Reg. No.												

Question Paper Code	12510

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2023

Fourth Semester

Electronics and Instrumentation Engineering

(Common to Instrumentation and Control Engineering)

20EIPC402 - PRINCIPLES OF COMMUNICATION ENGINEERING

(Regulations 2020)

Duration: 3 Hours Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks, K-Level, CO
1.	State Carson's rule for Bandwidth of FM wave.	*2,K1,CO1*
2.	What is modulation? Also mention its classification.	*2,K1,CO1*
3.	State Sampling theorem for band limited signal of finite energy.	*2,K1,CO2*
4.	List the applications of PCM.	*2,K1,CO2*
5.	For the given data 100101, draw the waveform of ASK.	*2,K2,CO3*
6.	Explain the term "ISI"?	*2,K2,CO3*
7.	Mention the properties of entropy.	*2,K2,CO4*
8.	State the principle of hamming code.	*2,K1,CO4*
9.	Define Pseudo-Noise sequence.	*2,K1,CO5*
10.	What are the features of TDMA?	*2,K1,CO5*

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	Explain any two direct methods of FM generation.	*13,K2,CO1*
		OR	
	b)	Illustrate the Principle of Super heterodyne receiver with neat block diagram.	*13,K2,CO1*
12.	a)	Draw the block diagram of the DPCM system and elaborate the working principle of DPCM transmitter and receiver.	*13,K2,CO2*
		OR	
	b)	Summarize the types of multiplexing techniques with neat diagrams.	*13,K2,CO2*
13.	a)	With a neat diagram, explain in detail the Transmitter and Receiver	*13,K2,CO3*

section of 8-QAM along with a truth table, phasor diagram and constellation diagram.

OR

b) Discuss the operation of a QPSK modulator and demodulator with a neat diagram. Draw its phasor and constellation diagram. *13,K2,CO3*

14. a) Five source messages are probable to appear as m1= 0.4, m2 = 0.15, m3 = 0.15, m4 = 0.15 and m5 = 0.15. Examine coding efficiency for Shannon Fano coding and Huffman coding. *13,K3,CO4*

OR

b) Explain how encoding is done by convolutional codes with an example. *13,K2,CO4*

15. a) Describe the Code division multiple access technique in detail. *13,K2,CO5*

OR

b) Explain the operational principle of DSSS communication system with suitable diagrams. *13,K2,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Compare Amplitude modulation and Frequency modulation in detail. *15,K2,CO1*

OR

b) Compare the multiple access techniques that are used in wireless communication with their merits and demerits. *15,K2,CO5*