Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII • EXAMINATION – SUMMER • 2014

Subject Code: 172501 **Date: 22-05-2014**

Subject Name: Computer Aided Manufacturing

Time: 02.30 am - 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.**

Q.1	**(a)**	Compare conventional machines, NC and CNC.	**07**
	(b)	Classify and explain robot configurations with neat sketches.	**07**
Q.2	**(a)**	Draw and discuss various aspects of CIM WHEEL.	**07**
	(b)	What are the different types of NC system based on motion control?	**07**
		OR	
	(b)	List and discuss various components of NC system.	**07**
`Q.3	**(a)**	Write the steps to identify the axes of CNC Lathe, milling and drilling machine with neat sketch.	**07**
	(b)	Explain Subroutine, Do loop and Macro with suitable examples.	**07**
		OR	
Q.3	**(a)**	Explain factors to be considered while designing the structure of CNC machines.	**07**
	(b)	Using G and M codes prepare CNC Part programme for the figure-I. Take raw material size as ø 45 X 100 mm length. Assume suitable cutting parameters.	**07**

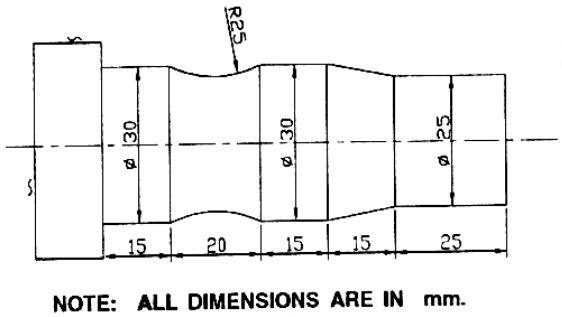

Figure-I

Q.4	**(a)**	What is the need for CAPP? What are the various considerations for CAPP system implementation? Explain advantages of CAPP over conventional process planning.	**07**
	(b)	How do you justify the use of robot? Identify the five manufacturing situations which are suitable for robot applications. Justify your answer.	**07**
		OR	
Q.4	**(a)**	Define Mechatronics. Discuss various elements of Mechatronics.	**07**
	(b)	Write short note on " Selective Laser Sintering" technique of RPT.	**07**
Q.5	**(a)**	What is Group Technology? Explain various classification and coding system of GT.	**07**
	(b)	What is Automated Guided Vehicles? Explain different types of AGVs with their advantages and limitations.	**07**
		OR	
Q.5	**(a)**	Explain the function of various components of FMS.	**07**
	(b)	What is cutter radius compensation? Why it is required? Explain by taking a suitable example.	**07**

List of G- and M-Codes.

G00 Rapid move
G01 Feed Rate move
G02 Clockwise move
G03 Counter Clockwise move
G70 Inch mode
G71 Millimeter mode
G90 Absolute mode
G91 Incremental mode
G92 Home coordinate reset
G94 Per minute feed
G95 Per revolution feed
M02 End of Program
M03 Spindle On Clockwise, Laser, Flame, Power ON
M04 Spindle On Counter Clockwise
M05 Spindle Stop, Laser, Flame, Power OFF
M06 Tool Change
M08 Coolant On
M09 Coolant Off
M100 Machine Zero Reset

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