Code: 9A03806

1

B.Tech IV Year II Semester (R09) Regular Examinations, March/April 2013
GEOMETRIC MODELING
(Mechanical Engineering)

Time: 3 hours   Max Marks: 70

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

1   Classify the different types of input devices and discuss each one of them with help of sketches.

2   What are random scan systems? Distinguish these systems with raster scan systems.

3   Discuss about the various 2-D transformations that are required to manipulate data of any geometric model.

4   Explain the implementation of Cohen-Sutherland out code algorithm for clipping lines.

5   Discuss the parametric representation and properties of β-spline surface.

6   Explain with an algorithm the midpoint circle algorithm.

7   What are the various options available for obtaining hidden surfaces and lines? Explain one algorithm for hidden lines.

8   What is computer animation? Explain the raster animation.

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B.Tech IV Year II Semester (R09) Regular Examinations, March/April 2013
GEOMETRIC MODELING
(Mechanical Engineering)

Time: 3 hours   Max Marks: 70

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

1   Explain about the various types of graphics-input devices.

2   What are raster scan systems? Distinguish them clearly with random scan systems.

3   What is homogenous transformation? Briefly explain the reflection and shear transformations used in graphics.

4   What are the various algorithms used for clipping of lines and polygons? Explain the implementation of one of these algorithms in graphics.

5   Discuss the important properties of Bezier surface with neat sketches.

6   Explain the difference in 2D and 3D transformations for rotation and scaling.

7   Explain the design of animation sequence in computer animation.

8   Explain the implementation of Back-face detection algorithm.

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3

B.Tech IV Year II Semester (R09) Regular Examinations, March/April 2013
GEOMETRIC MODELING
(Mechanical Engineering)

Time: 3 hours   Max Marks: 70

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

1 List out the various types of graphics display devices and explain each one of them briefly.

2 Differentiate between raster scan and random scan systems.

3 Explain the various 2-D geometrical transformations used in computer graphics.

4 Explain the implementation of Sutherland-Hodgman algorithm for clipping polygons.

5 What are the various curves used for modeling objects? Explain the principle and algorithm of implementing the Bezier curve.

6 Explain the implementation of translation and rotation transformation in three dimensional space.

7 What are the various options available for visible surface detection? Explain any one algorithm.

8 Explain the following in relation to computer animation:
  (a) Key frame system.
  (b) Motion specification.

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B.Tech IV Year II Semester (R09) Regular Examinations, March/April 2013
GEOMETRIC MODELING
(Mechanical Engineering)

Time: 3 hours   Max Marks: 70

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

1   Explain about the various interactive display devices.

2   Discuss briefly about the direct view storage tube and refresh display systems.

3   What is meant by geometric transformation? Briefly explain the terms scaling, translation and rotation used in graphics.

4   What is windowing and clipping? Explain the implementation of these techniques using transformations.

5   How is automatic shading introduced into graphics system? Discuss some of the algorithms to implement this feature.

6   Explain the working of DDA line algorithm with the help of a flow chart.

7   Discuss the algorithm for removing back faces.

8   Explain the general computer animation functions.

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