

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VII • EXAMINATION – WINTER 2013

Subject Code: 171703

Date: 07/12/2013

Subject Name: Industrial Data Communication

Time: 10:30 TO 01:00

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) Which are the main purpose of an Instrumentation and Control system in an Industrial environment? **07**

(b) What is AS interface? Explain its physical layer. **07**

Q.2 (a) Write the various types of coupling for electrical noise into data communication circuit. Explain any one in detail.

(b) Which are the major elements of EIA-23. Explain electrical characteristics of EIA-232 interface standards. **07**

OR

(a) List out the common causes of industrial communication problems and write step wise procedure to troubleshoot the communication system. **07**

(b) Draw DTE-DCE interface circuit .Explain functional Description of DTE-DCE interface circuit. **07**

Q.3 (a) Describe the different ways noise induced in EIA-485 circuit. **07**

(b) Write fiber optic cable parameters and describe each. **07**

OR

Q.3 (a) Give the format of IPv4 header of internet layer protocol and explain each bit of it. **07**

(b) Draw and Explain 20mA current loop interface hardware. Give block diagram of EIA-232 to EIA-485 converter. **07**

Q.4 (a) Give Modbus protocol structure. what is function code? Explain any one function code with detail description. **07**

(b) Describe the HART protocol. Draw HART Point to point and multidrop communication network. **07**

OR

Q.4 (a) Give General overview of Modbus Plus Protocol. **07**

(b) Give main features of Device net network. **07**

Q.5 (a) What are features and advantages of Foundation Fieldbus? Draw OSI model of Foundation Fieldbus Protocol stack. **07**

(b) Explain SINAD and signal to noise ratio of Radio system with its measurement technique. **07**

OR

Q.5 (a) What is Routing in Internet Protocol. Describe in short different techniques of routing datagrams. **07**

(b) Describe the Token passing and polling system for medium access control in Profibus. **07**
