Name: **Enrolment No:**	

UPES

End Semester Examination, May 2025

Course: Design for Manufacturing **Semester : II**

Program: M.Tech- Robotics **Time : 03 hrs.**

Course Code: ECEG7029 **Max. Marks: 100**

Instructions: Draw a schematic wherever needed.

SECTION A
(5Qx4M=20Marks)

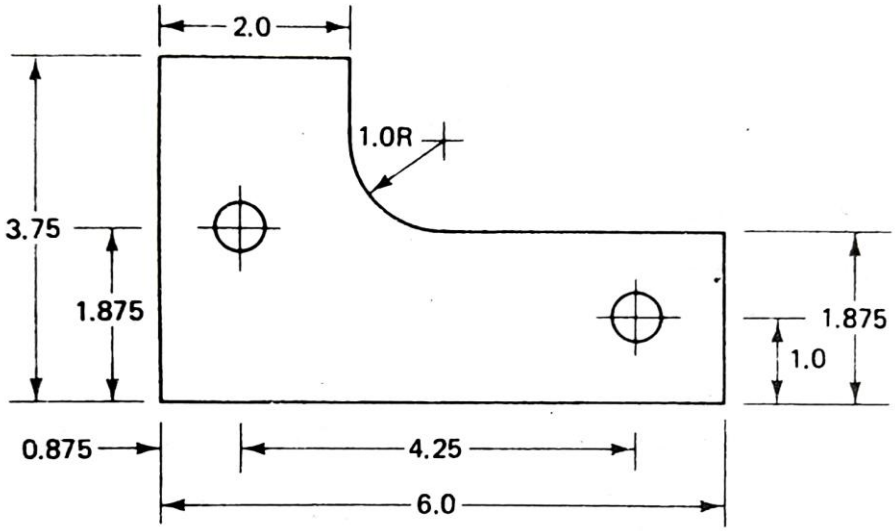
S. No.		Marks	CO
Q 1	Write a short note on automatically guided vehicles.	**4**	**CO1**
Q 2	Enlist and explain the Computer-assisted Design Process used in manufacturing systems.	**4**	**CO2**
Q 3	Write the benefits and limitations of group technology.	**4**	**CO1**
Q 4	List the different structures in which NC part programming can be written. Explain each in detail.	**4**	**CO1**
Q 5	Write a short note on the Automated Storage and Retrieval System.	**4**	**CO2**

SECTION B
(4Qx10M= 40 Marks)

Q 6	Define interpolation and explain different types of interpolation used for manual part programming in a Numerical Control System.	**10**	**CO3**
Q 7	Discuss the tool management system. Explain the different tool changing methods used in CNC Machining.	**10**	**CO1**
Q 8	Explain the various direct tool wear measuring methods with examples.	**10**	**CO2**
Q 9	Explain the different coding systems used in group technology with an example.	**10**	**CO2**

SECTION-C
(2Qx20M=40 Marks)

Q 10	Discuss computer-aided process planning (CAPP) and its advantages in detail. Draw and explain the typical sequence of processes required in part fabrication. **OR** Explain group technology and part families. Discuss the various methods of grouping parts families.	**20**	**CO3**

Q 11	Write the complete APT program for the part shown below. The postprocessor call statement is MACHIN/MILL, 05. The inside and outside tolerances on the circular approximation should be 0.001 in. The end mill is 1 in. in diameter. Speed and feed should be 400 rpm and 3.0 in./min. respectively. NOTE: All dimensions are in inches. 	**20**	**CO4**