GALGOTIAS UNIVERSITY

ADMISSION NUMBER												

School of Biomedical Science

B.Tech Biotechnology
Mid Term Examination - May 2024

Duration : 90 Minutes
Max Marks : 50

Sem II - C1UC223B - Elementary Maths-II

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1)	Let $\vec{a} = \vec{i} + 2\vec{j}$ and $\vec{b} = 2\vec{i} + \vec{j}$. Is $\lvert\vec{a}\rvert = \lvert\vec{b}\rvert$? Are the vectors $\vec{a}$ and $\vec{b}$ equal ?	K2	(2)
2)	Compute $\int \frac{\sin(x)}{\sin(x+a)}\ dx$	K1	(3)
3)	Find $\int_0^1 x\ e^{x^2}\ dx.$	K2	(4)
4)	Find the general solution of the differential equation $\frac{dy}{dx} = \frac{x+1}{2-y}$, $y \neq 2.$	K2	(6)
5)	Solve the integral $\int (x^2+1)\log x\ \ dx.$	K3	(6)
6)	Solve the homogeneous differential equation $x\cos\left(\frac{y}{x}\right)\frac{dy}{dx} = y\cos\left(\frac{y}{x}\right) + x\,.$	K3	(9)
7)	Find $\int \frac{(3x-2)}{(x+1)^2(x+3)}\ dx.$	K4	(8)
8)	Find the area enclosed by the circle $x^2 + y^2 = 4$ using integration.	K4	(12)
	OR		
	Find the area enclosed by the ellipse $\frac{x^2}{4} + \frac{y^2}{9} = 1$	K4	(12)