MATHEMATICS MOCK TEST

Class: VIII | Set: 22

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

NAME: _____ **ROLL NO:** _____

SECTION A

(1 Mark Each)

1. Solve the inequation $x + 2 < 5$ and write the solution set for $x \in \mathbb{W}$ (Whole numbers).
2. Find the circumference of a circle whose diameter is 14 cm. (Take $\pi = 22/7$)
3. In which quadrant of the coordinate plane does the point $P(6, -4)$ lie?
4. Find the volume of a cube whose edge is 3 cm.
5. A card is drawn from a well-shuffled pack of 52 cards. What is the probability of drawing an 'Ace'?

SECTION B

(2 Marks Each)

6. Solve $5x - 7 \leq 13$ 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 21 cm.
8. The volume of a cuboid is 120 cm^3. If its length is 6 cm and width is 5 cm, find its height.
9. Plot the point $Q(3, 4)$ on a coordinate plane and find its distance from the y-axis.
10. Two coins are tossed simultaneously. Find the probability of getting two 'Heads'.

SECTION C

(3 Marks Each)

11. Solve the linear inequation $4(x - 1) \leq 2(x + 3)$ and list the solution set if x is an integer ($\mathbb{I}$) such that $-5 \leq x \leq 5$.
12. Find the area of a circular ring whose outer radius is 10 cm and inner radius is 5 cm. (Take $\pi = 3.14$)
13. Draw the graph of the linear equation $y = 3x$ by finding at least three solutions.
14. Find the total surface area of a cuboid whose dimensions are 10 cm $\times$ 8 cm $\times$ 6 cm.

SECTION D

(4 Marks Each - Case Study)

Case Study 1: The Number Card Challenge
A box contains 30 cards numbered from 1 to 30. A student is asked to draw one card at random.

(i) What is the probability that the number on the drawn card is a multiple of 6? (2 Marks)

(ii) Find the probability that the number on the drawn card is a prime number. (2 Marks)

Case Study 2: Industrial Water Storage
A factory installs a large cylindrical water tank with a radius of 1.4 m and a height of 3 m.

(i) Calculate the total surface area (including top and bottom) of the tank in square metres. (2 Marks)

(ii) Find the capacity of the tank in litres. (Recall 1 m$^3 = 1000$ litres). (2 Marks)

VIVA VOCE

(5 Marks)

- **Coordinate Geometry:** What are the coordinates of the Origin?
- **Circles:** Define the term 'Sector' of a circle.
- **Inequations:** What happens to the inequality sign when you multiply both sides by a negative number?
- **Probability:** What is the probability of a 'Sure Event'?
- **Solids:** How many faces does a cube have? Are all faces congruent?