PRN:		Course Code :	ECE206R1

Second Year **B. Tech** End Semester Examination Summer 2023

Communication Engineering-II

Day and Date: Saturday, 17/06/23 Max Marks: **100**

Time : 2:00 to 5:00 pm Duration: **03** hrs

Instructions: All questions are compulsory.

			Marks	Bloom's Level	CO
Q.1		**Attempt the following**			
	a)	Demonstrate Digital Communication System with block diagram.	08	4	1
	b)	Illustrate uniform and non-uniform quantization.	08	3	1
		OR			
	b)	Illustrate companding process in PCM.	08	3	1
Q.2		**Attempt the following**			
	a)	Describe Amplitude Shift Keying technique with diagram	08	2	2
	b)	Illustrate FSK modulation technique.	08	3	2
		OR			
	b)	Illustrate PSK modulation technique.	08	3	2
Q.3		**Attempt any two from the following**			
	a)	Apply eye diagram to study effect of ISI.	08	3	3
	b)	Draw the following line code formats for the data 101001110 i)unipolar NRZ &RZ ii)Polar NRZ & RZ	08	2	3
	c)	Draw the following line code formats for the data 101001110 i)Bipolar NRZ & RZ ii)Manchester	08	2	3
Q.4		**Attempt any two from the following**			
	a)	The generator matrix for a (6,3) linear block code is given below. Evaluate code words of this code for the message words(m_0, m_1, m_2)= (0,0,0) and (0,0,1). $[G] = \begin{matrix} 1 & 0 & 0 & 0 & 1 & 1 \\ 0 & 1 & 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 & 1 & 0 \end{matrix}$	08	4	4
	b)	Describe the method for generation of code words for linear block code in detail and also error detection using parity check matrix.	08	2	4
	c)	For (6,3) linear block code , the coefficient matrix [P] is as follows: $[P] = \begin{matrix} 0 & 1 & 1 \\ 1 & 0 & 1 \\ 1 & 1 & 0 \end{matrix}$ The received code word at the receiver is 001110. Check whether it is correct or contain errors.	08	4	4

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Q.5	**Attempt any Two of the following**				
	a)	Illustrate the following terms related with information theory: i)Measure of Information ii)Unit of Information iii) Information rate.	09	2	5
	b)	Calculate the amount of information if probability of occurrences of messages is $P_k = 1$ & $P_k = 1/4$	09	2	5
	c)	Consider a source S={ S_1 , S_2 , S_3 }with P ={ ½,1/4,1/4}, Find i)Self information of each message and ii) Entropy of source S.	09	3	5
Q.6	**Attempt any Two of the following**				
	a)	Derive the expression for conditional probability (Bayes' rule).	09	4	6
	b)	Define CDF. Explain the properties of CDF.	09	2	6
	c)	Define Probability and explain the properties of probability.	09	2	6

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