Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII EXAMINATION – SUMMER 2016

Subject Code:172405 **Date:05/05/2016**

Subject Name:Industrial Communication Systems (Department Elective - I)

Time:02:30 PM to 05:00 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 thermal noise and noise temperature in detail.	**07**
	(b)	Explain the UART transmitter and the UART receiver with the help of block diagram.	**07**
Q.2	**(a)**	Define modulation index. Explain the representation and frequency spectrum of Sinusoidal AM.	**07**
	(b)	Explain the mathematical representation of FM. List advantages and dis-advantages of FM.	**07**
		OR	
	(b)	Explain the Amplitude Shift Keying in detail with necessary diagrams.	**07**
Q.3	**(a)**	Explain the theory of operation of fiber-optic cables with necessary diagram. List the advantages of fiber-optic cables.	**07**
	(b)	Explain network topologies in detail with necessary diagrams.	**07**
		OR	
Q.3	**(a)**	Explain the standard Ethernet bus topology and 10 Base-T star topology.	**07**
	(b)	Explain the suppression techniques of electrical noise in detail.	**07**
Q.4	**(a)**	Explain balanced and unbalanced transmission lines.	**07**
	(b)	Explain the RS-422 interface standard in detail with necessary diagrams.	**07**
		OR	
Q.4	**(a)**	Explain half duplex operation of the RS-232 interface standard.	**07**
	(b)	Explain GPIB and its physical connection configurations.	**07**
Q.5	**(a)**	Explain Modbus protocol in brief with necessary diagrams.	**07**
	(b)	Explain HART protocol and its physical layers with necessary diagrams.	**07**
		OR	
Q.5	**(a)**	Explain Devicenet and its OSI model with necessary diagrams.	**07**
	(b)	Explain Profibus architecture with its block diagram.	**07**

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