

—SAMPLE—
PAPERS



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8TH

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Sample Paper - 4 Year Program

Admission & Scholarship Test

Duration : 3.0 Hrs

Maximum Marks: 305

PAPER SCHEME :

- The paper contains **60 Objective Type Questions** divided into three sections: **Section - I, Section – II and Section – III.**
- **Section I** contains **10 Multiple Choice Questions (1-10)** based on Mental Aptitude. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE CHOICE is correct.**
- **Section II** contains **35 Multiple Choice Questions (11-45)** based on Mathematics. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE CHOICE is correct.**
- **Section III** contains **15 Multiple Choice Questions (46-60)** based on Science. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE CHOICE is correct.**

MARKING SCHEME :

- **Section I :** For each question, **4 marks** will be awarded for correct answer and **–1 negative marking** for incorrect answer.
- **Section II :** For each question, **5 marks** will be awarded for correct answer and **–1 negative marking** for incorrect answer.
- **Section III :** For each question, **6 marks** will be awarded for correct answer and **–1 negative marking** for incorrect answer.

GENERAL INSTRUCTIONS :

- For answering a question, an **ANSWER SHEET (OMR SHEET)** is provided separately. Please fill your **Name, Roll Number, Seat ID, Date of Birth** and the **PAPER CODE** properly in the space provided in the **ANSWER SHEET**. IT IS YOUR OWN RESPONSIBILITY TO FILL THE OMR SHEET CORRECTLY.
- A blank space has been provided on each page for rough work. You will not be provided with any supplement or rough sheet.
- The use of log tables, calculator and any other electronic device is strictly prohibited.
- Violating the examination room discipline will immediately lead to the cancellation of your paper and no excuses will be entertained.
- No one will be permitted to leave the examination hall before the end of the test.
- Please submit both the question paper and the answer sheet to the invigilator before leaving the examination hall.

SUGGESTIONS:

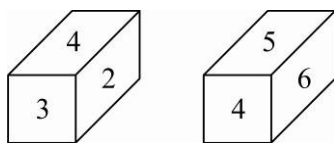
- Before starting the paper, spend 2-3 minutes to check whether all the pages are in order and report any issue to the invigilator immediately.
- Try to attempt the Sections in their respective order.
- Do not get stuck on a particular question for more than 3-4 minutes. Move on to a new question as there are 60 questions to solve.

SECTION - I [MENTAL APTITUDE]

- Three out of the four options are same in a certain way and so form a group. Find the odd option that does not belong to the group.
(A) 1:10 (B) 20:200 (C) 3:30 (D) 5:55
- The 2 groups of letters on the left have some relationship between them. Replace the '?' with a group of letters so that the 2 groups of letters on the right have the same relationship.
 $ABC : EFG :: IJK : ?$
(A) ABC (B) XYZ (C) DEW (D) MNO
- What is the next term in the given series ?
3, 6, 9, 12,
(A) 13 (B) 14 (C) 15 (D) 16
- Which of the given group of letters will complete the given series ?
 $ba_b_aab_a_b$
(A) baab (B) abba (C) abaa (D) babb
- A cube of side 4cm is painted black on the pair of one opposite surfaces, blue on the pair of another opposite surfaces and red on the remaining pair of opposite surfaces. The cube is now divided into smaller cubes of equal sides of 1cm each. How many smaller cubes have 3 sides painted ?
(A) 6 (B) 12 (C) 8 (D) 16
- | | | |
|-------|---|---|
| 3 | 4 | a |
| b | 2 | 3 |
| <hr/> | | |
| b | 0 | 3 |
| 6 | 9 | 0 |
| 3 | 4 | a |
| <hr/> | | |
| 4 | 2 | 4 |
| 3 | a | |

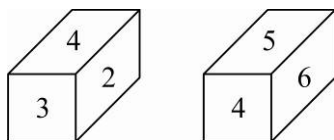
What is a ?
(A) 1 (B) 2 (C) 4 (D) 5
- What is the next term in the given series ?
121, 144, 169, 196,
(A) 200 (B) 249 (C) 250 (D) 225
- What is the next term in the given series ?
41, 47, 59, 67,
(A) 75 (B) 73 (C) 71 (D) 83

9. The figures given below show the 2 different positions of a dice.



Which number will appear opposite to 2 ?

- (A) 3 (B) 4 (C) 5 (D) 6
10. The figures given below show the 2 different positions of a dice.



Which number will appear opposite to 4 ?

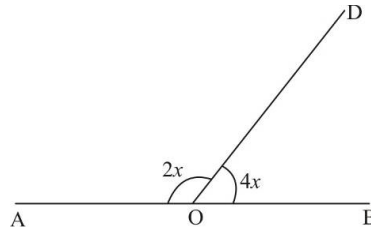
- (A) 1 (B) 2 (C) 5 (D) 6

SECTION - II [MATHEMATICS]

11. Which of the rational numbers $\frac{-11}{28}, \frac{-5}{7}, \frac{9}{-14}, \frac{29}{-42}$ is the greatest ?
- (A) $\frac{-11}{28}$ (B) $\frac{-5}{7}$ (C) $\frac{9}{-14}$ (D) $\frac{29}{-42}$
12. When 75% of a number is added to 75, then resultant number is the original number. The number is :
- (A) 150 (B) 300 (C) 100 (D) 45
13. The diagonals do not necessarily bisect the interior angles at the vertices in a :
- (A) rectangle (B) square (C) rhombus (D) None of these
14. In the adjoining figure, ABCD is a parallelogram. Then $\angle ABD$ is :
- (A) 35°
(B) 40°
(C) 80°
(D) 25°
-
15. The measure of each exterior angle of a 10 sides regular polygon is :
- (A) 36° (B) 30° (C) 18° (D) 35°
16. If $AB = 7.3 \text{ cm}$, one angle is 60° and diagonals bisect each other at 90° , then which of the following figure can be constructed ?
- (A) Rectangle (B) Square (C) Trapezium (D) Rhombus
17. In a pie chart representing the number of students opting for different streams of study, out of a total strength of 1650 students, the central angle of the sector representing Arts students is 48° . What is the number of students who opted for Arts stream ?
- (A) 220 (B) 240 (C) 275 (D) 320

18. In the given figure AOB is a straight line. Find x .

(A) 60°
 (B) 180°
 (C) 90°
 (D) 30°



19. Find the cube root of 343.

(A) 6 (B) 7 (C) 5 (D) 4

20. 25% of a number is more than 18% of 650 by 19. The number is :

(A) 380.8 (B) 450 (C) 544 (D) None of these

21. A trader allows a trade discount of 20% and a cash discount of $6\frac{1}{4}\%$ on the marked price of the goods and gets a net gain of 20% on the cost. By how much above the cost should the goods be marked for sale ?

(A) 40% (B) 50% (C) 60% (D) 70%

22. Simplify the expression : $-[-2x - \{3y - (2x - 3y) + (3x - 2y)\} + 2x]$

(A) $x - 4y$ (B) $x + 4$ (C) $x + 4y$ (D) x

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

(A) 8 (B) 9 (C) 10 (D) 11

24. The surface area of a cube is 1734 cm^2 . Its volume is :

(A) 2197 cm^3 (B) 4913 cm^3 (C) 2744 cm^3 (D) 4096 cm^3

25. How many bricks, each measuring $25 \text{ cm} \times 11.25 \text{ cm} \times 6 \text{ cm}$ will be needed to build a wall 8 m long, 6 m high and 22.5 cm thick?

(A) 5600 (B) 6000 (C) 6400 (D) 7200

26. If $\frac{1}{2}$ is subtracted from a number and the difference is multiplied by 4, the result is 5. What is the number ?

(A) $\frac{8}{9}$ (B) $\frac{7}{4}$ (C) $\frac{6}{4}$ (D) $\frac{1}{3}$

27. If $\frac{9-3y}{1-9y} = \frac{8}{5}$, value of y is :

(A) $\frac{37}{57}$ (B) $\frac{-37}{57}$ (C) $\frac{421}{9}$ (D) $\frac{-421}{9}$

28. What is the sum of all angles of a hexagon ?

(A) 180° (B) 360° (C) 540° (D) 720°

29. The factors of $x^2 - 11x - 42$ are :

(A) $(x-14)(x-3)$ (B) $(x-14)(x+3)$ (C) $(x+14)(x+3)$ (D) $(x-3)(x+14)$

30. Factorisation of $x^4 + 25y^4 - 10x^2y^2$:

- (A) $(x^2 + 5y^2)(x^2 + 5y^2)$ (B) $(x^2 + y^2)(x^2 + y^2)$
 (C) $(x^2 - 5y^2)(x^2 - 5y^2)$ (D) $(x^2 - y^2)(x^2 - y^2)$

31. Which of the following does not lie on y-axis?

- (A) (0, 5) (B) (0, -2) (C) (-3, 0) (D) (0, 7)

32. A 2-digit number becomes $\left(\frac{5}{6}\right)^{th}$ of itself when its digits are reversed. The two digits differ by one.

The number is:

- (A) 45 (B) 65 (C) 75 (D) 54

33. Find the value of A, B and C respectively if:

$$\begin{array}{r} A \ 8 \ 3 \\ \times \ C \ 9 \\ \hline A \ 0 \ 4 \ A \\ + \ 1 \ 5 \ B \ B \ 0 \\ \hline C \ C \ A \ 0 \ A \end{array}$$

- (A) 2, 6, 7 (B) 6, 7, 2 (C) 7, 6, 2 (D) 7, 5, 2

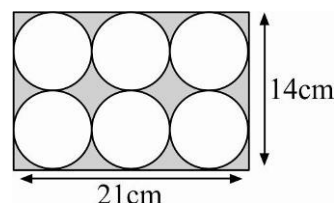
34. Common factor of $17abc$, $34ab^2$, $51a^2b$ is:

- (A) $17abc$ (B) $17ab$ (C) $17ac$ (D) a^2b^2c

35. Sam cut 6 identical circles from a rectangular piece of paper.

Find the shaded area (Take $\pi = \frac{22}{7}$):

- (A) 62 cm^2 (B) 294 cm^2
 (C) 63 cm^2 (D) 98 cm^2



36. Amit's monthly income is 30% more than that of Raunak. Raunak's monthly income is 20% less than that of Deepak. If the difference between the monthly income of Amit and Deepak is ₹ 800, what is the monthly income of Raunak?

- (A) Rs. 12000 (B) Rs. 16000 (C) Rs. 20,000 (D) None of these

37. Find the value of m if $2^m = 8$.

- (A) 4 (B) 3 (C) 2 (D) 1

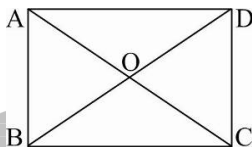
38. The value of $\frac{1}{5} - \left(\frac{4}{2} \times \frac{8}{10}\right) + \frac{2}{5}$ is?

- (A) 1 (B) 0 (C) -1 (D) $\frac{2}{5}$

39. Evaluate: $\frac{\sqrt{x^3} \times \sqrt[3]{x^5}}{\sqrt[5]{x^3}} \times \sqrt[30]{x^{77}}$

- (A) $x^{76/15}$ (B) $x^{78/15}$ (C) $x^{79/15}$ (D) $x^{77/15}$

40. If $\frac{a}{9} = \frac{3}{2}$. Find a .
- (A) $\frac{2}{27}$ (B) $\frac{1}{3}$ (C) $\frac{27}{2}$ (D) 3
41. Which of the following statements is true ?
- (A) $\frac{5}{7} < \frac{7}{9} < \frac{9}{11} < \frac{11}{13}$ (B) $\frac{11}{13} < \frac{9}{11} < \frac{7}{9} < \frac{5}{7}$
- (C) $\frac{5}{7} < \frac{11}{13} < \frac{7}{9} < \frac{9}{11}$ (D) $\frac{5}{7} < \frac{9}{11} < \frac{11}{13} < \frac{7}{9}$
42. A student has to secure 40% marks to pass. He got 40 marks and failed by 40 marks. The maximum number of marks is :
- (A) 160 (B) 180 (C) 200 (D) 320
43. A number consists of two digits whose sum is 12. If 18 is added to the number, its digits get reversed. The number is :
- (A) 28 (B) 35 (C) 57 (D) 34
44. Three angles of quadrilateral are in the ratio 1: 5: 6. The mean of these angles is 64° . Find the fourth angle.
- (A) 168° (B) 162° (C) 120° (D) 90°
45. In a rectangle ABCD, the diagonals intersect at O. If $\angle AOB = 62^\circ$ then $\angle ODC$ is equal to :



- (A) 39° (B) 59° (C) 48° (D) None of these

SECTION - III [SCIENCE]

46. The distance between the 3rd crest and 10th crest is approximately 18 m as observed by a fisher man. The wave length of such wave is;
- (A) 2.57 m (B) 3 m (C) 3.5 m (D) 2.6 m
47. Friction reduces efficiency of machines due to:
- (A) Production of heat (B) Wearing out of moving parts
- (C) Increase in energy consumption (D) All of these
48. Which of the following statement is correct?
- (A) rolling a body is easier than sliding
- (B) sliding a body is easier than rolling
- (C) dragging a body is easier than sliding
- (D) dragging a body is easier than rolling
49. Four forces are acting on a body. If the body doesn't change its position or shape, the forces:
- (A) must be of equal magnitude
- (B) must be parallel & opposite
- (C) must add up to zero when taken as vectors
- (D) must be in a single line

50. Which of the following is not true?
(A) A sharp knife can easily cut due to its small cutting surface
(B) It is easier to walk in sand than on road
(C) A battle tank can move easily on soft ground because its tracks have bigger surface
(D) The pressure exerted by a needle is much more than the foot of an elephant
51. Which of the following is not a ductile material?
(A) Silver (B) Copper (C) Sulphur (D) Aluminium
52. Metallic oxides are basic and non-metallic oxides are acidic. Which of the following is incorrect?
(I) A solution of sulphur dioxide in water will change blue litmus to red.
(II) A solution of magnesium oxide in water will change red litmus to blue.
(III) A solution of copper oxide in water will change red litmus to blue.
(A) (I) and (II) (B) (I), (II) and (III) (C) Only (I) (D) None of these
53. Which of the following statements is/are incorrect?
(I) Coal is formed from the remains of both plants and animals.
(II) Naphthalene balls are used as mosquito repellent.
(III) Coke is a constituent of petroleum.
(A) (I) and (II) (B) (I), (II) and (III) (C) Only (I) (D) None of these
54. Which of the following statements is/are incorrect?
(I) Wood pulp is a source of rayon.
(II) Melamine is a thermosetting plastic.
(III) Jute is a synthetic fibre.
(A) (I) and (II) (B) Only (III) (C) (I), (II) and (III) (D) (I) and (III)
55. Which of the following is not obtained from coal?
(A) Coke (B) Coal tar (C) Coal gas (D) CNG
56. The process of loosening and turning of soil is called:
(A) Tilling (B) Ploughing (C) Irrigation (D) Both A and B
57. Which of the following provides a lot of humus to the soil?
(A) Manure (B) Fertilizer (C) Plough (D) Both A and B
58. Dysentery and Malaria are caused by:
(A) Protozoans (B) Bacteria (C) Virus (D) All of these
59. Process of conversion of alcohol into sugar is known as:
(A) Glycolysis (B) Fermentation (C) ETC (D) None of these
60. Threatened wild animals is/are:
(A) Black buck (B) Golden cat (C) Gharial (D) All of these



Answers to Sample Paper | 4 Year

SECTION - I									
1	2	3	4	5	6	7	8	9	10
D	D	C	B	C	D	D	B	C	A
SECTION - II									
11	12	13	14	15	16	17	18	19	20
A	B	A	A	A	D	A	D	B	C
21	22	23	24	25	26	27	28	29	30
C	C	D	B	C	B	B	D	B	C
31	32	33	34	35	36	37	38	39	40
C	D	C	B	C	B	B	C	D	C
		41	42	43	44	45			
		A	C	C	A	B			
SECTION - III									
46	47	48	49	50	51	52	53	54	55
A	D	A	C	B	C	D	B	B	D
		56	57	58	59	60			
		D	A	A	B	D			

34 YEARS LEGACY

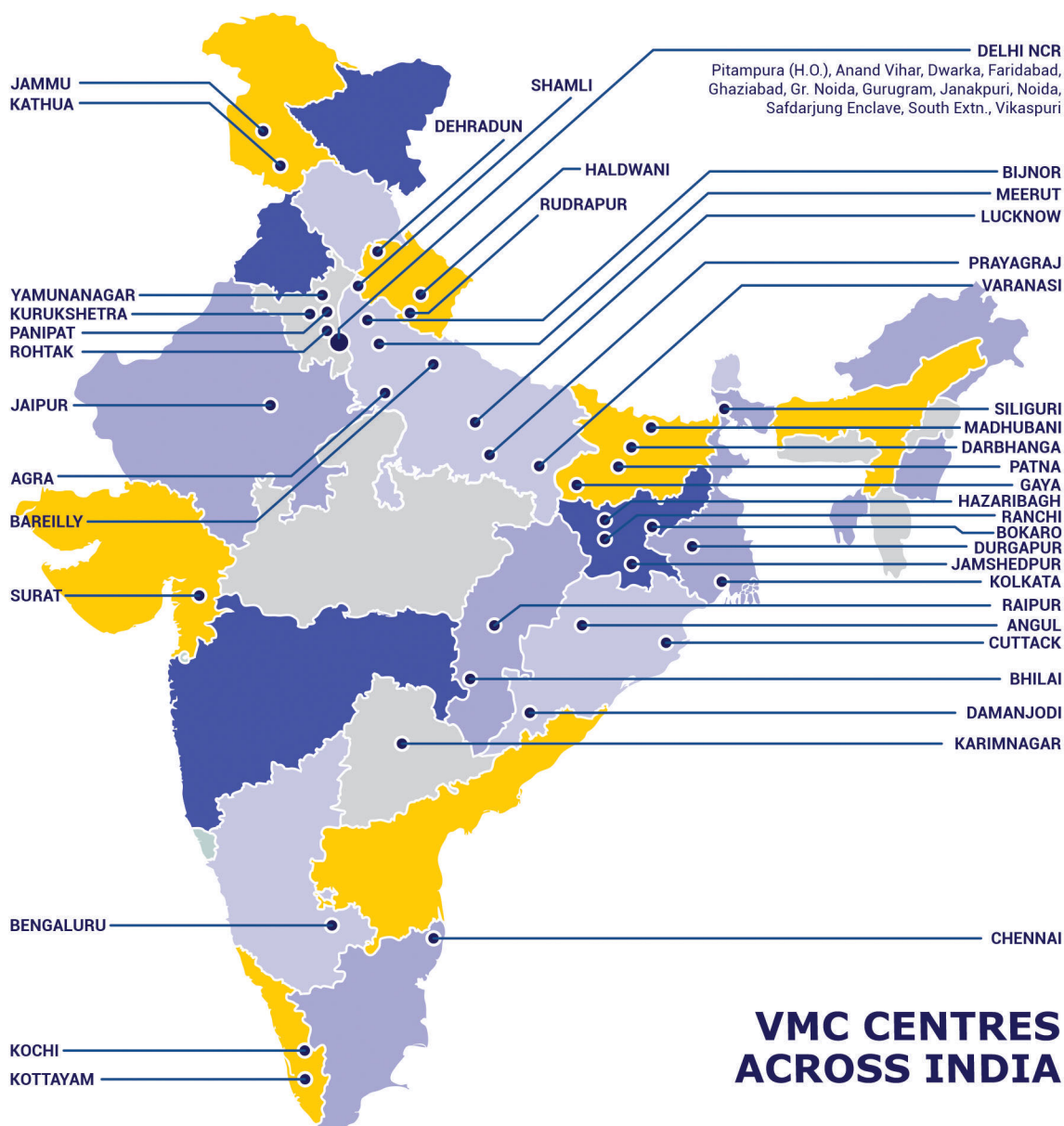
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