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
Q.1	(a)	What is industrial automation?	03
	(b)	What are difference between modbus & profibus ?	04
	(c)	With a neat sketch, explain the construction and working of a distributed control system used in industry	07
Q.2	(a)	Enlist any three types of transducers for the measurement of Displacement.	03
	(b)	State technical details of any two temperature sensors used in industrial application	04
	(c)	Explain Architecture and block diagram of PLC.	07
Q.3	(a)	Short note on : PH measurement	03
	(b)	Explain use of solenoid as an electrical actuator.	04
	(c)	How power electronics devices are useful as automation component in industrial application.? Justify your answer with any suitable example	07
Q.4	(a)	State the advantages of using PLC for Industrial automation	03
	(b)	With the help of block diagram explain basic elements of computer aided measurement and control system.	04
	(c)	Explain SCADA architecture in details.	07
Q.5	(a)	List the system characteristics that need to be analyzed for selection of PLC	03
	(b)	What is ladder diagram? State symbols with their description used in ladder diagram	04
	(c)	What do you mean by man-machine interface (MMI)? How it helps integration of DCS with PLC?	07
Q.6	(a)	State basic elements of DCS .	03
	(b)	How DCS integrates with PLC and computes?	04
	(c)	Explain I/O bus isolation in PLC. By using opto coupler how input and output modules of PLC can complete?	07
Q.7	(a)	State basic parts used to build industrial robot.	03
	(b)	Short note on : smart sensor	04
	(c)	Explain in detail : Internet of things for plant automation .	07
Q.8	(a)	Short note : overview of Industry 4.0	03
	(b)	State and explain any one practical application of PLC in industry.	04
	(c)	What do you mean by pick and place robot? With the help of simple block diagram explain its parts and working in brief.	07

****