Reg. No. : ....

Name : ....

Eighth Semester B.Tech. Degree Examination, April 2016
(2008 Scheme)
08.806.10 : FLEXIBLE MANUFACTURING METHODS
(MPU)

Time : 3 Hours　　　　　　　　　　　　　　　　　　Max. Marks : 100

Instructions : 1) Answer **all** questions in Part **A**. **Each** question in Part **A** carries **4** marks.

　　　　　　　　2) Answer **any one full** question from **each** Module in Part **B**. **Each** full question in Part **B** carries **20** marks.

PART – A

1. Explain the design related tasks that can be performed in modern computer aided design system.

2. With the aid of block diagram explain the concept of integrated CAD and CAM and discuss its benefits.

3. Discuss the difference between manual part programming and computer-assisted part programming.

4. What are advantages of numerical control when properly applied in machine tool operations ?

5. Distinguish between pallets and fixtures along with their application in FMS.

6. Discuss in short the development of manufacturing system that leads to FMS.

7. Differentiate between manual and powered lead through programming.

8. Explain bulk exchange and resident tooling policy of tooling policies in tool management system.

9. Discuss how the AI aides in the design of FMS.

10. What is the use of simulation in FMS ? Explain.

PART – B

Module – I

11. a) Discuss absolute and incremental coordinate system with example in NC systems.   8

    b) Write the manual part program in word address format using absolute positioning to drill the holes in the part as shown in Fig. 1. The part is 12.0 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.   12
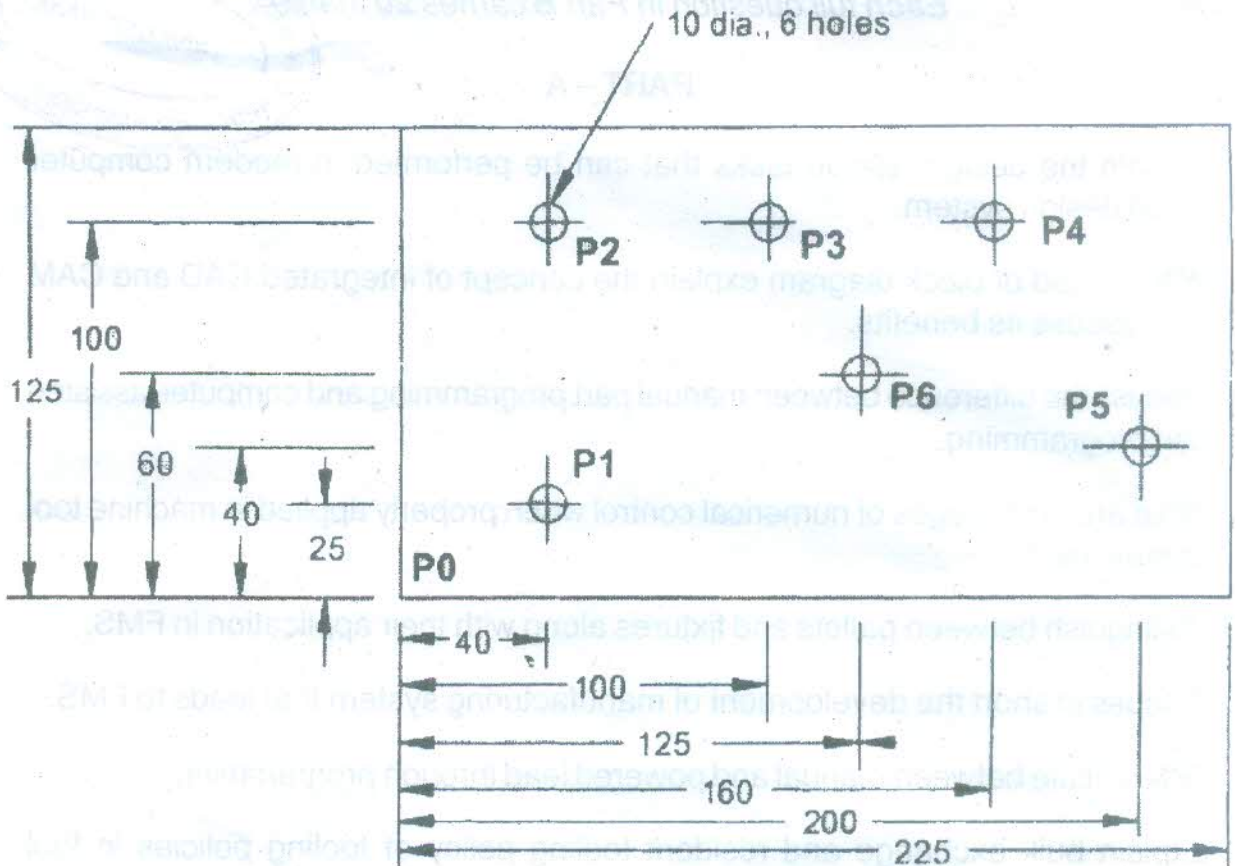
10 dia., 6 holes

Fig. 1

OR

12. a) Explain the various output devices used in conjunction with CAD system. 8

   b) Write the complete APT part program to perform the profile milling operation for the part drawing in Figure 2. Tooling = 20 mm diameter end mill with two teeth, cutting speed = 125 mm/min, and feed = 0.10 mm/tooth. The part is 10 mm thick. Use the lower left corner of the part as the origin in the x-y axis system. The two holes in the part have already been drilled and will be used for clamping the part during milling. Post processor call statement is MACHIN/MILL, 01. 12
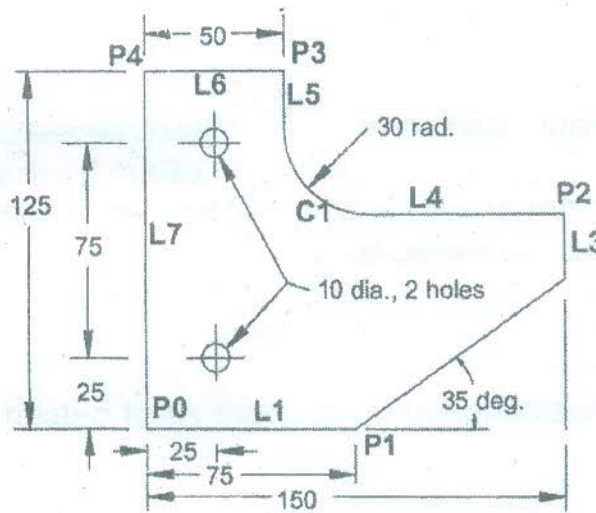

Fig. 2

Module – II

13. a) Explain the workstations types to be met within the typical FMS. 10

   b) What is group technology ? Discuss any one of the part coding system with example. 10

OR

14. a) Explain with sketch different layout configuration used in FMS design stages. 10

   b) What is industrial robot ? Discuss the application of robot in assembly and inspection in an FMS system. 10

Module – III

15. a) Discuss in brief the various approaches to the modeling of FMS. 10

   b) Discuss the ways of controlling the precision parts produced on an FMS. 10

OR

16. a) Discuss briefly the reasons for manning the existing systems during the operation of an FMS. 10

   b) Explain the various principles of tool monitoring. How does it help in productivity improvement in FMS ? 10