

Note : Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen ink in the answer-book. Cutting or filling two or more circles will result in zero mark in that question.

Two or more entries will result in Zero mark in that question.

1-1	If $f(x) = \frac{1}{x^2}$ when which of the following is equal to $f \circ f(x)$:			
	(A) x^4	(B) x^2	(C) 1	(D) $\frac{1}{x^4}$
2	What is the value of $\lim_{x \rightarrow 0} (x \sin x)$:			
	(A) α	(B) -1	(C) 1	(D) 0
3	What is the value of $\sqrt{1-x^2} \frac{d}{dx} (\sin^{-1} x + \cos^{-1} x)$:			
	(A) $\sqrt{1-x^2}$	(B) 0	(C) 2	(D) $\frac{1}{x}$
4	$\frac{d}{dx} (\sinh^{-1} x) = :$			
	(A) $\frac{1}{\sqrt{1-x^2}}$	(B) $\frac{-1}{\sqrt{1-x^2}}$	(C) $\frac{1}{\sqrt{1+x^2}}$	(D) $\frac{-1}{\sqrt{1+x^2}}$
5	Derivative of x^3 w.r.t x^3 is :			
	(A) 0	(B) 1	(C) x^3	(D) $3x^2$
6	If $f(x) = a^x$ then $f'(x) = :$			
	(A) $a^x \ln a$	(B) $a^x \ln x$	(C) $a^x (\ln a)^2$	(D) $(a^x)^2 \ln a$
7	$\int x^{-1} dx :$			
	(A) 0	(B) $-x^{-2} + c$	(C) ∞	(D) $\ln x + c$
8	$\int_0^1 \frac{1}{\sqrt{1-x^2}} dx = :$			
	(A) $\frac{\pi}{6}$	(B) $\frac{\pi}{4}$	(C) $\frac{\pi}{3}$	(D) $\frac{\pi}{2}$
9	$\int \tan x dx = :$			
	(A) $\ln \cot x + c$	(B) $\ln \sec x + c$	(C) $\ln \sin x + c$	(D) $\ln \operatorname{cosec} x + c$

1.10	$\int_0^{\pi} \sin x \, dx = :$ (A) 0 (B) 1 (C) 2 (D) π
11	A linear equation in two variables represents : (A) Circle (B) Ellipse (C) Hyperbola (D) Straight line
12	Intercept form of equation of line is : (A) $\frac{x}{a} + \frac{y}{b} = 1$ (B) $\frac{x}{a} + \frac{y}{b} = 0$ (C) $\frac{x}{a} - \frac{y}{b} = 1$ (D) $\frac{x}{a} - \frac{y}{b} = 0$
13	Distance of point $(\cos 3x, \sin 3x)$ from origin is : (A) 3 (B) 6 (C) 9 (D) 1
14	$(0, 0)$ is one of the solution of inequality : (A) $3x + 5y > 4$ (B) $2x + 3y < 4$ (C) $x + 3y > 5$ (D) $2x + 3y > 5$
15	Equation of circle with centre $(3, 0)$ and radius $\sqrt{9}$ is : (A) $x^2 + y^2 - 6x = 0$ (B) $x^2 - 6x = 9$ (C) $x^2 + y^2 = 9$ (D) $9x^2 + y^2 = 9$
16	Equation of directrix of parabola $y^2 = -12x$ is : (A) $x = -3$ (B) $x = 3$ (C) $y = 3$ (D) $y = -3$
17	Co-vertices of ellipse $\frac{x^2}{b^2} + \frac{y^2}{a^2} = 1; a > b$ are : (A) $(\pm a, 0)$ (B) $(0, \pm a)$ (C) $(0, \pm b)$ (D) $(\pm b, 0)$
18	Which of the following vectors is equal to the vector $\underline{i} \cdot \underline{j} \times \underline{k}$: (A) 0 (B) 1 (C) -1 (D) $\underline{i}$
19	For what value of P $\begin{bmatrix} 2 & P & 5 \end{bmatrix}$ is perpendicular to $\begin{bmatrix} 3 & 1 & P \end{bmatrix}$: (A) $\frac{2}{3}$ (B) -1 (C) 1 (D) $\sqrt{5}$
20	If $\underline{a}$ and $\underline{b}$ are parallel vectors then $\underline{a} \times \underline{b} = :$ (A) 0 (B) 1 (C) -1 (D) 2