Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER – VI (NEW).EXAMINATION – WINTER 2016

Subject Code: 2161704 **Date: 25/10/2016**

Subject Name: Analog and Digital communication

Time: 10:30 AM to 01:00 PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	What do you mean by Modulation? List types of Modulation. Explain importance of modulation in communication with suitable examples.	**07**
	(b)	Define following Terminology: (a) Protocol (b) Baud Rate (c) Half Duplex (d) Full Duplex (e) Transmission Efficiency (f) Topology (g) Network	**07**
Q.2	**(a)**	Compare Amplitude Modulation, Frequency Modulation and Phase Modulation.	**07**
	(b)	Explain mathematical representation of AM. Explain signification of Modulation Index with necessary waveforms.	**07**
		OR	
	(b)	The antenna current of an AM transmitter is 8 A when only the carrier is sent, but is increases to 8.93A when the carrier is modulated by a single sine wave. (i) Find the percentage modulation. (ii) Determine the antenna current when the percentage of the modulation changes to 0.8.	**07**
Q.3	**(a)**	Derive the formula for the instantaneous value of an FM voltage and define the modulation index. And draw the waveforms of information signal and its FM modulated signal.	**07**
	(b)	Define Term: Noise. Explain Internal and External Noise.	**07**
		OR	
Q.3	**(a)**	For Binary data: 1110100110110101 draw ASK, FSK and PSK waveform. (Assume suitable data).	**07**
	(b)	Define Error, Error Correction and Error Detection. List Error Detection and Correction methods. Explain any one Error Detection methods.	**07**
Q.4	**(a)**	Explain DTE and DCE Equipment.	**07**
	(b)	List the layers of the OSI model and explain function of each layer in detail.	**07**
		OR	
Q.4	**(a)**	Explain RS422 and RS423 Interface Standards.	**07**
	(b)	Explain Data Link Layer Protocols.	**07**
Q.5	**(a)**	Define Multiplexing and Demultiplexing. List types of Multiplexing. Explain FDM with necessary diagram and write down its advantages, disadvantages and applications.	**07**
	(b)	What do you mean by Fiber Optical Communication? Explain and draw the block diagram of Fiber Optical Communication. List Advantages, Disadvantages and Application of Fiber Optical Communication.	**07**

OR

Q.5	**(a)**	Explain IEEE 802.5 Token Ring.	**07**
	(b)	Explain wireless LANs using CSMA/CA (IEEE 802.11).	**07**

****