Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. 1ST Semester Remedial Examination –July- 2011

Subject code: 710305

Subject Name: Programmable Logic Controller

Date:13/07/2011 **Time: 10:30 am – 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)**	List out advantages and disadvantages of PLC.	**07**
	(b)	Discuss solid state memory in detail.	**07**
Q.2	**(a)**	Draw and explain PLC output module.	**07**
	(b)	Explain PLC power supply in detail.	**07**
		OR	
	(b)	Discuss PLC scanning in detail.	**07**
Q.3	**(a)**	Draw and discuss AND, OR and NOT logical gates with their relay and PLC equivalents.	**07**
	(b)	There are three machines, each with its own start stop buttons. Only one may run at a time. Construct a circuit with appropriate interlocking.	**07**
		OR	
Q.3	**(a)**	Draw and discuss NAND, NOR and EXOR logical gates with their relay and PLC equivalents.	**07**
	(b)	Explain any two analog input devices.	**07**
Q.4	**(a)**	Prepare a possible flow chart for the spray process.	**07**
	(b)	Write a PLC program to generate two pulses which start at same time. Pulse J is to pulse every 12 sec. Pulse output K is to pulse every 4 sec. Draw timing diagram.	**07**
		OR	
Q.4	**(a)**	Write a PLC program for an output pulse, V which goes on for 3.5 sec after an input W, is turned on. The V time on interval is 7.5 sec. V goes on again 3 sec later for 5.3 sec.	**07**
	(b)	Explain different PLC registers.	**07**
Q.5	**(a)**	Discuss PLC add function with different formats.	**07**
	(b)	Discuss PLC DIVIDE function with different formats.	**07**
		OR	
Q.5	**(a)**	Discuss JUMP functions with examples.	**07**
	(b)	Explain PLC shift register operation with diagram.	**07**

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