MATHEMATICS MOCK TEST

Class: VIII | Set: 23

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

NAME: _____   ROLL NO: _____

SECTION A
(1 Mark Each)

1. Solve the inequation $2x - 3 \leq 7$ where x is a whole number ($x \in \mathbb{W}$).

2. Find the radius of a circle whose area is 154 cm^2. (Take $\pi = 22/7$)

3. On which axis does the point $R(0, -2)$ lie?

4. Find the volume of a cuboid with length $= 8$ cm, breadth $= 4$ cm, and height $= 2$ cm.

5. A card is drawn from a pack of 52 cards. What is the probability of drawing the 'King of Hearts'?

SECTION B
(2 Marks Each)

6. Solve the inequation $\dfrac{x}{3} + 1 < 3$ and represent the solution on a number line for $x \in \mathbb{N}$.

7. If the radius of a circle is 10.5 cm, find its circumference. (Take $\pi = 22/7$)

8. Plot the points $A(4, 5)$ and $B(4, -2)$ on a coordinate plane. What is the distance between these two points?

9. Find the total surface area of a cube whose edge is 6 cm.

10. A die is thrown once. Find the probability of getting a number greater than 2.

SECTION C
(3 Marks Each)

11. Solve the linear inequation $3(2x - 1) \geq 2(x + 4)$ and list the solution set if x is an integer between -5 and 5.

12. The circumference of a circle is 176 cm. Find its area. (Take $\pi = 22/7$)

13. Draw the graph of the linear equation $y = 2x + 1$ by finding at least three solutions.

14. A solid metal cuboid of dimensions 9 cm $\times$ 8 cm $\times$ 2 cm is melted and recast into a cube. Find the side of the new cube.

SECTION D

Case Study 1: Probability in a Marble Jar
A jar contains 24 marbles. Some are green and others are blue. If a marble is drawn at random from the jar, the probability that it is green is $2/3$.

  (i) Find the number of green marbles in the jar. (2 Marks)

 (ii) Find the probability of drawing a blue marble from the jar. (2 Marks)

Case Study 2: Industrial Tank Design
A chemical factory uses a large cylindrical storage tank. The tank has a diameter of 2.8 m and a height of 5 m.

  (i) Calculate the volume of the tank in cubic metres. (2 Marks)

 (ii) If 1 m^3 of the chemical weighs 800 kg, find the total weight of the chemical when the tank is full. (2 Marks)

VIVA VOCE   **(5 Marks)**

- **Inequations:** What is the difference between the solution of $x = 5$ and $x > 5$?

- **Circles:** Define 'Diameter' in terms of 'Radius'.

- **Coordinate Geometry:** What are the signs of the coordinates in the Fourth Quadrant?

- **Solids:** How many faces, edges, and vertices does a cube have?

- **Probability:** Can the probability of an event be 1.5? Why or why not?