

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**
