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

Subject Code:2171903   **Date:03/12/2021**
Subject Name:Computer Aided Manufacturing
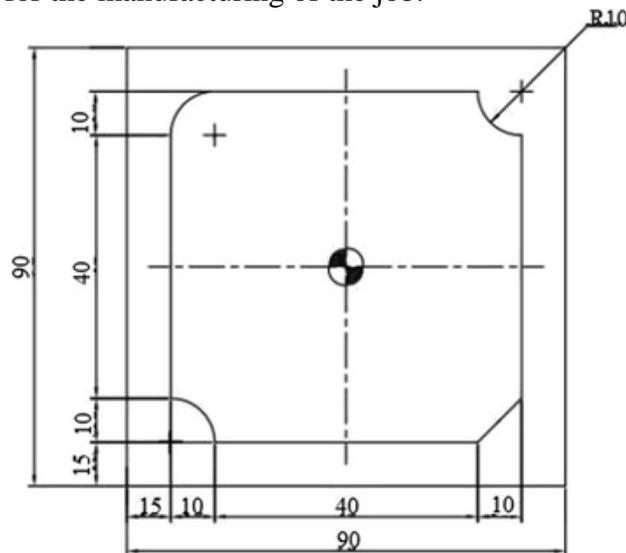**Time:02:30 PM TO 05:00 PM**   **Total Marks: 70**
Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

MARKS

Q.1	**(a)**	How CAM is better than conventional manufacturing? Explain	**03**
	(b)	Draw and explain PLC architecture.	**04**
	(c)	Explain the axes designation rules for machine tools employing rotating tools. Sketch a vertical machining center and designate its axes.	**07**
Q.2	**(a)**	Benefits of group technology.	**03**
	(b)	What is tool compensation? Explain tool length and cutter radius compensation.	**04**
	(c)	Explain with suitable example 'Opitz' coding system.	**07**
		OR	
	(c)	Explain the variant type CAPP system. State the benefits and limitations of variant type CAPP systems.	**07**
Q.3	**(a)**	Explain subroutine with suitable examples.	**03**
	(b)	Explain the various elements of CIM.	**04**
	(c)	Select a job of your choice and prepare a part program including a canned cycle.	**07**
		OR	
Q.3	**(a)**	Explain Do loop with suitable examples.	**03**
	(b)	Explain the open loop and close loop control system.	**04**
	(c)	Write a manual part program for profile milling of the job as shown in fig 1. All dimensions are in mm. Assume suitable tools and cutting parameter for the manufacturing of the job.	**07**

Depth of Cut 1 mm

Fig.1.

Q.4	**(a)**	Describe various sensors used in robot technology.	**03**
	(b)	Explain End-effectors in robots.	**04**
	(c)	Explain robot configurations with neat sketches.	**07**

OR

Q.4	**(a)**	What is FMS? Explain the basic components of FMS.	**03**
	(b)	Differentiate clearly between GT and JIT.	**04**
	(c)	Explain different types of FMS layouts with neat diagram.	**07**

Q.5	**(a)**	Automated guided vehicle associated with FMS	**03**
	(b)	What is MRP-I? Explain in brief.	**04**
	(c)	Explain the different types of flexibilities in FMS.	**07**

OR

Q.5	**(a)**	Explain about Robot safety.	**03**
	(b)	What is MRP-II? Explain in brief.	**04**
	(c)	What is computer integrated production management system? Explain with neat flow chart.	**07**

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