

**GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE- SEMESTER-VI EXAMINATION – WINTER 2025**

**Subject Code:3161917**

**Date:29-11-2025**

**Subject Name:Computer Aided Manufacturing**

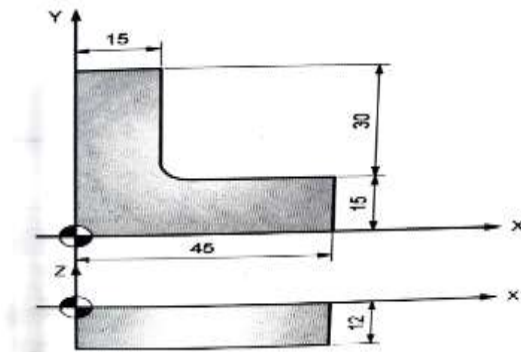
**Time:02:30 PM TO 05:00 PM**

**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
<b>Q.1</b> (a) Explain accuracy and repeatability.	<b>03</b>
(b) Name three techniques of interpolation.	<b>04</b>
(c) Give specifications of a machining centre.	<b>07</b>
<b>Q.2</b> (a) What are canned cycles and sub- routines.	<b>03</b>
(b) What are the essential elements of a PLC system?	<b>04</b>
(c) Differentiate	<b>07</b>
(i) AC servomotors & DC servomotors.	
(ii) CNC Lathe & CNC Turning centre	
<b>OR</b>	
(c) Write a NC part program using G and M code, to cut a slot for the component, shown in fig. by using an end mill of 10 mm diameter. Assume suitable data for machining parameters.	<b>07</b>



<b>Q.3</b> (a) What are the various activities of a manufacturing plant which can be carried out through computer control?	<b>03</b>
(b) Enlist robot programming method. Explain any one in detail.	<b>04</b>
(c) Explain different end effectors used in ROBOTS and state their applications.	<b>07</b>
<b>OR</b>	
<b>Q.3</b> (a) Discuss the main elements of CIM systems.	<b>03</b>
(b) Give technical specification of a ROBOT.	<b>04</b>
(c) What are SCARA configuration ROBOT? Explain its work envelope.	<b>07</b>
<b>Q.4</b> (a) What is the need for computer aided process planning? What are its advantages?	<b>03</b>
(b) Define Part Families. Explain different attributes used for family formation.	<b>04</b>
(c) Classify a component using either OPITZ or MICLASS system.	<b>07</b>

**OR**

- Q.4** (a) Describe the structure of a process plan. **03**  
(b) What are the major modules of a process planning software and the databases required? **04**  
(c) Compare variant and generative process planning methodologies. **07**

- Q.5** (a) Explain different types of AGVs with their advantages . **03**  
(b) Describe with neat sketch AS/RS system used in FMS **04**  
(c) Explain different types of FMS layout with neat sketch. **07**

**OR**

- Q.5** (a) What is the significance of bill of materials? **03**  
(b) Explain the concept of expert system used in manufacturing. **04**  
(c) Discuss the Just In Time manufacturing. **07**

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