

Paper: II

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 in your answer book. Use marker or pen to fill the circles. Cutting or filling up two or more circles will result no mark.

SECTION-A

Q.1	Questions	A	B	C	D
1.	Domain of the function $f(x) = x^2 + 1$ is:	$[0, +\infty)$	$(-\infty, +\infty)$	$[-\infty, +\infty]$	$(-\infty, 0]$
2.	$\lim_{h \rightarrow 0} (1 - 2h)^{\frac{1}{h}} =$ _____.	e^{-2} ✓	e^2	0	1
3.	If $y = \frac{1}{x^2}$ then $\frac{dy}{dx}$ at $x = 1$	-1	1	-2 ✓	2
4.	If $y = e^{\ln a}$ then $\frac{dy}{dx} =$ _____.	$\sqrt{a^x (\ln a)}$	$e^x (\ln a)$	$\ln(a)$	1
5.	Under what condition $\frac{d}{dx}(\coth^{-1} x) = \frac{1}{1-x^2}$	$ x \leq 1$	$ x \geq 1$	$ x < 1$	✓ $ x > 1$
6.	If $f(x) = 4x - x^2$ defined for interval $[-1, 5]$ then $f(x)$ increases in the interval.	$[-1, 3]$	$[-1, 2]$ ✓	$[2, 5]$	$[-1, 5]$
7.	$\int \frac{1}{(2x+3)^4} dx =$ _____.	$-\frac{8}{(2x+3)^3}$	$\frac{8}{(2x+3)^5}$	-1 ✓	$\frac{1}{6(2x+3)^3}$
8.	The suitable substitution for the function involving $\sqrt{x^2 - a^2}$ to integrate the function is:	$x = a \sin \theta$	✓ $x = a \sec \theta$	$x = a \tan \theta$	$x = \sin \theta$
9.	If $\int_{-2}^1 f(x) dx = 5$, $\int_1^3 f(x) dx = 3$, then $\int_{-2}^3 f(x) dx =$ _____.	8	2	1	-8
10.	$\int_{-1}^2 x dx =$ _____.	2	-2	$\frac{5}{2}$ ✓	-4
11.	The location in the plane of the point $P(x, y)$ for which $x < 0$ and $y \geq 0$.	The first quadrant	✓ The second quadrant	The third quadrant	The fourth quadrant
12.	The line $y = a$ lies above the x -axis if:	$a = 0$	$a < 0$	$a \leq 0$	$a > 0$ ✓
13.	Normal form of the equation $2x + y = -2$ is:	$-\frac{2x}{\sqrt{5}} - \frac{y}{\sqrt{5}} = \frac{2}{\sqrt{5}}$	$\frac{2x}{\sqrt{5}} - \frac{y}{\sqrt{5}} = \frac{2}{\sqrt{5}}$	$-\frac{2x}{\sqrt{5}} + \frac{y}{\sqrt{5}} = \frac{2}{\sqrt{5}}$	$\frac{2x}{\sqrt{5}} + \frac{y}{\sqrt{5}} = \frac{2}{\sqrt{5}}$
14.	Slope of the line $12y = 5x + 39$ is:	$-\frac{5}{12}$	$\frac{5}{12}$ ✓	$\frac{39}{12}$	$-\frac{39}{12}$
15.	The point of the solution region where two of its boundary lines intersect is called:	Convex region	Boundary point	✓ Vertex	Feasible region
16.	Which one is the centre of the circle $x^2 + y^2 - 6x + 4y + 13 = 0$	$(-3, 2)$	$(-3, -2)$	$(3, 2)$	$(3, -2)$ ✓
17.	The length of latusrectum for parabola $x^2 = -16y$ is:	16 ✓	4	32	8
18.	Vertices of the ellipse $4x^2 + 9y^2 = 36$ are:	$(\pm 3, 0)$ ✓	$(0, \pm 3)$	$(\pm 2, 0)$	$(0, \pm 2)$
19.	Unit vector in the direction of $\underline{v} = [3, -4]$ is:	$\left[\frac{-3}{5}, \frac{4}{5}\right]$	✓ $\left[\frac{3}{5}, \frac{-4}{5}\right]$	$\left[\frac{-3}{5}, \frac{-4}{5}\right]$	$\left[\frac{3}{5}, \frac{4}{5}\right]$
20.	If the vectors $2\underline{i} + \alpha \underline{j} + 5\underline{k}$ and $3\underline{i} + \underline{j} + \alpha \underline{k}$ are perpendicular then $\alpha =$ _____.	0	1	-1 ✓	2