SMARTLEARN COACHING

DPP
DAILY PRACTICE PROBLEMS
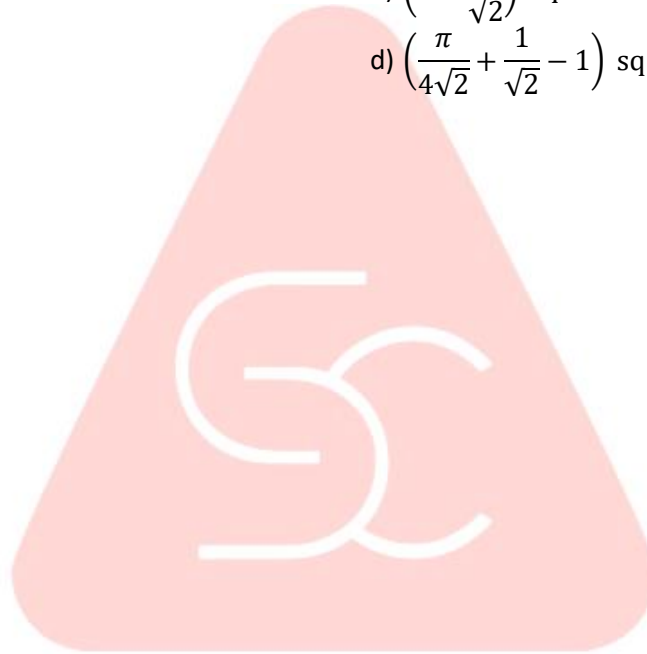
Class : XIth
Date :

Subject : Maths
DPP No. :2

Topic :-Applications of Intergrals

1. The area of the region formed by $x^2 + y^2 - 6x - 4y + 12 \le 0, y \le x$ and $x \le 5/2$ is
   a) $\frac{\pi}{6} - \frac{\sqrt{3}+1}{8}$
   b) $\frac{\pi}{6} + \frac{\sqrt{3}+1}{8}$
   c) $\frac{\pi}{6} - \frac{\sqrt{3}-1}{8}$
   d) None of these

2. Area bounded by the curve
   $y = \log_e x, x = 0, y \le 0$ and x-axis is
   a) 1 sq unit
   b) 1/2 sq unit
   c) 2 sq unit
   d) None of these

3. Area bounded by the curves $y = |x - 1|, y = 0$ and $|x| = 2$, is
   a) 4
   b) 5
   c) 3
   d) 6

4. The area included between the parabolas $y^2 = 4x$ and $x^2 = 4y$ is (in square units)
   a) 4/3
   b) 1/3
   c) 16/3
   d) 8/3

5. The area of region bounded by the curves $y = |x - 1|$ and $y = 3 - |x|$ is
   a) 2 sq units
   b) 3 sq units
   c) 4 sq units
   d) 6 sq units

6. The area bounded by the curves $y = x^3, y = x^2$ and the ordinates $x = 1, x = 2$ is
   a) $\frac{17}{12}$
   b) $\frac{12}{13}$
   c) $\frac{2}{7}$
   d) $\frac{7}{2}$

7. The area bounded by the graph $y = |[x - 3]|$, the x-axis and the lines $x = -2$ and $x = 3$ is([.] denotes the greatest integer function)
   a) 7 sq unit
   b) 15 sq unit
   c) 21 sq unit
   d) 28 sq unit

8. Area bounded by the curve $y^2 = 16x$ and line $y = mx$ is $\frac{2}{3}$ then m is equal to
   a) 3
   b) 4
   c) 1
   d) 2

9. The area enclosed by
   $y = 3x - 5, y = 0, x = 3$ and $x = 5$ is
   a) 12 sq units
   b) 13 sq unit
   c) $13\frac{1}{2}$ sq unit
   d) 14 sq unit

10. The area of the region bounded by the curves $y = |x - 2|, x = 1, x = 3$ and the x-axis is
    a) 1
    b) 2
    c) 3
    d) 4

11. The area common to the circle $x^2 + y^2 = 64$ and the parabola $y^2 = 4x$ is
    a) $\frac{16}{3}(4\pi + \sqrt{3})$ sq unit
    b) $\frac{16}{3}(8\pi - \sqrt{3})$ sq unit
    c) $\frac{16}{3}(4\pi - \sqrt{3})$ sq unit
    d) None of these

12. The ratio of the areas between the curves $y = \cos x$ and $y = \cos 2x$ and x-axis from $x = 0$ to $x = \pi/3$ is
    a) 1 : 2
    b) 2 : 1
    c) $\sqrt{3}$: 1
    d) None of these

13. The slope of tangent to a curve $y = f(x)$ at $(x, f(x))$ is $2x + 1$. If the curve passes through the point (1, 2), then the area of the region bounded by the curve, the x-axis and the line $x = 1$ is
    a) $\frac{5}{6}$ sq unit
    b) $\frac{6}{5}$ sq unit
    c) $\frac{1}{6}$ sq unit
    d) 6 sq unit

14. The area bounded by the curves $y = |x| - 1$ and $y = -|x| + 1$ is
    a) 1 sq unit
    b) 2 sq unit
    c) $2\sqrt{2}$ sq unit
    d) 4 sq unit

15. The area of smaller portion bounded by $|y| = -x + 1$ and $y^2 = 4x$ is
    a) 1 sq unit
    b) 2 sq unit
    c) 3 sq unit
    d) None of these

16. If A_1 is the area enclosed by the curve $xy = 1, x$-axis and the ordinates $x = 1, x = 2$; and A_2 is the area enclosed by the curve $xy = 1, x$-axis and the ordinates $x = 2, x = 4$, then

a) $A_1 = 2\,A_2$ b) $A_2 = 2\,A_1$ c) $A_2 = 3\,A_1$ d) $A_1 = A_2$

17. The area of the region bounded by the parabola $(y - 2)^2 = x - 1$, the tangent to the parabola at the point (2,3) and the x-axis is

a) 6 sq units   b) 9 sq units   c) 12 sq units   d) 3 sq units

18. The area of the region $\{(x, y): x^2 + y^2 \leq 1 \leq x + y\}$, is

a) $\dfrac{\pi}{5}$ b) $\dfrac{\pi}{4}$ c) $\dfrac{\pi^2}{3}$ d) $\dfrac{\pi}{4} - \dfrac{1}{2}$

19. The length of the parabola $y^2 = 12x$ cut off by the latusretum is

a) $6\left[\sqrt{2} + \log\left(1 + \sqrt{2}\right)\right]$ b) $3\left[\sqrt{2} + \log\left(1 + \sqrt{2}\right)\right]$ c) $6\left[\sqrt{2} - \log\left(1 + \sqrt{2}\right)\right]$ d) $3\left[\sqrt{2} - \log\left(1 + \sqrt{2}\right)\right]$

20. The area bounded by $y = \sin^{-1} x = \dfrac{1}{\sqrt{2}}$ and x-axis is

a) $\left(\dfrac{1}{\sqrt{2}} + 1\right)$ sq unit   b) $\left(1 - \dfrac{1}{\sqrt{2}}\right)$ sq unit

c) $\dfrac{\pi}{4\sqrt{2}}$ sq unit   d) $\left(\dfrac{\pi}{4\sqrt{2}} + \dfrac{1}{\sqrt{2}} - 1\right)$ sq unit

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