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**

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