MATHEMATICS MOCK TEST

Class: VIII | Set: 28

Time: 1 Hour 30 Minutes | Written Marks: 35 | Viva: 5 | Total: 40 Marks

NAME: _____   ROLL NO: _____

SECTION A   (1 Mark Each)

1. A die is thrown once. What is the probability of getting a number less than 1?

2. Find the class mark of the class interval $150 - 250$.

3. What is the y-coordinate of any point lying on the x-axis?

4. If the central angle of a sector in a pie chart is $180°$, what percentage of the data does it represent?

5. In which quadrant does the point $(4, -4)$ lie?

SECTION B   (2 Marks Each)

6. Find the probability of choosing a vowel from the word **'MATHEMATICS'**.

7. Plot the points $A(1, 1), B(4, 1)$, and $C(1, 4)$ on a graph sheet. Join them and name the figure formed.

8. The following data represents the daily earnings of 5 shops: ₹500, ₹1200, ₹800, ₹1500, ₹2000. Find the range of the earnings.

9. Write the coordinates of the vertices of a square whose side is 6 units, with one vertex at the origin and the square lying in the third quadrant.

10. In a bag, there are 5 red, 3 blue, and 2 green balls. If one ball is drawn at random, what is the probability that it is NOT red?

SECTION C   (3 Marks Each)

11. **Histogram Construction:** Construct a histogram for the following frequency distribution of monthly house rent paid by 40 families:

Rent (in ₹)	3000–4000	4000–5000	5000–6000	6000–7000	7000–8000
No. of Families	5	12	10	8	5

12. A box contains 20 slips numbered 1 to 20. One slip is drawn at random. Find the probability of getting:

(i) A multiple of 3.

(ii) A perfect square number.

(iii) A number greater than 15.

13. Draw a linear graph for the data representing the relationship between time and the amount of water in a tank being filled:

Time (minutes)	2	4	6	8	10
Water (litres)	10	20	30	40	50

From the graph, find the amount of water in the tank after 7 minutes.

14. A rectangle has three vertices at $(1,1), (6,1),$ and $(1,4)$. Find the coordinates of the fourth vertex and calculate the area of the rectangle.

SECTION D
(4 Marks Each - Case Study)

Case Study 1: Histogram Interpretation (The Exam Performance)
The following frequency table represents a histogram showing the marks obtained by 100 students in a Mathematics exam.

Marks Group	0–20	20–40	40–60	60–80	80–100
No. of Students	10	15	40	25	10

Answer the following:

(i) How many students scored 60 marks or more? (2 Marks)

(ii) If the passing mark is 40, what is the probability that a student chosen at random has failed? (2 Marks)

Case Study 2: The Sales Growth Analysis
The following line graph tracks the sales of a company (in lakhs) over 5 months.

Month	Jan	Feb	Mar	Apr	May
Sales (₹ Lakhs)	20	35	30	45	50

(i) During which one-month interval was the increase in sales the maximum? (2 Marks)

(ii) What is the total sales recorded from January to March? (2 Marks)

VIVA VOCE
(5 Marks)

- **Data Handling:** What is the significance of the "class mark" in a histogram?

- **Probability:** If an event cannot happen, what is its probability?

- **Coordinate Geometry:** What are the coordinates of the origin?

- **Graphs:** When do we use a "zigzag line" or "kink" on a graph axis?

- **Pie Charts:** How do you calculate the central angle of a component?