MATHEMATICS MOCK TEST

Class: VIII | Set: 24

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 a vowel from the word **'DATA'**?

2. Find the class mark of the class interval $145 - 155$.

3. State the x-coordinate of a point lying on the y-axis.

4. In a pie chart, a component represents 10% of the total. Find its central angle.

5. In which quadrant does the point $(-2, -3)$ lie?

SECTION B   (2 Marks Each)

6. A die is thrown once. Find the probability of getting a composite number.

7. Plot the points $A(1, 2), B(5, 2)$, and $C(3, 6)$ on a graph sheet and join them.

8. The heights (in cm) of 7 students are: 140, 152, 138, 145, 140, 148, 140. Find the mode and range of this data.

9. Write the coordinates of the fourth vertex of a rectangle if three of its vertices are $(0, 0), (4, 0)$, and $(0, 3)$.

10. A bag contains 4 red balls and 6 black balls. If a ball is drawn at random, find the probability that it is black.

SECTION C   (3 Marks Each)

11. **Histogram Construction:** Construct a histogram for the following frequency distribution of age of 45 workers in a factory:

Age (Years)	20–25	25–30	30–35	35–40	40–45
No. of Workers	5	12	15	8	5

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

    (i) A multiple of 3.

(ii) A number divisible by 5.

   (iii) A two-digit number.

13. Draw a linear graph for the following data showing the quantity of petrol (in litres) and its cost (in ₹):

Petrol (L)	2	4	6	8	10
Cost (₹)	200	400	600	800	1000

From the graph, find the cost of 5 litres of petrol.

14. The monthly budget of a family is ₹30,000. The expenditure is as follows: Food (₹12,000), Education (₹6,000), Rent (₹9,000), Savings (₹3,000). Calculate the central angles to represent this in a Pie Chart.

SECTION D   **(4 Marks Each - Case Study)**

Case Study 1: The Cyclist's Journey
A cyclist starts from home and tracks the distance covered every hour as shown in a linear graph. *1st hour: 12 km | 2nd hour: 24 km | 3rd hour: 30 km | 4th hour: 42 km | 5th hour: 54 km.*

   (i) During which one-hour interval was the cyclist's speed the lowest? (2 Marks)

   (ii) What is the total distance covered by the cyclist after 3.5 hours? (Assume constant speed between the 3rd and 4th hour). (2 Marks)

Case Study 2: Survey on Transport Modes
In a school of 1000 students, a survey was conducted on how they travel to school. The data is as follows: School Bus (450), Bicycle (200), Walking (250), and Car (100).

   (i) If a student is chosen at random, find the probability that the student does NOT use the school bus. (2 Marks)

   (ii) Calculate 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 the 'class mark' in statistics?

- **Probability:** If a coin is tossed, what is the sum of the probabilities of getting a head and a tail?

- **Coordinate Geometry:** What are the coordinates of a point where the x-axis and y-axis intersect?

- **Graphs:** When is a 'broken line' or 'kink' used on the axes of a graph?

- **Pie Charts:** How do we calculate the central angle for a given component?