Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. - SEMESTER – VII • EXAMINATION – WINTER 2012

Subject code: 171702 **Date: 31/12/2012**

Subject Name: Programmable Automation Controller

Time: 10.30 am - 01.00 pm **Total Marks: 70**

Instructions:

1. **Attempt any five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Discuss advantages and disadvantages of a PLC.	**07**
	(b)	Explain PLC CPU power supply with diagram.	**07**
Q.2	**(a)**	Explain PLC scanning in detail.	**07**
	(b)	Discuss any two analog output devices.	**07**
		OR	
	(b)	Explain PID module with block diagram.	**07**
Q.3	**(a)**	Explain fail safe system with example.	**07**
	(b)	A tube is to be started and stopped from three locations. Each location has a start and a stop button. A master stop is used to disable all starts. Prepare a PLC ladder diagram and explain it.	**07**
		OR	
Q.3	**(a)**	Explain SHIFT REGISTER RIGHT and REGISTER ROTATE functions.	**07**
	(b)	Explain basic two axis robot with PLC sequencer control.	**07**
Q.4	**(a)**	Convert following word description to Gate symbols and PLC/ladder Diagrams, and explain. "For output H to be on, input A must be on and both inputs C and D must be off. In addition, one or more of inputs E,F and G must be off."	**07**
	(b)	Explain general characteristics of PLC registers and their types.	**07**
		OR	
Q.4	**(a)**	Explain PLC MOVE function with examples.	**07**
Q.4	**(b)**	Discuss PLC FIFO function with example.	**07**
Q.5	**(a)**	Prepare a PLC program and explain it for the following : "There are four outputs: R,S,T and U. R starts immediately when an input is energized. S starts 4 second later. T starts 5 seconds later than S. U goes on 1.9 seconds after S. One switch turns all output off."	**07**
	(b)	Discuss PLC multiplication and square root functions .	**07**
		OR	
Q.5	**(a)**	Discuss PLC LIM function with an example.	**07**
	(b)	Explain PLC SKIP function with an application.	**07**

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