O.P.Code: 20EC0436	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech. IV Year I Semester Regular & Supplementary Examinations December-2024

WIRELESS COMMUNICATIONS

(Electronics & Communications Engineering)

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

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

UNIT-I

1	a	Discuss briefly about the evolution of Mobile radio communication.	CO1	L1	6M
	b	Tabulate list of terms used to describe various elements of wireless communication systems.	CO1	L1	6M

OR

2	a	Discuss how to improve the cellular capacity by decreasing the D/R ratio and by keeping the cell radius unchanged?	CO1	L2	6M
	b	Discuss the impact of adjacent channel interference on the system capacity.	CO2	L1	6M

UNIT-II

3	a	How the received signal strength is predicted using the free space propagation model? Explain?	CO3	L1	6M
	b	Explain the ground reflection (two-ray) model. And derive the expression for total E-field envelope |ETOT|.	CO3	L2	6M

OR

4	a	Explain scattering in mobile radio environment.	CO3	L2	6M
	b	Explain radar cross section model.	CO3	L2	6M

UNIT-III

5	a	Illustrate the Doppler shift in radio propagation.	CO2	L2	6M
	b	Explain parameters of mobile multipath channels and Time dispersion parameters.	CO1	L2	6M

OR

6	a	Evaluate frequency selective fading due to Multipath time delayspread.	CO3	L4	6M
	b	If the coherence bandwidth is calculated as 100 kHz in the given radio channel of 900 MHz frequency, calculate the maximum symbol ratethat can be transmitted over this channel that will suffer minimalintersymbol interference.	CO5	L4	6M

UNIT-IV

7	a	Explain linear transversal equalizer & lattice equalizer.	CO3	L2	6M
	b	Explain Decision Feedback Equalization (DFE).	CO2	L2	6M

OR

8	a	Describe about macro diversity and express the mathematical representation of macro diversity.	CO4	L2	6M
	b	Explain about micro diversity in wireless communication.	CO1	L2	6M

UNIT-V

9	a	Explain the multiple access scheme for narrowband systems and wideband systems.	CO1	L2	6M
	b	Describe the features of the frequency division multiple access (FDMA) scheme.	CO1	L2	6M

OR

10	a	Describe MIMO systems. How does spatial multiplexing works?	CO6	L2	6M
	b	Explain system model and channel state information for MIMO transmission.	CO6	L1	6M

***** END *****