

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-VII(OLD) • EXAMINATION – WINTER 2016**

**Subject Code: 171703****Date: 23/11/2016****Subject Name: Industrial Data Communication****Time: 10:30 AM to 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

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|------------|---|-----------|
| <b>Q.1</b> | (a) List out the common causes of industrial communication problems and write step wise procedure to troubleshoot the communication system. | <b>07</b> |
|            | (b) Brief explanation of basic Cable types of Fiber optic.  | <b>07</b> |
| <b>Q.2</b> | (a) Explain with diagram- Connections between DTE & DCE using DB-25.  | <b>07</b> |
|            | (b) Draw and explain the architecture of the Profibus protocol stack.   | <b>07</b> |
|            | (b) Describe the Layers used in HART Protocol in details  | <b>07</b> |
| <b>Q.3</b> | (a) Explain Application layer and user layer of the Foundation Field bus.   | <b>07</b> |
|            | (b) Explain impedance coupling & electrostatic coupling of the noise.   | <b>07</b> |
| <b>Q.3</b> | (a) Explain impedance coupling & electrostatic coupling of the noise./  | <b>07</b> |
|            | (b) What is AS interface? Explain its physical layer.   | <b>07</b> |
| <b>Q.4</b> | (a) Describe current loop hardware and serial interface converter.  | <b>10</b> |
|            | (b) Explain Field bus message specifications (FMS).   | <b>04</b> |
| <b>Q.4</b> | (a) Give Modbus protocol structure. what is function code? Explain any one function code with detail description.                           | <b>07</b> |
|            | (b) Write a short note on OSI Model.  | <b>07</b> |
| <b>Q.5</b> | (a) What is Routing in Internet Protocol. Describe in short different techniques of routing datagrams.                                      | <b>07</b> |
|            | (b) Explain the TCP header format and the UDP header format.  | <b>07</b> |
| <b>Q.5</b> | (a) Describe token passing & polling system for MAC in profibus.  | <b>07</b> |
|            | (b) What are features and advantages of Foundation Fieldbus? Draw OSI model of Foundation Fieldbus Protocol stack                           | <b>07</b> |

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