

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025***Fourth Semester**Electronics and Communication Engineering***EC3491 – Communication Systems***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.	Recall the modulation in communication systems.	L1	1	2
2.	Relate the Carson's general rule for determining the bandwidth of an angle modulated wave.	L1	1	2
3.	What is FM threshold effect?	L1	2	2
4.	Write about Nyquist rate in sampling process.	L1	2	2
5.	State the Channel coding theorem.	L1	3	2
6.	Outline the advantages of DPCM over PCM.	L2	3	2
7.	List the advantages of QPSK.	L2	4	2
8.	Interpret the expressions for the probability of error for BPSK.	L2	4	2
9.	What is matched filter?	L1	5	2
10.	State the likelihood function in detection.	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 Give main idea about super heterodyne receiver with neat block diagram and explain the various parameters. Or	L2	1	16
	b i Explain the generation of SSB-SC-AM using Filter method.	L2	1	8
	ii Compare Wideband FM with Narrowband FM.	L2	1	8
12.	a Analyze the concepts of pre-emphasis and de-emphasis in Frequency Modulation (FM). Draw suitable circuits for each and explain their functions and significance in FM transmission and reception. Or	L4	2	16
	b Analyze the Frequency Division Multiplexing system for N-number of channels. Provide detailed explanations along with neat diagrams to illustrate the system's structure and functionality.	L4	2	16

13.	a	Construct the basic operation of a Differential Pulse Code Modulation (DPCM) transmitter and receiver. Illustrate with relevant diagrams, and analyze the role of each component.	L3	3	16
	Or				
	b	Examine the operation of a cyclic code (7,3) with a suitable generator polynomial.	L4	3	16
14.	a	Develop the operation of a Quadrature Phase Shift Keying (QPSK) transmitter and receiver with neat block diagrams and relevant mathematical expressions.	L3	4	16
	Or				
	b	Conclude the operation of DPSK transmitter and receiver with the help of block diagram, waveform and expression.	L4	4	16
15.	a	Obtain an expression for Nyquist criterion for distortionless baseband transmission for zero Intersymbol interference.	L3	5	16
	Or				
	b	Realize the concept of a matched filter receiver. Analyze and derive the expression for its impulse response.	L4	5	16