Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII EXAMINATION – SUMMER 2016

Subject Code:171703 **Date:10/05/2016**

Subject Name:Industrial Data Communication

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)**	Discuss connections between the DTE and the DCE using DB-25 connectors.	**07**
	(b)	Describe EIA-232/EIA-485 interface converters with block structure.	**07**
Q.2	**(a)**	What are the features of smart instrumentation? Also graphically represent the industrial data communication.	**07**
	(b)	Describe the HART protocol, and Discuss physical layer of HART protocol.	**07**
		OR	
	(b)	Explain fundamental elements of a radio link.	**07**
Q.3	**(a)**	Draw the two wire multidrop network of EIA-485 interface standard. Also compare EIA-485 vs EIA-422.	**07**
	(b)	Explain fiber optic cable components.	**07**
		OR	
Q.3	**(a)**	Write the various types of coupling for electrical noise into the sensitive data communication circuit. Explain Impedance coupling of noise.	**07**
	(b)	Discuss 10Base5 Ethernet segment.	**07**
Q.4	**(a)**	Explain electrical signal characteristics of EIA-232 standard.	**07**
	(b)	Give the format of TCP header of transmission control host-to-host layer protocol and explain TCP in brief.	**07**
		OR	
Q.4	**(a)**	Describe the main features of AS-i, and draw the different AS-i configurations.	**07**
	(b)	List out the common causes of industrial communication problems and write step wise procedure to troubleshoot the communication system.	**07**
Q.5	**(a)**	Give OSI model equivalent of DeviceNet protocol. Explain the application layer of DeviceNet protocol.	**07**
	(b)	Discuss Modbus transmission protocol. Draw typical Modbus message frame format.	**07**
		OR	
Q.5	**(a)**	Describe the Token passing and polling system for hybrid medium access control in PROcess Field BUS.	**07**
	(b)	Explain read coil or digital output status (function code 01) in Modbus with example.	**07**

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