Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE SEMESTER– 7th EXAMINATION – SUMMER 2015

Subject Code: 172002 **Date:** 08/**05/2015**

Subject Name: Automated Manufacturing-I

Time: 02.30PM-05.00PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Justify the statement supporting suitable reasons "Implementation of automation is necessary in industries"	**07**
	(b)	Discuss any two methods of preloading the ball screw nut in CNC machine.	**07**
Q.2	**(a)**	Explain following; (i) Automatic tool changer (ATC) in CNC machine, (ii) Automatic pallet changer (APC) in CNC machine.	**07**
	(b)	Explain the difference between the following cycles with respect to spindle rotation and tool movements. (i) G74 and G84, (ii) Boring and back boring cycle.	**07**
		OR	
	(b)	State the advantages of NC and CNC over conventional machine tools.	**07**
Q.3	**(a)**	Distinguish between absolute mode programing and incremental mode programing. Under what conditions incremental mode programing is preferable.	**07**
	(b)	Classify Rapid prototyping processes. Explain two processes of RP.	**07**
		OR	
Q.3	**(a)**	Discuss the application and advantages of integration of CAQC with CAD/CAM system.	**07**
	(b)	Explain the turning cycle (G90) and Facing cycle (G94).	**07**
Q.4	**(a)**	Describe various types of vehicle guidance technologies used in commercial AGV system.	**07**
	(b)	State the importance of process planning in product development. What is the need for computer aided process planning? What are its advantages?	**07**
		OR	
Q.4	**(a)**	Explain basic component of automated storage/retrieval system.	**07**
	(b)	What is the purpose of using LM guides or plastic inserts in sideway? What are the advantages of Linear Motion guide way?	**07**
Q.5	**(a)**	Discuss on prerequisites of High Speed Machining (HSM) and state its merits and demerits.	**07**
	(b)	Explain with sketch the principle of optical triangulation sensing.	**07**
		OR	

Q.5	**(a)**	Explain different physical configurations of CMM with their relative advantages and disadvantages.	**07**
	(b)	Describe traffic control patterns used in AGV's traffic management.	**07**

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