Set No. 1

IV B.Tech I Semester Regular Examinations, November 2007
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
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1. (a) How does a work station differ from PC? Give the minimum configuration of a CAD workstation.

   (b) Explain the various standards which work at various levels of graphics systems.
   [8+8]

2. Write a note on:

   (a) NURBS

   (b) B-splines. [8+8]

3. Describe with the help of neat sketches the major surface entities provided by CAD/CAM systems. [16]

4. (a) Describe various commonly used primitives for solid modeling and explain the Boolean operations.

   (b) Describe the properties that a solid model should capture mathematically.
   [8+8]

5. (a) Discuss the basic elements of Numerical Control system.

   (b) Write a part program to drill the holes in the work piece shown in figure. The workpiece thickness is 10mm. Select the suitable speed and feed values. {As shown in the Figure5b} [8+8]
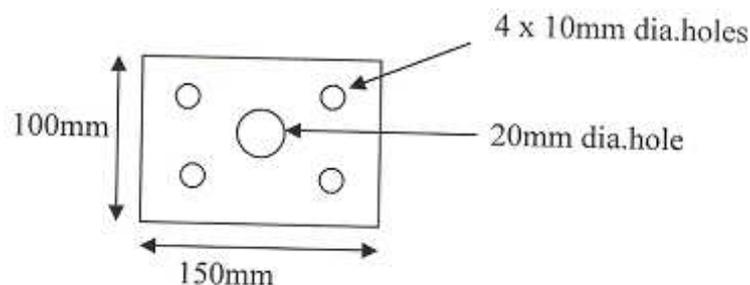

Figure 5b

6. (a) What are part families? What are the methods used for grouping of parts?

   (b) Explain the part design and manufacturing attributes giving examples. [8+8]

7. Define FMS and describe under what circumstances can it be applied in manufacturing. Identify some of the advantages of a typical FMS. [16]

8. (a) State the principles upon which the concept of concurrent engineering is based.

   (b) Explain the Retrieval type Process Planning System with the help of a block diagram. [8+8]

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Set No. 2

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

Answer any FIVE Questions
All Questions carry equal marks

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1. With a suitable example, explain the various steps involved in design process? [16]

2. Write a note on:

   (a) NURBS

   (b) B-splines. [8+8]

3. Discuss the modeling guidelines to be followed by the user while constructing a surface model as a CAD/CAM system. [16]

4. How do you represent a bracket with various primitives and sweep operations. Sketch with appropriate dimensions and explain the limitation. [16]

5. (a) Discuss the function of CNC system of machine tools.

   (b) The component shown in figure is to be machined in an end-milling operation. Write the APT geometry statements and motion statements to perform the machining operation on the component outline surfaces. Do not consider the two holes. They will be used for clamping the component during machining. {As shown in the Figure5b} [8+8]
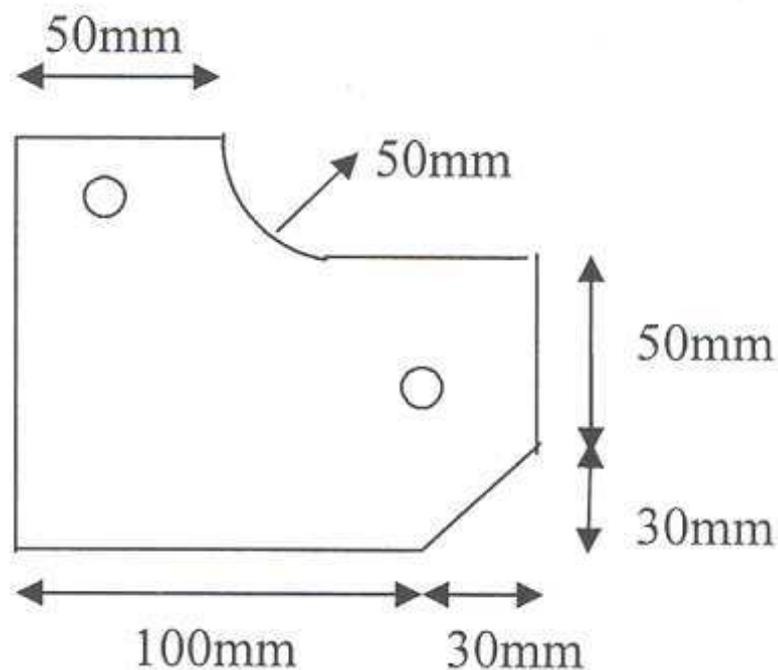

Figure 5b

6. (a) What is Group Technology? Mention some of the benefits associated with application of GT.

   (b) Discuss in brief the different stages of a group technology plan. What types of work are to be conducted at each stage of plan? [8+8]

7. (a) What is an FMS?

   (b) Explain in detail the basic components of FMS. [4+12]

8. Explain with the aid of a block diagram the "concept of CIM". [16]

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Set No. 3

IV B.Tech I Semester Regular Examinations, November 2007
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Time: 3 hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. (a) List the advantages of computer aided design.

    (b) Bring out clearly the difficulties a design engineer has to face at each of the design stages if they are carried out manually.   [8+8]

2. (a) Bring out the importance of three-dimensional geometry in CAD.

    (b) With a simple example explain the need for hidden line removal in wire frame modeling.   [8+8]

3. Discuss the modeling guidelines to be followed by the user while constructing a surface model as a CAD/CAM system.   [16]

4. (a) Describe various commonly used primitives for solid modeling and explain the Boolean operations.

    (b) Describe the properties that a solid model should capture mathematically.
                                                                                                   [8+8]

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) Discuss the benefits of Group technology.

    (b) What is group technology? Classify a component using any one type of coding system.   [8+8]

7. (a) What is an FMS?

    (b) Explain in detail the basic components of FMS.   [4+12]

8. (a) Explain the application and advantages of integration of CAQC with CAD/CAM systems.

    (b) With the help of schematic diagram explain the operation of scanning laser beam system. Explain its application in CAQC systems.   [8+8]

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Set No. 4

IV B.Tech I Semester Regular Examinations, November 2007
CAD-CAM
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Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. (a) Write briefly on interlacing and aspect ratio in graphics display.

   (b) Explain the capabilities of present CAD systems in developing engineering drawing. [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. Briefly discuss about the composite surface and Bezier surface. [16]

4. How do you define a solid model? Explain various solid modeling schemes with their applications and limitations. [16]

5. (a) Discuss the salient features of machining centers.

   (b) Under what circumstances the Adaptive Control Machining System is used? Discuss briefly. [8+8]

6. (a) What are part families? What are the methods used for grouping of parts?

   (b) Explain the part design and manufacturing attributes giving examples. [8+8]

7. (a) Describe a materials handling system.

   (b) What are the three major elements of an ASRS? Explain. [8+8]

8. Write short notes on the following computer-aided quality control systems.

   (a) Computer- aided testing.

   (b) Laser beam scanners.

   (c) Ultrasonic. [6+5+5]

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