

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– VII (New) EXAMINATION – WINTER 2019****Subject Code: 2172411****Date: 26/11/2019****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) What are the advantages of Automation? **03**
 (b) Compare PLC and DCS system. **04**
 (c) (1) Define Relay Logic and PLC. **07**
 (2) Explain advantages & limitations of DCS.

- Q.2** (a) Explain in detail Component of Industrial Automation. **03**
 (b) Compare Localized Process and Distributed Process. **04**
 (c) Draw P.L.C. system layout & explain the functionality of all inter-connected parts. **07**

OR

- (c) Explain about DCS as an automation tool to support enterprise resources planning.(E.R.P) **07**
- Q.3** (a) Explain DCS Applications in Cement plant. **03**
 (b) List advantages and drawbacks of various types of Network Access Protocols. **04**
 (c) Explain the PLC arithmetic functions and draw block format of each. **07**

OR

- Q.3** (a) Explain in brief Use of DCS in petroleum-refining environment. **03**
 (b) Explain in brief use of DCS in pulp and paper environment. **04**
 (c) Explain the different levels of DCS systems. **07**
- Q.4** (a) Explain data monitoring and data supervision. **03**
 (b) Explain in brief Data Logging & process survey. **04**
 (c) Define SCADA systems. Explain in details SCADA systems. **07**

OR

- Q.4** (a) Explain Error detection in SCADA system. **03**
 (b) Write a technical note on:- Application Areas of Automation System. **04**
 (c) Explain in detail the PLC Counter functions. **07**
- Q.5** (a) Explain System Reliability and Availability w.r.t. SCADA system **03**
 (b) Explain in brief Remote Terminal unit. **04**
 (c) Draw the timing diagram of retentive timer. Draw the timing diagram & write P.L.C.ladder logic equivalent of ON DELAY & DUAL OFF DELAY timer. **07**

OR

- Q.5** (a) Explain in detail Master Terminal Unit. **03**
 (b) Explain in brief about Configuration of MTU. **04**
 (c) Describe PLC scanning considerations in detail. **07**
