MATHEMATICS MOCK TEST

Class: VIII | Set: 24

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

NAME: _____ **ROLL NO:** _____

SECTION A

(1 Mark Each)

1. In a box of 100 electric bulbs, 8 bulbs are defective. If one bulb is taken out at random, what is the probability that the bulb is defective?
2. State whether the following is True or False: "Each radius of a circle is also a chord of the circle."
3. If the upper and lower limits of a class interval are 18 and 11 respectively, then write the class-interval.
4. The diagonal of a square is $5\sqrt{2}$ m. Find its area.
5. Find the surface area of a cube whose volume is 216 cm^3.

SECTION B

(2 Marks Each)

6. Construct a rectangle whose adjacent sides are 4.7 cm and 3.2 cm using a ruler and compasses.
7. Two coins are tossed simultaneously. Find the probability of getting at most one head.
8. $ABCD$ is a parallelogram having adjacent sides $AB = 16$ cm and $BC = 14$ cm. If its area is 168 cm^2, find the distance between its shorter sides.
9. The total surface area of a circular cylinder is 1320 cm^2 and its radius is 10 cm. Find the height of the cylinder.
10. Construct a frequency table for the following data: $7, 8, 6, 5, 6, 7, 7, 9, 8, 10, 7, 6, 7, 8, 8, 9, 10, 5, 7, 8, 7, 6$.

SECTION C

(3 Marks Each)

11. Construct a quadrilateral $EFGH$ in which $EF = 6$ cm, $FG = 5.3$ cm, $EH = 5$ cm, $\angle E = 60^\circ$ and $\angle F = 75^\circ$.
12. A rectangular plot of land measures 125 m by 74 m. It has a path 2.5 m wide all round it on the inside. Find the cost of levelling the path at ₹ 6.80 per m^2.
13. How many planks each measuring 5 m by 24 cm by 10 cm can be stored in a place 15 m long, 4 m wide and 60 cm deep?

14. The percentage of marks obtained by a student in different subjects are given below:

Subject	Hindi	Science	English	Mathematics	Social Studies
Marks %	35	60	15	75	40

Represent the above data by a Bar Graph.

SECTION D

(4 Marks Each - Case Study)

Case Study 1: The Lawn Road Project
A rectangular lawn measures 75 m by 60 m. It has two roads, each 4 m wide, running in the middle of it; one road is parallel to the length and the other is parallel to the breadth.

(i) Calculate the total area covered by the two roads (Note: Subtract the common intersection area). (2 Marks)

(ii) Find the total cost of gravelling these roads at the rate of ₹ 14.50 per m^2. (2 Marks)

Case Study 2: Teacher Age Statistics
The following data represents the ages (in years) of 38 teachers in a school:

Age Group	20–25	25–30	30–35	35–40	40–45
Teachers	4	8	12	10	4

(i) In what age group is the maximum number of teachers and what is their number? Also, find the class marks of the first and second classes. (2 Marks)

(ii) How many teachers are aged 35 years or more? What is the class size of the intervals used? (2 Marks)

VIVA VOCE

(5 Marks)

- **Circles:** Define a 'Secant' of a circle and how it differs from a 'Chord'.
- **Mensuration:** How many cubic decimetres (dm^3) make one Litre?
- **Probability:** What is the probability of a 'Sure Event' and an 'Impossible Event'?
- **Solids:** What happens to the volume of a cylinder if its radius is doubled and height is halved?
- **Statistics:** What is the difference between the lower limit and upper limit of a class interval?