MATHEMATICS MOCK TEST

Class: VIII | Set: 30

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. Find the probability of getting a composite number.
2. If the upper and lower limits of a class interval be 18 and 11 respectively, then write the class-interval.
3. State whether the following is True or False: "One and only one tangent can be drawn to pass through a point on the circle."
4. Find the length of the diagonal of a rectangle having length $= 3.2$ m and breadth $= 2.4$ m.
5. If the length, breadth and height of a cuboid are 2 m, 2 m and 1 m respectively, find its surface area.

SECTION B

(2 Marks Each)

6. Construct a quadrilateral $ABCD$ in which $AB = CD = 5.1$ cm, $BC = 4.7$ cm, $DA = 4.2$ cm and $\angle BCD = 60^\circ$ using a ruler and compasses.
7. 19 cards numbered $1, 2, 3, \ldots, 19$ are mixed in a box. Find the probability that the number on the chosen card is a composite number less than 10.
8. The height of a trapezium of area 162 cm^2 is 6 cm. If one of the parallel bases is 23 cm, find the length of the other base.
9. Arrange the following data in descending order: $2.3, 4.6, 1.2, 0.4, 3.5, 9.7, 6.1, 4.8, 0.8, 1.0$.
10. Find the weight of a solid cylinder of radius 10.5 cm and height 60 cm, if the material of the cylinder 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 the figure $ABCDE$, given that $AE \parallel BD, AF \perp BD, CG \perp BD, AE = 12$ cm, $BD = 16$ cm, $AF = 6.5$ cm and $CG = 8.5$ cm.

13. Three cubes of metal with edges 5 cm, 4 cm and 3 cm respectively are melted to form a single cube. Find the lateral surface area of the new cube.

14. The year-wise strength of a school is given below. Illustrate the data by a Column Graph:

Year	2010–11	2011–12	2012–13	2013–14	2014–15
Students	800	975	1100	1400	1625

SECTION D

(4 Marks Each - Case Study)

Case Study 1: Factory Wage Distribution (Histogram)
The following data shows the monthly wages (in rupees) of workers in a factory:

Wages (₹)	8000–9000	9000–10000	10000–11000	11000–12000	12000–13000
Workers	5	15	30	20	10

(i) In which wage-group is the largest number of workers being kept and what is their number? Also, find the class size. (2 Marks)

(ii) What is the total number of workers in the factory? Calculate the class mark of the third wage-group. (2 Marks)

Case Study 2: Geometric Shaded Regions
In the adjoining figure, $AB \parallel CD, AB = 12$ cm, $CD = 15$ cm, $BD = 4$ cm and one end of the figure is a semi-circle with BD as diameter.

(i) Calculate the area of the trapezium-shaped part of the figure. (2 Marks)

(ii) Find the area of the semi-circular part. (Take $\pi = 3.14$). (2 Marks)

VIVA VOCE

(5 Marks)

- **Circles:** Define a 'Secant' of a circle and distinguish it from a 'Chord'.
- **Probability:** What is the sum of the probability of an event happening and not happening?
- **Statistics:** What is the purpose of using tally marks in frequency distribution?
- **Solids:** If the side of a cube is doubled, how many times does its volume increase?
- **Mensuration:** How many square decimetres (dm^2) make one square metre (m^2)?