Question Paper Code: R18A22EC02

R18

ANURAG Engineering College

(An Autonomous Institution)

II B.Tech II Semester Supplementary Examinations, June/July-2024

ELECTROMAGNETIC THEORY AND TRANSMISSION LINES

(ELECTRONICS AND COMMUNICATIONS 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.	What are the types of Charge Distributions	CO1	L1	2M
2.	Give the expressions for continuity equation and relaxation time	CO1	L2	3M
3.	Define magnetic flux and flux density	CO2	L1	2M
4.	Define magnetic vector potential and magnetic scalar potential	CO2	L2	3M
5.	Explain about transformer EMF	CO3	L1	2M
6.	Define Ampere's circuital law and give its point form	CO3	L2	3M
7.	What is the meant by polarization of wave?	CO4	L1	2M
8.	Write the wave equation for **E** and **H** in the uniform medium?	CO4	L2	3M
9.	Define distortion and attenuation	CO5	L1	2M
10.	Define reflection coefficient and VSWR, what is the relationship between them?	CO5	L2	3M

Section B (Essay Questions)

Answer all questions, each question carries equal marks. **(5 x 10M = 50M)**

11. A)	Define electric field intensity. Derive the equation for electric field intensity at a distance 'r' from a point charge of Q coulombs	CO1	L3	10M
	OR			
B)	Give Poisson's and Laplace equation in electrostatics and Explain applications.	CO1	L3	10M
12. A)	State and prove Ampere's circuit law	CO2	L3	10M
	OR			
B)	Explain the concept of Magnetic vector potential	CO2	L3	10M
13. A)	State and explain Maxwell's equations in the integral and differential forms.	CO3	L3	10M
	OR			
B)	State and prove boundary conditions for E and H in accordance with Maxwell's equations.	CO3	L3	10M
14. A)	Derive expression for intrinsic impedance in a uniform plane wave in a lossy dielectric?	CO4	L3	10M
	OR			
B)	Explain parallel polarization of wave in perfect conductors with oblique incidence	CO4	L3	10M
15. A)	Explain the significance and utility of $\lambda/8$, $\lambda/4$ and $\lambda/2$ lines	CO5	L2	10M
	OR			
B)	Define the reflection coefficient and derive the expression for the input impedance in terms of reflection coefficient	CO5	L3	10M