MATHEMATICS MOCK TEST

Class: VIII | Set: 21

Time: 2 Hours | Written Marks: 35 | Viva: 5 | Total: 40 Marks

NAME: _____ **ROLL NO:** _____

SECTION A

(1 Mark Each)

1. Find the solution set for the inequation $\frac{x}{3} \geq 2$ where the replacement set is $\{3, 4, 5, 6, 7\}$.
2. If the diameter of a circle is 24 cm, what is its radius?
3. What are the coordinates of the origin in the Cartesian coordinate system?
4. Find the volume of a cube whose edge is 5 cm.
5. What is the sum of the probabilities of all possible outcomes of an experiment?

SECTION B

(2 Marks Each)

6. Solve the inequation $2(x+3) < 10$ and represent the solution on a number line for $x \in \mathbb{N}$ (Natural numbers).
7. Find the area of a circle whose radius is 3.5 cm. (Take $\pi = 22/7$)
8. Plot the points $A(5, 0)$ and $B(0, -3)$ on a coordinate plane. Name the axes on which they lie.
9. Find the total surface area of a cuboid of dimensions 5 cm $\times$ 4 cm $\times$ 3 cm.
10. A die is thrown once. Find the probability of getting a prime number.

SECTION C

(3 Marks Each)

11. Solve: $3(x - 2) > 2(x + 1) - 5$. List the solution set if the replacement set is the set of integers $\mathbb{I}$ such that $-5 \leq x \leq 5$.
12. A wire is in the form of a square of side 22 cm. It is rebent into a circular shape. Find the area of the circle so formed.
13. Draw the graph of the linear equation $y = x - 3$. Find the points where the line crosses the x-axis and the y-axis.
14. A cylindrical pillar is 50 cm in diameter and 3.5 m in height. Find the cost of painting the curved surface of the pillar at the rate of ₹12.50 per m^2.

SECTION D

(4 Marks Each - Case Study)

Case Study 1: The Multi-Colored Marble Bag
A bag contains 5 red marbles, 8 white marbles, and 4 green marbles. One marble is taken out of the bag at random.

(i) What is the probability that the marble taken out is (a) red, and (b) white? (2 Marks)

(ii) What is the probability that the marble taken out is **not** green? (2 Marks)

Case Study 2: Industrial Metal Recasting
A solid metallic cube of edge 6 cm is melted and recast into a cuboid whose base measures 9 cm $\times$ 4 cm.

(i) Find the volume of the metallic cube. (2 Marks)

(ii) Calculate the height of the resulting cuboid. (2 Marks)

VIVA VOCE

(5 Marks)

- **Inequations:** When solving an inequation, in which case must you reverse the inequality sign?
- **Circles:** Define the 'Sector' of a circle and how it differs from a 'Segment'.
- **Graphs:** In which quadrant do both x and y coordinates have negative values?
- **Solids:** What is the formula for the volume of a right circular cylinder?
- **Probability:** What is an 'Impossible Event' and what is its probability?