Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) EXAMINATION – SUMMER 2024

Subject Code: 3171922 Date:20-05-2024

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)**	What is automation? Why it is required in Manufacturing systems?	**03**
	(b)	List out the various Reasons for automation.	**04**
	(c)	Describe various types of automation with brief details.	**07**
Q.2	**(a)**	What are the basic flexibilities in FMS?	**03**
	(b)	Explain group technology with a suitable example.	**04**
	(c)	Explain types of part classification and coding systems used in group technology.	**07**
		OR	
	(c)	List out different systems use to assign the codes and briefly elaborate all the features of OPITZ system with suitable example.	**07**
Q.3	**(a)**	List out different types of material handling equipment.	**03**
	(b)	Explain cellular manufacturing system.	**04**
	(c)	Write short note on effect of automation on economics.	**07**
		OR	
Q.3	**(a)**	Describe material storage system.	**03**
	(b)	Explain the role of CMM in computer aided quality control.	**04**
	(c)	Describe applications and advantages of FMS.	**07**
Q.4	**(a)**	What are modular automations?	**03**
	(b)	Enlist limitations of pneumatics and hydraulic system for automation	**04**
	(c)	Describe functions, working and limitations of automated transfer machine.	**07**
		OR	
Q.4	**(a)**	Explain the basic components of FMS.	**03**
	(b)	List out various components used in hydraulic and pneumatic system.	**04**
	(c)	Explain the different application of pneumatic and hydraulic system used in Automation	**07**
Q.5	**(a)**	Discussed the effects of automation on economy for Indian market.	**03**
	(b)	What do you mean by precision & accuracy in context of robotics?	**04**
	(c)	Elaborate in depth about Robot control system	**07**
		OR	
Q.5	**(a)**	List out different configurations available for industrial robots. Explain polar coordinate configuration.	**03**
	(b)	Why does automation need in foundry shops?	**04**
	(c)	Explain the various elements of CMM in brief	**07**

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