MATHEMATICS MOCK TEST

Class: VIII | Set: 27

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

NAME: _____   ROLL NO: _____

SECTION A   (1 Mark Each)

1. What is the probability of choosing the letter 'E' from the word **'GEOMETRY'**?

2. Write the coordinates of a point lying on the y-axis at a distance of 6 units from the origin in the positive direction.

3. Find the class mark of the class interval $350 - 450$.

4. If a sector in a pie chart represents 20% of the total data, find its central angle.

5. In which quadrant does the point $(-2, -5)$ lie?

SECTION B   (2 Marks Each)

6. A bag contains 4 red, 3 blue, and 2 green marbles. If a marble is drawn at random, what is the probability that it is NOT blue?

7. Plot the points $P(2, 2)$ and $Q(5, 6)$ on a graph sheet. What is the length of the horizontal distance between these two points?

8. The marks obtained by 10 students in a surprise test are: $12, 15, 12, 18, 20, 12, 14, 15, 12, 10$. Find the mode and range.

9. In a pie chart, the central angle for 'Food' is $120°$. If the total monthly budget is ₹36,000, find the amount spent on food.

10. List all possible outcomes when two coins are tossed simultaneously. What is the probability of getting at least one head?

SECTION C   (3 Marks Each)

11. **Histogram Construction:** Construct a histogram for the following frequency distribution of heights (in cm) of 40 students:

Height (cm)	140–145	145–150	150–155	155–160	160–165
No. of Students	4	10	16	7	3

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

   (i) A prime number.

  (ii) A number divisible by 4.

 (iii) A 1-digit number.

13. Draw a linear graph for the following data showing the side of a square and its area. Note if the graph is a straight line.

Side (cm)	1	2	3	4	5
Area (cm^2)	1	4	9	16	25

14. The following data represents the favorite fruits of 300 students. Calculate the central angles required to represent this in a Pie Chart:
Mango: 120, Apple: 90, Orange: 60, Banana: 30.

SECTION D
(4 Marks Each - Case Study)

Case Study 1: Histogram Interpretation (The Clinic Data)
The following frequency table represents a histogram of the ages of patients visiting a dental clinic in one day.

Age Group (Years)	0–10	10–20	20–30	30–40	40–50
No. of Patients	8	12	20	15	5

Answer the following based on the data:

 (i) How many patients are in the age group of 20 years or more but less than 40 years? (2 Marks)

(ii) Which age group has the maximum frequency, and what is the class size? (2 Marks)

Case Study 2: The Linear Growth Graph
A scientist recorded the height of a plant (in cm) every week for 5 weeks. The data from the linear graph is:

Week	0 (Start)	1	2	3	4	5
Height (cm)	2	5	8	11	14	17

 (i) What was the height of the plant at the end of 2.5 weeks? (2 Marks)

(ii) How much did the plant grow between the end of Week 1 and the end of Week 4? (2 Marks)

- **Data Handling:** What is the difference between a histogram and a frequency polygon?

- **Probability:** What is the probability of a "Sure Event"?

- **Coordinates:** If the x-coordinate of a point is zero, where does it lie?

- **Graphs:** In a distance-time graph, what does a horizontal line indicate?

- **Pie Chart:** How is the central angle of a component related to its frequency?