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Question Paper Code : 21319

B.E./B.Tech. DEGREE EXAMINATION; MAY/JUNE 2013.

Seventh Semester

Computer Science and Engineering

CS 2401 / CS 71 – COMPUTER GRAPHICS

(Common to Information Technology)

(Regulation 2008)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define aspect ratio.

2. How will you clip a point?

3. What are the advantages of B spline over Bezier curve?

4. What is Critical Fusion Frequency?

5. Draw the Colour Model HLS double cone.

6. What is dithering?

7. Define rendering.

8. Differentiate flat and smooth shading.

9. Define fractals.

10. What is surface patch?

PART B — (5 × 16 = 80 marks)

11. (a) Explain the basic concept of Midpoint ellipse drawing algorithm. Derive the decision parameter for the algorithm and write down the algorithm steps. (16)

Or

(b) (i) Explain two dimensional Translation and Scaling with an example. (8)

(ii) Obtain a transformation matrix for rotating an object about a specified pivot point. (8)

12. (a) (i) Determine the blending function for Uniform periodic Bspline curve for n=4, d=4. (8)

(ii) Explain any one visible surface identification algorithm. (8)

Or

(b) Explain a method to rotate an object about an axis that is not parallel to the coordinate axis with neat block diagram and derive the transformation matrix for the same. (16)

13. (a) Briefly explain different color models in detail. (16)

Or

(b) How will you model three dimensional objects and scenes in OPENGL. Explain with an example code. (16)

14. (a) (i) Explain the method of adding shadows to objects. (8)

(ii) Explain Gauraud shading technique and write the deficiencies in that method and how it is rectified using Phong shading technique. (8)

Or

(b) (i) Explain how to add texture to faces. (8)

(ii) How will you build and fix camera position in a graphics program? Explain. (8)

15. (a) Briefly explain different types of fractals with neat diagram and also explain how to construct fractals and the uses of fractals in computer graphics. (16)

Or

(b) (i) Explain ray tracing method in detail. (8)

(ii) Write short notes on applying Boolean operations on modelled objects to create new objects. (8)