MATHEMATICS MOCK TEST
Class: VIII | Set: 29

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

NAME: _____ ROLL NO: _____

SECTION A   (1 Mark Each)

1. Find the volume of a cuboid having length $= 24$ cm, breadth $= 16$ cm and height $= 7.5$ cm.

2. State whether the following is True or False: "One and only one tangent can be drawn to pass through a point on the circle."

3. In a draw there are 10 prizes and 20 blanks. A ticket is chosen at random. What is the probability of getting a prize?

4. Find the area of a rectangle having length $= 3.2$ m and breadth $= 2.4$ m.

5. Find the volume of a cylinder in which the base radius is 10 cm and height is 42 cm.

SECTION B   (2 Marks Each)

6. Construct a rectangle $ABCD$ in which $AB = 4.5$ cm and diagonal $AC = 6$ cm using a ruler and compasses.

7. A box contains 100 electric bulbs, out of which 8 are defective. Find the probability that a bulb drawn at random is non-defective.

8. Find the height and volume of a cylinder whose curved surface area is 4400 cm^2 and the circumference of its base is 110 cm.

9. The following are the heights of 12 students in cm: $152, 165, 172, 144, 135, 156, 175, 140, 132, 150, 153, 14$ Construct a frequency table for this data.

10. Find the weight of a solid cylinder of radius 10.5 cm and height 60 cm, if the material weighs 5 grams per cm^3.

SECTION C   (3 Marks Each)

11. Construct a parallelogram $ABCD$ in which diagonal $AC = 5.6$ cm, diagonal $BD = 6.2$ cm and the angle between them is $60°$.

12. In a parallelogram $ABCD$, side $AB = 28$ cm, $BC = 26$ cm and diagonal $AC = 30$ cm. Find the area of the parallelogram and the distance between the sides AB and DC.

13. 19 cards numbered $1, 2, 3, \ldots, 19$ are mixed in a box. One card is chosen at random. Find the probability that the number on the card is: (i) a multiple of 4, (ii) a prime number.

14. Draw a bar graph to represent India's population (in millions) from 1951 to 1981 using the following data:

Year	1951	1961	1971	1981
Population (Millions)	360	432	540	684

SECTION D   (4 Marks Each - Case Study)

Case Study 1: The Personal Finance Pie Chart
Mr. Roy's monthly income is ₹$15,000$. He manages his budget as follows: Rent (₹$1,875$), Food (₹$3,250$), Children's Education (₹$1,125$), Miscellaneous (₹$2,250$), and the rest he saves.

(i) Calculate the central angle for the 'Food' and 'Savings' components if this data is represented by a pie-chart. (2 Marks)

(ii) Find his total monthly savings as a percentage of his total income. (2 Marks)

Case Study 2: The Field Survey (Polygon Area)
A surveyor is measuring a field $ABCDEFA$ by drawing perpendiculars to the diagonal AD. The data recorded is: $AD = 75$ m, $AP = 20$ m, $AQ = 35$ m, $AR = 58$ m, $AS = 65$ m. Perpendiculars are $BP = 15$ m, $CR = 20$ m, $ES = 15$ m and $FQ = 10$ m.

(i) Find the area of the triangle ABP and the trapezium $PBRC$ located on one side of the diagonal. (2 Marks)

(ii) Calculate the total area of the entire field $ABCDEFA$ in square metres. (2 Marks)

VIVA VOCE   (5 Marks)

- **Probability:** What is the probability of a "Multiple of 3" when a die is rolled?

- **Circles:** Define "Major Arc" and "Minor Arc" of a circle.

- **Statistics:** What is the lower limit of the class interval $14 - 22$?

- **Solids:** If a cube has a volume of 216 cm^3, find its total surface area.

- **Mensuration:** How many square decimetres (dm^2) are in 1 square metre (m^2)?