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7E4241

B.Tech. (Sem. VII) (Main) Examination, Nov-Dec - 2011
Computer Science
7CS5 Computer Graphics & Multimedia Techniques

Time : 3 Hours

Total Marks : 80
Min. Passing Marks : 24

Attempt any five questions, selecting one question from each unit. All questions carry equal marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.)

UNIT - I

1. (a) What is the scan conversion. Explain Rastar scan system with the help of block diagram. (8)

   (b) In a Raster system with resolution 2560 × 2048. How many pixels could be accessed per second by a display controller that refresh that screen at a rate of 60 frames per second. Also calculate access time per pixel in the system. (8)

OR

1. (a) Explain Bresenham's line drawing algorithm. Also write it's procedure in any programming language. (8)

   (b) Explain basic principle to draw a circle. Also explain mid-point circle algorithm. (8)

UNIT - II

2. (a) What is the need of transformation between coordinate systems. Explain with example. (8)

   (b) Drive a formula to rotate a point by $\theta°$. (8)

OR

2. (a) Explain Cohen – Sutherland clipping algorithm with region code details. (8)

   (b) Generate transformation matrix for all possible 2D reflections. (8)

UNIT - III

3. Implement depth buffer algorithm to display visible surfaces of a given polyhedron.

Is there any relation in definition of the object and storage requirements of the depth buffer? Explain. (16)

OR

3. Write a procedure to display 2D, cubic Bezier curves given a set of 4 control points in XY plane. (16)

UNIT - IV

4. Write a routine to convert RGB color model to HSV color model. (16)

OR

4. Explain phong and fast fast phong shading using a suitable object. (16)

UNIT - V

5. Write short notes on :
   (a) Difference between SCSI and IDE.
   (b) Authoring tools. (8×2)

OR

5. Write short notes on :
   (a) MPEG file format
   (b) Animation techniques. (8×2)