GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER– VIII (New) EXAMINATION – WINTER 2019

Subject Code: 2180807   **Date: 27/11/2019**

Subject Name: Industrial Automation

Time: 02:30 PM TO 05:00 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)**	Block diagram of PLC.	03
	(b)	Explain ladder diagram elements.	04
	(c)	What is automation? Explain generalized automation, production systems and their classification.	07
Q.2	**(a)**	Define the following: (1) Error (2) Dead Time (3) Cycling	03
	(b)	Discuss briefly about Intelligent Controllers.	04
	(c)	Explain various types of I/O Modules and Explain the Layout of I/O separately connected to PLC.	07
		OR	
	(c)	Explain roll of Common system components of SCADA.	07
Q.3	**(a)**	Define following terms with respect to Process control: (1) Variable Range (2) Neutral Zone (3) Control Lag.	03
	(b)	Explain the concept of Production system with its Block diagram.	04
	(c)	Explain the block diagram of distributed control system (DCS).	07
		OR	
Q.3	**(a)**	What is floating mode control? Explain Single speed floating mode control	03
	(b)	Discuss importance of Local Area Network for DCS.	04
	(c)	Develop ladder diagram for Traffic Control Signals.	07
Q.4	**(a)**	Explain PI Controller application.	03
	(b)	Explain Timer and Counter instructions for PLC	04
	(c)	Explain the Proportional Integral Derivative (PID) controller mode with suitable example.	07
		OR	
Q.4	**(a)**	Give the Introduction about CNC machine..	03
	(b)	Explain following discontinuous controller modes : (i) Two position mode (ii) Multi position mode.	04
	(c)	Explain Direct Digital Control in detail with suitable diagram.	07
Q.5	**(a)**	Explain Application, Advantage and Disadvantage of Hydraulic system.	03
	(b)	Explain Pneumatic control System	04
	(c)	Develop ladder diagram for bottle filling conveyor belt.	07
		OR	
Q.5	**(a)**	Define following Process Characteristics: 1) Process Equation 2) Process Load 3) Process Lag	03
	(b)	Discuss relative merits & demerits of PLC & DCS.	04
	(c)	Explain SCADA with suitable diagram.	07

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