

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2014****Subject code: 1720802****Date: 18-06-2014****Subject Name: Computer Aided Manufacturing****Time: 02:30 pm - 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) Explain clearly the difference between NC, CNC and DNC machine. **07**

(b) Explain axes designation in CNC machine tool. Explain with neat sketch axes designation for CNC vertical milling machine **07**

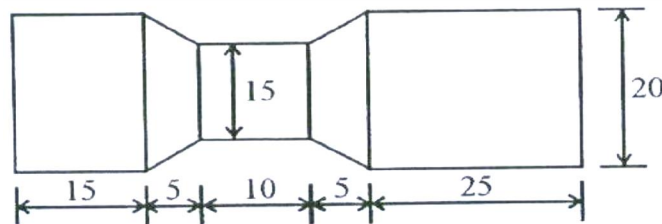
Q.2 (a) List the various models of CIM. Explain anyone in detail **07**

(b) Write short note on Automatic Storage and Retrieval Systems and their applications areas in FMS. **07**

OR

(b) What is an AGV? What are different types of AGVs? What are the benefits of using AGVs? **07**

Q.3 (a) Write a part program for component shown in Figure.1 **07**

**Figure 1**

Dimensions are in mm.

(b) What are canned cycles? What is the difference between a canned cycle and subroutine? Discuss how a canned cycle can be useful in writing a part program **07**

OR

Q.3 (a) What are the different geometric statements used to write part program using APT? Discuss each statement with a suitable example. **07**

(b) Component shown in the fig. no.2 is to be machined on a CNC machining centre equipped with FANUC controller. Prepare a part program to completely machine this component. Use appropriate values for cutting parameters and cutter sizes **07**

FIG.NO.2

All Dimensions are in mm

Material C15,thickness of work piece =5 mm

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|------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.4 | (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) Explain with neat sketch the various types of layouts used in FMS design and their applications | 07 |

OR

- Q.4 (a)** Explain the role of CMM in Computer Aided Quality Control. What are different elements of a CMM? **07**
- (b)** Discuss the application of LASERS in machining and metrology. **07**

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|----------------|----------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.5 (a) | In what way PLC, Microcomputer and Microcontroller are different than each other? Suggest their specific applications in manufacturing | 07 |
| (b) | Write short note on Mechatronics including benefits, needs. | 07 |

OR

- | | | |
|------------|--------------------------------------------------------------------------------------|-----------|
| Q.5 | (a) Explain software and hardware requirements for CAD/CAM integration. | 07 |
| | (b) What is Group Technology? What are the advantages of GT in manufacturing? | 07 |
