1. Define the concept of CIM.
2. Explain programmable Automation.
3. Give the scope of CAD/ CAM in industry
4. Write a short note on OPITZ coding system
5. Compare manual process planning and computer aided process planning
6. Explain the concept of group technology.
7. Explain any four G codes used in NC system.
8. What are reticulating ball screws?
9. List any 4 basic configurations available in a robot.
10. Write a short note on CMM

Part B

11.(a) Differentiate between hierarchical DBMS and the relational DBMS.
    (b) Explain the CAD/CAM activities

OR

12.(a) Explain the important elements of CIM system.
    (b) Describe the nature of CIM systems and the types of manufacturing systems in CIM.

Module II

13.(a) Explain the different elements of Computer Aided Process Planning.
    (b) Briefly discuss the various benefits of implementing a GT in a firm. Also Bring out the advantages and disadvantages of using GT.
14. (a) Explain the role of group technology in CAD/CAM integration.
   (b) Describe retrieval and generative CAPP in detail

   (2x10=20 Marks)

**MODULE III**

15. (a) Explain Computer Numerical Control in detail. Differentiate CNC and DNC
   (b) Explain briefly about the APT language

   (2x10=20 Marks)

**OR**

16. Write a part program to produce the component as shown in the fig

   (20 Marks)

**MODULE IV**

17. (a) Describe the various methods of programming robots
   (b) Explain the operation of ‘machine vision’ system

   (2x10=20 Marks)

**OR**

18. (a) Write short notes on:
    (1) AGV
    (2) Expert system
    (3) CMM.

   (15 Marks)
(b) What the various types of FMS layout? Briefly discuss them. (5 Marks)