

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025***Fifth Semester**Electronics and Communication Engineering***EC3501 – Wireless Communication***Regulations - 2021**Duration : 3 Hrs**Maximum : 100 Marks***PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

<i>Q.No</i>	<i>Questions</i>	<i>BTL</i>	<i>CO</i>	<i>Marks</i>
1.	Define frequency reuse.	L1	1	2
2.	Recall adjacent channel interference.	L1	1	2
3.	What is the Brewster angle in reflection?	L1	2	2
4.	Define coherence time.	L1	2	2
5.	State two properties of PN sequences.	L2	3	2
6.	What is polarization diversity?	L1	3	2
7.	Define SDMA.	L1	4	2
8.	What is the near-far problem in CDMA?	L1	4	2
9.	Name two key features of 3G wireless networks.	L1	5	2
10.	What is the role of HLR in a wireless network?	L1	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a Discuss handoff strategies in cellular systems. Explain methods of handoff prioritization and practical issues in implementation. Or	L2	1	16
	b Discuss the methods of improving coverage and capacity in cellular systems. Compare cell splitting, sectoring, and the microcell zone concept.	L2	1	16
12.	a Explain the free space propagation model with the derivation of the path loss equation. Give an example calculation. Or	L2	2	16
	b Derive the electric field at a distance of d meters for the 2-ray ground reflection model and draw the diagram.	L2	2	16
13.	a Explain Minimum Shift Keying with neat waveforms. Derive its bandwidth and bit error rate characteristics. Or	L2	3	16
	b Describe polarization diversity, frequency diversity, and time diversity techniques with practical examples.	L2	3	16

14.	a	Compare and contrast FDMA, TDMA, CDMA, and SDMA in terms of capacity, interference management, and implementation complexity.	L2	4	16
		Or			
	b	Explain the working of TDMA with a neat frame structure. Discuss synchronization requirements and limitations.	L2	4	16
15.	a	Compare 1G, 2G, and 3G wireless systems in terms of multiple access, data rate, and services.	L2	5	16
		Or			
	b	Discuss the advantages, limitations, and applications of UMTS. Explain how it laid the foundation for 4G and 5G networks.	L2	5	16