

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2018****Subject Code: 2172411****Date: 19/11/2018****Subject Name: Industrial Automation****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.

- Q.1**
- (a) Define PLC and SCADA system. **03**
  - (b) What do you understand by Automation? Explain in details advantages of Automation. **04**
  - (c) Draw internal block diagram of PLC CPU and explain various blocks. **07**
- Q.2**
- (a) Explain in brief data acquisition system. **03**
  - (b) Compare Localized Process and Distributed Process. **04**
  - (c) Describe PLC scanning considerations in detail. **07**
- OR**
- (c) Draw P.L.C. system layout & explain the functionality of all inter-connected parts. **07**
- Q.3**
- (a) Explain functions of DCS. **03**
  - (b) Explain advantages & limitations of DCS. **04**
  - (c) Explain the different levels of DCS systems. **07**
- OR**
- Q.3**
- (a) Draw the Schematic of Basic DCS. **03**
  - (b) list advantages and drawbacks of various types of Network Access Protocols. **04**
  - (c) Explain about application development & industrial application for power. **07**
- Q.4**
- (a) Write a brief note on: Current Trends in Automation Systems. **03**
  - (b) List out application Areas of Automation System. **04**
  - (c) Explain the PLC arithmetic functions and draw block format of each. **07**
- OR**
- Q.4**
- (a) Explain about components of a SCADA system. **03**
  - (b) Explain DCS Applications in power plants. **04**
  - (c) Draw and explain ON Delay and Off-Delay timer ladder diagrams. **07**
- Q.5**
- (a) Explain in brief Data Logging & process survey. **03**
  - (b) Explain in brief Remote Terminal unit. **04**
  - (c) Explain about DCS as an automation tool to support enterprise resources planning.(E.R.P) **07**
- OR**
- Q.5**
- (a) Explain in brief input Modules of PLC. **03**
  - (b) Explain in brief use of DCS in pulp and paper environment **04**
  - (c) Explain in detail Master Terminal Unit. **07**

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