SWOT INSTITUTE
APPLICATION OF INTEGRAL
XII-TEST

Time : 1 hr.

1. Find the area of the region bounded by the parabola $y = x^2$ and $y = |x|$.

2. Find the area of the region bounded by the two parabolas $y = x^2$ and $y^2 = x$.

3. Find the area lying above x-axis and included between the circle $x^2 + y^2 = 8x$ and inside the parabola $y^2 = 4x$.

4. Using integration find the area of the region bounded by the triangle whose vertices are (1, 0), (2, 2) and (3, 1).

5. Find the area of the region enclosed between the two circles $x^2 + y^2 = 4$ and $(x – 2)^2 + y^2 = 4$.

6. Find the area of the circle $4x^2 + 4y^2 = 9$ which is interior to the parabola $x^2 = 4y$.

7. Using integration find the area of the triangular region whose sides have the equations $y = 2x + 1$, $y = 3x + 1$ and $x = 4$.

8. Using the method of integration find the area bounded by the curve $|x| + |y| = 1$.
    [Hint : The required region is bounded by lines $x + y = 1$, $x – y = 1$, $–x + y = 1$ and $–x – y = 1$]

9. Find the area bounded by curves $\{(x, y) : y \geq x^2 \text{ and } y = |x|\}$

10. Find the area of the region $\{(x, y) : y^2 \leq 4x, 4x^2 + 4y^2 \leq 9\}$