Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V EXAMINATION – SUMMER 2025

Subject Code:3151109 Date:13-05-2025

Subject Name:Industrial Automation

Time:02:30 PM TO 05:00 PM Total Marks:70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	What is the difference between MODBUS and PROFIBUS used in industrial networking?	**03**
	(b)	How does the data acquisition works in SCADA?	**04**
	(c)	What is the role of power MOSFET and IGBT in automation system? Explain with example.	**07**
Q.2	**(a)**	List out pressure sensors used in industry. State its working principle	**03**
	(b)	Give details about PH sensor. What is its importance in industrial system?	**04**
	(c)	Draw and explain the block diagram of Industrial Automation system.	**07**
		OR	
	(c)	What is the principle of AC and DC servo motor? Give application of them in industrial automation system.	**07**
Q.3	**(a)**	What is ladder diagram? Draw some symbols used in ladder diagram.	**03**
	(b)	Short note on : Sequential flow chart for PLC	**04**
	(c)	What is DCS? Explain DCS in industrial automation with necessary block diagram.	**07**
		OR	
Q.3	**(a)**	What are process control valves? How it works?	**03**
	(b)	What are the basic protocols for installation and selection of PLC in industry?	**04**
	(c)	Which robot is used for pick and place? What the application is of pick and place mechanism?	**07**
Q.4	**(a)**	What is SCADA? How it is differ from PLC?	**03**
	(b)	Give overview of Industry 4.0.	**04**
	(c)	What is IoT? How it is useful for modern industry compare to traditional industry.	**07**

OR

Q.4	**(a)**	Draw a ladder diagram for AND gate logic with 2 input.	**03**
	(b)	Short note : Power electronics components DIAC and TRIAC for industrial application	**04**
	(c)	What are the different types of temperature? Explain PT 100 and PT 1000.	**07**
Q.5	**(a)**	Enlist advantages of DCS.	**03**
	(b)	Explain with example about the Role of computers in measurement and control in industrial automation system	**04**
	(c)	Explain Analog digital input and output modules for PLC system in detail.	**07**

OR

Q.5	**(a)**	What are the basic requirements for construction and configuration of robot for industry	**03**
	(b)	What type of robot is used for welding?	**04**
	(c)	On which principle displacement sensor works? State one of the applications of it with example.	**07**

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