

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024

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>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	What is frequency reuse?	RE	1	2
2.	Define Handoff.	RE	1	2
3.	Define small scale fading.	RE	2	2
4.	Differentiate coherence time and coherence bandwidth.	Un	2	2
5.	What is the need for equalization in wireless communication?	RE	3	2
6.	Give the expression of MSK.	RE	3	2
7.	What is the significance of multiple access techniques?	RE	4	2
8.	How the capacity of FDMA scheme is computed?	RE	4	2
9.	Compare the circuit switching and packet switching.	UN	5	2
10.	Give the functions of PSTN.	RE	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*13 = 65)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a i Explain the Handoff mechanism adopted in cellular system.	UN	1	7
	ii Explain the concept of cell splitting in detail.	UN	1	6
	Or			
	b i Derive an expression to reduce co-channel interference experienced by cell edge user in a seven cell reuse cellular architecture.	UN	1	8
	ii Discuss the concept of sectoring in detail.	UN	1	5
12.	a i Explain in detail about free space propagation model and calculate the path loss.	UN	2	7
	ii Discuss the propagation mechanism influencing fading in wireless channel.	UN	2	6
	Or			
	b i Discuss the fading effect caused due to multipath time delay spread.	UN	2	8
	ii Discuss the fading effect caused due to Doppler spread.	UN	2	5
13.	a i Enumerate the factors that influence the choice of digital modulation.	UN	3	5
	ii Explain briefly on equalization.	UN	3	8

Or

	b	i	Summarize the importance of diversity methods used for interference mitigation in multipath propagation model.	UN	3	6
		ii	Explain the operational mechanism of GMSK receiver with neat diagram.	UN	3	7
14.	a	i	Explain the operation of Multiple access technique in 2G cellular system.	AP	4	6
		ii	Discuss in detail about TDMA technique.	AP	4	7
Or						
	b	i	Derive the capacity of CDMA scheme with multiple cells in cellular system.	AP	4	6
		ii	Identify in detail about CDMA technique.	AP	4	7
15.	a	i	Inspect the Packet Reservation Multiple Access (PRMA) in detail.	AN	5	7
		ii	Inspect about the generations of wireless networks.	AN	5	6
Or						
	b	i	Compare the circuit and packet switching for PCN.	AN	5	5
		ii	Inspect the working mechanism of Universal Mobile Telecommunication Systems.	AN	5	8

*PART – C (Marks 1*15 = 15)*

<i>Q.No</i>	<i>Questions</i>			<i>BLT</i>	<i>CO</i>	<i>Marks</i>
16.	a	i	Compare the various techniques employed in cellular communication to expand capacity of the system.	AN	4	8
		ii	Analyze the spread spectrum multiple access techniques.	AN	4	7
Or						
	b	i	Examine the 3-dB bandwidth for a Gaussian low pass filter used to produce 0.25 GMSK with a channel data of $R_b=300$ kbps.	AN	3	3
		ii	Analyze why constant envelope modulation schemes such as MSK and GMSK are used in a wireless communication system?	AN	3	12