Tutorial - 1(D)   Applications of Definite Integral

- Volume by slicing method :

1. Find the volume of a solid ball of radius a using slicing method.

2. Find the volume of a cone with height $4 \ c.m.$ using by slicing method.

3. Using slicing method , find the volume of solid obtaining by rotating about the x-axis the region under the curve $y = \sqrt{2x}$ from 0 to 1.

- Volume by Rotation :

4. The Region between the cure $y = \sqrt{x}, \ \ 0 \le x \le 4$ and x-axis is revolved about the x-axis to generate a solid. Find its volume.

5. Find the volume generated by revolving the area bounded bu the parabola $y^2 = 8x$ and its latus rectum about y-axis.

6. Find the volume generated by revolving the area bounded by $2x = x^2, x = 4, \ y = 0$ about x-axis.

7. Find the volume of solid generated by revolving the cordial $\pi = a(1 + \cos \theta)$ about the initial line.

8. Find the volume generated by revolving the arc bounded by the parabola $y^2 = 4ax$, $a > 0$ and latus rectum about latus rectum.

- Volume by Cylindrical Shells.

9. Find the volume generated by revolving the area bounded by $2y = x^2, x = 4, y = 0$ about y-axis

10. Find the volume of solid generated by rotating about y-axis and the region bounded by the curve $y = x$ and $y = x^2$.

11. Using cylindrical shells, find the volume of the solid obtained by rotating about the x-axis the region under the curve $y = \sqrt{x}$ from o to 1.

12. Find the volume of the solid obtaining about the line $y = -1$ the region bounded by the curves $y = x^2$ and $x = y^2$.