GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII (NEW) EXAMINATION – SUMMER 2021

Subject Code:2172010   **Date:04/08/2021**

Subject Name:Automated Manufacturing - I

Time:10:30 AM TO 01:00 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)**	What is an automated guided vehicle systems (AGV's)?	**03**
	(b)	Briefly explain concept of 3D printing.	**04**
	(c)	Explain with block diagram open loop and close loop control system.	**07**
Q.2	**(a)**	List down CMM applications.	**03**
	(b)	What are the reasons for implementation of automation in industries?	**04**
	(c)	Define and classify automation. Explain reasons for automating. Graphically show the relation between product variety, quantity and type of automation.	**07**
		OR	
	(c)	What is the USA principle? List and explain the ten strategies for automation and process improvement.	**07**
Q.3	**(a)**	What are the benefits of CMM.	**03**
	(b)	Explain working of Laminated object manufacturing (LOM).	**04**
	(c)	Why friction guide ways are not used in CNC Machine tools? What are the advantages of LM guideways and roller screws?	**07**
		OR	
Q.3	**(a)**	What is process planning? Note down two basic approaches.	**03**
	(b)	Differentiate Automatic tool changer and Automatic pallet changer in CNC machine.	**04**
	(c)	Explain different CMM controls.	**07**
Q.4	**(a)**	State the advantages of CNC over conventional machine tools.	**03**
	(b)	What is AS/RS system and carousel system?	**04**
	(c)	What is rapid prototyping? What are the application of it? Explain selective laser sintering.	**07**
		OR	
Q.4	**(a)**	Evaluate:-"CNC machine tools are not suitable for mass production".	**03**
	(b)	Using neat sketch explain the working principle of Incremental and absolute optical encoder.	**04**
	(c)	Explain the recirculating ball screw mechanism used in a CNC machine tool.	**07**
Q.5	**(a)**	Evaluate :- "G codes are modal whereas M codes can be modal or no modal".	**03**
	(b)	Give the full form of AS/RS,CAPP,CNC,DNC.	**04**
	(c)	What is computer aided process planning? Explain in details Generative CAPP systems.	**07**
		OR	
Q.5	**(a)**	What are the applications of rapid prototyping techniques.	**03**
	(b)	Describe sterelithography (SLA) technology.	**04**
	(c)	With the help of a neat schematic diagram, explain the turning cycle (G90) and facing cycle (G94).	**07**

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