Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (NEW) EXAMINATION – SUMMER 2023

Subject Code:3161917 Date:20-07-2023

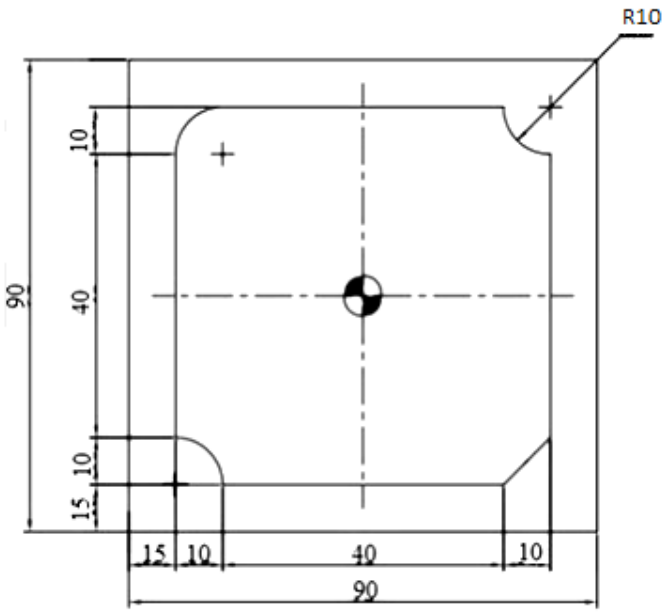
Subject Name:Computer Aided Manufacturing

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)**	List the advantages of Group Technology	**03**
	(b)	Draw the CIM wheel.	**04**
	(c)	Explain canned cycle with suitable example.	**07**
Q.2	**(a)**	List the benefits of FMS.	**03**
	(b)	Define robot and explain different joints used in robots.	**04**
	(c)	Explain the structure of robot in detail.	**07**
		OR	
	(c)	Write a manual part program for profile milling of the job as shown in fig. (Enable the cutter radius compensation)	**07**



Q.3	**(a)**	Explain the open loop and close loop control system.	**03**
	(b)	Discuss on automated guided vehicle	**04**
	(c)	Explain different types of FMS layout with neat sketch.	**07**
		OR	
Q.3	**(a)**	List the method to make part families. Explain any one in brief	**03**
	(b)	Give classification of CNC machine	**04**
	(c)	Explain the different types of flexibilities in FMS.	**07**
Q.4	**(a)**	Describe the terms with reference to Robot: 1. Payload, 2. Work envelop 3. Manipulator	**03**
	(b)	List the input and output devices for the PLC	**04**
	(c)	Discuss the problems with traditional production planning and control.	**07**

OR

Q.4 **(a)** Discuss the advantage and disadvantage of magnetic gripper. **04**

(b) Apply the rank order clustering technique to the part machine incidence matrix in the following table to identify logical part families and machine groups. Parts are identified by letters and machines are identified numerically. **10**

Machines	Parts								
	A	B	C	D	E	F	G	H	I
1	1								1
2		1					1		
3			1		1			1	
4		1				1	1		
5			1					1	
6						1	1		
7	1			1					
8			1		1				

Q.5 **(a)** Write advantages of JIT. **03**

(b) Explain incremental and absolute dimensioning with neat sketch. **04**

(c) What is CAPP? Explain Generative CAPP in detail. **07**

OR

Q.5 **(a)** Explain the PLC architecture using a diagram **03**

(b) Explain the various elements of CIM. **04**

(c) Explain MRP-I and MRP-II. **07**

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