



**Q.No.1** You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill the relevant circle in front of that question number on computerized answer sheet. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero marks in that question. Attempt as many questions as given in objective type question paper and leave other circles blank.

S.#	Questions	A	B	C	D
1	Two non-parallel lines intersect each other at:	1 point	0 point	$\infty$ point	2 points
2	Equation of a straight line passing through $P(c, d)$ and parallel to x-axis is:	$x = 0$	$y = 0$	$x = d$	$y = d$
3	Normal form of equation of straight line is:	A	$y = mx + c$	B	$x \sin(90^\circ - \alpha) + y \cos(90^\circ - \alpha) = p$
		C	$\frac{x}{a} + \frac{y}{b} = 1$	D	$x = \frac{y}{2} - \frac{5}{2}$
4	$ax + b > 0$ is:	An identity	A linear equation	Equation	Inequality
5	For hyperbola $b^2 = ?$	$c^2 - a^2$	$a^2 - c^2$	$c^2 + a^2$	$ac - 1$
6	Parametric equations of a circle are:	$x = a \cos \theta$ , $y = b \sin \theta$	$x = a \sin \theta$ , $y = b \cos \theta$	$x = a \cos \theta$ , $y = a \sin \theta$	$x = b \cos \theta$ , $y = a \sin \theta$
7	The equation $ax^2 + by^2 + 2gx + 2fy + c = 0$ will represent circle if:	$a < b$	$a = b$	$a > b$	$a \neq b$
8	If terminal point B of vector AB coincides with its initial point A, then such a vector is called:	Null vector	Unit vector	Coincident vector	Free vector
9	If $\alpha, \beta, \gamma$ are direction angles of a vector, then	$0 < \alpha < \frac{\pi}{2}$	$0 \leq \alpha \leq \frac{\pi}{2}$	$0 < \alpha < \pi$	$0 \leq \alpha \leq \pi$
10	If $\vec{u} = a\hat{i} + b\hat{j} + c\hat{k}$ , then projection of $\vec{u}$ along $\hat{k}$ is equal to:	$a$	$b$	$c$	$\vec{u} \cdot \hat{k}$
11	The equations of the form $x = a \cos \theta$ , $y = a \sin \theta$ are called:	Implicit equations	Explicit equations	Parametric equations	Homogeneous equations
12	Domain of $f(x) = 2 + \sqrt{x-1} \forall x \in \mathbb{R}$ is:	$[-1, +\infty)$	$[0, +\infty)$	$[1, +\infty)$	$[2, +\infty)$
13	If $f(x) = c^3$ , where $c$ is any constant, then $f'(x) = ?$	$3c^2$	$c^2$	$\frac{3}{c}$	0
14	If $y = x^4 + 2x^2 + 3$ , then $\frac{dy}{dx} = ?$	$4x\sqrt{y-1}$	$4x\sqrt{y-2}$	$4x\sqrt{y-3}$	$4x\sqrt{y-4}$
15	At a point of maximum value of a function, its derivative is:	Zero	Positive	Negative	Infinite
16	If $y = \sin 3x$ , then $y_2 = ?$	$3 \cos 3x$	$-9 \sin 3x$	$-27 \cos 3x$	$81 \sin 3x$
17	$\int_0^{\sqrt{3}} \frac{1}{1+x^2} dx = ?$	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$
18	$\int \frac{\sin x + \cos x}{\sqrt{1 + \sin 2x}} dx = ?$ is:	$x + c$	$\sin x + c$	$\cos x + c$	$\cos^2 x + c$
19	$\int \tan^2 x dx = ?$	$\tan x + x + c$	$2 \tan x \sec^2 x + c$	$\sec x - x + c$	$\tan x - x + c$
20	$\int \ell n x dx = ?$	$x \ell n x + c$	$x \ell n x - x + c$	$x \ell n x + x + c$	$\ell n x + x + c$