Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E –IIst SEMESTER–EXAMINATION – JULY- 2012

Subject code: 1720802 **Date: 09/07/2012**

Subject Name: Computer Aided Manufacturing

Time: 10:30 am – 13:00 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)	Justify the role of CAD-CAM in present day competitive manufacturing that has emerged out in Indian industries.	07
	(b)	How do you select a CNC machining centre for machining the following components? (i) Aircraft fuselage section (ii) Compressor rotor. Describe hardware configuration of a modern CNC system.	07
Q.2	(a)	Distinguish and explain with neat sketches:- (i) Point to Point, Paraxial and Contouring type CNC M/c (ii) Fixed and floating zero.	07
	(b)	What are the requirements of feedback devices in CNC M/c tools? Give a brief write up on Optical rotary encoder, Absolute encoder, Incremental encoder and linear scale as feedback devices for displacement in CNC M/c tools.	07
		OR	
	(b)	Give the difference in part programming to be considered between CNC turning centers and CNC machining centers. Describe with an example Looping-Jumping and Subroutine in FANUC controls.	07
Q.3	(a)	What are the normal functions served by a macro in a NC part program? Develop a macro for machining any hole making operation along a straight line in a CNC machining centre.	07
	(b)	Why group technology (GT) more important in the present mfg scenario? Explain the merits-demerits of GT and guidelines for implementing group technology.	07
		OR	
Q.3	(a)	What is the method used for forming groups in group technology? Describe with an example. Explain about the OPITZ coding system used in group technology.	07
	(b)	What do you understand by the term flexibility in FMS? Discuss in detail about various types of flexibility in FMS. Enlist the benefits that can be derived from the use of FMS.	07
Q.4	(a)	Discuss the various tool supply concepts used in the FMS context. While bringing out the specific advantages and applications, mention the most widely practiced principle in the industry.	07
	(b)	Explain with neat sketches the various types of layouts used in FMS design and their applications.	07
		OR	
Q.4	(a)	Write short note on “Tool wear monitoring system and tool breakage monitoring system”	07
	(b)	What is automated guided vehicle? Explain the traffic control and safety systems used in AGVS for automated manufacturing system.	07
Q.5	(a)	Write short note on Automatic Storage and Retrieval Systems and their applications areas in FMS.	07
	(b)	What is the CIM managerial philosophy? What resources in an enterprise must change most when a CIM is implemented? Why is that necessary? Describe the three step process for implementing CIM.	07
		OR	
Q.5	(a)	Identify and describe the segments that form the CIM wheel. What is the product development cycle and how is it supported by CIM wheel?	07
	(b)	List the different technologies available in automatic identification system in factory data collection system and explain any one in detail.	07

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