MATHEMATICS MOCK TEST

Class: VIII | Set: 18

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

NAME: _____ ROLL NO: _____

SECTION A

(1 Mark Each)

1. Solve the inequation $x + 5 < 9$ for $x \in \mathbb{N}$ (Natural numbers).

2. Find the circumference of a circle whose radius is 21 cm. (Take $\pi = 22/7$)

3. What are the coordinates of the Origin?

4. Find the volume of a cuboid with length $= 5$ cm, breadth $= 3$ cm and height $= 2$ cm.

5. A single coin is tossed. What is the probability of getting 'Heads'?

SECTION B

(2 Marks Each)

6. Solve $2(x - 1) \geq 4$ and represent the solution on a number line for the replacement set $\{0, 1, 2, 3, 4, 5\}$.

7. Find the area of a circle if its circumference is 132 cm.

8. Plot the points $A(3, 0)$ and $B(0, 4)$ on a graph. Find the distance of point A from the y-axis.

9. Find the total surface area of a cube whose side measures 10 cm.

10. A card is drawn from a well-shuffled pack of 52 cards. What is the probability of drawing a 'Red Queen'?

SECTION C

(3 Marks Each)

11. Solve: $\frac{x}{2} + 5 \leq 8$, and list the solution set if x is a whole number ($x \in \mathbb{W}$).

12. A circular track of width 3.5 m runs around a circular pond of radius 7 m. Find the area of the track.

13. Draw the graph of the linear equation $x + y = 4$ by finding at least three solutions.

14. A cylindrical tank has a capacity of 3080 cm^3. If the radius of its base is 7 cm, find the height of the tank. (Take $\pi = 22/7$)

SECTION D (4 Marks Each - Case Study)

Case Study 1: The Probability Bag

A bag contains 20 balls numbered from 1 to 20. A ball is drawn at random from the bag.

(i) What is the probability that the number on the drawn ball is a multiple of 5? (2 Marks)

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

Case Study 2: Civil Engineering (Bricks and Walls)

A contractor is building a wall of dimensions 8 m long, 6 m high and 22.5 cm thick. He uses bricks of size 25 cm $\times$ 11.25 cm $\times$ 6 cm.

(i) Calculate the volume of the wall in cubic centimetres (cm^3). (2 Marks)

(ii) Find the total number of bricks required to build the wall, assuming no mortar is used. (2 Marks)

VIVA VOCE (5 Marks)

- **Graphs:** In which quadrant do both coordinates (x and y) have negative values?

- **Inequations:** If $-x < 5$, what is the relationship for x after multiplying by -1?

- **Circles:** What is the distance around a circle called?

- **Probability:** What is the probability of a 'Sure Event'?

- **Solids:** How many faces and vertices does a cuboid have?