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

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

B.Tech III Year II Semester Regular Examinations August-2023

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		Explain the radiation pattern of an antenna and its types with neat sketch.	CO1	L2	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	List the advantages, disadvantages and applications of Yagi-Uda antenna.	CO4	L1	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		Write a short notes on the following: i). Helical Antenna ii). Horn antenna	CO2	L1	12M

UNIT-III

5	a	Discuss the construction of rectangular patch antenna.	CO2	L2	8M
	b	What are the applications of microstrip antenna?	CO2	L1	4M
		OR			
6	a	Explain Gain measurement by direct comparison method.	CO5	L5	6M
	b	Explain the gain measurement using absolute method.	CO5	L5	6M

UNIT-IV

7	a	Write brief note on pattern and its types.	CO4	L1	8M
	b	What are the different cases of arrays of two-point sources?	CO4	L1	4M
		OR			
8		Explain End fire array with increase directivity and derive the directivity equation.	CO4	L2	12M

UNIT-V

9	a	Explain different modes of Wave Propagation.	CO6	L2	6M
	b	Explain about refraction and reflection of EM waves.	CO6	L2	6M
		OR			
10	a	Explain Maximum usable frequency with its expression.	CO6	L2	6M
	b	Determine the maximum usable frequency for a critical frequency of 20 MHz and an angle of incidence of 350.	CO6	L2	6M

***** END *****