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. A die is rolled once. What is the probability of getting a composite number?
2. If the upper and lower limits of a class interval are 18 and 11 respectively, then write the class-interval.
3. State whether the following is True or False: "A minor arc is bigger than a semi-circle."
4. The area of a square is 81 cm^2. Find the length of its diagonal.
5. Find the curved surface area of a cylinder for which $h = 35$ cm and $r = 21$ cm.

SECTION B

(2 Marks Each)

6. Construct a square one of whose diagonals is 5.6 cm using a ruler and compasses.
7. Construct a frequency table for the following data:
   $13, 25, 19, 16, 8, 30, 27, 6, 0, 34, 40, 11, 4, 17$.
8. A card is drawn from a well-shuffled pack of 52 cards. Find the probability that the card drawn is: (i) a jack, (ii) a king or a queen.
9. Find the perimeter, area and length of diagonal of a rectangle having length $= 3.2$ m and breadth $= 2.4$ m.
10. The sum of the radius of the base and the height of a solid cylinder is 37 m. If the total surface area of the cylinder is 1628 m^2, find its volume.

SECTION C

(3 Marks Each)

11. Construct a quadrilateral $ABCD$ in which $AB = AD = 5.3$ cm, $BC = CD = 5$ cm and diagonal $BD = 6.4$ cm.
12. Draw a circle with centre O and radius 4.5 cm. Draw a chord AB of length 5.4 cm. Indicate by marking points X and Y, the minor arc AXB and the major arc AYB of the circle. Shade the major segment of the circle.
13. The area of a trapezium is 198 cm^2 and its height is 9 cm. If one of the parallel sides is longer than the other by 8 cm, find the two parallel sides.

14. Draw a histogram for the following data representing the weights (in kg) 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: Market Analysis (Pie Chart)
A surveyor collects data on the percentage of buyers of different bathing soap brands: Brand A (20%), Brand B (35%), Brand C (25%), Brand D (15%), and Brand E (5%).

(i) Calculate the central angle for Brand B and Brand D to represent this data on a pie-chart. (2 Marks)

(ii) If a buyer is selected at random from a group of 200 people, what is the probability that they prefer either Brand A or Brand E? (2 Marks)

Case Study 2: Interior Design (Pathways)
A rectangular hall is 22 m long and 15.5 m broad. A carpet is laid inside the hall leaving all around a margin of 75 cm from the walls.

(i) Find the area of the carpet and the area of the strip left uncovered. (2 Marks)

(ii) If the width of the carpet is 82 cm, find its total cost at the rate of ₹124 per metre. (2 Marks)

VIVA VOCE

(5 Marks)

- **Circles:** Is it possible for a chord of a circle to be longer than the diameter? Justify.
- **Probability:** In a box of 100 electric bulbs, 8 are defective. What is the probability of picking a non-defective bulb?
- **Statistics:** Define the ”Lower Limit” and ”Upper Limit” of a class interval.
- **Area:** What is the formula for the area of a rhombus when diagonals are given?
- **Mensuration:** How many square decimetres (dm^2) make 1 square metre (m^2)?