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06CS65



Sixth Semester B.E. Degree Examination, Dec.09/Jan.10
Computers Graphics and Visualization

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting at least TWO questions from each part.

Part – A

- 1 a. Explain the graphics system, with a diagram. (08 Marks)
b. With a neat block diagram, explain the graphics pipeline architecture. (12 Marks)
- 2 a. List out different open GL primitives, giving examples for each. (08 Marks)
b. Write an open GL recursive program for 3D Sierpinski Gasket, with relevant comments. (12 Marks)
- 3 a. Differentiate event mode with request mode. (04 Marks)
b. Describe logical input operation of picking in selection mode. (06 Marks)
c. Write an open GL program to draw a rectangle and move the rectangle to the need position centered at mouse cursor. (10 Marks)
- 4 a. List the geometric objects and associated operations in affine space. (06 Marks)
b. Explain the procedure involved in transforming the world frame to camera / eye frame, with an example. (08 Marks)
c. How is the affine transformation advantageous in open GL? (06 Marks)

Part – B

- 5 a. What is a homogeneous co-ordinate system? Using this co-ordinate system, represent all the basic 2D transformations. (12 Marks)
b. Write an open GL program to rotate a cube about x, y and z axes. Use mouse buttons to select axis of rotation. Use glRotatef() function. (08 Marks)
- 6 a. Derive the projection matrices for perspective viewing. (12 Marks)
b. Explain gluLookAt function. (04 Marks)
c. Write a note on hidden surface removal. (04 Marks)
- 7 a. Give the different classification of light material interactions. How are these supported in open GL? (08 Marks)
b. Describe Phong Lighting Model. (12 Marks)
- 8 a. Write Liang Barsky line clipping algorithm. (10 Marks)
b. Explain Bresenham's line rasterization algorithm. (10 Marks)

Important Note: 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written elsewhere, will be treated as malpractice.