MATHEMATICS MOCK TEST

Class: VIII | Set: 21

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

NAME: _____ **ROLL NO:** _____

SECTION A

(1 Mark Each)

1. A die is rolled once. What is the probability of getting a number less than 5?
2. The total surface area of a cube is 1176 cm^2. Find its volume.
3. The diagonal of a square is 12 cm long. Find its area.
4. If the lower and upper limits of a class interval are 11.5 and 21.5 respectively, write the class-interval.
5. Fill in the blank: A part of a circle bounded by an arc and a chord is called a _____.

SECTION B

(2 Marks Each)

6. Construct a rhombus $ABCD$ in which $AB = 4.3$ cm and $\angle A = 45°$.
7. Find the area of a trapezium whose parallel sides are 2.5 m and 1.3 m and the distance between them is 80 cm.
8. Two coins are tossed simultaneously. Find the probability of getting at least one tail.
9. Draw a circle with centre O and radius 4.5 cm. Draw a chord AB of length 5.4 cm. Indicate by marking points X and Y, the minor arc AXB and the major arc AYB.
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. Find the area of a hexagon $LMNPQR$ in which each side measures 5 cm, height $MQ = 11$ cm and width $RP = 8$ cm.
13. A solid piece of metal in the form of a cuboid of dimensions 24 cm $\times$ 18 cm $\times$ 4 cm is melted down and recast into a cube. Find the length of each edge of the cube.

14. Construct a frequency table for the following daily income (in rupees) of 30 workers using groups $65-75, 75-85, 85-95, 95-105, 105-115, 115-125$:
$83, 96, 91, 80, 97, 111, 90, 83, 112, 120, 103, 77, 82, 90, 70, 68, 89, 85, 78, 105, 94, 97, 90, 89, 102, 113, 90, 106, 70$

SECTION D

(4 Marks Each - Case Study)

Case Study 1: The Landscaped Park Design
A municipal park is designed in a rectangular shape bounded by semi-circles at the two shorter ends. The radius of each semi-circle is 17.5 m and the length of the rectangular part is 50 m.

(i) Find the total area of the park. (Take $\pi = 22/7$). (2 Marks)

(ii) Find the total perimeter of the park to calculate the length of the fencing required. (2 Marks)

Case Study 2: Corporate Expenditure Analysis
A company calculates its annual expenditure under various heads as follows: Wages and salaries (40%), Fuel and Power (10%), Materials (25%), Maintenance (20%), and Depreciation (5%).

(i) Calculate the central angles for 'Wages and salaries' and 'Materials' to represent this data on a pie-chart. (2 Marks)

(ii) If the total expenditure of the company is ₹$20,00,000$, find the actual amount spent on 'Fuel and Power'. (2 Marks)

VIVA VOCE

(5 Marks)

- **Probability:** What is the probability of a "multiple of 3" when a die is rolled?
- **Circles:** Define a "Secant" and state how it differs from a chord.
- **Mensuration:** How many cubic decimetres (dm^3) are there in 1 Litre?
- **Statistics:** What is the formula to calculate the 'Class Mark' of an interval?
- **Solids:** What is the relationship between the Curved Surface Area and Total Surface Area of a cylinder?