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

Subject Code:2161709   **Date:29/01/2021**
Subject Name:Programmable Logic Controller
Time:02:00 PM TO 04:00 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.**

			MARKS
Q.1	**(a)**	Compare PLC over relay based system.	**03**
	(b)	Draw the block diagram of PLC.	**04**
	(c)	Explain PLC scanning with suitable diagram.	**07**
Q.2	**(a)**	List out analog input and output devices which can be connected with PLC.	**03**
	(b)	Develop the ladder diagram for AND , NOR gate.	**04**
	(c)	Explain discrete input output module of PLC.	**07**
Q.3	**(a)**	Implement the ladder diagram for Output A is On after 10 second of push button B is pressed.	**03**
	(b)	Explain PLC Multiplication function with suitable example.	**04**
	(c)	Explain ON Delay timer (Ton) with timing diagram and suitable example.	**07**
Q.4	**(a)**	Develop a ladder diagram for A output is on if count value is more than 10.	**03**
	(b)	Explain PLC addition function with ladder diagram.	**04**
	(c)	Explain UP and Down counter of PLC with suitable application.	**07**
Q.5	**(a)**	List PLC programming languages.	**03**
	(b)	List out PLC Number Comparison Functions. Explain any two with suitable example.	**04**
	(c)	What is the importance of SKIP and MCR functions of PLC explain with suitable application.	**07**
Q.6	**(a)**	List various shifting and rotating functions available in PLC.	**03**
	(b)	Explain jump instruction of PLC.	**04**
	(c)	Explain basic two axis robot with PLC sequencer control.	**07**
Q.7	**(a)**	Describe holding register of PLC.	**03**
	(b)	Explain the PID control using PLC.	**04**
	(c)	Write short note on "Preventive maintenance of PLC".	**07**
Q.8	**(a)**	Explain BIT SET instruction with example.	**03**
	(b)	Explain TABLE TO REGISTER and REGISTER TO TABLE function of PLC.	**04**
	(c)	List out factors to be considered for selecting PLC	**07**

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