



1. The area enclosed by the curves  $x^2 = y$ ,  $y = x + 2$  and  $x$ -axis is -  
 (a)  $\frac{5}{6}$  (b)  $\frac{5}{4}$   
 (c)  $\frac{5}{2}$  (d) None of these
2. The area between the parabola  $y^2 = 4ax$  and its latus rectum is -  
 (a)  $(8/3)a$  (b)  $(8/3)a^2$  (c)  $(4/3)a$  (d)  $2/3$  unit
3. The area bounded by the curves  $y = \sin x$ ,  $y = \cos x$  and  $y$ -axis in first quadrant is -  
 (a)  $\sqrt{2} - 1$  (b)  $\sqrt{2}$   
 (c)  $\sqrt{2} + 1$  (d) None of these
4. The ratio of the areas of two curves  $y = \cos x$  and  $y = \cos 2x$  between  $x$ -axis from  $x = 0$  to  $x = \pi/3$  is  
 (a)  $1 : 2$  (b)  $2\sqrt{3} : 4 - \sqrt{3}$   
 (c)  $1 : 1$  (d) None
5. The value of  $m$  for which the area included between the curves  $y^2 = 4ax$  and  $y = mx$  equals  $a^2/3$  is  
 (a) 1 (b) 2  
 (c) 3 (d)  $\sqrt{3}$
6. The area enclosed by the curves  $y = |x - 1|$  and  $y = 3 - |x|$  is-  
 (a) 6 sq. units (b) 2 sq. units  
 (c) 3 sq. units (d) 4 sq. units
7. The area enclosed between the curve  $y = \log_c(x + e)$  and the coordinate axes is-  
 (a) 1 (b) 2 (c) 3 (d) 4
8. The area bounded by the curve  $y = x^3$ ,  $x$ -axis and two ordinates  $x = 1$  and  $x = 2$  is equal to  
 (a)  $\frac{15}{2}$  sq. units (b)  $\frac{15}{4}$  sq. units  
 (c)  $\frac{17}{2}$  sq. units (d)  $\frac{17}{4}$  sq. units
9. The area bounded by the curve  $xy - 3x - 2y - 10 = 0$ ,  $x$ -axis and straight lines  $x = 3$ ,  $x = 4$  is  
 (a)  $16 \log 2 - 13$  (b)  $16 \log 2 - 3$   
 (c)  $16 \log 2 + 3$  (d) None of these
10. If  $f(x) = \begin{cases} x & , 0 \leq x < 1/2 \\ 1/2 & , x = 1/2 \\ 1-x & , 1/2 < x \leq 1 \end{cases}$  and  $g(x) = (x - 1/2)^2$ ,  $x \in \mathbb{R}$ .  
 Then the area of the portion bounded between  $g(x)$  and  $f(x)$  in the interval  $[1/2, \sqrt{3}/2]$  is  
 (a)  $\sqrt{3}/4 - 1/3$  (b)  $\sqrt{3}/4 + 1/3$   
 (c) 0 (d)  $\sqrt{3}/12$
11. The area between the curves  $y = x^3$  and  $y = \sqrt{x}$  is  
 (a)  $5/12$  (b)  $12/5$  (c)  $5/3$  (d)  $5/4$
12. The area bounded by the curves  $y = \log x$ ,  $y = 2^x$ ,  $x = 1/2$  and  $x = 2$  is  
 (a)  $\frac{4 - \sqrt{2}}{\log 2} - \frac{5}{2} \log 2 + \frac{3}{2}$   
 (b)  $\frac{4 + \sqrt{2}}{\log 2} + \frac{5}{2} \log 2 - \frac{3}{2}$   
 (c)  $\frac{2 - \sqrt{2}}{\log 2} - \frac{5}{2} \log 2 + \frac{3}{2}$   
 (d) None of these
13. The area of the region bounded between the curve  $|y| = 1 - x^2$  is  
 (a)  $2/3$  (b)  $4/3$  (c)  $8/3$  (d) None of these
14. The area of the region bounded by the curve  $y = x - x^2$  between  $x = 0$  and  $x = 1$  is  
 (a)  $\frac{1}{6}$  (b)  $\frac{1}{3}$   
 (c)  $\frac{1}{2}$  (d)  $\frac{5}{6}$
15. Find the area bounded by the curves  $x = a \cos t$ ,  $y = b \sin t$  in the first quadrant  
 (a)  $\frac{\pi ab}{4}$  (b)  $\frac{\pi a^2 b}{4}$   
 (c)  $\frac{\pi ab^2}{4}$  (d) None of these
16. Find the area bounded by the parabola  $y^2 = 4x$  and its latus rectum  
 (a)  $\frac{8}{3}$  (b)  $\frac{4}{3}$   
 (c)  $\frac{16}{3}$  (d) None of these
17. The area of the region bounded by the curves  $y = x^2$  and  $y = |x|$  is  
 (a)  $\frac{1}{6}$  (b)  $\frac{1}{3}$   
 (c)  $\frac{5}{6}$  (d)  $\frac{5}{3}$
18. The area (in square units) bounded by the curve  $y = x^3$ ,  $y = x^2$  and the ordinates  $x = 1$ ,  $x = 2$  is  
 (a)  $\frac{17}{12}$  (b)  $\frac{12}{17}$   
 (c)  $\frac{2}{7}$  (d)  $\frac{7}{2}$
19. Area bounded by the curves  $y = \sin \frac{\pi x}{2}$  and  $y = x^3$ , is equal to  
 (a)  $\frac{4 - \pi}{\pi}$  sq. units (b)  $\frac{4 - \pi}{2\pi}$  sq. units  
 (c)  $\frac{8 - \pi}{\pi}$  sq. units (d)  $\frac{8 - \pi}{2\pi}$  sq. units
20. Area bounded by the curves  $y = \sin^{-1} x$ ,  $y$ -axis and  $y = \cos^{-1} x$  is equal to



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- (a)  $(2 + \sqrt{2})$  sq. units                      (b)  $(2 - \sqrt{2})$  sq. units  
(c)  $(1 + \sqrt{2})$  sq. units                      (d)  $(\sqrt{2} - 1)$  sq. units
21. Area bounded by  $y = \tan^{-1}x$ ,  $y = \cot^{-1}x$  and y-axis is equal to  
(a)  $n\sqrt{2}$  sq. units                      (b)  $\ln 4$  sq. units  
(c)  $\ln 8$  sq. units                      (d)  $\ln 2$  sq. units
22. The interval  $[a, b]$  such that the value of  $\int_a^b (2 + x - x^2) dx$  is maximum, is  
(a)  $[-1, 2]$                       (b)  $[-2, 1]$                       (c)  $-2, -1$                       (d)  $[1, 2]$
23. The area bounded by the curves  $y = \cos^{-1}(\cos x)$  and  $y = |x - \pi|$  is equal to  
(a)  $\pi^2$  sq. units                      (b)  $2\pi^2$  sq. units  
(c)  $\pi^2/2$  sq. units                      (d) None of these
24. Area bounded by the curve  $y = \max\{\sin x, \cos x\}$  and x-axis, between the lines  $x = \frac{\pi}{4}$  and  $x = 2\pi$  is equal to  
(a)  $\frac{(4\sqrt{2}-1)}{\sqrt{2}}$  sq. units                      (b)  $(4\sqrt{2}-1)$  sq. units  
(c)  $\frac{(4\sqrt{2}-1)}{2}$  sq. units                      (d) None of these
25. Area bounded by the parabola  $y = x^2 - 2x + 3$  and tangents drawn to it from the point  $P(1, 0)$  is equal to  
(a)  $4\sqrt{2}$  sq. units                      (b)  $\frac{4\sqrt{2}}{3}$  sq. units  
(c)  $\frac{8\sqrt{2}}{3}$  sq. units                      (d)  $\frac{16}{3}\sqrt{2}$  sq. units