Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER- VII EXAMINATION-SUMMER 2023

Subject Code: 2171903 Date: 21/06/2023

Subject Name: Computer Aided Manufacturing

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.**
4. **Simple and non-programmable scientific calculators are allowed.**

			Marks
Q.1	**(a)**	How NC/CNC is better than conventional manufacturing? Explain.	**3**
	(b)	With the help of suitable figure explain Axis Identification for lathe and milling machine.	**4**
	(c)	Elaborate the role of elements of CIM with the help of CIM wheel	**7**
Q.2	**(a)**	Explain the any types of code structures used in GT classification citing illustrations.	**3**
	(b)	Describe with sketch the working and construction of recirculating ball screw used in CNC machine tools.	**4**
	(c)	What is group technology? Explain with example Opitz classification and coding system in brief	**7**
		OR	
	(c)	Differentiate between Generative process planning and Variant process planning.	**7**
Q.3	**(a)**	What do you mean by FMS layout? Explain different types of FMS layouts with neat diagram.	**3**
	(b)	Select a job of your choice and prepare a part program including a canned cycle.	**4**
	(c)	Explain with neat sketch AS/RS system used in FMS	**7**
		OR	
Q.3	**(a)**	Explain the working of any two types of punched tape readers.	**3**
	(b)	Classify CNC machine tools on the basis of: (i) Type of feedback system (ii) Type of tool motion control	**4**
	(c)	What is Automated Guided Vehicles? Explain different types of AGVs with their advantages and limitations	**7**
Q.4	**(a)**	Define Robot. Explain in brief the factors to be considered before introduction of robot in an organization.	**3**
	(b)	What is a PLC? Explain major components of a PLC. List various applications of PLC.	**4**
	(c)	Classify and explain robot configurations with neat sketches.	**7**
		OR	
Q.4	**(a)**	Explain in brief Economic Evaluation of investment in robotic Installation	**3**
	(b)	Explain in brief Programmable Logic controllers(PLCS). Explain in detail composite part	**4**
	(c)	Sketch and explain cylindrical and SCARA configuration of industrial robot, showing work envelope.	**7**
Q.5	**(a)**	Differentiate between MRP I and MRP II	**3**
	(b)	What are the typical outputs from MRP system? Prepare a sample output report of MRP system.	**4**
	(c)	Explain different types of flexibilities in FMS.	**7**
		OR	
Q.5	**(a)**	Explain in brief about the JIT philosophy.	**3**
	(b)	Explain various sensors and actuators used in robots.	**4**
	(c)	What is computer integrated production management system? Explain with neat flow chart.	**7**