

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling of two or more circles will result in zero mark in that question.

- 1- 1- Equation of horizontal line through (3, 1)
(A) $x = 3$ (B) $x = 1$ (C) $y = 3$ (D) $y = 1$
- 2- $\int \frac{1}{x} dx =$ _____
(A) $\ln x + c$ (B) $-\frac{1}{x^2} + c$ (C) $-\frac{1}{x} + c$ (D) $e^x + c$
- 3- It is not unit vector
(A) $[1, 0, 0]$ (B) $[0, 1, 0]$ (C) $[1, 1, 1]$ (D) $[0, 0, 1]$
- 4- Eccentricity e of hyperbola is
(A) $e < 1$ (B) $e > 1$ (C) $e = 1$ (D) $e = 0$
- 5- Focus of parabola $x^2 = -16y$ is _____
(A) $(4, 0)$ (B) $(-4, 0)$ (C) $(0, 4)$ (D) $(0, -4)$
- 6- $\frac{d}{dx} \sqrt{x} =$ _____
(A) $\frac{1}{2}$ (B) $\frac{1}{2} \sqrt{x}$ (C) $\frac{1}{2\sqrt{x}}$ (D) $\frac{2}{\sqrt{x}}$
- 7- $\frac{d}{dx} \left(\frac{1}{x^2} \right)$ at $x=1$ is _____.
(A) 2 (B) -2 (C) 1 (D) -1
- 8- $f(x) = 2x^2 + 4x - 2$, then $f(-2) =$ _____.
(A) 0 (B) -1 (C) 2 (D) -2
- 9- $\int_0^1 \frac{1}{1+x^2} dx =$ _____
(A) π (B) $\frac{\pi}{2}$ (C) $\frac{\pi}{3}$ (D) $\frac{\pi}{4}$
- 10- Distance of point $(-2, -3)$ from x -axis is
(A) 2 (B) -2 (C) 3 (D) -3
- 11- Radius of circle $x^2 + y^2 - 4x + 6y + 9 = 0$ is
(A) 2 (B) 3 (C) 4 (D) 9
- 12- If $f(x)$ has maximum value at $x=c$, then $f'(c) = 0$ but $f''(x)$ is _____.
(A) negative (B) positive (C) zero (D) undefined

- 13- Which one is constant function
 (A) $f(x) = x$ (B) $f(x) = x^2$ (C) $f(x) = 5$ (D) $f(x) = \sin x$
- 14- Vectors $\vec{a} = 3\vec{i} - 2\vec{j} + \vec{k}$ and $\vec{b} = \vec{i} - \vec{j} - x\vec{k}$ are perpendicular, then value of x is _____
 (A) -5 (B) 5 (C) 1 (D) -1
- 15- Length of major axis of $\frac{x^2}{25} + \frac{y^2}{16} = 1$ is _____
 (A) 10 (B) 5 (C) 8 (D) 4
- 16- $x = 2$ is solution of the inequality
 (A) $2x - 1 \leq 0$ (B) $2x - 1 \geq 0$ (C) $x - 1 \leq 0$ (D) $x + 1 \leq 0$
- 17- The lines represented by $ax^2 + 2hxy + by^2 = 0$ are orthogonal if
 (A) $a + b = 1$ (B) $a - b = 0$ (C) $a + b = 0$ (D) $a - b = 1$
- 18- Solution of $\frac{dy}{dx} = 2x$ is _____
 (A) $y = x^2 + c$ (B) $y = x + c$ (C) $y = \ln x + c$ (D) $y = e^x + c$
- 19- $\int 2\sec^2 2x \, dx =$ _____
 (A) $\frac{\tan 2x}{2} + c$ (B) $\tan 2x + c$ (C) $\sec 2x + c$ (D) $\frac{\sec 2x}{2} + c$
- 20- $\frac{d}{dx} \sinh 2x =$ _____
 (A) $2 \cosh 2x$ (B) $2 \sinh 2x$ (C) $-2 \cosh 2x$ (D) $-2 \sinh 2x$