R22

ANURAG Engineering College
(An Autonomous Institution)
II B.Tech I Semester Regular Examinations, Jan/Feb–2024
ELECTROMAGNETIC FIELDS
(ELECTRICAL AND ELECTRONICS ENGINEERING)

Time: 3 Hours　　　　　　　　　　　　　　　　　　　**Max.Marks:60**

Section – A (Short Answer type questions)　　　　　　(10 Marks)
Answer All Questions

		Course Outcome	B.T Level	Marks
1.	Define electric field intensity.	CO1	L1	1M
2.	State Gauss law.	CO1	L2	1M
3.	State ohm's law in point form and write its significance.	CO2	L2	1M
4.	Write Poisson's equation.	CO2	L1	1M
5.	Write about Ampere's circuital law.	CO3	L1	1M
6.	Define magnetic dipole moment and write its significance.	CO3	L2	1M
7.	Give the statement of Faraday's law.	CO4	L2	1M
8.	Write Maxwell's equations for Free Space in point form.	CO4	L1	1M
9.	State Poynting theorem.	CO5	L1	1M
10.	What is the significance of frequency in electromagnetic waves?	CO5	L2	1M

Section B (Essay Questions)
Answer all questions, each question carries equal marks.　　　(5 X 10M = 50M)

			Course Outcome	B.T Level	Marks
11.	A)	State and explain coulomb's law and express the force between point charges in free space as vector.	CO1	L2	10M
		OR			
	B)	Derive the expression for electric field intensity due to infinite sheet of charge.	CO1	L2	10M
12.	A)	Derive the expression for capacitance of a coaxial capacitor of inner radius 'a', outer radius of 'b' and length L.	CO2	L3	10M
		OR			
	B)	A spherical condenser has a capacity of 54 pF. It consists of two concentric spheres differing in radii by 4 cm and having air as dielectric. Find their radii.	CO2	L2	10M
13.	A)	Using Biot-savart's law, obtain the expression for the magnetic flux density 'B' due to steady surface current in free space.	CO3	L2	10M
		OR			
	B)	Explain the concept of scalar and vector magnetic potentials	CO3	L3	10M
14.	A)	Derive the Maxwell's equations in point form.	CO4	L3	10M
		OR			
	B)	Derive the expression for force between two current carrying conductors.	CO4	L2	10M
15.	A)	Explain wave equation in uniform plane.	CO5	L2	10M
		OR			
	B)	Derive the expressions describing propagation of uniform plane wave in good conductor.	CO5	L2	10M