



B.Tech III Semester Supplementary Examinations, December 2024

**ELECTRO MAGNETIC FIELDS
(EEE)**

Maximum Marks: 70

Date: 11.12.2024

Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks		(10X2M=20) Marks)	CO	Bloom Tx
1	What are the source of electric field.		1	L1
2	State divergence theorem.		1	L1
3	State coulombs law.		2	L1
4	Define point charge.		2	L1
5	Define one coulomb.		3	L1
6	Define magnetic dipole.		3	L1
7	What is significance of displacement current		4	L1
8	What is meant by mutual inductance?		4	L1
9	How Maxwell's equations are modified for time varying electric?		5	L1
10	What is meant by the term displacement current?		5	L1

Part-B

Answer All the following questions.		(5X10M=50Marks)	CO	Bloom Tx
11	State and proof divergence theorem.	[10M]	1	L2
OR				
12	Explain the rectangular co-ordinate system with neat diagram.	[10M]	1	L2
13	Find the electric field intensity produced by a charge distribution at p(1,1,1) caused by four identical 3nc point charge located at P ₁ (1,1,0), P ₂ (-1,1,0) P ₃ (-1,-1,0) P ₄ (1,-1,0).	[10M]	2	L2
OR				
14	What are the charge distributions and explain the electric field intensity due to various charge distributions.	[10M]	2	L2
15	State Gauss law and mention few applications of it.	[10M]	3	L2
OR				
16	Using ampere's circuital law, find MFI due to an infinite sheet of current.	[10M]	3	L2

17	Derive an expression for magnetic field intensity due to infinite sheet of current. [10M]	4	L2
OR			
18	Find the force between two straight long and parallel current carrying conductors in the same and opposite directions. [10M]	4	L2
19	Derive General field relation for time varying electric and magnetic fields using Maxwell's equations. [10M]	5	L2
OR			
20	Explain the concept of displacement current and obtain an expression for the displacement current density. [10M]	5	L3