Code No: RR410302 **Set No.1**

IV B.Tech. I Semester Regular Examinations, November -2005
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. What is meant by engineering analysis? Explain how computers are used in engineering analysis. With the help of suitable examples. [16]
2. (a) Define Geometric model. Explain how a 3-D object is represented by a wire frame model.
   (b) Distinguish between 2-D and 3-D wire frame models. [8+8]
3. What do you mean by weighting function? Describe the B-spline surface patch with the continuity conditions. [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.
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. How the space requirement is effected by factors in material handling system such as characteristics, quantity, unit load, equipment manpower etc.? Discuss. [16]
8. Write short notes on the following:
   (a) Machinability Data Systems.
   (b) Computer generated time standards.
   (c) Automated process planning vs. traditional process planning. [5+5+6]

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Code No: RR410302 **Set No.2**

IV B.Tech. I Semester Regular Examinations, November -2005
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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) Write on the importance of studying geometric modeling in CAD.
   (b) What are entities? Explain the methods of defining lines, arcs and Circles in wire frame modeling? [8+8]
3. What do you mean by blending function? Explain reparametrisation of a surface.. [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 special features of Turning Centers when compared to conventional lathe
   (b) Discuss any FIVE motion statements used in APT Part Programming language.
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) Discuss briefly the steps needed to analyze a material handling problem.
   (b) How the following factors effect the choice of material handling equipment. [6+10]
      i. Required path of travel
      ii. Nature of materials.
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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Code No: RR410302 **Set No.3**

IV B.Tech. I Semester Regular Examinations, November -2005
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. With the help of block diagram explain the hard ware configuration of a typical stand-alone CAD system. [16]
2. (a) Explain the model structure used in data base organization.
   (b) Distinguish between C-rep and B-rep models. [8+8]
3. Write the mathematical representation, application and limitations of the following surfaces.
   (a) Spherical surface
   (b) Composite surface. [8+8]
4. Discuss the following for B - representation.
   (a) How to represent surface normals and neighbourhoods.
   (b) How to develop a classification algorithm.
   (c) How to combine classifications. [5+5+6]
5. (a) Discuss the various advantages of CNC system.
   (b) Draw the block diagram of Adaptive Control with Constraints and briefly discuss.
6. Explain the following:
   (a) Composite component
   (b) Design and manufacturing attributes
   (c) Hybrid structures. [5+5+6]
7. (a) What is an FMS?
   (b) Explain in detail the basic components of FMS. [4+12]
8. (a) What is computer integrated manufacturing? Explain.
   (b) Distinguish between Automation and Computer Integrated Manufacturing.
   (c) Explain briefly the scope of Computer Integrated Manufacturing. [6+6+4]

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Code No: RR410302 **Set No.4**

IV B.Tech. I Semester Regular Examinations, November -2005
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) Discuss how CAD accelerates product development.
   (b) Describe briefly the various data exchange systems currently in use. [8+8]
2. (a) Write on the importance of studying geometric modeling in CAD.
   (b) What are entities? Explain the methods of defining lines, arcs and Circles in wire frame modeling? [8+8]
3. Describe the parametric equations of an ellipsoid, and **torus**. [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 difficulties encountered in using conventional numerical control.
   (b) Enumerate the advantages of Computer Assisted Part Programming when compared to Manual Part Programming.
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) Discuss various FMS layout configurations.
   (b) What are the functions performed by FMS computer control system. [8+8]
8. List out the various elements of a CIM system and explain each one of them briefly. [16]

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