O.P.Code: 20EC0421	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech. III Year II Semester Regular & Supplementary Examinations June-2025
ANTENNAS AND WAVE PROPAGATION
(Electronics & Communications Engineering)

Time: 3 Hours **Max. Marks: 60**

(Answer all Five Units **5 x 12** = 60 Marks)

UNIT-I

1		Deduce the expression for radiation Parameters of a Half wave Dipole Antenna.	CO3	L3	12M
		OR			
2	a	What is meant by Front to back ratio?	CO1	L3	4M
	b	An antenna receives a maximum power of 2μW from a radio station. Calculate the maximum effective area if the antenna is located in the far field station where E=50mV/m.	CO1	L3	8M

UNIT-II

3	a	Discuss about the helical antenna of axial mode and its radiation pattern.	CO2	L2	6M
	b	Design Yagi-Uda antenna of six elements to provide a gain of 12dB if the operating frequency is 200 MHz.	CO4	L5	6M
		OR			
4	a	Discuss the design considerations of pyramidal horn antenna.	CO2	L2	6M
	b	Calculate the directivity of pyramidal horn antenna with an aperture. If size 12x12cm operating with 3.2cm wavelength.	CO2	L3	6M

UNIT-III

5	a	Explain the different feed methods to parabolic reflectors.	CO2	L2	8M
	b	A parabolic dish provides a power gain of 50 dB at 10 GHz with 70% efficiency. Find out i) HPBW ii) BWFN	CO2	L3	4M
		OR			
6	a	Explain sources of Error in Antenna measurement.	CO5	L2	6M
	b	Explain the measurement of directivity.	CO5	L5	6M

UNIT-IV

7		Derive the expression for far field pattern of an array of two isotropicpoint sources at equal amplitude & opposite phase.	CO4	L4	12M
		OR			
8	a	What is End fire array and its radiation pattern.	CO4	L2	6M
	b	Deduce the characteristics of n-elements End fire array.	CO4	L3	6M

UNIT-V

9		Explain the Structure of Ground wave propagation with neat sketch.	CO6	L2	12M
		OR			
10	a	Explain Virtual height and its significance.	CO6	L2	6M
	b	Explain Skip distance and derive its expression.	CO6	L2	6M

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