Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE SEMESTER– 7th EXAMINATION – SUMMER 2015

Subject Code: 172405 **Date:06/05/2015**

Subject Name: Industrial communication.

Time: 02.30PM-05.00PM **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)	Compare the ASK, FSK and PSK.	**07**
Q.2	**(a)**	Define noise. Explain thermal-agitation and shot noise in detail.	**07**
	(b)	Explain the UART transmitter and receiver with the help of block diagram.	**07**
		OR	
	(b)	Define asynchronous system. Explain the transmission characteristic in detail.	**07**
Q.3	**(a)**	Write a technical note on: network topologies.	**07**
	(b)	Explain the theory of operation of fibre-optic cables. List the limitation of fibre-optic cables.	**07**
		OR	
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**
Q.4	**(a)**	Explain the functional description of the interchange circuits of RS-232 standard.	**07**
	(b)	Explain the troubleshooting serial data communication circuit. 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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