GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII (NEW) EXAMINATION – SUMMER 2022

Subject Code:3171922   **Date:18/06/2022**

Subject Name:Automation in Manufacturing

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)**	List out various feasibilities of automation in Indian market.	**03**
	(b)	What is the USA Principle? What does each of the letters stand for?	**04**
	(c)	Explain Ten Strategies for Automation and Process Improvement.	**07**
Q.2	**(a)**	What is Group Technology? Explain methods of grouping parts into part families in brief.	**03**
	(b)	What are the basic flexibility in FMS?	**04**
	(c)	Explain 'Opitz Coding System' with suitable example.	**07**
		OR	
	(c)	Define Automation. Discuss various levels of automation.	**07**
Q.3	**(a)**	What is AGV? Explain working principles of AGVs.	**03**
	(b)	List out different types of material handling equipment.	**04**
	(c)	What is FMS? Differentiate between fixed and flexible automation.	**07**
		OR	
Q.3	**(a)**	Brief about 'Cellular manufacturing'.	**03**
	(b)	List out different applications of group technology.	**04**
	(c)	Write a short note on automatic storage and retrieval systems and their applications areas in FMS.	**07**
Q.4	**(a)**	List the robot configurations.	**03**
	(b)	List out limitations of pneumatics and hydraulic in automation systems	**04**
	(c)	Explain the role of CMM in computer aided quality control. What are different elements of CMM?	**07**
		OR	
Q.4	**(a)**	Explain basic components used in pneumatic automation system	**03**
	(b)	How mechanical feeding is replaced by automation?	**04**
	(c)	Explain various sensors and actuators used in robots.	**07**
Q.5	**(a)**	Discussed the effects of automation on economy for Indian market.	**03**
	(b)	Why does automation need in foundry shops?	**04**
	(c)	What do you mean by modular automation? Explain with suitable example for machine shop.	**07**
		OR	
Q.5	**(a)**	List the merits and demerits of the automations in production systems.	**03**
	(b)	State the different reasons to implementing automation in press shop.	**04**
	(c)	Explain different automated flow lines used for modular automation.	**07**

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