

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE- SEMESTER-V (NEW) EXAMINATION – WINTER 2020****Subject Code:3151109****Date:22/01/2021****Subject Name:Industrial Automation****Time:10:30 AM TO 12:30 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) What is industrial automation?	<b>03</b>
	(b) What are difference between modbus & profibus ?	<b>04</b>
	(c) With a neat sketch, explain the construction and working of a distributed control system used in industry	<b>07</b>
<b>Q.2</b>	(a) Enlist any three types of transducers for the measurement of Displacement.	<b>03</b>
	(b) State technical details of any two temperature sensors used in industrial application	<b>04</b>
	(c) Explain Architecture and block diagram of PLC.	<b>07</b>
<b>Q.3</b>	(a) Short note on : PH measurement	<b>03</b>
	(b) Explain use of solenoid as an electrical actuator.	<b>04</b>
	(c) How power electronics devices are useful as automation component in industrial application.? Justify your answer with any suitable example	<b>07</b>
<b>Q.4</b>	(a) State the advantages of using PLC for Industrial automation	<b>03</b>
	(b) With the help of block diagram explain basic elements of computer aided measurement and control system.	<b>04</b>
	(c) Explain SCADA architecture in details.	<b>07</b>
<b>Q.5</b>	(a) List the system characteristics that need to be analyzed for selection of PLC	<b>03</b>
	(b) What is ladder diagram? State symbols with their description used in ladder diagram	<b>04</b>
	(c) What do you mean by man-machine interface (MMI)? How it helps integration of DCS with PLC?	<b>07</b>
<b>Q.6</b>	(a) State basic elements of DCS .	<b>03</b>
	(b) How DCS integrates with PLC and computes?	<b>04</b>
	(c) Explain I/O bus isolation in PLC. By using opto coupler how input and output modules of PLC can complete?	<b>07</b>
<b>Q.7</b>	(a) State basic parts used to build industrial robot.	<b>03</b>
	(b) Short note on : smart sensor	<b>04</b>
	(c) Explain in detail : Internet of things for plant automation .	<b>07</b>
<b>Q.8</b>	(a) Short note : overview of Industry 4.0	<b>03</b>
	(b) State and explain any one practical application of PLC in industry.	<b>04</b>
	(c) What do you mean by pick and place robot? With the help of simple block diagram explain its parts and working in brief.	<b>07</b>

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