



R18 Regulation *Subject code:2P3BE*
TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech III Semester Supplementary Examinations, December 2025
ELECTROMAGNETIC FIELDS
(EEE)

Maximum Marks: 70

Date:24.12.2025

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.
 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)		Marks	CO	BTL
1	What are the source of electric field.	2M	1	L1
2	State divergence theorem.	2M	1	L1
3	State coulombs law.	2M	2	L1
4	Define point charge.	2M	2	L1
5	Define one coulomb.	2M	3	L1
6	State Biot-Savart's law	2M	3	L1
7	What Is significance of displacement current	2M	4	L1
8	What is self inductance	2M	4	L1
9	Explain how Maxwell's equations are modified for time varying electric	2M	5	L1
10	What is meant by the term displacement current?	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	State and proof divergence theorem.	10M	1	L2
	OR			
12	Explain the rectangular co-ordinate system with neat diagram.	10M	1	L2
13	State and proof gauss law .and explain applications of gauss law.	10M	2	L2
	OR			
14	What are the charge distributions ,explain the electric field intensity due to various charge distributions.	10M	2	L2
15	Explain the potential , potential due to point charge.	10M	3	L2
	OR			
16	Using ampere's circuital law, find MFI due to an infinite sheet of current.	10M	3	L2

17	State Biot-Savart's law for magnetic field B due to a steady line current in free space.	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	Explain statically and dynamically induced e.m.fs	10M	5	L2
	OR			
20	Explain the concept of displacement current and obtain an expression for the displacement current density.	10M	5	L2