

**IV B.Tech I Semester Regular Examinations, November 2006**  
**CAD-CAM**  
**( Common to Mechanical Engineering, Mechatronics and Production**  
**Engineering)**

**Time: 3 hours**

**Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

\*\*\*\*\*

1. (a) Write a short note on:
  - i. Stroke writing.
  - ii. Raster scan.(b) Explain how a keyboard terminal is used in interactive Computer Graphics. [8+8]
  
2. What is meant by a geometric entity? Explain the common entities used in geometric modeling. [16]
  
3. Briefly discuss about the composite surface and Bezier surface. [16]
  
4. (a) Develop an algorithm that can enable the user to create and manipulate boundary model by using set operations.  
(b) Create the boundary model of the solid fillet. [8+8]
  
5. (a) Briefly discuss the data required for Computer Assisted Part Programming.  
(b) Define Numerical Control. Why computer aided programs are preferred for NC machine tools. [8+8]
  
6. (a) Develop the form code in the opitz system for any simple part of your choice.  
(b) Discuss Product flow analysis. [8+8]
  
7. (a) Classify and discuss various flexible manufacturing systems.  
(b) Discuss the data files and system reports generated by the computer control systems of an FMS. [8+8]
  
8. (a) What are the three fundamental concepts in MRP? Explain them.  
(b) Outline the objectives of computer-aided quality control. [8+8]

\*\*\*\*\*

**IV B.Tech I Semester Regular Examinations, November 2006**  
**CAD-CAM**  
**( Common to Mechanical Engineering, Mechatronics and Production Engineering)**

**Time: 3 hours****Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

\*\*\*\*\*

1. (a) Explain the benefits of CAD over conventional design process.  
 (b) Explain with the help of a block diagram the hardware structure of a CAD work station. [8+8]
  
2. (a) Explain how a Bezier curve is defined.  
 (b) What are the advantages of Bezier curves over cubic spline. [8+8]
  
3. (a) What do you mean by parametric surface? Explain the various boundary conditions of parametric surface.  
 (b) Prove that the parametric equation of a sphere of radius 'R' and centre at point P<sub>0</sub> (x<sub>0</sub>, y<sub>0</sub>, z<sub>0</sub>) is given by [8+8]  

$$x = x_0 + R \cos u \cos v \quad -\frac{\pi}{2} \leq u \leq \frac{\pi}{2}$$

$$y = y_0 + R \cos u \sin v \quad 0 \leq v \leq 2\pi$$

$$z = z_0 + R \sin u$$
  
4. Differentiate between the C-rep and B-rep solid representation schemes with reference to mathematical modeling, storage, applications, limitations. [16]
  
5. (a) State the advantages and disadvantages of Numerical Control.  
 (b) Draw the block diagram of Adaptive Control with Optimization system for milling machine and explain briefly. [8+8]
  
6. (a) Explain the composite part concept in group technology with an example.  
 (b) Explain the benefits of a well designed classification and coding system for group technology. [8+8]
  
7. (a) Explain the advantages of FMS.  
 (b) Discuss the analysis methods for FMS. [8+8]
  
8. (a) What is meant by MRP II? Explain the scope, application, advantages and limitation of MRP II implementation to a manufacturing firm.  
 (b) Discuss the important effects likely to result from the application of computer aided quality control systems. [8+8]

\*\*\*\*\*

**IV B.Tech I Semester Regular Examinations, November 2006**  
**CAD-CAM**  
**( Common to Mechanical Engineering, Mechatronics and Production Engineering)**

**Time: 3 hours**

**Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

\*\*\*\*\*

1. (a) Justify the need for CAD in present competitive market environment.  
(b) What are the function of the major modules of graphic software? [8+8]
2. (a) Explain the model structure used in data base organization.  
(b) Distinguish between C-rep and B-rep models. [8+8]
3. Describe the parametric equations of a circular cone and tabulated cylinder. [16]
4. What do you mean by geometric modeling? Enumerate various solid-modeling techniques and compare them. [16]
5. (a) What is adaptive control system? Discuss its advantages to the manufacturing technology.  
(b) Discuss the merits and demerits of NC system. [8+8]
6. By using GT, what types of benefits are associated in the following functional areas:  
(a) Manufacturing  
(b) Production control  
(c) Quality control. [5+5+6]
7. (a) Describe a materials?handling system.  
(b) What are the three major elements of an ASRS? Explain. [8+8]
8. (a) Discuss the differences between Retrieval CAPP system and Generative CAPP System.  
(b) Explain how a concurrent engineering process differs from conventional sequential engineering process. [8+8]

\*\*\*\*\*

**IV B.Tech I Semester Regular Examinations, November 2006**  
**CAD-CAM**  
**( Common to Mechanical Engineering, Mechatronics and Production Engineering)**

**Time: 3 hours**

**Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

\*\*\*\*\*

1. (a) Why do we require product data exchange from one system to another?  
(b) List and explain the key elements of a CAD workstation. [8+8]
2. Explain how 2-D and 3-D transformation are done on a graphics element. [16]
3. (a) Find the minimum distance between a point in space and a plane surface.  
(b) Write the parametric equation for ruled and surface of revolution. [8+8]
4. How do you define a solid model? Explain various solid modeling schemes with their applications and limitations. [16]
5. (a) Compare and contrast between several input systems used in NC system.  
(b) Explain the role of a Part Programmer in Manual Programming Method and Computer Assisted Part Programming Method. [8+8]
6. (a) Explain machine cell design in group technology.  
(b) Compare a process-type layout and group technology layout for batch production of a simple component. [8+8]
7. (a) Describe a materials handling system.  
(b) What are the three major elements of an ASRS? Explain. [8+8]
8. (a) What do you understand by the term CIM?  
(b) State and elaborate on the advantages of CIM in a manufacturing unit. [8+8]

\*\*\*\*\*