

Junior Engineer/Chemical and Metallurgical Assistant/Depot Material Superintendent

1st Stage Recruitment Exam-2025

(Exam held on 19-02-2026)

- The base and the corresponding height of a parallelogram are 93 cm and 29 cm, respectively. The area of the parallelogram (in cm^2) is:
 - 2701
 - 2697
 - 2714
 - 2696
- Simplify the following.
 $112 \div [16 \div 8 \times \{18 + 12 - (3 + 10 - (4 + 7))\}]$
 - 3
 - 4
 - 11
 - 2
- The quadratic equation whose roots are $\frac{1}{\sqrt{2}}$ and $\frac{1}{\sqrt{2}}$ is:
 - $2x^2 - (2\sqrt{2})x + 1 = 0$
 - $3x^2 - (2\sqrt{2})x - 1 = 0$
 - $2x^2 - (4\sqrt{2})x - 1 = 0$
 - $2x^2 + (2\sqrt{5})x + 1 = 0$
- Sonora-64 and Lerma Rojo are high-yielding varieties (HYVs) of which crop introduced during the Green Revolution in India?
 - Rice
 - Barley
 - Wheat
 - Maize
- When methane (CH_4) burns completely in the presence of sufficient oxygen, which products are formed?
 - Carbon dioxide and carbon
 - Carbon and hydrogen
 - Carbon dioxide and water
 - Carbon monoxide and water
- A question is followed by two statements numbered (I) and (II). You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements carefully and decide the appropriate answer.

Five people, A, B, C, D and E, are sitting in a straight line facing north. Who sits to the immediate left of C?

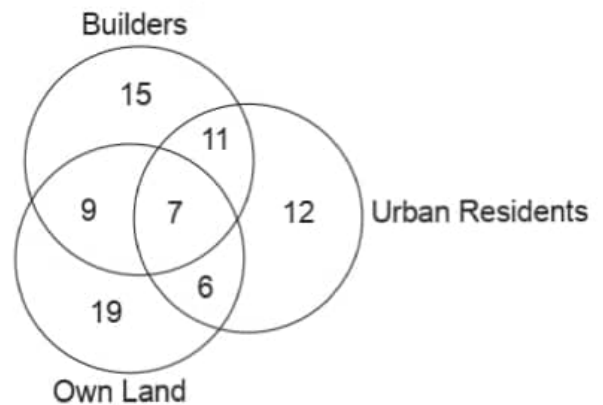
 - B sits second from one of the extreme ends of the line. Only one person sits between B and C. D sits third to the right of C.
 - D sits to the immediate right of B. Only three people sit between D and A. E sits to the immediate right of C.
 - Data in statement I alone is sufficient to answer the question while data in statement II is not
 - Data in both statements I and II together is NOT sufficient to answer the question

3. Data in both statements I and II together (and not statement I alone or statement II alone) is sufficient to answer the question
4. Data in statement II alone is sufficient to answer the question while data in statement I is not
7. Which of the following is NOT true regarding the Poona Pact of 1932?
 1. Seats reserved for depressed classes increased in the legislatures.
 2. Ambedkar refused to sign the pact.
 3. It was accepted by the government.
 4. It dropped the idea of separate electorates for depressed classes.
8. How does the magnetic field strength at the center of a circular loop change if the current through the loop is doubled?
 1. It becomes twice as large
 2. It becomes four times as large
 3. It becomes half as large
 4. It remains unchanged
9. When two aqueous solutions react inside a sealed flask and form products, what happens to the total mass of the system?
 1. It fluctuates during reaction
 2. It increases due to gas formation
 3. It decreases due to precipitation
 4. It remains unchanged throughout
10. Which of the following metals is NOT refined by electrolytic refining?
 1. sodium 2. copper
 3. tin 4. zinc
11. LKLJ is related to GFGE in a certain way based on the English alphabetical order. In the same way, NMNL is related to IHIG. To which of the following is QPQO related, following the same logic?
 1. LJKJ 2. LKLJ
 3. LKKJ 4. LLKQ
12. In which year was the first national Census of India carried out during British India?
 1. 1871 2. 1901
 3. 1891 4. 1851

13. When a man pushes a wall but the wall does not move, what is the work done by the man on the wall?

1. Zero work is done as there is no displacement of the wall.
2. Negative work is done as the wall resists the push.
3. Positive work is done as force is applied.
4. Maximum work is done as the man uses full effort.

14. Study the given diagram carefully and answer the question that follows. The numbers in different sections indicate the number of persons. (NOTE: You have to take the given data to be true even if they seem to be at variance from commonly known facts.)



How many builders are urban residents and own land?

1. 11 2. 6
3. 7 4. 9

15. Coal is primarily formed from:
 1. Remains of animals preserved in rocks
 2. Lava flows from volcanoes
 3. Mineral deposits in the Earth
 4. Layers of dead plants compressed over millions of years
16. Mahesh has borrowed an amount of ₹ 4,40,000 from a bank to start a business. How much simple interest (in ₹) will he pay at a rate of 6% per annum after 4 years?
 1. 1,06,600 2. 1,05,600
 3. 1,03,600 4. 1,04,600

17. X people were given a contract for doing a piece of work in 32 days. 8 people did not turn up to work due to sickness, and the rest of the people completed the work in 40 days. What is the value of X?
1. 38
 2. 42
 3. 40
 4. 44
18. If a convex mirror forms a point-sized image at its focus, where is the object located?
1. At infinity
 2. Between F and the pole
 3. Between P and F
 4. At the pole
19. Why are cross-breeding programmes between indigenous and exotic poultry breeds undertaken?
1. To create hybrids with less attractive features
 2. To create hybrids showing similarity with their ancestors
 3. To develop new varieties with desirable traits
 4. To increase only the egg size
20. Systolic pressure is measured when the heart
1. Stops beating
 2. Fills with blood
 3. Relaxes
 4. Contracts
21. What is the constitutional consequence if the Lok Sabha passes a no-confidence motion against the ruling government?
1. The Speaker of Lok Sabha is removed by the President
 2. The government may continue without any change
 3. Only the Prime Minister must submit resignation
 4. The Council of Ministers is obligated to step down
22. Each of P, Q, R, S, T, U and V has an exam on a different day of a week, starting from Monday and ending on Sunday of the same week.

Only five people have exams between T and R. S has exam on Wednesday. V has exam immediately after P but not on Saturday. Q has exam immediately before T.

How many people have exams between U and V?

1. One
 2. Two
 3. Three
 4. Four
23. Select the triad which follows the same pattern as that followed by the two triads given below. Both triads follow the same pattern.
- NF – RJ – VN
MB – QF – UJ
1. TW – YZ – SY
 2. RM – UT – PR
 3. OG – SK – WO
 4. HK – LN – FL
24. Which cell organelle is responsible for the manufacture of lipids in the cell?
1. Rough Endoplasmic Reticulum
 2. Golgi Apparatus
 3. Mitochondria
 4. Smooth Endoplasmic Reticulum
25. Ajay spends 80% of his income. His income is increased by 30%, and his expenditure is increased by 10%. Find the percentage increase in his savings.
1. 105%
 2. 100%
 3. 90%
 4. 110%
26. Who was appointed as the Chairman of the Union Public Service Commission by President Droupadi Murmu in May 2025?
1. Dr. Ajay Kumar
 2. Dr. Ajit Kumar
 3. Dr. Alok Kumar
 4. Dr. Anil Kumar
27. Which enzyme initiates carbohydrate digestion in the human mouth?
1. Salivary amylase present in saliva
 2. Pepsin secreted by gastric glands
 3. Lipase secreted by liver
 4. Trypsin released by pancreas

28. Solve the following linear equations.

$$2x + 3y - 5z = 4,$$

$$x + 3y - 2z = 12,$$

$$2x + y - 3z = 5$$

1. $x = \frac{-43}{8}, y = \frac{-65}{8}, z = \frac{39}{8}$

2. $x = \frac{65}{8}, y = \frac{39}{8}, z = \frac{43}{8}$

3. $x = \frac{43}{8}, y = \frac{65}{8}, z = \frac{39}{8}$

4. $x = \frac{43}{8}, y = \frac{-65}{8}, z = \frac{-39}{8}$

29. How did Mahatma Gandhi's views on untouchability shape the priorities of the Indian National Congress during the Gandhian phase?

1. Endorsing separate political electorates for communities
2. Making abolition of untouchability a central objective
3. Shifting primary focus toward agrarian economic reforms
4. Concentrating on political integration of princely states

30. If $x = \sqrt[3]{512}$, $y = \sqrt[6]{64}$ and $z = 6^3 - 2 \times 10^2$,

then $\sqrt[3]{10(x^2 + y^3 + z + 12)}$ is equal to:

1. 40
2. 10
3. 20
4. 30

31. In a certain code,

'heavy metal music' is coded as 'mx zb kg'

'heavy storm warning' is coded as 'kw vg mx'

'crazy metal storm' is coded as 'zb rq vg'

(all the codes are two letter coded only)

What is the code for 'warning music'?

1. kg rq
2. mx rq
3. kw kg
4. zb vg

32. Ajay can row at 4.5 km/h in still water. It takes him twice the time to row up as it takes for him to row down the same distance. Find the speed of the stream (in km/h).

1. 0.5

2. 3

3. 1.5

4. 2

33. What should come in place of the question mark (?) in the given series?

7 10 16 25 37 ?

1. 52

2. 51

3. 53

4. 50

34. Which statement correctly describes the atomic number of an element?

1. Total mass of all subatomic particles
2. Total number of nucleons in the atom
3. Number of protons present in the nucleus
4. Number of neutrons present in the nucleus

35. The term 'Ragam-Tanam-Pallavi' is associated with which style of Indian music?

1. Hindustani Music
2. Sufi Music
3. Folk Music
4. Carnatic Music

36. 100 apples were bought at ₹ 1,240 per hundred and were sold at a profit of ₹ 935. Find the selling price (in ₹) per dozen of apples.

1. 266

2. 271

3. 256

4. 261

37. Find the median from the following data.

Age in years	No. of patients
15-25	10
25-35	17
35-45	22
45-55	26
55-65	30
65-75	24
75-85	21

1. 47 years

2. 65 years

3. 55 years

4. 70 years

38. Why are bulbs filled with nitrogen and argon gases instead of air?

1. To prolong the life of the filament
2. To make the bulb heavier
3. To increase brightness
4. To reduce electricity consumption

39. In the 2024 Global Hunger Index released in October 2024, India is ranked 105th out of the how many countries?
1. 127
 2. 210
 3. 90
 4. 195
40. Which structural feature primarily enables upward movement of water against gravity in plants?
1. Large intercellular spaces in spongy mesophyll
 2. Lignified xylem vessels forming continuous columns
 3. Actively dividing meristematic tissues
 4. Thin-walled sieve tubes with companion cells
41. Hitesh starts from Point A and drives 10 km towards east. He then takes a left turn, drives 5 km, turns left and drives 11 km. He then takes a left turn and drives 6 km. He takes a final left turn, drives 1 km and stops at Point P. How far (shortest distance) and towards which direction should he drive in order to reach Point A again? (All turns are 90° turns only unless specified.)
1. 2 km to the south
 2. 1 km to the north
 3. 2 km to the north
 4. 1 km to the south
42. What is the remainder when 3^{939} is divided by 8?
1. 2
 2. 3
 3. 5
 4. 0
43. Refer to the following letter, symbol series and answer the question.
(Left) V E @ M O S % & V I % X \$ T P N \$ V # C & B J (Right)
If all the letters are dropped from the series, which of the following will be fifth from the left?
1. @
 2. #
 3. \$
 4. %
44. Based on the English alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which is the letter-cluster that does NOT belong to that group?
(Note: The odd one out is not based on the number of consonants/vowels or their positions in the letter-cluster.)
1. KMI
 2. VWT
 3. PQN
 4. YZW
45. A physicist uses a convex lens to focus sunlight onto a piece of paper and notices the smallest, brightest spot forms at a certain distance from the lens. Which property of the lens does this experiment help to determine?
1. The experiment helps to determine the principal axis of the lens.
 2. The experiment helps to determine the optical center of the lens.
 3. The experiment helps to determine the diameter of the lens.
 4. The experiment helps to determine the focal length of the lens.
46. From the top of a cliff the angle of depression of a point on the ground 240 feet away from the bottom of the cliff is 30° . Find the height of the cliff (in feet, rounded off to the nearest integer).
(Use $\sqrt{3} = 1.732$)
1. 124
 2. 139
 3. 146
 4. 130
47. When a gun is fired, it recoils backward as the bullet moves forward. How does this demonstrate Newton's third law of motion?
1. The bullet moves forward only because the gun has stored energy.
 2. The gun moves backward because it is heavier than the bullet.
 3. The gun recoils because the bullet moves faster than the gun.
 4. The gun pushes the bullet forward, and the bullet pushes the gun backward with an equal and opposite force.

48. Refer to the two statements given below and choose the CORRECT option.

Statement A: Selective reabsorption in nephrons helps maintain water and salt balance in the body.

Statement B: Selective reabsorption prevents nitrogenous wastes from entering the filtrate.

1. Statement A is incorrect but B is correct.
 2. Both statements A and B are correct.
 3. Both statements A and B are incorrect.
 4. Statement A is correct but B is incorrect.
49. The LCM of $2^3 \times 6^2 \times 11$, $2^2 \times 11^2 \times 17$ and $6^3 \times 11^2 \times 17^2$ is:
1. $24 \times 34 \times 112 \times 172$
 2. $25 \times 33 \times 112 \times 172$
 3. $24 \times 33 \times 112 \times 172$
 4. $25 \times 34 \times 112 \times 172$
50. Each of G, H, I, J, P, Q and R has an exam on a different day of a week, starting from Monday and ending on Sunday of the same week. Only two people have exam before Q. Only one person has exam after P. Only three people have exam between Q and J. Only one person has exam between I and H. G has exam immediately before I. How many people have exam between R and I?
1. Three
 2. Two
 3. One
 4. None
51. A shopkeeper marks an article at ₹ x and offers a discount of 50% on it. He sells it for ₹ 287 after charging VAT of 64% on the discounted price. What is the value of x ?
1. 300
 2. 200
 3. 250
 4. 350
52. A cricket ball of mass 0.15 kg is thrown horizontally at 30 m/s from the top of a building. What is the ball's kinetic energy as it leaves the hand?
1. 90 J
 2. 135 J
 3. 67.5 J
 4. 45.5 J
53. Seven people, F, J, M, L, R, V and X, are sitting in a row, facing north.

No one sits to the right of J. Only three people sit between J and R. Only two people sit between R and M. V sits third to the left of L. X sits to the immediate right of L.

How many people sit to the left of X?

1. 2
2. 3
3. 1
4. 4

54. In a certain code,
 'tall boy smart' is coded as 'we ki no'
 'short boy lazy' is coded as 'pa ki ru'
 'tall girl lazy' is coded as 'we sa ru'
 (all the codes are two letter coded only)
 What is the code for "tall boy"?
1. pa ru
 2. we sa
 3. sa ki
 4. we ki
55. Girish scored 459 marks in an examination and was 81 marks short of 20% of the maximum marks. In the same examination, his friend scored 756 marks. What is the percentage of marks scored by his friend?
1. 29%
 2. 28%
 3. 30%
 4. 27%
56. What is the function of the iris in the human eye?
1. Controls the size of the pupil
 2. Refracts incoming light rays
 3. Transmits signals to the brain
 4. Forms the image on the retina
57. Which two districts of Uttarakhand share the inter-state border with Himachal Pradesh in the north-west?
1. Chamoli and Pithoragarh
 2. Pauri and Rudrapur
 3. Uttarkashi and Dehradun
 4. Champawat and Bageshwar
58. If $\frac{x}{y} = \frac{18}{2}$, then find $\frac{x^2 + y^2}{x^2 - y^2}$.
1. $\frac{47}{40}$
 2. $\frac{37}{40}$
 3. $\frac{31}{40}$
 4. $\frac{41}{40}$

59. The difference between simple interest and compound interest, compounded annually, on a certain sum of money for 2 years at 11% per annum is ₹ 371. Find the sum. [Give your answer rounded off to the nearest integer.]
1. ₹ 30,672
 2. ₹ 30,669
 3. ₹ 30,679
 4. ₹ 30,661
60. If a material has an absolute refractive index of 1.7, what does this imply about the speed of light in that material compared to vacuum?
1. Light travels 1.7 times faster in the material than in vacuum.
 2. Light travels at the same speed in both.
 3. The speed difference cannot be determined from this value.
 4. Light travels 1.7 times slower in the material than in vacuum.
61. If 25 people, working for 10 hours a day, can complete 2 units of work in 5 days, then how many days will be required for 15 people to complete 18 units of work, if each person works for 10 hours a day?
1. 85
 2. 70
 3. 60
 4. 75
62. Which bee variety is commonly known as the Indian bee and is used for commercial honey production?
1. *Apis mellifera*
 2. *Apis dorsata*
 3. *Apis florea*
 4. *Apis cerana indica*
63. If the mode and median of a certain data are 24 and 18, respectively, then the mean of the data is:
1. 20
 2. 15
 3. 24
 4. 22
64. If + means $\times$, $\times$ means $\div$, $\div$ means +, then what will come in place of the question mark (?) in the following equation?
- $$3 - 24 \times 6 \div 21 + 7 = ?$$
1. 28
 2. 26
 3. 36
 4. 31
65. In a certain code language,
 $A + B$ means 'A is the mother of B',
 $A - B$ means 'A is the brother of B',
 $A \times B$ means 'A is the wife of B',
 $A \% B$ means 'A is the father of B' and
 $A \# B$ means 'A is the daughter of B'.
 How is F related to M if ' $F \# H \times J \% E \% M$ '?
1. Son's daughter
 2. Brother's son
 3. Father's sister
 4. Father's mother
66. Which of the following statements about washing soda is CORRECT?
1. Washing soda is chemically sodium carbonate decahydrate ($\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$)
 2. It is obtained by heating sodium bicarbonate to 100°C
 3. It does not remove permanent hardness of water
 4. Washing soda is acidic in nature
67. 21 is related to 274 following a certain logic. Following the same logic, 26 is related to 339. To which of the following is 34 related, following the same logic?
 (NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)
1. 452
 2. 445
 3. 447
 4. 443
68. Which statement best explains why unsaturated carbon compounds are generally more reactive than saturated carbon compounds?
1. Unsaturated compounds have fewer hydrogen atoms attached to carbon
 2. Unsaturated compounds form only straight carbon chains
 3. Unsaturated compounds contain only single bonds between carbon atoms
 4. Unsaturated compounds have double or triple bonds between carbon atoms

69. Who is the author of the book 'Leo: The Untold Story of Chennai Super Kings', which was launched in March 2025?
1. P.S. Raman
 2. Aniruddha Srikanth
 3. K. Chandrashekharan
 4. Ravichandran Ashwin
70. What was the primary theme of the International Symposium on Health Technology Assessment (ISHTA) 2025?
1. Bridging evidence to policy for healthcare
 2. Enhancing global health security efforts
 3. Showcasing medical device technologies
 4. Promoting digital health innovations
71. In a certain code language,
 $A + B$ means 'A is the son of B'
 $A - B$ means 'A is the sister of B'
 $A \times B$ means 'A is the wife of B'
 $A \div B$ means 'A is the brother of B'
 Based on the above, how is C related to G if ' $C \times S + D - F \div G$ '?
1. Mother's sister's son
 2. Father's sister's daughter
 3. Sister's son's wife
 4. Mother's sister's daughter
72. A toy manufacturer originally makes a conical toy with a base radius of 3 cm and a height of 7 cm. Due to customer demand, he now wants to produce a similar toy that has 75% of the original volume, while keeping the same base radius as before. What should be the height of the new toy? $\left(\text{Take } \pi = \frac{22}{7} \right)$
1. 5.5 cm
 2. 5.125 cm
 3. 5.75 cm
 4. 5.25 cm
73. The 44th Amendment Act of 1978 restored the standard term of the Lok Sabha and State Legislature to how many years?
1. three
 2. seven
 3. five
 4. six
74. Let C be a circle with center O. Let AB be a tangent to C, such that AB touches the circle at P. Let X and Y be any two points on C. If $\angle APX = 60^\circ$ and $\angle BPY = 30^\circ$, find $\angle PYX$ and $\angle PXY$, respectively.
1. $60^\circ, 30^\circ$
 2. $90^\circ, 30^\circ$
 3. $90^\circ, 60^\circ$
 4. $30^\circ, 60^\circ$
75. Sodium hydroxide (NaOH) contains as its anion.
1. Na^+
 2. NO_3^-
 3. OH^-
 4. H^+
76. Select the set in which the numbers are related in the same way as are the numbers of the following sets.
 (NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 - Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)
- (11, 13, 17)
 (8, 7, 11)
1. (6, 21, 25)
 2. (13, 17, 13)
 3. (10, 11, 15)
 4. (9, 9, 5)
77. Rashmi and Varsha together have ₹ 22576. If $\frac{5}{16}$ of Rashmi's amount is equal to $\frac{3}{7}$ of Varsha's amount, how much money does Rashmi have?
1. ₹ 13052
 2. ₹ 13056
 3. ₹ 13050
 4. ₹ 13054
78. Ribosomes are attached to the surface of the rough endoplasmic reticulum. What is the primary function of the rough endoplasmic reticulum?
1. Energy production and cellular respiration
 2. DNA replication and transcription
 3. Lipid synthesis
 4. Protein synthesis and transport

79. 81 is related to 260 following a certain logic. Following the same logic, 108 is related to 287. To which of the following is 156 related, following the same logic? (NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)
1. 334
 2. 332
 3. 340
 4. 335
80. Atomic masses of elements are compared with a standard reference. Carbon-12 was chosen as the standard for the atomic mass unit mainly because:
1. Carbon is present in very large amounts in nature
 2. Carbon shows very little chemical reactivity with elements
 3. Carbon-12 gives atomic masses close to whole numbers
 4. Carbon is able to form a large number of compounds
81. Which of the following coastal features in India is believed to have submerged due to tectonic or sea-level changes, as referenced in Indian mythology and archaeology?
1. Kavaratti in Lakshadweep
 2. Sunderbans in West Bengal
 3. Rameshwaram near Tamil Nadu
 4. Dwaraka near Gujarat
82. What should come in place of '?' in the given series?
23 34 45 56 67 ?
1. 76
 2. 75
 3. 77
 4. 78
83. What should come in place of the '?' in the given series, based on the English alphabetical order?
RLO QKN PJM OIL ?
1. NHK
 2. NGK
 3. NGL
 4. NHL
84. A sum of money is divided among X, Y and Z in the ratio 4:3:6. If the share of Z is ₹ 3300 more than Y, then how much amount will X get more than Y?
1. ₹ 1100
 2. ₹ 1000
 3. ₹ 1300
 4. ₹ 1200
85. Which of the following everyday examples represents a homogeneous mixture?
1. Oil mixed thoroughly with water
 2. Sand mixed uniformly with iron filings
 3. Chalk powder stirred in water
 4. Salt completely dissolved in water
86. While covering a distance of 36 km, a man noticed that after cycling for 2 hours 5 minutes, the distance covered by him was $\frac{6}{7}$ of the remaining distance. What was his approximate speed in km/h?
1. 7.4
 2. 6.7
 3. 8.7
 4. 8
87. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.
- Statements:**
- All papers are bags.
All bags are copies.
Some copies are erasers.
- Conclusions:**
- I. All papers are erasers.
 - II. All bags are erasers.
1. Only conclusion (I) follows.
 2. Neither conclusion (I) nor (II) follows.
 3. Only conclusion (II) follows.
 4. Both conclusions (I) and (II) follow.

88. Why is using compost or vermi-compost preferable to excessive use of fertilizers for increasing soil fertility?

1. It eliminates bacterial and viral plant diseases.
2. It recycles biological waste and avoids environmental harm.
3. It supplies only micro-nutrients and avoids macronutrients.
4. It replaces the need for irrigation and weeding.

89. Refer to the following letter and symbol series and answer the question that follows. Counting to be done from left to right only. (Left) U P X @ F H R A A # / E M # U L J \ L \ \ (Right)

How many such symbols are there each of which is immediately preceded by a symbol and also immediately followed by a letter?

1. None
2. Three
3. Two
4. One

90. The selling price of 45 books is equal to the cost price of 18 books. Find the loss or gain percentage.

1. $\frac{100}{27}\%$ loss
2. 60% loss
3. 60% gain
4. $\frac{100}{27}\%$ gain

91. D, R, A, W and S have different marks. Only one person has scored between W and S. Only one person has scored between S and D. A has scored less than W and S. How many people have scored less than R?

1. Four
2. One
3. Three
4. Two

92. Consider a quadratic equation $3x^2 + 4x - 8 = 0$. Which of the following quadratic equations will have both roots common with the given quadratic equation?

1. $3x^2 - 4x + 8 = 0$
2. $-1.5x^2 - 2x + 4 = 0$
3. $3x^2 + 4x + 8 = 0$
4. $-1.5x^2 + 2x + 4 = 0$

93. Find the value of

$$\frac{x+3}{x^2-2x} \times \frac{2x-1}{x^2+2x+4} \times \frac{x^4-8x}{2x^2+5x-3}$$

1. 2
2. -1
3. 0
4. 1

94. Which of the following is NOT a feature of the Comprehensive Environmental Pollution Index?

1. It was first introduced in 1983.
2. It shall be an early warning tool.
3. All the polluting sources identified in the area shall be notified and brought into the public domain.
4. It can applied to locations other than industrial clusters.

95. The average of the first 18 positive multiples of 10 is:

1. 95
2. 90
3. 10
4. 18

96. Which statement is correct regarding the definition of biodegradable substances?

1. Substances that are broken by biological process
2. Substances that are broken by chemical process
3. Substances that are broken by mechanical process
4. Substances that are broken by physical process

97. Refer to the following letter and symbol series and answer the question that follows. Counting to be done from left to right only. (Left) K & Z # % X N E A A Y C + H \ Y = C \$ M H (Right)

How many such letters are there each of which is immediately preceded by a symbol and also immediately followed by a letter?

1. Three
2. Two
3. Zero
4. One

98. If an ammeter reading increases when a thicker wire replaces a thinner one of the same material and length, what is the most likely reason?
1. The wire's resistivity increased
 2. The voltage across the wire decreased
 3. The wire's length is shorter
 4. The resistance of the thicker wire is lower, allowing more current
99. Which Indian filmmaker was inducted as a registered member of the European Film Academy in 2025?

1. Neeraj Ghaywan
2. Pan Nalin
3. Kiran Rao
4. Sriram Raghavan

100. In a factory, the average daily wage of 12 skilled workers and 18 unskilled workers is ₹ 604. If the average wage of the skilled workers is ₹ 754, then find the average wage of the unskilled workers.

1. ₹ 534
2. ₹ 514
3. ₹ 524
4. ₹ 504

EXPLANATORY ANSWERS

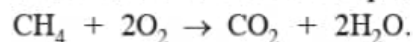
1. (2): Area of parallelogram = Base
 $\times$ Corresponding height
 $= 93 \times 29$
 $= 93 \times (30 - 1)$
 $= 2790 - 93$
 $= 2697 \text{ cm}^2$.

2. (4): $112 \div [16 \div 8 \times \{18 + 12 - (3 + 10 - (4 + 7))\}]$
 $= 112 \div [16 \div 8 \times \{18 + 12 - (3 + 10 - 11)\}]$
 $= 112 \div [16 \div 8 \times \{18 + 12 - 2\}]$
 $= 112 \div [16 \div 8 \times 28]$
 $= 112 \div [2 \times 28]$
 $= 112 \div 56 = 2$.

3. (1): $\alpha = \beta = 1 \div \sqrt{2}$
 $\alpha + \beta = 1 \div \sqrt{2} + 1 \div \sqrt{2} = \sqrt{2}$
 $\alpha\beta = (1 \div \sqrt{2})(1 \div \sqrt{2}) = 1 \div 2$
 $x^2 - (\alpha + \beta)x + \alpha\beta = 0$
 $x^2 - \sqrt{2}x + 1 \div 2 = 0$
 $2x^2 - 2\sqrt{2}x + 1 = 0$.

4. (3): Sonora-64 and Lerma Rojo are high-yielding dwarf varieties of wheat that became important during the Green Revolution in India. These varieties responded strongly to irrigation and chemical fertilizers and produced substantially higher yields than many traditional wheat varieties. Their adoption, particularly in states such as Punjab, Haryana and western Uttar Pradesh, contributed greatly to the rapid increase in India's wheat production.

5. (3): When methane burns completely in a sufficient supply of oxygen, its carbon atoms are fully oxidised to carbon dioxide, while its hydrogen atoms combine with oxygen to form water. The balanced chemical equation is



Carbon monoxide or elemental carbon is mainly associated with incomplete combustion when the supply of oxygen is insufficient.

6. (4): From Statement I, B can finally be placed at the fourth position, C at the second and D at the fifth, but A and E can occupy the first and third positions interchangeably; hence the person immediately to the left of C cannot be uniquely identified. From Statement II, D and A must occupy the two extreme positions; since D is immediately to the right of B, the arrangement becomes A-C-E-B-D. Therefore, A is immediately to the left of C, so Statement II alone is sufficient whereas Statement I alone is not.

7. (2):

1. **Seats reserved for depressed classes increased in the legislatures — Correct.** The Poona Pact substantially increased the number of reserved seats for the Depressed Classes in provincial legislatures compared with the arrangement proposed under the Communal Award. It provided representation through reservation within a joint electorate system.
2. **Ambedkar refused to sign the pact — Incorrect.** Dr. B.R. Ambedkar was one of the principal representatives of the

Depressed Classes in the negotiations and was a signatory to the Poona Pact of 1932. Therefore, the statement that he refused to sign it is factually incorrect.

3. **It was accepted by the government — Correct.** The agreement reached through the Poona Pact was subsequently accepted by the British Government, and the provisions relating to representation of the Depressed Classes were incorporated by modifying the earlier electoral arrangement.

4. **It dropped the idea of separate electorates for depressed classes — Correct.** The pact abandoned separate electorates for the Depressed Classes and substituted reserved seats within joint electorates. Thus, voters participated in the common electorate while specified seats remained reserved for Depressed Class candidates.

8. (1): It becomes twice as large:

$$\begin{aligned} B &\propto I \\ I_2 &= 2I_1 \\ B_2 : B_1 &= I_2 : I_1 \\ B_2 : B_1 &= 2 : 1 \\ B_2 &= 2B_1. \end{aligned}$$

9. (4): When two aqueous solutions react inside a sealed flask, no matter can enter or leave the system. According to the law of conservation of mass, matter is neither created nor destroyed during a chemical reaction, so the total mass of the reactants before the reaction equals the total mass of all products after the reaction. Formation of a precipitate or a gas does not change the total mass because everything remains confined within the sealed flask.
10. (1): Sodium is a highly reactive metal and is obtained by the electrolytic reduction of its molten compounds, such as molten sodium chloride; this is an extraction process rather than electrolytic refining. Metals such as copper, zinc and tin can be purified by electrolytic refining, in which the impure metal acts as the anode and pure metal is deposited at the cathode. Therefore, among the given metals, sodium is the one that is not refined by electrolytic refining.
11. (2): In LKLJ $\rightarrow$ GFGE, every letter is moved five positions backward in the English alphabet: L $\rightarrow$ G, K $\rightarrow$ F, L $\rightarrow$ G and J $\rightarrow$ E.

The same rule is confirmed by NMNL $\rightarrow$ IHIG, where N $\rightarrow$ I, M $\rightarrow$ H, N $\rightarrow$ I and L $\rightarrow$ G. Applying the identical shift to QPQQ gives Q $\rightarrow$ L, P $\rightarrow$ K, Q $\rightarrow$ L and Q $\rightarrow$ L. Therefore, QPQQ is related to LKLL.

12. (1): The first national Census undertaken during British rule is identified as the Census of 1871, an attempt to compile population statistics for British India on subjects such as age, sex, occupation, education, religion and caste. The enumeration was not conducted everywhere on a single uniform date and is also historically described as the 1871–72 census operation. The first regular synchronous decennial Census of India was subsequently conducted in 1881.

13. (1): Zero work is done as there is no displacement of the wall:

$$\begin{aligned} W &= F \times s \times \cos \theta \\ s &= 0 \\ W &= F \times 0 \times \cos \theta \\ W &= 0. \end{aligned}$$

14. (3): The required persons must satisfy all three conditions simultaneously: they must be builders, urban residents and owners of land. In the Venn diagram, the common overlapping region of all three circles contains the number 7. The regions marked 11, 9 and 6 represent intersections of only two of the respective groups, so they are not included as persons satisfying all three conditions.

15. (4): Coal originated principally from accumulated plant material that was buried beneath successive layers of sediments. Over millions of years, increasing pressure and temperature gradually transformed this dead plant matter into coal through the process of carbonisation. Thus, coal is not primarily formed from animal remains, volcanic lava or ordinary mineral deposits, but from ancient vegetation subjected to prolonged geological conditions.

16. (2): Simple Interest = $P \times R \times T \div 100$
 $= 4,40,000 \times 6 \times 4 \div 100$
 $= 4,40,000 \times 24 \div 100$
 $= ₹ 1,05,600.$

17. (3): Total work = $X \times 32$
 Remaining workers = $X - 8$
 $X \times 32 = (X - 8) \times 40$

$$\begin{aligned}
 32X &= 40X - 320 \\
 8X &= 320 \\
 X &= 40.
 \end{aligned}$$

18. (1): A convex mirror receives rays parallel to its principal axis when the object is situated at infinity. After reflection, these rays diverge and appear to originate from the principal focus behind the mirror. Hence, an object at infinity forms a highly diminished, virtual and erect, effectively point-sized image at the focus of a convex mirror.
19. (3): Cross-breeding between indigenous and exotic poultry breeds is undertaken to combine useful characteristics of different breeds in their offspring. Desirable traits may include higher egg production, better meat quality, disease resistance, tolerance to climatic conditions, lower maintenance requirements and improved growth. Thus, the objective is to develop improved varieties possessing a favourable combination of characteristics.
20. (4): Systolic pressure represents the maximum arterial blood pressure produced during ventricular systole, when the ventricles of the heart contract and pump blood into the arteries. The contraction of the left ventricle forces blood into the aorta, producing the higher value recorded in a blood-pressure measurement. The lower, diastolic pressure corresponds to the relaxation phase of the heart.
21. (4): A no-confidence motion tests whether the Council of Ministers continues to enjoy the confidence of the Lok Sabha. Since the Union Council of Ministers is collectively responsible to the Lok Sabha, defeat on a no-confidence motion demonstrates loss of majority support and requires the entire Council of Ministers, headed by the Prime Minister, to resign. It is therefore not merely the individual resignation of the Prime Minister.
22. (2): Only five persons between T and R means that T and R occupy Monday and Sunday. Since Q is immediately before T, T must be on Sunday and Q on Saturday, making R Monday; S is already fixed on Wednesday. The only possible consecutive placement of P and V, with V immediately after P and V not on Saturday, is P on Thursday and V on Friday, leaving U on Tuesday. Thus, Wednesday and Thursday lie between U and V, giving two persons.
23. (3): In NF - RJ - VN, both letters advance by four alphabetic positions from one pair to the next: $N \rightarrow R \rightarrow V$ and $F \rightarrow J \rightarrow N$. The same pattern occurs in MB - QF - UJ: $M \rightarrow Q \rightarrow U$ and $B \rightarrow F \rightarrow J$, again with increments of four. In OG - SK - WO, $O \rightarrow S \rightarrow W$ and $G \rightarrow K \rightarrow O$ follow exactly the same +4 pattern, so this triad satisfies the required relationship.
24. (4): The smooth endoplasmic reticulum is the principal cellular organelle involved in the synthesis of lipids, including phospholipids and steroids. Unlike rough endoplasmic reticulum, it lacks ribosomes on its surface and therefore is not primarily concerned with protein synthesis. It also participates in detoxification and certain aspects of carbohydrate metabolism, depending upon the type of cell.
25. (4): Let original income = 100
 Original expenditure = 80% of 100 = 80
 Original savings = $100 - 80 = 20$
 New income = $100 + 30\% \text{ of } 100 = 130$
 New expenditure = $80 + 10\% \text{ of } 80 = 88$
 New savings = $130 - 88 = 42$
 Increase in savings = $42 - 20 = 22$
 Percentage increase = $(22 \times 100) \div 20 = 110\%$.
26. (1): Dr. Ajay Kumar, a former Defence Secretary, was appointed Chairman of the Union Public Service Commission and assumed charge on 15 May 2025. He took the oath of office and secrecy as Chairman of the Commission, succeeding the previous leadership of the constitutional recruitment body. Therefore, among the given options, Dr. Ajay Kumar is the correct answer.
27. (1): Carbohydrate digestion begins in the mouth through the action of salivary amylase, also called ptyalin, which is secreted by the salivary glands. It acts primarily on starch and begins breaking it into simpler sugars such as maltose and shorter polysaccharides. Pepsin acts mainly on proteins in the stomach, while trypsin is a pancreatic protease and does not initiate carbohydrate digestion.

$$\begin{aligned}
 28. (2): \quad & 2x + 3y - 5z = 4 & \dots(1) \\
 & x + 3y - 2z = 12 & \dots(2) \\
 & 2x + y - 3z = 5 & \dots(3) \\
 (1) - (2): & x - 3z = -8 & \dots(4) \\
 (1) - (3): & 2y - 2z = -1 & \dots(5) \\
 & y - z = -\frac{1}{2} & \dots(5) \\
 & x = 3z - 8, \quad y = z - \frac{1}{2}
 \end{aligned}$$

Substituting in (2):

$$\begin{aligned}
 (3z - 8) + 3\left(z - \frac{1}{2}\right) - 2z &= 12 \\
 4z - \frac{19}{2} &= 12 \\
 4z &= \frac{43}{2} \\
 z &= \frac{43}{8} \\
 x &= 3\left(\frac{43}{8}\right) - 8 = \frac{65}{8} \\
 y &= \frac{43}{8} - \frac{1}{2} = \frac{39}{8}
 \end{aligned}$$

29. (2): Gandhi regarded untouchability as a serious social evil and made its removal an important part of his constructive programme during the national movement. Under his influence, the Indian National Congress increasingly combined the struggle for political freedom with programmes for social reform, including campaigns against untouchability and efforts to improve the social condition of the Depressed Classes. Thus, abolition of untouchability became a major Gandhian priority rather than support for separate electorates or concentration solely on economic or princely-state issues.

$$\begin{aligned}
 30. (2): \quad & x = \sqrt[3]{512} = 8 \\
 & y = \sqrt[6]{64} = 2 \\
 & z = 6^3 - 2 \times 10^2 \\
 & \quad = 216 - 200 = 16
 \end{aligned}$$

$$\begin{aligned}
 & \sqrt[3]{10(x^2 + y^3 + z + 12)} \\
 & = \sqrt[3]{10(8^2 + 2^3 + 16 + 12)}
 \end{aligned}$$

$$\begin{aligned}
 & = \sqrt[3]{10(64 + 8 + 16 + 12)} \\
 & = \sqrt[3]{10 \times 100} \\
 & = \sqrt[3]{1000} = 10.
 \end{aligned}$$

31. (3): In "heavy metal music" and "heavy storm warning", the common word heavy has the common code mx; hence heavy = mx. Comparing "heavy metal music" with "crazy metal storm" gives metal = zb, while comparing the second and third statements gives storm = vg. Therefore, music = kg and warning = kw, so the code for "warning music" is kw kg.-

$$\begin{aligned}
 32. (3): \quad & \text{Speed in still water} = 4.5 \text{ km/h} \\
 & \text{Let speed of stream} = x \text{ km/h} \\
 & \text{Upstream speed} = 4.5 - x \\
 & \text{Downstream speed} = 4.5 + x \\
 & \text{Upstream time} = 2 \\
 & \quad \times \text{Downstream time} \\
 & d \div (4.5 - x) = 2d \div (4.5 + x) \\
 & 4.5 + x = 2(4.5 - x) \\
 & 4.5 + x = 9 - 2x \\
 & 3x = 4.5 \\
 & x = 1.5 \text{ km/h.}
 \end{aligned}$$

$$\begin{aligned}
 33. (1): \quad & 7, 10, 16, 25, 37, ? \\
 & \text{Differences} = 3, 6, 9, 12 \\
 & \text{Next difference} = 15 \\
 & 37 + 15 = 52.
 \end{aligned}$$

34. (3): The atomic number of an element is defined as the number of protons present in the nucleus of each atom of that element. It uniquely determines the identity of an element; for example, every carbon atom has six protons and therefore atomic number 6. The total number of protons and neutrons is the mass number, while the number of neutrons alone does not determine the atomic number.

35. (4): Ragam-Tanam-Pallavi is an important and highly developed form of improvisation in the Carnatic classical music tradition of South India. In it, Ragam involves melodic elaboration of the chosen raga, Tanam develops the raga with a characteristic rhythmic flow, and Pallavi presents and elaborates a composed thematic line with complex rhythmic and melodic improvisation. It is therefore specifically associated with Carnatic rather than Hindustani, Sufi or folk music.

36. (4): Cost price of 100 apples = ₹ 1,240

$$\text{Profit} = ₹ 935$$

Selling price of 100 apples

$$= 1,240 + 935 = ₹ 2,175$$

Selling price of 1 apple = ₹ 2,175 ÷ 100

Selling price of 12 apples

$$= (2,175 \times 12) \div 100$$

$$= ₹ 26,100 \div 100 = ₹ 261.$$

37. (3): Total frequency,

$$N = 10 + 17 + 22$$

$$+ 26 + 30 + 24 + 21$$

$$= 150$$

$$N \div 2 = 75$$

Cumulative frequencies:

10, 27, 49, 75, 105, 129, 150

Median = common boundary corresponding to cumulative frequency 75 = 55 years.

38. (1): Electric bulbs are filled with nitrogen and argon because these gases are chemically unreactive under the operating conditions of the bulb and do not readily react with the hot tungsten filament. They also reduce the rate at which tungsten evaporates from the intensely heated filament, thereby slowing its thinning and preventing premature failure. Thus, filling the bulb with these gases primarily increases the working life of the filament.

39. (1): In the 2024 Global Hunger Index, India was ranked 105th among 127 countries included in the ranking. The index assesses hunger using indicators related to undernourishment, child wasting, child stunting and child mortality, combining them into an overall score. Therefore, the total number of countries against which India's rank of 105 was reported was 127.

40. (2): Xylem vessels are elongated, hollow, lignified structures connected end-to-end to form continuous pathways from the roots toward the aerial parts of a plant. These continuous water columns enable the transmission of transpiration pull, while cohesion between water molecules helps maintain the column during upward transport against gravity. Sieve tubes transport food, whereas mesophyll spaces and meristematic tissues do not perform this water-conducting function.

41. (2): Starting point A = (0, 0)

10 km east → (10, 0)

5 km north → (10, 5)

11 km west → (-1, 5)

6 km south → (-1, -1)

1 km east → P = (0, -1)

P → A = 1 km north.

42. (2): $3^2 = 9 \equiv 1 \pmod{8}$
 $3^{939} = 3 \times (3^2)^{469}$
 $\equiv 3 \times 1^{469} \pmod{8}$
 $\equiv 3 \pmod{8}$

Remainder = 3.

43. (3): After all letters are removed, only the symbols remain in their original order: @, %, &, %, \$, \$, #, &. Counting from the left, the first symbol is @, the second is %, the third is &, the fourth is %, and the fifth is \$. Therefore, the symbol occupying the fifth position from the left after dropping all letters is \$.

44. (1): In VWT, the alphabetical movements are V → W = +1 and W → T = -3; Similarly, PQN follows P → Q = +1 and Q → N = -3, While YZW follows Y → Z = +1 and Z → W = -3. However, KMI follows K → M = +2 and M → I = -4, which does not match the common +1, -3 pattern. Hence, KMI is the letter-cluster that does not belong to the group.

45. (4): Sunlight reaching the Earth can be treated as a bundle of nearly parallel rays because the Sun is extremely far away. A convex lens converges these parallel rays at its principal focus, where the smallest and brightest image of the Sun is obtained on the paper. Therefore, the distance between the optical centre of the lens and this sharply focused bright spot gives approximately the focal length of the convex lens.

46. (2): Angle of elevation = 30°
 Horizontal distance = 240 ft
 Let height of cliff = h
 $\tan 30^\circ = h \div 240$
 $1 \div \sqrt{3} = h \div 240$
 $h = 240 \div 1.732$
 $h \approx 138.57$ ft
 Nearest integer = 139 ft.

47. (4): According to Newton's third law of motion, whenever one body exerts a force on another body, the second body simultaneously exerts an equal force in the opposite direction on the first. When the gun is fired, the gun exerts a forward force on the bullet, while the bullet exerts an equal and opposite backward force on the gun. This opposite force acting on the gun produces its recoil.
48. (4): **Statement A — Correct:** Selective reabsorption in the nephron returns required quantities of water, salts, glucose and other useful substances from the filtrate to the blood. By regulating how much water and various ions are reabsorbed, the kidneys play an important role in maintaining the body's water and salt balance.
- Statement B — Incorrect:** Nitrogenous wastes such as urea enter the nephron filtrate during glomerular filtration and are ultimately eliminated through urine. Selective reabsorption does not prevent these wastes from entering the filtrate; rather, it mainly recovers useful substances and required amounts of water and salts from the filtrate.
49. (2): $2^3 \times 6^2 \times 11 = 2^3 \times 2^2 \times 3^2 \times 11$
 $= 2^5 \times 3^2 \times 11$
 $2^2 \times 11^2 \times 17 = 2^2 \times 11^2 \times 17$
 $6^3 \times 11^2 \times 17^2 = 2^3 \times 3^3 \times 11^2 \times 17^2$
 $\text{LCM} = 2^5 \times 3^3 \times 11^2 \times 17^2$
50. (2): Q has only two people before it, so Q must have the exam on Wednesday; P has only one person after it, so P is on Saturday. With three people between Q and J, J must be on Sunday. Since G is immediately before I and exactly one person is between I and H, the only possible placement is G on Monday, I on Tuesday and H on Thursday, leaving R on Friday. Therefore, Wednesday and Thursday lie between I and R, so two people have exams between them.
51. (4): Marked price = ₹ x
 Price after 50% discount = $0.5x$
 Price after 64% VAT = 164% of $0.5x$
 $287 = 1.64 \times 0.5x$
 $287 = 0.82x$
 $x = 287 \div 0.82$
 $x = ₹ 350$
52. (3): Mass, $m = 0.15 \text{ kg}$
 Velocity, $v = 30 \text{ m/s}$
 Kinetic energy = $0.5 \times m \times v^2$
 $= 0.5 \times 0.15 \times 30^2$
 $= 0.5 \times 0.15 \times 900$
 $= 67.5 \text{ J}$
53. (4): J occupies the extreme right position because nobody sits to the right of J. With three people between J and R, R occupies the third position from the left; with two people between R and M, M occupies the sixth position. The conditions V sits third to the left of L and X sits immediately to the right of L fix V, L and X at the first, fourth and fifth positions respectively. Hence X is fifth from the left and four people sit to the left of X.
54. (4): Comparing "tall boy smart" with "tall girl lazy", the common word tall corresponds to the common code we. Comparing "tall boy smart" with "short boy lazy", the common word boy corresponds to the common code ki. Therefore, the two codes representing "tall boy" are we ki.
55. (2): 20% of maximum marks
 $= 459 + 81 = 540$
 100% of maximum marks
 $= 540 \times 5 = 2700$
 Friend's percentage = $(756 \div 2700) \times 100$
 $= 28\%$
56. (1): The iris is the coloured muscular part of the eye that surrounds the pupil and regulates its diameter. In bright light, the iris causes the pupil to become smaller so that less light enters the eye, whereas in dim light it enlarges the pupil to allow more light to enter. Thus, its principal function is to control the amount of light entering the eye by controlling pupil size.
57. (3): Uttarakhand shares its north-western interstate boundary with Himachal Pradesh through the districts of Uttarkashi and Dehradun. Uttarkashi lies along the mountainous northern part of this boundary, while Dehradun adjoins Himachal Pradesh farther south-west. Chamoli and Pithoragarh lie toward the northern and eastern Himalayan boundaries, whereas the other pairs listed do not share Uttarakhand's border with Himachal Pradesh.

58. (4): $\frac{x}{y} = \frac{18}{2} = 9$

$$\begin{aligned} x &= 9y \\ \frac{x^2 + y^2}{x^2 - y^2} &= \frac{81y^2 + y^2}{81y^2 - y^2} \\ &= \frac{82}{80} = \frac{41}{40} \end{aligned}$$

59. (4): Difference between CI and SI for 2 years
 $= P \times (R \div 100)^2$
 $371 = P \times (11 \div 100)^2$
 $371 = P \times 121 \div 10,000$
 $P = 371 \times 10,000 \div 121$
 $P = 30,661.157...$
 Nearest integer = ₹ 30,661.

60. (4): Absolute refractive index, $n = 1.7$
 $n = c \div v$
 $1.7 = c \div v$
 $v = c \div 1.7$

Therefore, the speed of light in the material is $1 \div 1.7$ times its speed in vacuum, corresponding to option 4.

61. (4): $25 \times 10 \times 5$ person-hours = 2 units
 Person-hours for 18 units
 $= (25 \times 10 \times 5 \times 18) \div 2$
 $= 11,250$

Work done per day by 15 people
 $= 15 \times 10 = 150$ person-hours
 Required days = $11,250 \div 150 = 75$ days.

62. (4): *Apis cerana indica* is commonly called the Indian bee or Indian honey bee and is an important indigenous honeybee used in apiculture. It can be maintained in hives and is valued for honey production under Indian climatic conditions. *Apis dorsata* is the rock bee, *Apis florea* is the little bee, while *Apis mellifera* is commonly known as the European or Italian bee.

63. (2): Mode = $3 \times \text{Median} - 2 \times \text{Mean}$
 $24 = 3 \times 18 - 2 \times \text{Mean}$
 $24 = 54 - 2 \times \text{Mean}$
 $2 \times \text{Mean} = 30$
 Mean = 15.

64. (2): Given replacements:

$$\begin{aligned} + &\rightarrow -, - \rightarrow \times, \times \rightarrow \div, \div \rightarrow + \\ 3 - 24 \times 6 \div 21 + 7 \\ &= 3 \times 24 \div 6 + 21 - 7 \\ &= 72 \div 6 + 21 - 7 \\ &= 12 + 21 - 7 = 26. \end{aligned}$$

65. (3): F # H means F is the daughter of H, while H $\times$ J means H is the wife of J; therefore, J is F's father. J % E means J is the father of E, so F and E are siblings, and E is male because E % M means E is the father of M. Hence, F is the sister of M's father E, which makes F the father's sister of M.

66. (1): Washing soda is the hydrated form of sodium carbonate and has the chemical formula $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$. It is obtained by crystallisation of sodium carbonate with water and is basic, not acidic, in nature. Washing soda is also used for removing permanent hardness of water; therefore, the statement identifying it as sodium carbonate decahydrate is correct.

67. (4): $21 \times 13 + 1 = 273 + 1 = 274$
 $26 \times 13 + 1 = 338 + 1 = 339$
 $34 \times 13 + 1 = 442 + 1 = 443.$

68. (4): Unsaturated carbon compounds contain at least one carbon-carbon double bond or triple bond, whereas saturated compounds contain only single carbon-carbon bonds. Double and triple bonds contain comparatively reactive bonding components that make addition reactions possible and generally make unsaturated compounds more reactive than corresponding saturated compounds. Therefore, the presence of double or triple bonds is the fundamental structural reason for their greater reactivity.

69. (1): The Untold Story of Chennai Super Kings was authored by P.S. Raman and deals with the journey of the Chennai Super Kings franchise, including important developments and events associated with the team. The book provides an insider-oriented account of CSK and discusses significant episodes surrounding the franchise and the IPL. Hence, among the given personalities, P.S. Raman is the author of the book.

70. (1): The official theme of ISHTA 2025 was "Bridging Evidence to Policy: Health Technology Assessment for Affordable Healthcare."

The symposium focused on using Health Technology Assessment evidence to strengthen evidence-based policymaking, improve allocation of healthcare resources and promote affordable healthcare. Thus, option 1 correctly represents the central theme stated for the 2025 symposium.

71. (3): $C \times S \Rightarrow C$ is the wife of S .

$S + D \Rightarrow S$ is the son of D .

$D - F \Rightarrow D$ is the sister of F ,

and $F \div G \Rightarrow F$ is the brother of G ;
therefore, D is G 's sister.

Hence S is the son of G 's sister, and C , being S 's wife, is related to G as sister's son's wife.

72. (4): $V_1 = \frac{1}{3} \times \pi \times r^2 \times h_1$

$$V_2 = 75\% \times V_1$$

Same base radius $\Rightarrow V \propto h$

$$h_2 = 75\% \times 7$$

$$= 0.75 \times 7 = 5.25 \text{ cm.}$$

73. (3): The 42nd Constitutional Amendment had increased the normal duration of the Lok Sabha and State Legislative Assemblies from five years to six years. The 44th Constitutional Amendment Act, 1978 reversed this change and restored their normal term to five years, subject to the constitutional provisions concerning earlier dissolution and extension during an emergency. Thus, five years is the standard constitutional term restored by the 44th Amendment.

74. (1): $\angle APX = 60^\circ$

By tangent-chord theorem,

$$\angle PYX = \angle APX$$

$$\angle PYX = 60^\circ$$

$$\angle BPY = 30^\circ$$

By tangent-chord theorem,

$$\angle PXY = \angle BPY$$

$$\angle PXY = 30^\circ.$$

75. (3): Sodium hydroxide dissociates in aqueous solution into positively charged sodium ions and negatively charged hydroxide ions. The sodium ion, Na^+ , is the cation, while the hydroxide ion, OH^- , carries a negative charge and is therefore the anion. Hence, the anion present in sodium hydroxide is OH^- .

76. (3): For (11, 13, 17):

$$2 \times 11 - 5 = 17$$

For (8, 7, 11):

$$2 \times 8 - 5 = 11$$

For (10, 11, 15):

$$2 \times 10 - 5 = 15$$

Therefore, the required set = (10, 11, 15).

77. (2): Let Rashmi's amount = R

Let Varsha's amount = V

$$5R \div 16 = 3V \div 7$$

$$35R = 48V$$

$$R : V = 48 : 35$$

$$\text{Total parts} = 48 + 35 = 83.$$

$$83 \text{ parts} = ₹ 22,576$$

$$1 \text{ part} = ₹ 22,576 \div 83 = ₹ 272$$

$$\text{Rashmi's amount} = 48 \times ₹ 272$$

$$= ₹ 13,056.$$

78. (4): Rough endoplasmic reticulum has numerous ribosomes attached to its cytoplasmic surface, and these ribosomes synthesise proteins, particularly proteins destined for secretion, membranes or other cellular compartments. The newly formed proteins enter the rough endoplasmic reticulum, where they undergo initial processing and are transported onward, generally toward the Golgi apparatus. Thus, protein synthesis and transport constitute its principal function.

79. (4): $81 + 179 = 260$

$$108 + 179 = 287$$

$$156 + 179 = 335.$$

80. (3): Carbon-12 provides a convenient and precisely defined reference for expressing relative atomic masses, with one atomic mass unit defined as one-twelfth of the mass of a carbon-12 atom. Using this standard gives atomic masses of many elements values reasonably close to whole numbers and provides a uniform international scale. Its selection is not primarily because carbon forms many compounds or because of its abundance or low chemical reactivity.

81. (4): Dwarka, on the coast of Gujarat, is traditionally associated with the ancient city described in Indian mythology as having been submerged beneath the sea. Marine archaeological investigations in the waters around modern Dwarka and nearby areas have also identified

submerged structural and archaeological remains that have generated considerable interest concerning ancient coastal settlements. Therefore, among the given options, Dwarka near Gujarat is the coastal feature associated with such submergence.

82. (4): 23, 34, 45, 56, 67, ?

$$34 - 23 = 11$$

$$45 - 34 = 11$$

$$56 - 45 = 11$$

$$67 - 56 = 11$$

$$\text{Next term} = 67 + 11 = 78.$$

83. (1): The letters in each corresponding position move one place backward in the English alphabet from one term to the next. Thus, the first letters follow $R \rightarrow Q \rightarrow P \rightarrow O \rightarrow N$, the second letters follow $L \rightarrow K \rightarrow J \rightarrow I \rightarrow H$, and the third letters follow $O \rightarrow N \rightarrow M \rightarrow L \rightarrow K$. Therefore, the next letter-cluster is NHK.

84. (1): $X : Y : Z = 4 : 3 : 6$

$$Z - Y = 6 - 3 = 3 \text{ parts}$$

$$3 \text{ parts} = ₹ 3300$$

$$1 \text{ part} = ₹ 1100$$

$$X - Y = 4 - 3 = 1 \text{ part}$$

$$X - Y = ₹ 1100.$$

85. (4): A homogeneous mixture has a uniform composition throughout and its individual components cannot be visibly distinguished. When salt dissolves completely in water, it forms a uniform solution in which the dissolved salt is distributed evenly throughout the water. Oil and water, sand and iron filings, and chalk powder in water do not form homogeneous mixtures under the conditions described.

86. (4): Covered distance : Remaining distance

$$= 6 : 7$$

$$\text{Total distance} = 13 \text{ parts} = 36 \text{ km}$$

$$\text{Covered distance} = \frac{216}{13} \text{ km}$$

$$\text{Time} = 2 \text{ hours } 5 \text{ minutes}$$

$$= \frac{25}{12} \text{ hours}$$

$$\text{Speed} = \frac{216}{13} \div \frac{25}{12}$$

$$= \frac{2592}{325} \text{ km/h}$$

$$= 7.975... \text{ km/h} \approx 8 \text{ km/h}.$$

87. (2): **Conclusion I — All papers are erasers:**

All papers are bags and all bags are copies, so it can definitely be concluded that all papers are copies. However, only some copies are stated to be erasers; there is no definite relationship establishing that every paper is an eraser. Hence, Conclusion I does not follow.

Conclusion II — All bags are erasers: All bags are copies, but the statement that some copies are erasers does not imply that all copies, or consequently all bags, are erasers. The eraser portion may consist of copies that are outside the set of bags. Hence, Conclusion II also does not follow.

88. (2): Compost and vermicompost convert biodegradable organic wastes into nutrient-rich manure and return organic matter and nutrients to the soil. Their use improves soil structure, water-holding capacity and biological activity while reducing dependence on excessive chemical fertilizers, whose indiscriminate use may adversely affect soil and water quality. Compost does not eliminate all plant diseases or remove the need for irrigation and weeding.

89. (4): In the given series, a qualifying symbol must itself be immediately preceded by another symbol and immediately followed by a letter. In the segment # / E, the symbol / is immediately preceded by # and immediately followed by the letter E, so it satisfies both conditions. No other symbol in the series satisfies both conditions simultaneously; therefore, the required number is one.

90. (2): SP of 45 books = CP of 18 books

$$\text{SP of 1 book} : \text{CP of 1 book} = 18 : 45$$

$$= 2 : 5$$

$$\text{Loss} = 5 - 2 = 3$$

$$\text{Loss \%} = 3 \times 100 \div 5$$

$$= 60\% \text{ loss}.$$

91. (3): Since exactly one person is between W and S and exactly one person is between S and D, the only arrangement satisfying these conditions together with A scoring less than both W and S

is $W > R > S > A > D$. Thus, R has the second-highest marks among the five persons. Consequently, S, A and D—three people—have scored less than R.

92. (2): Given equation:

$$3x^2 + 4x - 8 = 0$$

Multiplying throughout by -0.5 :

$$-0.5(3x^2 + 4x - 8) = 0$$

$$-1.5x^2 - 2x + 4 = 0$$

Hence, both equations have exactly the same roots.

93. (4): $x^2 - 2x = x(x - 2)$
 $x^4 - 8x = x(x^3 - 8)$
 $= x(x - 2)(x^2 + 2x + 4)$
 $2x^2 + 5x - 3 = (2x - 1)(x + 3)$
 $\frac{(x + 3)(2x - 1)}{x(x - 2)} \times \frac{x(x - 2)(x^2 + 2x + 4)}{(x^2 + 2x + 4)}$
 $\times \frac{1}{(2x - 1)(x + 3)}$
 $= 1.$

94. (1): The Comprehensive Environmental Pollution Index was developed much later as a tool for assessing the environmental quality of polluted industrial clusters; official CPCB material from 2009 describes the proposed CEPI and identifies it as an early-warning tool. It was designed principally for comprehensive environmental assessment and prioritisation of polluted industrial areas, and the methodology can also support assessment beyond a narrowly defined industrial cluster. Therefore, the statement that it was first introduced in 1983 is NOT a feature of CEPI.

95. (1): First 18 positive multiples of 10:
 10, 20, 30, ..., 180
 Average of an arithmetic sequence
 $= (\text{First term} + \text{Last term}) \div 2$
 $= (10 + 180) \div 2$
 $= 190 \div 2 = 95.$

96. (1): Biodegradable substances are materials that can be decomposed naturally through the action of living organisms, particularly microorganisms

such as bacteria and fungi. Organic wastes such as food remains, plant material and paper can therefore be converted into simpler substances by biological activity. Merely being broken by a physical, mechanical or general chemical process does not constitute the defining characteristic of biodegradability.

97. (2): In the series, X is immediately preceded by the symbol % and immediately followed by the letter N, so X satisfies the condition. Similarly, M is immediately preceded by the symbol \$ and immediately followed by the letter H, so M also satisfies it. No other letter has both a symbol immediately before it and a letter immediately after it; hence the required number is two.

98. (4): For wires made of the same material and having the same length, resistance is inversely proportional to their cross-sectional area. A thicker wire has a larger cross-sectional area and therefore offers lower electrical resistance than a thinner wire. At the same applied potential difference, Ohm's law then gives a larger current, causing the ammeter reading to increase.

99. (2): Indian filmmaker Pan Nalin became a registered member of the European Film Academy in 2025, joining its international community of film professionals. The European Film Academy's official 2025 new-members list includes him among the newly admitted members, and contemporary reporting specifically identified his induction as a registered member. Pan Nalin is known internationally for films including *Chhello Show (Last Film Show)*, *Samsara* and *Angry Indian Goddesses*.

100. (4): Total number of workers
 $= 12 + 18 = 30$
 Total daily wages
 $= 30 \times ₹ 604 = ₹ 18,120$
 Total wages of skilled workers
 $= 12 \times ₹ 754 = ₹ 9,048$
 Total wages of unskilled workers
 $= ₹ 18,120 - ₹ 9,048 = ₹ 9,072$
 Average wage of unskilled workers
 $= ₹ 9,072 \div 18 = ₹ 504.$