Course Code:1940415 Roll No: MLRS- R19

MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section2(f) & 12(B)of the UGC act,1956

II B.Tech II Sem Supply End Examination, March 2022

Electromagnetic Fields and Waves

(ECE)

Time: 3 Hours. **Max. Marks: 70**

Note: 1. Answer any FIVE questions.
2. Each question carries 14 marks and may have a, b as sub questions.

1	a)	State coulombs law ?if three point charges 1mC,2mC,-3mC respectively located at(0,0,4) ,(-2,6,1) and (3,-4,-8) calculate the force on first charge ?	7M	CO1	BL3
	b)	Prove that the energy stored in capacitor $W_c = ½ CV^2$ Joules	7M	CO1	BL3
2	a)	Derive the relation between electric field intensity(E) and electric potential(V)	7M	CO1	BL3
	b)	Explain about Continuity Equation and Relaxation Time.	7M	CO1	BL4
3	a)	Derive Lorentz force equation and explain its significance	7M	CO2	BL6
	b)	State and explain about Biot-Savart's law with one example	7M	CO2	BL3
4	a)	Derive the force between two current elements?	7M	CO2	BL3
	b)	Derive the Expression for Maxwell second law ? and write its integral and differential form	7M	CO3	BL6
5	a)	Interpret the inconsistency in Ampere circuit's law and how to overcome it.	7M	CO3	BL3
	b)	Explain about transformer and motional electromotive force ?	7M	CO3	BL4
6	a)	Explain about reflection and refraction of plane waves at oblique incidence in a conductor.	7M	CO4	BL4
	b)	State and explain about pointing theorem ?	7M	CO4	BL4
7	a)	Explain about parallel polarization of wave with normal incidence with E field parallel to the plane of incidence?	7M	CO4	BL4
	b)	Sketch the fields of TE_{10} TE_{20}, TM_{11}	7M	CO5	BL1
8	a)	Starting from the basic Maxwell's equation derive the expression for H_X,H_Y TE waves in rectangular wave guides	7M	CO5	BL6
	b)	What are micro strip lines? Explain the characteristic of micro strip lines	7M	CO5	BL4

---oo0oo---