

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- $\hat{i} \cdot (2\hat{j} \times \hat{k}) =$
 (A) 0 (B) 2 (C) 4 (D) 6
- 2- The co-ordinates of vertex of parabola $x + 8 - y^2 + 2y = 0$ will be
 (A) $(-9, 1)$ (B) $(9, 1)$ (C) $(9, -1)$ (D) $(-9, -1)$
- 3- Mid-point of hypotenuse of a right triangle is called as
 (A) circumcentre (B) incentre (C) orthocentre (D) centroid
- 4- $x = 0$ is the solution of inequality
 (A) $3x - 2 > 0$ (B) $3x + 5 < 0$ (C) $2x - 6 < 0$ (D) $x + 3 < 0$
- 5- If a line intersects y-axis at $(0, a)$, then 'a' is called
 (A) x-intercept (B) y-intercept (C) inclination (D) slope
- 6- $\int \sin 2x \, dx =$
 (A) $-\frac{\cos 2x}{2}$ (B) $\frac{\cos 2x}{2}$ (C) $2 \cos 2x$ (D) $-2 \cos 2x$
- 7- $\int \tan x \, dx =$
 (A) $\ln \cos x$ (B) $\ln |\sec x|$ (C) $\ln \sin x$ (D) $\ln |\cot x|$
- 8- If $f(x) = \sin x$, then $f'(\pi) =$
 (A) -1 (B) 1 (C) 0 (D) $\frac{1}{2}$
- 9- $\frac{d}{dx} \left(\frac{2}{x} \right) =$
 (A) $\ln |x^2|$ (B) $\frac{-2}{x^2}$ (C) $-2x^2$ (D) 2^x
- 10- $\lim_{x \rightarrow 3} (2x + 4) =$
 (A) 3 (B) 6 (C) 10 (D) 12
- 11- $\cos \theta =$
 (A) $\hat{a} \cdot \hat{b}$ (B) $|\underline{a} \times \underline{b}|$ (C) $\underline{a} \times \underline{b}$ (D) $\sin \theta$
- 12- The focus of parabola $y^2 = 4ax$ is
 (A) $(0, a)$ (B) $(-a, 0)$ (C) $(a, 0)$ (D) $(0, -a)$

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- 13- Two circles are said to be concentric if they have same _____.
(A) radius (B) diameter (C) center (D) length
- 14- If a line is parallel to x-axis, then inclination =
(A) 0° (B) 30° (C) 45° (D) 90°
- 15- $\int \sqrt{x} \, dx =$
(A) $\frac{\sqrt{x}}{2}$ (B) $\frac{x\sqrt{x}}{3}$ (C) $\frac{1}{2\sqrt{x}}$ (D) $\frac{2x\sqrt{x}}{3}$
- 16- $y = mx + c$ is _____ form of equation of line.
(A) normal (B) point-slope (C) slope-intercept (D) intercept
- 17- If $f(x) = \sqrt{x-12}$, then $f(16) =$
(A) 16 (B) 12 (C) 28 (D) 2
- 18- If $y = \ln(\sin x)$, then $\frac{dy}{dx} =$
(A) $\tan x$ (B) $\cot x$ (C) $-\tan x$ (D) $-\cot x$
- 19- If $y = \cosh 2x$, then $\frac{dy}{dx} =$
(A) $2\sinh 2x$ (B) $-\sinh 2x$ (C) $-2\sinh 2x$ (D) $\cosh 2x$
- 20- $\int_0^{\pi/2} \cos x \, dx =$
(A) 2 (B) 0 (C) -1 (D) 1

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