MATHEMATICS MOCK TEST

Class: IX | Set: 18

Time: 1 Hour 30 Minutes | Written Marks: 35 | Viva: 5 | Total: 40 Marks

NAME: _____ **ROLL NO:** _____

SECTION A

(1 Mark Each)

1. Find the volume of a sphere whose radius is 7 cm.
2. If the diameter of a circle is 20 cm, find the length of the longest chord.
3. What is the empirical formula for finding the median when the number of observations (n) is even?
4. Write the linear equation $y = 7$ in the form $ax + by + c = 0$.
5. Find the semi-perimeter of a triangle with sides 10 cm, 24 cm, and 26 cm.

SECTION B

(2 Marks Each)

6. The radius of a hemispherical bowl is 3.5 cm. Find the volume of water it can contain.
7. In a circle, prove that a perpendicular drawn from the centre to a chord bisects the chord.
8. Find the mode of the following data: $14, 25, 14, 28, 18, 17, 18, 14, 23, 22, 14, 18$.
9. Check whether $(2, -2)$ is a solution of the equation $x - 2y = 4$.
10. If the area of an equilateral triangle is $16\sqrt{3}$ cm^2, find its side.

SECTION C

(3 Marks Each)

11. The inner diameter of a cylindrical wooden pipe is 24 cm and its outer diameter is 28 cm. The length of the pipe is 35 cm. Find the mass of the pipe, if 1 cm^3 of wood has a mass of 0.6 g.
12. Prove that the angles subtended by an arc in the same segment of a circle are equal.
13. The following data on the number of girls (to the nearest ten) per thousand boys in different sections of Indian society is given below:

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Section	Number of girls per thousand boys
Scheduled Caste (SC)	940
Scheduled Tribe (ST)	970
Non SC/ST	920
Backward districts	950

Represent the information above by a bar graph.

14. In $\triangle ABC$, D, E and F are respectively the mid-points of sides BC, CA and AB. Show that $\triangle ABC$ is divided into four congruent triangles by joining D, E and F.

SECTION D

(4 Marks Each)

15. A lead shot of diameter 6 cm is melted and cast into a right circular cylinder of height 24 cm. Find the radius of the cylinder.

16. If two circles intersect at two points, prove that their centres lie on the perpendicular bisector of the common chord.

VIVA VOCE

(5 Marks)

- **Circles:** Define a 'Major Segment' of a circle.
- **Mensuration:** What is the ratio of the volume of a cone to a cylinder if they have the same radius and height?
- **Statistics:** What is the difference between a Bar Graph and a Histogram?
- **Triangles:** What is the Mid-point Theorem?
- **Algebra:** How do you find the y-intercept of a linear equation from its graph?