

**MATHEMATICS PAPER-II
GROUP-I****OBJECTIVE**

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 bubble in front of that question number. Use marker or pen to fill the bubbles. Cutting or filling two or more bubbles will result in zero mark in that question. Attempt as many questions as given in objective type question paper and leave others blank. No credit will be awarded in case BUBBLES are not filled. Do not solve questions on this sheet of OBJECTIVE PAPER.

Q.No.1

- (1) If $f(x) = x^3 + x$, then $f(x)$ is:-
 (A) Constant function (B) Even function (C) Odd function (D) Implicit function
- (2) $\lim_{x \rightarrow 4} \frac{x^2 - 6x + 8}{x - 4} =$ (A) 4 (B) 2 (C) 6 (D) 8
- (3) $x = 3 \cos t$, $y = 3 \sin t$ represents:- (A) Line (B) Circle (C) Ellipse (D) Hyperbola
- (4) If $f(x) = \sin x$, then $f''\left(\frac{\pi}{2}\right) =$ (A) 0 (B) 1 (C) 2 (D) -1
- (5) $\frac{d}{dx}(\coth x) =$ (A) $-\operatorname{cosech}^2 x$ (B) $\operatorname{cosech}^2 x$ (C) $\tan^2 x$ (D) $\coth x \operatorname{sech} x$
- (6) $\frac{d}{dx}(e^{x^2}) =$ (A) e^{x^2} (B) $2e^{x^2}$ (C) $2xe^{x^2}$ (D) $2e^x$
- (7) $\int \frac{\sin 2x}{4 \sin x} dx =$ (A) $\sin 2x + c$ (B) $2 \sin 2x + c$ (C) $\frac{1}{2} \sin x + c$ (D) $2 \sin x + c$
- (8) $\int_1^2 2x dx =$ (A) 3 (B) 2 (C) 1 (D) 0
- (9) $\int_1^2 \frac{1}{x} dx =$ (A) $2 \ln x$ (B) $\ln 2$ (C) $\ln(1)$ (D) $\ln 3$
- (10) $\int 5^{2x} dx =$ (A) 5^{2x} (B) $2(5^{2x})$ (C) $5^{2x} \ln 5$ (D) $2(5^{2x} \ln 5)$
- (11) Distance of line $x + 2y + 5 = 0$ from origin is:- (A) 1 (B) $\sqrt{5}$ (C) 5 (D) 2
- (12) Length of perpendicular from (1, 1) to the line $4x - 3y + 9 = 0$ equals:-
 (A) 2 (B) 4 (C) 3 (D) 9
- (13) Equation of horizontal line through (2, 3) is:- (A) $y = 3$ (B) $y = 2$ (C) $x = 3$ (D) $x = 2$
- (14) Slope of vertical line is:- (A) 0 (B) 1 (C) ∞ (D) 2
- (15) If $3x + 2y \leq 6$, point does not satisfy:- (A) (1, 0) (B) (0, 1) (C) (0, 0) (D) (3, 2)
- (16) Radius of circle $x^2 + y^2 - 4x - 6y = 0$ is:- (A) $\sqrt{13}$ (B) $\sqrt{11}$ (C) $\sqrt{5}$ (D) 13
- (17) Directrix of parabola $x^2 = 20y$ is:- (A) $x = 10$ (B) $x = 5$ (C) $y = -5$ (D) $x = -5$
- (18) Parabola $x^2 = -8y$ opens:-
 (A) Rightwards (B) Leftwards (C) Upwards (D) Downwards
- (19) Magnitude of vector $6\hat{i} + 3\hat{j} - 2\hat{k}$ is:- (A) 7 (B) 6 (C) 3 (D) -2
- (20) Direction cosines of y -axis are:-
 (A) 0, 0, 1 (B) 1, 0, 0 (C) 0, 1, 0 (D) $\frac{1}{\sqrt{3}}, \frac{1}{\sqrt{3}}, \frac{1}{\sqrt{3}}$