property of particles of matter?

(a) Particles of matter are stable.
(b) There is space between particles of matter.
(c) Particles of matter attract each other.
(d) Particles of matter are in constant motion. **[a]**

Explanation -

Particles of matter are not stable, they are in constant motion. For example, in gases particles move very fast, in liquids they slide over each other, and even in solids they vibrate about their mean position. Being stable would mean that they do not move at all, which is false (except at absolute zero temperature, which cannot be achieved in practice).

In all three states, solid, liquid and gas, there is some space (inter-particle space) between the particles. This space is maximum in gases, moderate in liquids and least in solids.

There are forces of attraction (inter-particle forces) between the particles of matter. These forces hold the particles together and are responsible for the different states of matter (solid, liquid, gas). These forces are very strong in solids, weak in liquids and negligible in gases. Particles of matter have kinetic energy and are constantly in motion. This motion depends on temperature;

kinetic energy and speed increase as temperature increases.

37. Magnetic field lines around a straight current carrying conductor look like:

(a) ellipses
(b) hyperbolas
(c) straight lines
(d) concentric circles **[d]**

Explanation -

When electric current flows through a straight current-carrying conductor, a magnetic field is produced around it. The direction and pattern of this magnetic field are shown by magnetic field lines.

Around a straight current-carrying conductor, the magnetic field lines are at the centre of the conductor and appear as concentric circles around it. The centres of these circles are on the conductor itself. The direction of these concentric circles can be found by the right-hand thumb rule: if you place your right-hand thumb in the direction of current, your bent fingers will indicate the direction of the magnetic field lines.

38. Under the Prime Minister's Internship Scheme launched in October 2024, candidates will receive a monthly stipend of how much amount for the entire 12-month internship period?

(a) ₹2,000
(b) ₹1,500
(c) ₹5,000
(d) ₹6,500 **[c]**

व्याख्या –

Under the Pradhan Mantri Internship Scheme (PMIS), selected interns will receive a monthly stipend of ₹60,000 for a period of 12 months, which will be distributed as follows:

From the Government: ₹4,500 per month, which will be sent directly to the intern's Aadhaar-linked bank account through Direct Benefit Transfer (DBT).

From the Company: ₹500 per month, which will be provided to the intern from the Company's Corporate Social Responsibility (CSR) fund based on their performance, attendance and conduct.

Additionally, interns will also be provided with a one-time initial grant of ₹6,000, which will be given upon their joining.

39. A dishonest seller professes to sell his goods at cost price, but uses wrong weights and thus makes a profit of 25%. How many gram weights does he use for 100 grams?

(a) 75 gm
(b) 80 gm
(c) 85 gm
(d) 70 gm **[b]**

व्याख्या:-

Mileage=(Claimed weight-Actual weight)/Actual weight ×100
25=(100−W)/W×100
25W=10000−100W
125W=10000
W=10000/125
W=80 grams
So, he uses 80 gram weight for 100 gram.

40. The 90th edition of the Ranji Trophy begins in October 2024. Ranji Trophy is related to which of the following sports?

(a) Basketball
(b) Cricket
(c) Badminton
(d) Hockey **[b]**

व्याख्या –

Ranji Trophy is the most prestigious domestic cricket tournament played in India. This tournament comes under First-Class cricket, in which various states and regional teams of India compete.

Inception: Ranji Trophy was started in 1934.

Naming: It was named after Raja Ranjitsinhji (Ranji), the first Indian-born player to play international cricket for England.

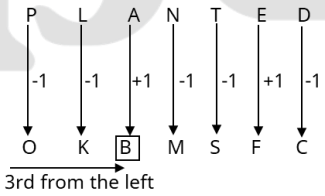
Operations: The tournament is organized by the Board of Control for Cricket in India (BCCI).

2024: Its 90th edition begins in October.

41. If each vowel of the word PLANTED is replaced by the letter following it in the English alphabetical order and each consonant is replaced by the letter preceding it in the English alphabetical order, then in the new group of letters thus formed, which letter will be at the third position from the left?

(a) F
(b) B
(c) K
(d) C **[b]**

व्याख्या:-



In the new group the letter B will come at the third position from the left.

42. What will be the equivalent resistance of a circuit having parallel combination of 2 resistors having resistances 4Ω and 6Ω?

(a) 10 Ω
(b) 2.4 Ω
(c) 12 Ω
(d) 4.2 Ω **[b]**

Explanation –

When two resistors are connected in parallel combination, the formula for their equivalent resistance (Req) is as follows:

$$\frac{1}{R_{eq}}=\frac{1}{R_1}+\frac{1}{R_2}$$

Where,

$R_1 = 4\Omega$

$R_2 = 6\Omega$

Putting the values into the formula:

$$\frac{1}{R_{eq}}=\frac{1}{4}+\frac{1}{6}$$

$$=\frac{3}{12}+\frac{2}{12}$$

$$=\frac{3+2}{12}$$

$$\frac{1}{R_{eq}}=\frac{5}{12}$$

$$R_{eq}=\frac{12}{5}$$

$R_{eq} = 2.4\Omega$

43. Select the pair that follows the same pattern as followed by the two sets of pairs given below. Both the pairs follow the same pattern.

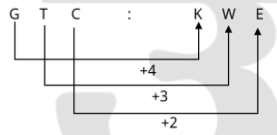
GTC : KWE

WFK : AIM

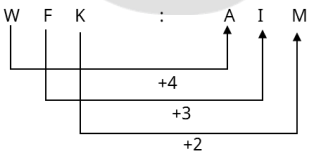
(a) LPA : KMV
(b) DGB : GLI
(c) OZG : SCI
(d) JQP : MVW **[c]**

व्याख्या:-

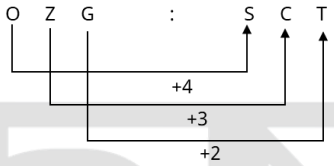
Just as



and



similarly



44. When white light falls on a glass prism it gets split into seven colours. This phenomenon is known as:

(a) Dispersion
(b) Diffraction
(c) Refraction
(d) Deviation **[a]**

Explanation -

When white light falls on a glass prism and gets split into seven colours, this phenomenon is known as (a) Dispersion.

Dispersion: It is the phenomenon in which white light gets split into its component colours (violet, violet, blue, green, yellow, orange, red - VIBGYOR) when it passes through a medium (such as a prism) which has different refractive index for different colours. Since each color has a different wavelength, they travel at different speeds inside the prism and bend (refracte) at different angles, causing them to separate.

45. Reena runs at a speed of 8 km/h. How much time will she take to cover a distance of 200 m?

(a) 120 seconds
(b) 90 seconds
(c) 54 seconds
(d) 175 seconds **[b]**

व्याख्या:-

Convert speed to m/s =
8 km/h=8×(5/18) m/s=40/18 m/s=20/9 m/s
Time = Distance / Speed
Time = 200 m/(20/9) m/s
Time = 200×(9/20) s
Time = 10×9 s
Time = 90 seconds

46. In this question, a statement is given followed by two courses of action numbered I and II. You have to assume all the information given in the statement to be true, and decide which action(s) should logically be followed based on the information given in the statement.

Statement:

Mr. X, a teacher in a high school often beats his students.

Actions:

I. The students should complain about this matter to the principal of the school.

II. The students should leave the school and take admission in some other school.

(a) Both I and II follow.
(b) Only II follows.
(c) Neither I nor II follows.
(d) Only I follows. **[d]**

व्याख्या:-

Action I: Complaining is a reasonable and logical first step. It is necessary to inform the school administration about such indiscipline so that appropriate action can be taken. This is in line with the Right to Education Act (RTE) and protection of child rights.

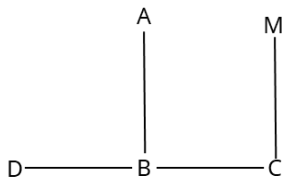
Action II: Leaving the school is an extreme and last option, which will be appropriate only if there is no improvement even after complaining. But there is no indication in the statement that a complaint has been made or any action has been taken on it. So this action does not logically follow immediately.

Conclusion: Only action I logically follows from the statement.

47. Town A is to the north of Town B. Town C is to the east of Town B. Town D is to the west of Town C. Town A is to the north-east of Town D. Town M is to the north of Town 8. What is the position of Town D with respect to Town M?

(a) West
(b) East
(c) North-east
(d) South-west **[d]**

व्याख्या:-



It is clear from the above diagram that Town D is in the South – West with respect to Town M.

48. Aarav alone can complete a work in 6 days and Babita alone can complete the same work in 8 days. Aarav and Babita agreed to complete it for ₹2,400. With the help of Chaitanya they completed the work in 3 days. How much is Babita to be paid?

(a) ₹1,400
(b) ₹900
(c) ₹800
(d) ₹1,200 **[b]**

व्याख्या:-

Work done per day = Aarav = 1/6, Babita = 1/8, All three (Aarav + Babita + Chaitanya) = 1/3

Chaitanya's daily routine =
1/3−(1/6+1/8)
1/3−(4/24+3/24)
1/3−7/24
8/24−7/24=1/24

Work Efficiency Ratio (Wage Ratio):
Aarav : Babita : Chaitanya = 1/6:1/8:1/24
LCM (6, 8, 24) = multiplying by 24 =4 : 3 : 1
total ratio part = 4+3+1=8
Babita's payment =Babita's payment = (Babita's ratio / total ratio) × total amount =(3/8)×₹2400 =₹900

49. Which tissue is responsible for movement in our body?

(a) Connective tissue
(b) Nervous tissue
(c) Epithelial tissue
(d) Muscular tissue **[d]**

Explanation -

Muscle tissue is made up of specialized cells called muscle fibers. These fibers contain contractile proteins (actin and myosin) that can slide over one another, causing the muscle cells to shorten (contract). This contraction produces the force that moves bones, pumps blood, digests food, and controls the movement of internal organs of the body.

There are three types of muscle tissue:

Skeletal muscle: These are attached to bones and are responsible for voluntary movement, such as walking, running, raising an arm.

Smooth muscle: These are found in the walls of internal organs (such as intestines, blood vessels, bladder) and are responsible for involuntary movement, such as digestion, regulation of blood pressure.

Cardiac muscle: These are found only in the heart and are responsible for the involuntary pumping of the heart.

50. All liquids and gases are _____.

(a) Solid
(b) Semiconductor
(c) Liquid
(d) Insulator **[c]**

Explanation -

Fluid: In physics, a fluid is a substance that continues to deform when subjected to shear stress, or in more general terms, that has the ability to flow. Both liquids and gases can flow

and take the shape of their container, so they are classified as fluids.

Solid:- Solids have a definite shape and volume, and they do not flow.

Semiconductor:- Semiconductors are substances whose electrical conductivity lies between conductors and insulators. It is related to the electrical properties of the substance rather than its physical state.

Insulator:- Insulators are substances that do not allow electric current to flow through them easily. This is also a property related to the electrical conductivity of the material, not to its physical state.

51. The Union Cabinet approved the establishment of International Big Cat Alliance (IBCA) with headquarters in India with one-time budgetary support of ₹150 crore for a period of _____.

(a) 3 years
(b) 7 years
(c) 10 years
(d) 5 years **[d]**

व्याख्या –

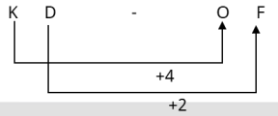
The Union Cabinet approved the establishment of the International Big Cat Alliance (IBCA) with its headquarters in India in 2024. Under this, a one-time budgetary support of ₹150 crore has been provided for a period of five years from 2023-24 to 2027-28.

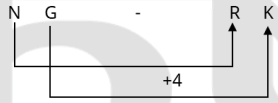
The IBCA aims to promote cooperation among countries for the conservation of the seven big cat species namely tiger, lion, leopard, snow leopard, leopard, jaguar and puma. Five big cats are found in India namely tiger, lion, leopard, snow leopard and leopard.

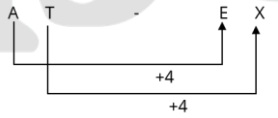
52. Three of the following four letter-cluster pairs are alike in a certain way based on the English alphabetical order and thus form a group. Which pair does not belong to that group?
(Note: Anomalous letter clusters are not based on the number of consonants/vowels or their position in the letter cluster.)

(a) SL-WP
(b) KD-OF
(c) NG-RK
(d) AT - EX **[b]**

व्याख्या:-







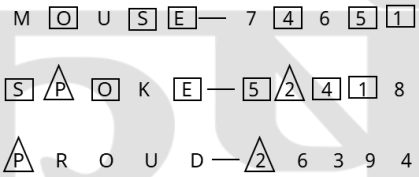
Hence, "KD – OF" is different from the rest.

53. In a certain code language, 'MOUSE' is written as '74651', 'SPOKE' is written as '52418', and 'PROUD' is written as '26394'. How will 'K' be written in the same code language?

(a) 2
(b) 1
(c) 5
(d) 8 **[d]**

व्याख्या:-

Just as



similarly

K = 8

54. What type of reaction takes place when a single reactant breaks down into simpler products?

(a) Decomposition
(b) Displacement
(c) Double displacement
(d) Combination **[a]**

Explanation -

When a single reactant breaks down into simpler products, this type of reaction is called a decomposition reaction. It is the reaction in which a single compound or reactant breaks down into two or more simpler products.

Example:

When $CaCO_3$ (calcium carbonate) is heated, it breaks down into CaO (calcium oxide) and CO_2 (carbon dioxide).

$$CaCO_3 \xrightarrow{\text{on heating}} CaO + CO_2$$

Displacement: In this reaction a more reactive element displaces a less reactive element from a compound.

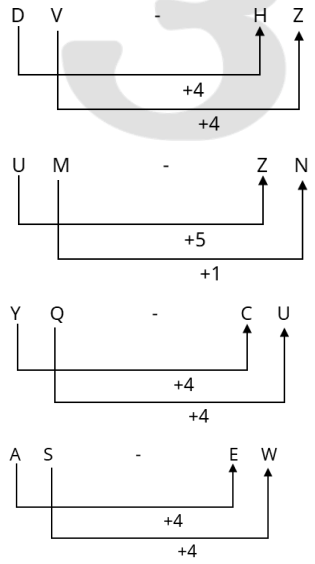
- Example: $Fe + CuSO_4 \rightarrow FeSO_4 + Cu$
- (iron displaces copper from copper sulphate).

Double Displacement: In this reaction ions of two compounds are exchanged, forming two new compounds.

- Example:
  $AgNO_3 + NaCl \rightarrow AgCl + NaNO_3$
  (exchange of ions between silver nitrate and sodium chloride).
  Combination: This is the reaction in which two or more reactants combine to form a single product.
  Example: $C + O_2 \rightarrow CO_2$
  (carbon and oxygen combine to form carbon dioxide).

55. Three of the following four letter-cluster pairs are alike in a certain way based on the English alphabetical order and thus form a group. Which pair does not belong to that group?
(Note: Anomalous letter clusters are not based on the number of consonants/vowels or their position in the letter cluster.)
(a) DV-HZ
(b) UMZN
(c) YQ-CU
(d) AS-EW **[b]**

व्याख्या:-



Hence, 'UM – ZN' is different from the rest.

56. Name the scientist who first discovered the cell in 1665.
(a) Matthias Jakob Schleiden
(b) Antonie van Leeuwenhoek
(c) Theodor Schwann
(d) Robert Hooke **[d]**

Explanation –
The scientist who first discovered the cell in 1665 is Robert Hooke. Robert Hooke saw the cell with the help of a microscope (self-made microscope) made of cork (unfinished in thin section) and described it as a cell like a honeycomb. He named these cells as cell. Which means "small room" in Latin. This is where the word 'cell' originated. - The box-like (small chamber) structures seen by Hooke were actually dead. Matthias Jakob Schleiden: A German botanist who proposed in 1838 that all plants are composed of cells.
Antonie van Leeuwenhoek: A Dutch scientist who first observed living cells (such as bacteria and protozoa)
Theodor Schwann: A German zoologist who proposed in 1839 that all animals are composed of cells, and together with Schleiden formulated the cell theory.

57. Which of the following actions is responsible for the survival of species over time?
(a) Conservation
(b) Variation
(c) Reproduction
(d) Struggle **[b]**

Explanation –
The mechanism responsible for the survival of species over time is variation.
Variation within a population causes some individuals to develop traits that are better suited to changing environmental conditions, giving them a better chance of surviving and reproducing. This diversity is important for the long-term survival of the species.
Conservation - Conservation efforts help save endangered species from extinction, but they do not directly cause the evolution of new traits or the longevity of a species.

Reproduction - Reproduction is essential for the continuation of a species, but it does not guarantee the survival of a species in the face of changing environmental challenges.
Struggle - Although the term "struggle for existence" is used in evolutionary theory, it is not the primary cause of survival.

58. When a car turns a sharp turn at high speed, we tend to lean to one side. This example is based on which law of motion?
(a) Conservation of momentum
(b) Second law of motion
(c) Third law of motion
(d) First law of motion **[d]**

Explanation -
When a car moving at high speed takes a sharp turn and we start leaning to one side, then this example is based on (d) First law of motion.

Newton's First Law of Motion (Law of Inertia): This law states that "Every body continues to be in its state of rest or of uniform motion in a straight line unless acted upon by an external unbalanced force."

When the car is moving in a straight line, the passengers sitting in it also move in the same straight line. When the car takes a sudden turn (i.e. changes its direction of motion), the body of the passengers tries to maintain its state of motion in a straight line due to its inertia. Since the car turns but the passengers want to continue moving straight, they lean towards the outside of the turn. This is actually the effect of inertia.

59. In September 2024, which High Court of India struck down the amended Information Technology Rules 2023, which empowered the Centre to set up a fact check unit (FCU) to identify fake, false and misleading information about the government and its establishments on social media?

(a) Delhi High Court
(b) Patna High Court
(c) Bombay High Court
(d) Madras High Court **[c]**

व्याख्या –

In September 2024, the Bombay High Court struck down the Information Technology Rules 2023, declaring the Fact Check Unit (FCU) set up by the Central Government as unconstitutional. In this judgment, Justice Atul Sharanchandra Chandurkar held that these amended rules violate Article 14 (right to equality), Article 19 (freedom of speech and expression) and Article 19(1)(c) (right to carry on business) of the Constitution. Justice Chandurkar also held that the use of words like "false, false and misleading" is vague and broad, which can lead to misuse of these rules.

60. A class of 30 students took an exam. The average score of 12 students is 80, and the average score of the remaining students is 75. What is the average score of the class?

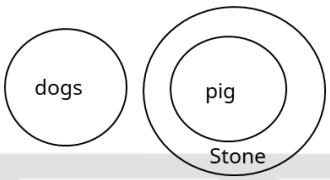
(a) 56
(b) 67
(c) 87
(d) 77 **[d]**

व्याख्या:-

Total marks of first 12 students =12×80=960
Total marks of remaining (30 - 12 = 18) students = 18×75=1350
total marks of the class = 960+1350=2310
average marks in class = 2310/30=77

61. Read the statements and conclusions given below carefully. You have to assume that the given statements are true even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follows from the given statement/statements.
Statements:
No dogs are pigs.
All pigs are stones.
Conclusions:
(I) Some stones are pigs.
(II) No stones are dogs.
(a) Neither conclusion (I) nor (II) follows
(b) Only conclusion (I) follows
(c) Only conclusion (II) follows
(d) Both conclusions (I) and (II) follow **[b]**

व्याख्या:-



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

62. What is the sum of all prime numbers between 60 and 90?

(a) 460
(b) 523
(c) 610
(d) 373 **[b]**

व्याख्या:-

The following are all the prime numbers between 60 and 90 = 61,67,71,73,79,83,89
The sum of all these prime numbers = 61+67+71+73+79+83+89=491
Therefore, the sum of all prime numbers between 60 and 90 is 491.

63. A flag is mounted on a pole 18 m high. The angles of elevation of the top and bottom of the flag from a point on the earth are 60° and 30° respectively. What will be the height of the flag?

(a) 48 m
(b) 36 m
(c) 52 m
(d) 60 m **[b]**

व्याख्या:-

Height of pole (bottom part of flag) = 18 m.
distance of pole from observer = x
height of the flag = h
Step 1 : Find x (from the top of the pole)

Tan(30°) = pole height/x

$1/\sqrt{3} = 18/x$

$x = 18\sqrt{3}$ m

Step: Find 2h (from the top of the flag)

Tan (60°) = (height of pole + height of flag)/x

H = 36m

$18\sqrt{3} \times \sqrt{3} = 18 + h$

$18 \times 3 = 18 + h$

$54 = 18 + h$

$h = 54 - 18$

The height of the flag will be 36 meters.

64. Which of the following is the ratio of the masses of hydrogen and oxygen atoms in a molecule of water (H : O)?

(a) 3 : 8

(b) 1 : 2

(c) 1 : 8

(d) 1 : 4 **[c]**

Explanation -

To calculate, we need to know the atomic masses of hydrogen and oxygen.

• The atomic mass of hydrogen (H) is about 1 u (atomic mass unit).

• The atomic mass of oxygen (O) is about 16 u.

The chemical formula of water is H_2O, which means that one molecule of water contains 2 hydrogen atoms and 1 oxygen atom.

Now, we will find the ratio of masses of hydrogen and oxygen atoms in a water molecule:

Total mass of hydrogen: 2 atoms × 1 u/atom = 2 u

Total mass of oxygen: 1 atom × 16 u/atom = 16 u

Ratio (H : O):

Ratio of masses = (Total mass of hydrogen) : (Total mass of oxygen)

Ratio = 2 : 16

Simplifying this ratio (dividing both the numbers by 2):

Ratio = 22 : 216

Ratio = 1 : 8

So, the ratio of masses of hydrogen and oxygen atoms in a water molecule is 1 : 8.

65. A group of people consists of men, women and children. 40% of them are men, 35% are women and the rest are children, and their average weights are 70 kg, 60 kg and 30 kg respectively. What is the average weight of the group?

(a) 46.5 kg

(b) 45.5 kg

(c) 55.5 kg

(d) 56.5 kg **[d]**

व्याख्या:-

Average weight = (% of men × average weight) + (% of women × average weight) + (% of children × average weight)

% of children= 100%−40%−35%=25%

load average = (0.40×70)+(0.35×60)+(0.25×30)

load average = 28+21+7.5

load average = 56.5 kg

66. Which of the following options should come in place of the question mark (?) in the given series?

4 5 9 18 34?

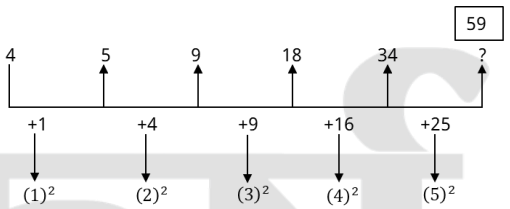
(a) 54

(b) 59

(c) 60

(d) 52 **[b]**

व्याख्या:-



? = 59

67. What happens when hybridisation is done to study two allele pairs (tall/dwarf trait and round/wrinkled trait) instead of one allele pair in pea plants?

(a) Some F1 (first progeny) are tall plants with round seeds and some are short plants with wrinkled seeds.

(b) In the F2 (second progeny) generation all of them are tall and all have round seeds.

(c) Tall/dwarf traits and round/wrinkled traits are inherited independently.

(d) Tall/dwarf traits and round/wrinkled traits are inherited dependently. **[c]**

Explanation -

Mendel derived the Law of Independent Assortment from his dihybrid cross experiments. According to this law:

When cross takes place between heterozygous parents for two or more different traits, the alleles of each trait segregate independently from each other during gamete formation.

This means that the inheritance of one trait (such as plant height) does not affect the inheritance of another trait (such as seed size). These traits are passed on to the next generation independently of each other.

68. The population of a city was 50,000 in 1988. In one year, till 1989, it increased by 25%. The next year, in 1990, it decreased by 30%. The next year, in 1991, it increased by 40%. What was the population at the end of 1991?

(a) 62,250
(b) 61,250
(c) 66,550
(d) 60,250 **[b]**

व्याख्या:-

Population in 1988 = 50,000
Population in 1989 (25% increase) =
25% of the population of 1988 = 50,000×0.25=12,500
Population of 1989 = 50,000+12,500=62,500
Population in 1990 (30% decrease) =
30% of 1989 population = 62,500×0.30=18,750
Population in 1990 = 62,500−18,750=43,750
Population in 1991 (40% increase) =
40% of 1990 population = 43,750×0.40=17,500
Population at the end of 1991 = 43,750+17,500=61,250
So, the population at the end of 1991 was 61,250.

69. What is the value of x^2-5 at x = -1?

(a) -5
(b) -2
(c) -4
(d) -1 **[c]**

व्याख्या:-

Putting x=−1 in the given expression:
$x^2 - 5$
$=(-1)^2 - 5$
$=1-5$
$=-4$

70. Which of the following numbers is divisible by both 7 and 11?

(a) 2534
(b) 2684
(c) 1771
(d) 3014 **[c]**

व्याख्या:-

(a) Dividing 2534 by 77:
2534÷77≈32.9 (not a whole number)
(b) Dividing 2684 by 77:
2684÷77≈34.8 (not a whole number)
(c) Dividing 1771 by 77:
1771÷77=23 (This is a whole number!)
(d) Dividing 3014 by 77:
3014÷77≈39.1 (not a whole number)
Hence, (c) 1771 is a number which is divisible by both 7 and 11.

71. What is the value of $\sqrt{0.0016} \times \sqrt[3]{8000000}$?

(a) 1.6
(b) 0.8
(c) 16
(d) 8 **[d]**

व्याख्या:-

$= \sqrt{0.0016} \times \sqrt[3]{8000000}$
$= \sqrt{\frac{16}{10000}} \times 200$
$= \frac{4}{100} \times 200$
$= 8$

72. If 'A' means '÷', 'B' means '×', 'C' means + and D means''-', then what will come in place of question mark '?' in the following equation?
144 C 44 D 12 A 12 B 144 = ?

(a) 43
(b) 54
(c) 34
(d) 44 **[d]**

व्याख्या:-

144 C 44 D 12 A 12 B 144 = ?
according to question
$144 + 44 - 12 \div 12 \times 144 = ?$
$144 + 44 - 1 \times 144$
$44 = ?$

73. If a sum of money becomes 2.25 times of that amount after 2 years at a certain rate of interest compounded annually, then what will be the rate of interest per annum?

(a) 30%
(b) 40%
(c) 50%
(d) 25% **[c]**

व्याख्या:-

In 2 years the money is getting 2.25 times, that means:
$\sqrt{2.25} = (1+r)^2$
Taking the square root of both sides:
$2.25 = (1+r)$
$1.5 = 1+r$
$r = 0.5$
$r\% = 0.5 \times 100 = 50\%$

74. Seven persons A, B, C, D, E, F and G are sitting in a row facing north. Only five persons are sitting between A and F. G is sitting third to the left of F. E is the immediate neighbour of B and F. C is not the immediate neighbour of G.
How many persons are sitting between C and E?

(a) one
(b) four
(c) three

(d) two **[c]**

व्याख्या:-

It is clear from the diagram that three persons are sitting between C and E.

75. Look at the following series of numbers and symbols and answer the question given below. Numbers and symbols should be counted from left to right only.
(Left) 5 3 % 4 6 & 8 $ 7 * Ω 9 # 1 2 & @ £ (Right)
How many such symbols are there in the above series, each of which is immediately preceded by a symbol and also immediately followed by a symbol?
(a) More than two
(b) Two
(c) One
(d) Zero **[c]**

व्याख्या:-

5 3 % 4 6 & 8 $ 7 * Ω 9 # 1 2 & @ £

In the above series the pair of symbol before the symbol and symbol after the symbol is one.