Question Paper Code: R18A32EC03

R18

ANURAG Engineering College

(An Autonomous Institution)

III B.Tech II Semester Supplementary Examinations, Dec–2023/Jan-2024

MICROWAVE ENGINEERING

(ELECTRONICS & COMMUNICATION 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 advantages and disadvantages of Microwaves?	CO1	L1	2M
2.	List out the applications of Microwaves?	CO1	L1	3M
3.	What is Q factor of Cavity Resonator?	CO2	L1	2M
4.	What is the Principle of Rectangular Cavity?	CO2	L1	3M
5.	What are the Limitations of Conventional tubes at Microwave frequencies	CO3	L1	2M
6.	What is the importance of klystron?	CO3	L2	3M
7.	What are the advantages of Crossed Field Tubes	CO4	L1	2M
8.	What is the principle of Magnetron?	CO4	L2	3M
9.	What is the significance of S-Matrix	CO5	L1	2M
10.	Define S-Matrix of E-Plane Tee.	CO5	L2	3M

Section B (Essay Questions)

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

11. A)	Derive the Wave Equation for TE mode in Rectangular Coordinates.	CO1	L3	10M
	OR			
B)	Explain and derive the relation between Phase and Group Velocities, Wavelengths and Impedance.	CO1	L3	10M
12. A)	Explain the working of a ferrite circulator with neat sketches?	CO2	L3	10M
	OR			
B)	With neat sketches, Explain the working principle of Isolator.	CO2	L3	10M
13. A)	Explain the velocity modulation and apple gate diagram of Two Cavity Klystron.	CO3	L3	10M
	OR			
B)	Explain Working principle of TWT with neat sketches.	CO3	L3	10M
14. A)	Explain the working Principle of PI mode Magnetron with its structure	CO4	L3	10M
	OR			
B)	Explain the working Principle of Gunn Diode with neat sketches.	CO4	L3	10M
15. A)	Derive the Scattering Matrix of E-Plane Tee and H-Plane Tee.	CO5	L3	10M
	OR			
B)	With neat sketches, Explain the working principle of Two hole Directional Couplers.	CO5	L3	10M