NARASIMHA REDDY ENGINEERING COLLEGE
(Autonomous)
Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad
Accredited by NAAC with A Grade, Accredited by NBA

ELECTRICAL AND ELECTRONICS ENGINEERING

QUESTION BANK

COURSE TITLE: ELECTROMAGNETIC FIELDS

COURSE CODE: 25EE301

REGULATION: NR25

COURSE OBJECTIVE:

1. To introduce the fundamental concepts of electric field and magnetic field.

2.To explain the behavior of electric charges and currents in producing electric and magnetic fields.

3.To study the applications of electric and magnetic fields in power transmission lines.

4.To understand the role of electric and magnetic fields in the operation of electrical machines.

5.To study the nature, properties, and applications of electromagnetic waves.

COURSE OUTCOMES (CO's):

CO1	To understand the basic laws of electromagnetism and their practical applications
CO2	To study the relationship between electric fields, magnetic fields, and electric currents.
CO3	To analyze time-varying electric and magnetic fields and their interactions.
CO4	To understand the propagation characteristics of electromagnetic (EM) waves.
CO5	To explore the applications of electromagnetic wave propagation in engineering and communication systems.

UNIT-1

STATIC ELECTRICFIELD

PART- A (SHORT ANSWER QUESTIONS)

S. No		Questions	BT	CO	PO
Part – A (Short Answer Questions)					
1		Define coulomb's law?	BT2	CO1	PO1
2		State law of conservation of charge?	BT1	CO1	PO1
3		What do you mean by scalar and vector quantity?	BT2	CO1	PO1
4		Define gauss law?	BT2	CO1	PO1
5		Write applications of gauss law?	BT3	CO1	PO2
6		Write relation between D, E, Q & F?	BT3	CO1	PO2
7		Define electric potential & absolute electric potential?	BT2	CO1	PO2
8		What do you mean by electro static energy?	BT2	CO1	PO1
9		Define electric dipole & dipole movement?	BT2	CO1	PO2
10		Define static energy with relevant equation?	BT3	CO1	PO1
Part – B (Long Answer Questions)					
11	a)	A point charge Q_1 =2uc is at (2,3,6) & another charge Q_2 =5uc is at (0,0,0) in free space. Find the force on Q_1 due to Q_2.	BT3	CO1	PO2
	b)	what are the various types of charge distributions explain & state the units of each charge distribution?	BT2	CO1	PO2
12	a)	state & explain coulombs law derive expression of electric field intensity (E) of line charge?	BT4	CO1	PO2
	b)	Transform vector field w=10 a_x -8a_y+6a_z to cylindrical co-ordinate system at point (10, -8,6)	BT3	CO1	PO3
13	a)	Find angle between vectors $\bar{A}$=2 a_x -5a_y-4a_z & B=3 a_x +5a_y+2a_z Using dot product.	BT3	CO1	PO2
	b)	state and explain Gauss's law?	BT2	CO1	PO2
14	a)	Find electric field intensity (E) Due to Infinite line charge?	BT3	CO1	PO2
	b)	State and explain Gauss's law Find Electric field intensity (E) due to infinite surface charge distribution by using Gauss's law?	BT3	CO1	PO3
15	a)	What is mean by electric dipole? Derive the expression for electric field intensity due to electric dipole?	BT2	CO1	PO2
	b)	Write about point charge related to Gauss's law?	BT3	CO1	PO2
16	a)	Write about electric potential and absolute electric potential? Write relevant equations?	BT2	CO1	PO2
	b)	Write about Electro static energy and energy density?	BT2	CO1	PO2