MATHEMATICS MOCK TEST

Class: VIII | Set: 27

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 multiple of 3?

2. What is the class-size of the class interval $20 - 30$?

3. State whether the following is True or False: "A line can meet a circle at the most at two points."

4. Find the area of a square each of whose sides measures 2.5 dm.

5. Find the total surface area of a cuboid having length $= 10$ m, breadth $= 35$ cm and height $= 1.2$ m.

SECTION B   (2 Marks Each)

6. Construct a quadrilateral $ABCD$ in which $AB = 4.5$ cm, $BC = 5.2$ cm, $CD = 5$ cm, $DA = 4.7$ cm and $\angle ABC = 75°$.

7. A box of 100 electric bulbs contains 8 defective bulbs. If one bulb is taken out at random, what is the probability that it is non-defective?

8. Draw a circle with centre O and radius 3.6 cm. Draw a sector $OAXB$ having the angle $75°$. Measure the length of chord AB.

9. The area of a rectangle is 52 m^2 and its breadth is 6.5 m. Find its length and perimeter.

10. Arrange the following data in descending order: $2.3, 4.6, 1.2, 0.4, 3.5, 9.7, 6.1, 4.8, 0.8, 1.0$.

SECTION C   (3 Marks Each)

11. Construct a quadrilateral $PQRS$ in which $PQ = 4.5$ cm, $QR = 5.6$ cm, $RS = 4.1$ cm, $\angle Q = 60°$ and $\angle R = 120°$.

12. Find the area of a hexagon $ABCDEF$ in which each one of BJ, CL, EM and FK is perpendicular to the diagonal AD.

13. Find the curved surface area and the total surface area of a cylinder for which height $h = 5$ m and radius $r = 35$ cm.

14. The number of pressure cookers produced in a factory during five consecutive months is given below:

Month	Jan	Feb	Mar	Apr	May
Cookers	780	1100	920	1040	1280

Represent the above information by a Bar Graph.

SECTION D   (4 Marks Each - Case Study)

Case Study 1: Classroom Air Ventilation
A classroom in a newly built school is 10 m long, 6.4 m broad and 5 m high. For health and safety, each student must be provided with 1.6 m^3 of air space.

  (i) Calculate the total volume of air present in the classroom. (2 Marks)

  (ii) How many students can be accommodated in the room? How many cubic metres of air would each student get if the room were full? (2 Marks)

Case Study 2: Statistical Data Analysis (Histogram)
The following histogram data shows the distribution of marks obtained by 50 students in a Mathematics test:

Marks Obtained	0–10	10–20	20–30	30–40	40–50	50–60
No. of Students	2	3	14	10	6	15

  (i) What is the class size? How many students obtained 20 or more marks but less than 40? (2 Marks)

  (ii) If 40 or more marks are required for a distinction, how many students achieved a distinction? (2 Marks)

VIVA VOCE   (5 Marks)

• **Circles:** Define a "Minor Segment" and show how it differs from a "Sector".

• **Probability:** What is the probability of a "sure event" (e.g., getting a number less than 7 on a die)?

• **Statistics:** What is the difference between a "lower limit" and an "upper limit" of a class interval?

• **Solids:** Find the surface area of a cube whose volume is 343 cm^3.

• **Mensuration:** How many square decimetres (dm^2) make 1 square metre (m^2)?