Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER– II(Old course) • EXAMINATION (Remedial) – WINTER- 2015

Subject Code: 1725002 **Date: 10/12/2015**

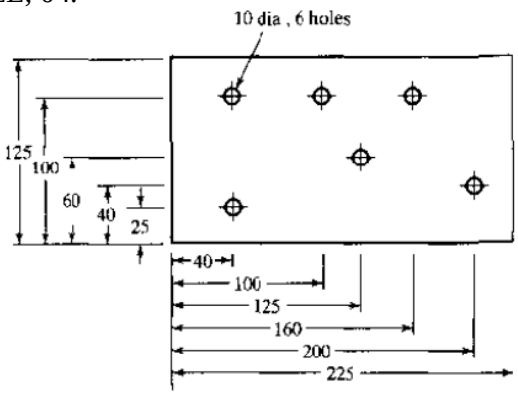
Subject Name: Computer-Integrated Manufacturing

Time:2:30 pm to 5:00 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)**	What is CIM? Explain the CIM wheel to explain the meaning of CIM.	**07**
	(b)	Explain closed-loop positioning control system used in an NC machine using a block diagram. State its drawbacks.	**07**
Q.2	**(a)**	Explain the procedure in NC manufacturing starting from process planning to actual machining.	**07**
	(b)	Write a note on different function categories of central computer system of an FMS.	**07**
		OR	
	(b)	Describe the four basic components of a DNC system. How does a DNC differ from a CNC system?	**07**
Q.3	**(a)**	Explain the following NC motion-control systems with figure: PTP, Straight cut, Contouring.	**07**
	(b)	Enlist the types of flexibilities desired in manufacturing. Give meaning of each of them and give the factors which each type depends on.	**07**
		OR	
Q.3	**(a)**	What is an AS/RS? Enlist its principal types stating distinguishing characteristic of each type.	**07**
	(b)	Explain why an NC machining centre is considered to be a highly productive machine.	**07**
Q.4	**(a)**	Write down the codes to carry out the following actions on a CNC machine: Return to reference point, cancel cutter radius compensation, specify feed per minute in milling, end of program, turn cutting fluid off, automatic clamping of fixture, spindle stop.	**07**
	(b)	Write the complete APT part program to perform the drilling operation for the part shown in figure. Cutting speed = 0.4 m/s, feed = 0.10 mm/rev, table travel speed between holes = 500 mm/min, Post-processor call statement is MACHINE/DRILL, 04.	**07**



OR

Q.4	**(a)**	What is meant by numerical control of machine tools? Enlist the nature of jobs suitable for NC manufacturing. How does NC increase the precision of a machine tool?	**07**
	(b)	Illustrate the principle of operation of adaptive control. Under what conditions is it recommended?	**07**
Q.5	**(a)**	Explain the vehicle-guidance technology used for guiding an AGV in an FMS.	**07**
	(b)	Explain the meaning of the terms: data, information, database, signals, signaling, transmission, and DBMS.	**07**

OR

Q.5	**(a)**	Discuss different types of communications needed in a CIM environment. Which type forms the basis of all communications in CIM?	**07**
	(b)	Explain the following types of communication lines with regard to CIM: (1) PTP connection, (2) multiplexing.	**07**

****