

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

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