R18/R15

ANURAG Engineering College
(An Autonomous Institution)
II B.Tech I Semester Supplementary Examinations, June/July-2024
ELECTRO MAGNETIC FIELDS
(ELECTRICAL & ELECTRONICS ENGINEERING)

Time: 3 Hours   **Max. Marks: 75**

Section – A (Short Answer type questions)   (25 Marks)
Answer All Questions

		Course Outcome	B.T Level	Marks
1.	State Coulomb's Law	CO1	L1	2M
2.	Give any three co- ordinate systems.	CO1	L1	3M
3.	Define dielectric strength.	CO2	L1	2M
4.	What is the capacitance? and write down the expression for capacitance between two parallel plates.	CO2	L1	3M
5.	State Biot-savart's law.	CO3	L1	2M
6.	Compare magnetic flux density and field intensity	CO3	L1	3M
7.	What is Lorentz force equation for moving charge? What are the applications?	CO4	L1	2M
8.	Explain the vector magnetic potential and its properties	CO4	L1	3M
9.	What is dynamically induced e.m.f.	CO5	L1	2M
10.	Write maxwell's equation for time varying fields	CO5	L1	3M

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

			Course Outcome	B.T Level	Marks
11.	A)	i) State and explain the gauss's law.	CO1	L3	5M
		ii) Find the electric field at a point $(1, -2, 1)$ m, if the potential is $V=3x^2y+2yz^2+2xyz$.			5M
		OR			
	B)	Describe the expression for the electric field intensity due to line charge.	CO1	L3	10M
12.	A)	Obtain an expression for capacitance of concentric spheres.	CO2	L3	10M
		OR			
	B)	Derive the expression for capacitance of a-coaxial capacitor of inner radius 'a', outer radius of 'b' and length L.	CO2	L3	10M
13.	A)	Determine the expressions for magnetic flux intensity due to solenoid of the coil.	CO3	L3	10M
		OR			
	B)	Using Biot-savart's law, obtain the expression for the magnetic flux density 'B' due to steady surface current in free space.	CO3	L3	10M
14.	A)	Obtain an expression for force between two current carrying conductors.	CO4	L3	10M
		OR			
	B)	Explain the scalar magnetic potential and its limitations.	CO4	L3	10M
15.	A)	Derive the maxwell's equation in point and integral form for time varying fields.	CO5	L3	10M
		OR			
	B)	i) What is the significance of displacement current?	CO5	L3	5M
		ii) State and explain Faraday's laws of electromagnetic induction.			5M