



Reg. No. :

Name :

**Eighth Semester B.Tech. Degree Examination, October 2014
(2008 Scheme)**

08.806.10 : FLEXIBLE MANUFACTURING METHODS (MPU)

Time : 3 Hours

Max. Marks : 100

- Instructions :** 1) Answer **all** questions from Part – A.
2) Answer **one** question from **each** Module in Part – B.

PART – A

1. Distinguish between programmable automation and fixed automation.
2. Describe the CAD system architecture.
3. Classify the CAD system software based on technology used.
4. What is a data processing unit in a numerical control ? What are the components of a data processing unit ?
5. What are the different type of manufacturing systems based on type of operations performed by a manufacturing system ? What are the parameters that play a role in determining the design of manufacturing system ?
6. Explain the characteristics of a manufacturing system that is flexible.
7. What is product-mix flexibility ?
8. What are the general types of integration present in an FMS and how is it achieved ?
9. Distinguish between static and real-time scheduling in FMS.
10. Discuss the various approaches used in the modelling of FMS. **(10×4=40 Marks)**



PART – B
Module – 1

11. Write the part program to drill the holes in the part shown in Figure 1. The part is 12 mm thick. Cutting speed = 100 m/min and feed = 0.06 mm/rev. Use the lower left corner of the part as the origin in the x-y axis system. Write the part program in the word address format with TAB separation and variable word order.

OR

12. Write the complete APT part program to perform the drilling operations for the part drawing in Figure 1. Cutting speed = 0.4 m/sec., feed = 0.10 mm/rev., and table travel speed between holes = 500 mm/min. Postprocessor call statement is MACHIN/DRILL, 04.

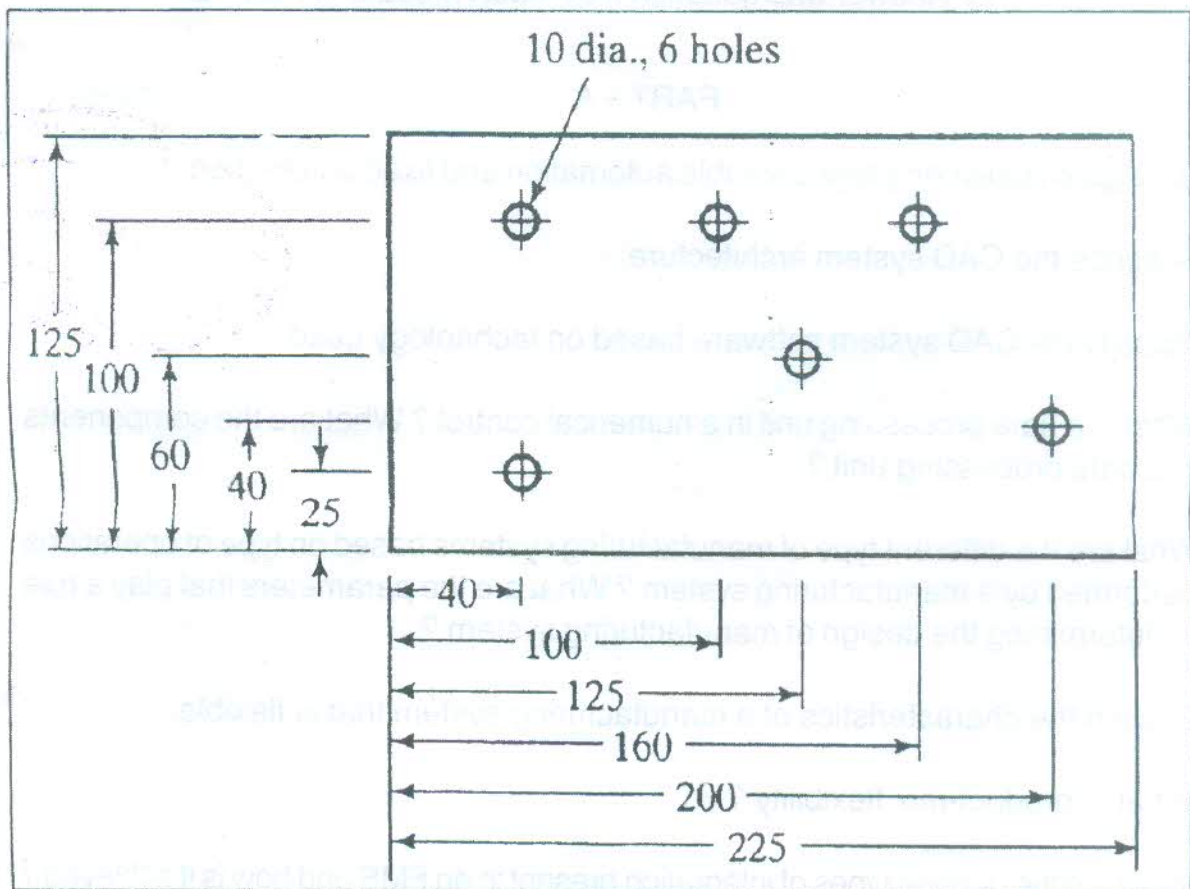


Figure 1 : Part Drawing. Dimensions are in millimeters



Module – 2

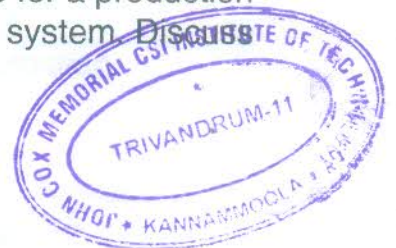
- 13. a) Discuss the application of the Part coding and classification system in manufacturing.
- b) Six manufactured components and their machine sequence are given below.

Component	P1	P2	P3	P4	P5	P6
Machine sequence	Q, S, T	X, Q, S	X, M, Q, S	X, M	Q, T	T

Create a part-machine incidence matrix. Form a block-diagonal structure for the incidence matrix. Determine the number of machine required to have independent cells.

OR

- 14. Explain the benefits derived by the implementation of an FMS for a production system which is managed by a batch type manual production system. Discuss basically the enablers of flexibility in an automated system.



Module – 3

- 15. a) Explain the role of group technology in the design of FMS.
- b) Discuss the importance of tool management in an FMS. Explain the roll of tool magazine and quick tool changeover in the performance of FMS.

OR

- 16. a) Describe the automated operation of FMS using flow chart.
- b) Explain the need for a tool monitoring system in FMS.

(3x20=60 Marks)