DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular End Semester Examination – Summer 2022

Course: B. Tech. **Branch : Electronics Engineering** T.E. [Electronics] **Semester : VI**

Subject Code & Name: BTEXPE603A (Digital Communication)

Max Marks: 60 **Date: 20/08/2022** **Duration: 3.45 Hr.**

Instructions to the Students:

1. *All the questions are compulsory.*
2. *The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.*
3. *Use of non-programmable scientific calculators is allowed.*
4. *Assume suitable data wherever necessary and mention it clearly.*

		(Level/CO)	Marks
Q. 1	**Solve Any Two of the following.**		
A)	Define the term i) Sampling Frequency ii) Sampling Theorem iii) Aliasing	**CO3**	**6**
B)	Expain DPCM Transmitter and DPCM Receiver in details	**CO3**	**6**
C)	Explain Adaptive Delta Modulation	**CO3**	**6**
Q.2	**Solve Any Two of the following.**		
A)	Explain elements of Digital Communication System	**CO2**	**6**
B)	Explain Elements of PCM	**CO2**	**6**
C)	Explain ISI in details	**CO1, CO2**	**6**
Q. 3	**Solve Any Two of the following.**		
A)	Represent 10100110 using following digital data format i) Polar RZ ii) Bipolar NRZ iii) Bipolar RZ	**CO1, CO2**	**6**
B)	With block diagram, explain generation and detection of DPSK signal	**CO1**	**6**
C)	Explain How to convert Continuous AWGN channel into a Vector channel	**CO3**	**6**
Q.4	**Solve Any Two of the following.**		
A)	Describe QPSK signal with its signal space characterization with a neat block diagram. Explain generation and detection of QPSK signal	**CO1**	**6**
B)	Explain with neat diagram working of Coherent BPSK	**CO1**	**6**
C)	Explain the terms chip rate, jamming margin and processing gain	**CO4**	**6**
Q. 5	**Solve Any Two of the following.**		
A)	Draw and explain power spectrum of BPSK, BFSK	**CO1**	**6**
B)	Define M-ary QAM . Obtain the constellation of QAM for M= 4 and draw the signal space diagram	**CO2**	**6**
C)	Explain with neat diagram ad necessary equations the matched filter receiver	**CO4**	**6**

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