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GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–IV(NEW) – EXAMINATION – SUMMER 2019

Subject Code:2144101   **Date:17/05/2019**

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.

			MARKS
Q.1	(a)	Differentiate between mechanization and automation.	03
	(b)	Write down goals of automation.	04
	(c)	Explain the hydraulic cylinder construction.	07
Q.2	(a)	List out the various types of fluid used in hydraulics	03
	(b)	Explain Servo valves and simple servo systems.	04
	(c)	Explain the pneumatic cylinder construction	07
		OR	
	(c)	Explain three important capabilities of robots.	07
Q.3	(a)	Discuss the material handling application of robots.	03
	(b)	Differentiate between inline and rotary transfer of work parts.	04
	(c)	Explain the construction and working of a vibratory bowl feeder with the help of a sketch.	07
		OR	
Q.3	(a)	Distinguish between a transducer and a sensor.	03
	(b)	Explain advantages and disadvantages of PLC.	04
	(c)	Describe the construction and working principle of a microprocessor with the help of a schematic diagram.	07
Q.4	(a)	What is a robotic joint? Distinguish between prismatic and revolute joints.	03
	(b)	Classify the various feeders.	04
	(c)	Explain any one type of transfer systems used in assembly lines.	07
		OR	
Q.4	(a)	Identify some typical applications of robots in the industry.	03
	(b)	Write down laws of Robotics.	04
	(c)	Write an essay on the robots used in spray painting applications.	07
Q.5	(a)	Write short note on manufacturing application :TIG Welding	03
	(b)	Differentiate between motion and control diagram.	04
	(c)	What are the causes of robotic accidents? How can accidents be prevented?	07
		OR	
Q.5	(a)	Short note on 'open loop control system'.	03
	(b)	What are reasons for using robots?	04
	(c)	What are the methods of circuit design?	07

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