MATHEMATICS MOCK TEST

Class: VIII | Set: 26

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

NAME: _____ ROLL NO: _____

SECTION A   (1 Mark Each)

1. 19 cards numbered $1, 2, 3, \ldots, 19$ are put in a box. One card is chosen at random. What is the probability that the number on the chosen card is a prime number?

2. If the lower and upper limits of a class interval are 11.5 and 21.5 respectively, then write the class-interval.

3. Find the area of a square whose perimeter is 28 cm.

4. Find the volume of a cylinder in which diameter $= 70$ cm and height $= 20$ m. (Take $\pi = 22/7$).

5. Find the area of a rhombus whose perimeter is 48 cm and altitude is 8.5 cm.

SECTION B   (2 Marks Each)

6. Construct a square of side 4.8 cm using a ruler and compasses.

7. A card is drawn from a well-shuffled pack of 52 cards. Find the probability that the card drawn is: (i) a spade, (ii) a jack.

8. In a rectangle $ABCD$, $AB = 18$ cm, $BC = 8$ cm and $DE = 10$ cm. Find the area of the shaded region $EBCD$.

9. Arrange the following data in descending order: $15, 3, 0, 11, 7, 2, 23, 14, 29, 5, 1, 17$.

10. Find the radius and perimeter of a semi-circle whose area is 77 cm^2.

SECTION C   (3 Marks Each)

11. Construct a parallelogram $ABCD$ in which $BC = 5$ cm, $CD = 3$ cm and diagonal $BD = 6$ cm.

12. Find the area of an octagon $ABCDEFGH$ having each side equal to 5 cm, $HC = 11$ cm and $AP \perp HC$ such that $AP = 4$ cm.

13. Three cubes of metal with edges 5 cm, 4 cm and 3 cm respectively are melted to form a single cube. Find the lateral surface area of the new cube.

14. Draw a histogram for the following data representing the weights of 31 teachers:

Weight (kg)	45–50	50–55	55–60	60–65	65–70
No. of teachers	2	8	11	7	3

SECTION D (4 Marks Each - Case Study)

Case Study 1: The Verandah Paving Project
A verandah 50 m long and 12 m broad is to be paved with rectangular tiles. Each tile measures 6 dm $\times$ 5 dm.

(i) Find the total area of the verandah in square metres. (2 Marks)

(ii) Find the total number of tiles needed to cover the entire floor of the verandah (10 dm $=$ 1 m). (2 Marks)

Case Study 2: Circle Geometry Construction
A student draws a circle with center O and radius 4.5 cm. He draws a chord AB of length 5.4 cm.

(i) Indicate by marking points X and Y the minor arc AXB and the major arc AYB of the circle. (2 Marks)

(ii) What is the term for the part of the circle bounded by the arc AXB and the chord AB? Shade the major segment of this circle. (2 Marks)

VIVA VOCE (5 Marks)

- **Circles:** State whether True or False: "A secant of a circle is a segment having its end points on the circle."

- **Probability:** What is the probability of an impossible event (e.g., getting a 7 on a die)?

- **Statistics:** Define the "Class Size" and find the class size for the interval $20 - 30$.

- **Solids:** Find the surface area of a cube whose volume is 216 cm^3.

- **Mensuration:** How many cubic decimetres (dm^3) make one Litre?