1. The area of the figure bounded by the curves y = |x-1| and y=3-|x| is
(a) 2 (b) 3 (c) 4 (d) 1

3. Area bounded by the curve y=x sinx and x-axis between x=0 and x=2 π is
(a) 2π (b) 3π (c) 4π (d) None of these

4. The area bounded by the curve $y = 2x - x^2$ and the straight line $y = -x$ is given by
(a) 9/2 (b) 43/6 (c) 35/6 (d) 16/3

5. The area of the region bounded by y=|x-1| and y = 1 is
(a) 1 (b) 2 (c) 1/2 (d) None of these

6. Area of the region bounded by the curves $y = 3x - x^2$, $y = x^2 - x$ is
(a) $\frac{4}{3}$ (b) $\frac{8}{3}$
(c) $\frac{1}{2}$ (d) $\frac{1}{3}$

7. The area bounded by $y = x^2 + 2$ and $y = 2|x| - \cos\pi x$ is equal to -
(a) 2/3 (b) 8/3 (c) 4/3 (d) 1/3

8. The area of the figure bounded by the curves y = |x - 1| and y = 3 - | x | is -
(a) 2 (b) 3 (c) 4 (d) None of these

9. The area bounded by the curves $y^2 = 2x + 1$ and x - y - 1 = 0 is -
(a) 2/3 (b) 4/3 (c) 8/3 (d) 16/3

10. If the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ meets x-axis in A and y-axis in B in first quadrant, then area between the arc AB and the chord AB of the ellipse is -
(a) $\frac{1}{2}$ ab $(\pi + 2)$ (b) $\frac{1}{4}$ ab $(\pi - 2)$
(c) $\frac{1}{4}$ ab $(\pi - 4)$ (d) None of these

11. Area of the region bounded by the curves $y = x^2 + 2$, y = - x, x = 0 and x = 1 is -
(a) $\frac{17}{6}$ (b) $\frac{5}{16}$
(c) $\frac{3}{16}$ (d) None of these

12. The area bounded by $y = x\, e^{|x|}$ and the lines | x | = 1, y = 0 is -
(a) 4 (b) 6 (c) 1 (d) 2

13. The area enclosed between the parabolas $y^2 = 4ax$ and $x^2 = 4by$ is -
(a) $\frac{8}{3}$ ab (b) $\frac{16}{3}$ ab
(c) $\frac{4}{3}$ ab (d) None of these

14. Area bounded by the curve $y^2 (2a - x) = x^3$ and the line x = 2a is -
(a) $3\pi a^2$ (b) $\frac{3\pi a^2}{2}$
(c) $\frac{3\pi a^2}{4}$ (d) None of these

15. The area of the region $\{(x, y) : x^2 \le y \le |x|\}$ is -
(a) 1/3 sq. units (b) 1/2 sq. units
(c) 1/4 sq. units (d) None of these

16. The area bounded by the curve $x = a\cos^3 t$, $y = a\sin^3 t$ is -
(a) $\frac{3\pi a^2}{8}$ (b) $\frac{3\pi a^2}{16}$
(c) $\frac{3\pi a^2}{32}$ (d) $3\pi a^2$

17. Area bounded by $y = e^x$, $y = e^{-x}$, x = 1 is :
(a) $e + \frac{1}{e} + 2$
(b) $e + \frac{1}{e} - 2$
(c) $e - \frac{1}{e} + 2$
(d) None of these

18. Area of loop of curve $y^2 = x(1 - x)^2$ is :
(a) $\frac{8}{15}$ sq. units (b) $\frac{7}{15}$ sq. units
(c) $\frac{4}{15}$ sq. units (d) None

19. The area enclosed by the curves $3x^2 + 5y = 32$ and y = | x - 2 | is -
(a) $\frac{17}{2}$ (b) $\frac{33}{2}$
(c) $\frac{23}{2}$ (d) None of these

20. The area bounded by the curve $y = x^3$, the x-axis and the ordinates x = -2 and x = 1 is -
(a) -9 (b) $-\frac{15}{4}$
(c) $\frac{15}{4}$ (d) $\frac{17}{4}$

Numerical Value type questions

21. Let f(x) = min.{x - [x], - x - [- x]}. Then find value of $\int_{-2}^{2} f(x)\,dx$.(Here [·] stands for G. I. F)

22. Area of region bounded by the curves $y = \frac{4 - x^2}{4 + x^2}$, $25\,y^2 = 9x$ and $y = \frac{3}{5}|x| - \frac{6}{5}$ which contains (1, 0) point in its interior is given by $\left\{\pi - A\tan^{-1}\frac{1}{2} - \frac{1}{B}\right\}$ sq. units. Then (A + B) equals to.....

23. Area bounded between maxima and minima of function $y = x^3 - 3x + 4$ with curve and X-axis is A. Find number of even divisors of 3A.

24. Two circle of radii 'a' and 'b' touching externally are inscribed in area bounded by $y = \sqrt{1-x^2}$ and x axis. If $b = \frac{1}{2}$ and $a = \frac{1}{k}$, then k is.....

25. Area bounded by curves $\sqrt{|x|}+\sqrt{|y|}=\sqrt{a}$ and $x^2 + y^2 = a^2$, $a > 0$ is divided by line $|x| + |y| = a$ into two parts and ratio of area of these two parts in first quadrant is $\frac{1}{3}\left(\frac{A\pi-2}{B\pi-2}\right)$. Then A + B is..... .