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GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VIII (NEW) - EXAMINATION – SUMMER 2018

Subject Code: 2180807   **Date: 04/05/2018**
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 following terms with respect to Process control: (1) Variable Range (2) Neutral Zone (3) Control Lag	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)	Explain discontinuous controller modes: Multi position mode.	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)**	Explain PI Controller application.	03
	(b)	Discuss briefly about Intelligent Controllers.	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)**	Define : Self Regulation.	03
	(b)	Block diagram of 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 Timer and Counter instructions for PLC.	04
	(c)	Explain Direct Digital Control in detail with suitable diagram.	07
Q.5	**(a)**	Define following Process Characteristics: 1) Process Equation 2) Process Load 3) Process Lag	03
	(b)	Explain Pneumatic control System	04
	(c)	Develop ladder diagram for bottle filling conveyor belt.	07
		OR	
Q.5	**(a)**	Explain Application, Advantage and Disadvantage of Hydraulic system	03
	(b)	Discuss relative merits & demerits of PLC & DCS.	04
	(c)	Explain Two position control Mode Action By: 1) Electromechanical Design 2) Analog Electronics Design 3) Digital electronics Design	07

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