GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII (OLD) EXAMINATION – WINTER 2023

Subject Code:2171903   **Date:01-12-2023**
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)**	Give three points each on advantages and disadvantages of CAM.	**03**
	(b)	Justify the need of CAM in today's era.	**04**
	(c)	Draw CIM wheel and state the functional areas.	**07**
Q.2	**(a)**	Compare CNC machines with conventional machines.	**03**
	(b)	Clearly differentiate NC and CNC machines.	**04**
	(c)	Explain open-loop control system used in a CNC system with a schematic diagram (include the drawback and application).Draw a block diagram of velocity control loop for a closed-loop control system.	**07**

OR

	(c)	Define the axes designation rules for CNC machines and explain the Same for CNC Vertical machining canter.	**07**
Q.3	**(a)**	Discuss benefits of Group Technology.	**03**
	(b)	Discuss various codes used for GT. How many digits are used in Opitz code?	**04**
	(c)	Explain Generative CAPP. What do you mean by Inference Engine? Which are the two approaches used in Expert system?	**07**

OR

Q.3	**(a)**	Explain about Robot safety.	**03**
	(b)	Explain grippers in robots.	**04**
	(c)	Explain different sensors used in Robot with sketch.	**07**
Q.4	**(a)**	Explain different joints used in robots using neat sketch.	**03**
	(b)	Brief about functions of computers in FMS. (Any four)	**04**
	(c)	Write a note on: Different types of flexibility required in an FMS.	**07**

OR

Q.4	**(a)**	Explain the functions of the controllers in PLC.	**03**
	(b)	What is a PLC? Draw PLC architecture.	**04**
	(c)	What is AGV? Explain working principle of AGVs.	**07**
Q.5	**(a)**	G and M code Description:G00, G01, G02,M08, M09, M30	**03**
	(b)	Differentiate clearly between GT and FMS.	**04**
	(c)	Describe with neat sketch AS/RS system used in FMS	**07**

OR

Q.5	**(a)**	Draw the structure of an MRP system.	**03**
	(b)	What is MRP-II? Explain in brief	**04**
	(c)	Elaborate the 'Just in Time' manufacturing philosophy along with its goals. How could these goals be achieved?	**07**

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