MATHEMATICS MOCK TEST

Class: VIII | Set: 22

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 a sure event?
2. A point lies on the y-axis at a distance of 3 units from the x-axis in the positive direction. Write its coordinates.
3. Find the class mark of the class interval $100 - 150$.
4. What is the sum of all central angles in a pie chart?
5. In which quadrant does the point $(-3, -5)$ lie?

SECTION B

(2 Marks Each)

6. A die is thrown once. Find the probability of getting an odd number.
7. Plot the points $A(2, 2), B(4, 2)$, and $C(3, 5)$ on a graph sheet. Join them to form a figure and name it.
8. In a pie chart, a component represents $1/8$ of the total data. Find the central angle of this component.
9. Write the coordinates of the vertices of a rectangle whose length is 5 units and breadth is 3 units, with one vertex at the origin $(0, 0)$ in the first quadrant.
10. A box contains 3 red, 2 blue, and 5 yellow marbles. If a marble is drawn at random, find the probability that it is NOT red.

SECTION C

(3 Marks Each)

11. **Histogram Construction:** Construct a histogram for the following frequency distribution of the weights (in kg) of 50 students:

Weight (kg)	35–40	40–45	45–50	50–55	55–60
No. of Students	8	12	15	10	5

12. A spinner is divided into 10 equal parts numbered 1 to 10. If it is spun once, find the probability of:

(i) Getting a prime number.

(ii) Getting a number greater than 7.

(iii) Getting a multiple of 5.

13. Draw a linear graph for the following data showing the number of years and the value of a property (in lakhs):

Year	2018	2019	2020	2021	2022
Value (₹ Lakhs)	20	25	30	35	40

From the graph, find the approximate value in the year 2020.5.

14. The following data shows the favorite subjects of 180 students. Calculate the central angles required to draw a Pie Chart:
Maths: 60, Science: 45, English: 45, Hindi: 30.

SECTION D

(4 Marks Each - Case Study)

Case Study 1: The Electricity Bill Analysis
The following line graph shows the electricity consumption (in units) of a house for 6 months:
Jan: 150 | Feb: 180 | Mar: 200 | Apr: 250 | May: 300 | Jun: 320.

(i) Between which two consecutive months was the increase in consumption the maximum? (2 Marks)

(ii) Calculate the percentage increase in consumption from January to June. (2 Marks)

Case Study 2: Performance Evaluation
In a school of 1000 students, a survey was conducted on how students travel to school. The data is as follows: School Bus (400), Bicycle (250), Walking (200), and Car (150).

(i) If a student is picked at random, what is the probability that they do NOT use the school bus? (2 Marks)

(ii) Find the central angle for the 'Bicycle' group if this data were represented on a Pie Chart. (2 Marks)

VIVA VOCE

(5 Marks)

- **Data Handling:** What is the purpose of a "kink" (broken line) on the x-axis in a graph?
- **Probability:** What is the sum of the probability of an event and the probability of its complement (not happening)?
- **Graphs:** How is a linear graph different from a bar graph?
- **Coordinates:** If the y-coordinate of a point is zero, where does it lie?
- **Pie Chart:** How do you find the central angle if the frequency is given?