MATHEMATICS MOCK TEST

Class: VIII | Set: 20

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

NAME: _____ **ROLL NO:** _____

SECTION A

(1 Mark Each)

1. Fill in the blank: A part of a circle bounded by an arc and the two radii at its ends is called a _____.
2. 19 cards numbered $1, 2, 3, \ldots, 19$ are put in a box. What is the probability that the number on the chosen card is neither divisible by 3 nor 5?
3. Find the perimeter of a square each of whose sides measures 8.5 m.
4. If the length, breadth and height of a cuboid are 2 m, 2 m and 1 m respectively, find its total surface area.
5. Find the upper limit of the class interval $16 - 25$.

SECTION B

(2 Marks Each)

6. Construct a rhombus $ABCD$ in which diagonal $AC = 5.8$ cm and diagonal $BD = 6.4$ cm.
7. $ABCD$ is a parallelogram having adjacent sides $AB = 16$ cm and $BC = 14$ cm. If its area is 168 cm^2, find the distance between its shorter sides.
8. A cylindrical tank has a capacity of 6160 m^3. Find its depth if its radius is 14 m.
9. A die is rolled once. Find the probability of getting a multiple of 3 and a prime number.
10. Arrange the following data in descending order: $15, 3, 0, 11, 7, 2, 23, 14, 29, 5, 1, 17$.

SECTION C

(3 Marks Each)

11. Construct a rectangle $ABCD$ in which diagonal $AC = 6.3$ cm and the angle between the two diagonals is $45°$.
12. The lengths of parallel sides of a trapezium are in the ratio $7 : 5$ and the distance between them is 14 cm. If the area of the trapezium is 252 cm^2, find the lengths of its parallel sides.
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 new cube.

14. Draw a histogram to represent the following distribution of weights (in kg) of 31 teachers:

Weight (kg)	45–50	50–55	55–60	60–65	65–70
No. of Teachers	2	8	11	7	3

SECTION D

(4 Marks Each - Case Study)

Case Study 1: The Geometry of Wire Bending
A wire when bent in the form of a square encloses an area of 756.25 cm^2. The same wire is later straightened and bent into the form of a semi-circle.

(i) Find the side of the square and the total length of the wire. (2 Marks)

(ii) What will be the radius of the semi-circle formed using the same wire? (Take $\pi = 22/7$). (2 Marks)

Case Study 2: Monthly Financial Management
Mr. Roy's monthly income is ₹$15,000$. He spends ₹$1,875$ on rent, ₹$3,250$ on food, ₹$1,125$ on children's education, ₹$2,250$ on miscellaneous, and saves the rest.

(i) Calculate the central angle for the 'Food' and 'Children's Education' sectors for a pie-chart. (2 Marks)

(ii) Find the percentage of his total income that he saves every month. (2 Marks)

VIVA VOCE

(5 Marks)

- **Circles:** Name the longest chord of a circle and its relationship to the radius.
- **Probability:** What is the sum of the probability of an event and the probability of its non-occurrence?
- **Statistics:** What is the difference between a Bar Graph and a Histogram regarding the data types they represent?
- **Solids:** Find the lateral surface area of a cube whose volume is 343 cm^3.
- **Mensuration:** How many cubic centimetres (cm^3) make one Litre?