MATHEMATICS MOCK TEST

Class: VIII | Set: 17

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

NAME: _____ **ROLL NO:** _____

SECTION A

(1 Mark Each)

1. Solve the inequation $\frac{x}{2} < 3$ where x is a natural number ($x \in \mathbb{N}$).
2. What is the ratio of the circumference of a circle to its diameter called?
3. Find the coordinates of a point which lies on the y-axis at a distance of 4 units below the x-axis.
4. Find the total surface area of a cube with an edge of 2 cm.
5. A die is thrown once. What is the probability of getting a number greater than 4?

SECTION B

(2 Marks Each)

6. Solve the inequation $3x - 5 \leq x + 7$ and represent the solution on a number line for $x \in \mathbb{N}$.
7. If the diameter of a circle is 15 cm, find the length of its radius.
8. Plot the points $M(2, 5)$ and $N(-2, 5)$ on a coordinate plane. Find the length of the segment MN.
9. Find the volume of a cylinder with base radius 3.5 cm and height 10 cm.
10. A card is drawn from a well-shuffled pack of 52 cards. Find the probability that the card drawn is a 'King'.

SECTION C

(3 Marks Each)

11. Solve the linear inequation $5(x - 2) \geq 3(x + 4)$ and list the solution set if x is an integer ($x \in \mathbb{I}$).
12. Find the area of a circle whose circumference is 88 cm. (Take $\pi = 22/7$)
13. Draw the graph of the linear equation $y = 3x - 1$. (Plot at least three points).
14. Find the total surface area of a cuboid whose length, breadth, and height are 10 cm, 8 cm, and 6 cm respectively.

SECTION D

(4 Marks Each - Case Study)

Case Study 1: The Circular Garden Path
A circular flower bed has a radius of 14 m. A path of width 7 m is built all around it on the outside.

(i) Find the outer radius of the circular path. (2 Marks)

(ii) Calculate the area of the path alone (Area of outer circle $-$ Area of inner circle). (2 Marks)

Case Study 2: Monthly Budget Planning
A family represents its monthly expenditure of ₹$30,000$ using linear relationships. One condition is that the amount spent on Food (x) and Education (y) together must not exceed ₹$12,000$.

(i) Formulate a linear inequation to represent the condition for Food and Education expenses. (2 Marks)

(ii) If the family spends ₹$8,000$ on Food, find the maximum amount they can spend on Education to satisfy the inequation. (2 Marks)

VIVA VOCE

(5 Marks)

- **Inequations:** What happens to the inequality sign when you multiply or divide both sides by a negative number?
- **Circles:** Define 'Circumference' and 'Radius' of a circle.
- **Graphs:** In which quadrant do points with both coordinates negative lie?
- **Solids:** What is the formula for the volume of a right circular cylinder?
- **Probability:** What is an 'Impossible Event' and what is its probability?