Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:2171903 Date:19-11-2024

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.**

Q.1	**(a)**	Explain the benefits of Computer Aided Manufacturing.	**03**
	(b)	Compare CNC machines with conventional machines.	**04**
	(c)	Draw CIM wheel and discuss different aspect of CIM.	**07**
Q.2	**(a)**	Compare Modal & Non Modal codes.	**03**
	(b)	Explain with example: Drilling canned cycle	**04**
	(c)	Describe with sketch the working and construction of recirculating ball screw used in CNC machine tools.	**07**
		OR	
	(c)	Draw a neat sketch to designate axis of CNC Lathe machine. State rule followed for axis designation.	**07**
Q.3	**(a)**	Explain incremental and absolute dimensioning with neat sketch.	**03**
	(b)	Explain concept of composite part in GT.	**04**
	(c)	Write a note on: Automated Storage and Retrieval System (AS/RS).	**07**
		OR	
Q.3	**(a)**	Explain the various elements of CIM.	**03**
	(b)	Explain the open loop and close loop control system.	**04**
	(c)	Discuss need of FMS. List and explain different types of flexibilities with reference to FMS concept.	**07**
Q.4	**(a)**	Explain the PLC architecture using a diagram.	**03**
	(b)	Explain End-effectors in robots.	**04**
	(c)	Describe the methods for programming robots. What are the advantages of each method?	**07**
		OR	
Q.4	**(a)**	Differentiate clearly between GT and JIT.	**03**
	(b)	Describe various sensors used in robot technology.	**04**
	(c)	What is AGV? State various guidance types used in AGV.	**07**
Q.5	**(a)**	Enlist seven wastages that have been identified by Japanese manufacturers.	**03**
	(b)	What is the objective of MRP 1? List its benefits.	**04**
	(c)	What is computer integrated production management system? Explain with neat flow chart.	**07**
		OR	
Q.5	**(a)**	Sketch and explain cylindrical and SCARA configuration of industrial robot, showing work envelope.	**03**
	(b)	What is MRP-II? Explain in brief.	**04**
	(c)	Draw a structure of a programmable logic controller in generic form. Explain any one tool for PLC logic design.	**07**

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