Reg.No.:												

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 70029

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2025
Fifth Semester
Computer Science and Engineering
U23ECOE1– PRINCIPLES OF COMMUNICATION
(Common to EEE, CST, IT & BT)
(Regulation 2023)

Time: Three Hours | Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Define Modulation index in AM signal.	2	K1	CO1
2.	Assume the frequency of FM signal is 100 MHz with a frequency deviation of 10 kHz. Find the bandwidth of the FM signal using Carson's rule.	2	K2	CO1
3.	Show the constellation diagram of 16 PSK signal.	2	K2	CO2
4.	Show the FSK waveform for the data 1011010100.	2	K2	CO2
5.	Summarize the elements of the data communication networks.	2	K2	CO3
6.	List any two error detection codes.	2	K2	CO3
7.	Define pulse amplitude modulation (PAM) scheme.	2	K1	CO4
8.	Analyze the purpose of quantization process in PCM system.	2	K2	CO4
9.	List any two multiple access techniques and its requirement.	2	K2	CO5
10.	Identify the generation of AMPS and GSM.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	Discuss any one amplitude modulation scheme with a suitable block diagram, waveform and derivation.	13	K2	CO1

(OR)

	b)	Using differentiator and Integrator generate FM and PM signals with necessary diagrams.	13	K2	CO1
12.	a)	Apply In-phase and Quadrature phases to generate Quadrature Phase shift keying signal with a suitable block diagram and waveform for the data 10110110.	13	K3	CO2
		(OR)			
	b)	Design a Differential Phase shift keying system to process the digital data 1101011000. Also plot the necessary diagram and DPSK coded data.	13	K3	CO2
13.	a)	Analyse the impact of any two standard organizations to be followed by data communication network.	13	K3	CO3
		(OR)			
	b)	Analyze the purpose of the error detection methods with a suitable example.	13	K3	CO3
14.	a)	Discuss the following modulation schemes with necessary diagrams: i. Delta Modulation ii. Adaptive Delta Modulation	13	K2	CO4
		(OR)			
	b)	Explain the step-by-step procedure to generate Pulse Code Modulation (PCM) signal with necessary diagrams.	13	K2	CO4
15.	a)	Explain the working principle of a satellite communication with a suitable diagram and also list any two applications of the same.	13	K2	CO5
		(OR)			
	b)	Discuss the role of sub systems and interfaces of Global System for Mobile Communications (GSM) architecture with a suitable diagram.	13	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	Analyze the choice of QAM and QPSK signals in wireless communication systems.	15	K3	CO2
		(OR)			
	b)	Identify the multiple access technique suitable for next generation communication systems and justify your answer.	15	K4	CO5