MATHEMATICS MOCK TEST

Class: VIII | Set: 27

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

NAME: _____ **ROLL NO:** _____

SECTION A

(1 Mark Each)

1. Solve the inequation $x + 4 < 7$ where x is a natural number ($x \in \mathbb{N}$).
2. Find the area of a circle whose radius is 14 cm. (Take $\pi = 22/7$)
3. State the abscissa of the point $(-5, 4)$.
4. Find the volume of a cube whose edge is 2 cm.
5. A card is drawn from a pack of 52 cards. What is the probability of drawing a 'Spade'?

SECTION B

(2 Marks Each)

6. Solve the inequation $5x + 3 \leq 18$ and represent the solution on a number line for $x \in \mathbb{W}$ (Whole numbers).
7. The circumference of a circle is 88 cm. Find its radius.
8. Plot the points $A(0, 5)$ and $B(5, 0)$ on a coordinate plane. On which axes do they lie?
9. Find the total surface area of a cuboid with dimensions 6 cm $\times$ 4 cm $\times$ 2 cm.
10. A die is thrown once. Find the probability of getting a multiple of 3.

SECTION C

(3 Marks Each)

11. Solve: $4(x - 2) \geq 3(x + 1) - 13$, and list the solution set if x is an integer such that $-5 \leq x \leq 5$.
12. Find the area of a circular ring whose outer diameter is 28 cm and inner diameter is 14 cm.
13. Draw the graph of the linear equation $y = x - 5$ by finding at least three solutions.
14. How many bricks, each measuring 20 cm $\times$ 10 cm $\times$ 5 cm, are needed to build a wall 4 m long, 2.5 m high and 20 cm thick?

SECTION D

(4 Marks Each - Case Study)

Case Study 1: The Face Card Probability
A standard deck of 52 playing cards is used in a classroom activity. A card is drawn at random.

(i) Find the probability that the card drawn is a 'Face card' (Jack, Queen, or King). (2 Marks)

(ii) Find the probability that the card drawn is a 'Black Face card'. (2 Marks)

Case Study 2: Industrial Pillar Maintenance
A construction company needs to paint 10 cylindrical pillars of a building. Each pillar has a radius of 35 cm and a height of 4 m.

(i) Find the curved surface area (CSA) of one pillar in square metres. (2 Marks)

(ii) Find the total cost of painting the curved surfaces of all 10 pillars at the rate of ₹20 per m^2. (2 Marks)

VIVA VOCE

(5 Marks)

- **Inequations:** When does the inequality sign flip (reverse) during the solving process?
- **Circle:** Define the 'Circumference' of a circle. What is its relationship with the diameter?
- **Graphs:** What is the name of the vertical axis in the Cartesian coordinate system?
- **Solids:** If the edge of a cube is doubled, how many times does its volume increase?
- **Probability:** Can the probability of an event be negative or greater than 1? Explain.