GUJARAT TECHNOLOGICAL UNIVERSITY
BE- SEMESTER–VII (NEW) EXAMINATION – WINTER 2020

Subject Code:2172411   **Date:21/01/2021**
Subject Name:Industrial Automation
Time:10:30 AM TO 12:30 PM   **Total Marks: 56**

Instructions:
1. **Attempt any FOUR questions out of EIGHT 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 is Automation? Explain in details Components of Industrial automation.	**04**
	(c)	Draw internal block diagram of PLC CPU and explain various blocks.	**07**
Q.2	**(a)**	Write brief note on: Current Trends in Automation System.	**03**
	(b)	Explain advantage and Limitation of DCS	**04**
	(c)	Explain about Ladder & Boolean mnemonics Programming language.	**07**
Q.3	**(a)**	Explain in brief Master Terminal Unit.	**03**
	(b)	Write a Technical note on: Remote Terminal Unit.	**04**
	(c)	Explain in Details Data Acquisition and process control system	**07**
Q.4	**(a)**	Draw timing diagram of retentive timer.	**03**
	(b)	Define term DCS. List at least Six applications of DCS.	**04**
	(c)	Explain the different levels of DCS systems.	**07**
Q.5	**(a)**	Explain in details Input Module of PLC with necessary diagram.	**03**
	(b)	Compare Localized Process and Distributed Process.	**04**
	(c)	Explain the PLC Arithmetic function and draw block format of each.	**07**
Q.6	**(a)**	Explain in details Output Module of PLC with necessary diagram.	**03**
	(b)	Explain the different steps of automation.	**04**
	(c)	Explain the PLC Sequencer Function. Write the ladder for sequencer with timer pulsing.	**07**
Q.7	**(a)**	Describe concept of data logging and history generation.	**03**
	(b)	Explain in brief PLC timer function.	**04**
	(c)	Explain PLC Move function and illustrate the single register move using an addition process.	**07**
Q.8	**(a)**	Describe concept of data exchange and data availability.	**03**
	(b)	Explain in brief PLC Counter function.	**04**
	(c)	Explain the P.L.C. SEQUENCER function. Write the ladder for sequencer with timer pulsing.	**07**

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