GALGOTIAS UNIVERSITY

ADMISSION NUMBER												

School of Engineering

B.TECH Electronics and Communication Engineering
Mid Term Examination - Nov 2023

Duration : 90 Minutes
Max Marks : 50

Sem III - G2UC303T - Electromagnetic Field Theory

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)	Write any three co-ordinate systems.	K2	(2)
2)	A vector field is given by $\vec{A} = yz\vec{a}_x + xz\vec{a}_y + xy\vec{a}_z$ Show that it is irrotational and solenoidal.	K1	(3)
3)	Explain Laplace's equation in Cartesian coordinates.	K2	(4)
4)	Prove that $\vec{\mathbf{E}}$ = - grad V, where E is Electric Field Intensity and V is Electric Potential.	K2	(6)
5)	Explain convection and conduction currents. Derive mathematical equations also. Also derive the magnetic vector potential.	K3	(6)
6)	Calculate the electric field intensity due to a given charge distribution using Cartesian coordinates.	K3	(9)
7)	Analyze the relationship between electric field and charge distribution.	K4	(8)
8)	Apply mathematical techniques to evaluate line, surface, and volume integrals in electrostatics.	K4	(12)
	OR		
	Analyze the behavior of conductors and dielectrics under different electric field conditions.	K4	(12)