Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII • EXAMINATION – WINTER • 2014

Subject Code: 172405   **Date: 29-11-2014**

Subject Name: Industrial Communication Systems

Time: 10:30 am - 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)**	Explain the power relation of the AM wave with necessary mathematical analysis.	**07**
	(b)	Define noise. Explain Thermal-Agitation noise and Shot noise in detail.	**07**
Q.2	**(a)**	Compare the ASK, FSK and PSK.	**07**
	(b)	Explain the UART transmitter and receiver with the help of block diagram.	**07**
		OR	
	(b)	Define Asynchronous system. Explain the transmission characteristics in detail.	**07**
Q.3	**(a)**	Explain the Ethernet with its standard bus topology and 10 Base T star topology.	**07**
	(b)	Explain the Impedance coupling and Electrostatic coupling forms of Electrical coupling of noise.	**07**
		OR	
Q.3	**(a)**	Write a technical note on : Network Topologies.	**07**
	(b)	Explain the theory of operation of fiber-optic cables. List the limitations of fiber-optic cables.	**07**
Q.4	**(a)**	Explain the functional description of the interchange circuits of RS-232 standard.	**07**
	(b)	Explain the troubleshooting serial data communication circuits. Also explain the troubleshooting and testing with RS-485.	**07**
		OR	
Q.4	**(a)**	Explain the RS-485 interface standard in detail and draw the typical two wire multidrop network.	**07**
	(b)	Explain the RS-422 interface standard.	**07**
Q.5	**(a)**	List Modbus functions. Explain message format, synchronization and memory notation of Modbus protocol.	**07**
	(b)	List the benefits of Fieldbus and Device net system. Describe three network classes of Fieldbus and Device net system.	**07**
		OR	
Q.5	**(a)**	Draw the architecture of profibus protocol and explain it's physical layer and data link layer.	**07**
	(b)	List the benefits of HART protocol. Explain the application layers of HART protocol.	**07**

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