# MATHEMATICS MOCK TEST

**Class: IX | Set: 17**

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

**NAME:** _____ **ROLL NO:** _____

## SECTION A

**(1 Mark Each)**

1. Find the radius of a sphere whose surface area is $154$ cm$^2$.
2. Define a cyclic quadrilateral.
3. What is the class mark of the class interval $90 - 120$?
4. Find the value of $k$, if $x = 2, y = 1$ is a solution of the equation $2x + 3y = k$.
5. If the radius of a cylinder is doubled and height is halved, what happens to its curved surface area?

## SECTION B

**(2 Marks Each)**

6. The total surface area of a cube is $96$ cm$^2$. Find its volume.
7. Prove that equal chords of a circle subtend equal angles at the centre.
8. Find the mean of the first five prime numbers.
9. In a circle of radius $5$ cm, $AB$ and $CD$ are two parallel chords of length $8$ cm and $6$ cm respectively. Calculate the distance between the chords if they are on the same side of the centre.
10. The following observations have been arranged in ascending order. If the median of the data is $63$, find the value of $x$: $29, 32, 48, 50, x, x + 2, 72, 78, 84, 95$.

## SECTION C

**(3 Marks Each)**

11. A conical tent is $10$ m high and the radius of its base is $24$ m. Find:
    (i) Slant height of the tent.
    (ii) Cost of the canvas required to make the tent, if the cost of $1$ m$^2$ canvas is ₹$70$.
12. Prove that the angle subtended by an arc at the centre is double the angle subtended by it at any point on the remaining part of the circle.
13. A lead shot of diameter $6$ cm is melted and cast into a right circular cylinder of height $24$ cm and radius $r$. Find the value of $r$.

**14.** Draw a histogram to represent the following data:

| **Marks** | 0–10 | 10–20 | 20–30 | 30–40 | 40–50 |
|---|---|---|---|---|---|
| **No. of Students** | 5 | 10 | 15 | 10 | 5 |

## SECTION D

**(4 Marks Each)**

**15.** If two intersecting chords of a circle make equal angles with the diameter passing through their point of intersection, prove that the chords are equal.

**16.** The capacity of a closed cylindrical vessel of height $1$ m is $15.4$ litres. How many square metres of metal sheet would be needed to make it? ($1000$ litres $= 1$ m$^3$)

## VIVA VOCE

**(5 Marks)**

- **Circles:** What is the sum of opposite angles in a cyclic quadrilateral?
- **Volumes:** What is the formula for the volume of a hemisphere?
- **Statistics:** How do you calculate the 'Range' of a given set of data?
- **Shapes:** What is the difference between a sector and a segment of a circle?
- **Surface Area:** If the side of a cube is tripled, by how many times does its surface area increase?