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COMPUTER GRAPHICS AND ANIMATION

CSE-403

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Bring out the anatomy of an LCD display device and compare it with CRT display.

   (b) Describe the procedure used for filling a polygon when Boundary fill algorithm is used.

2. What is the role of a decision parameter in Bresenham's circle drawing algorithm ? Explain the process of computing increments for Bresenham's circle drawing algorithm. Obtain the points on a circle with centre (4, 6) and radius 5 using Bresenham's circle drawing algorithm.

Unit II

3. Describe the 2-D viewing transformations that maps a window defined in world co-ordinates onto a normalized view port. Also describe, how a line defined in a viewport can be translated, scaled and rotated ?

4. Scale a rectangle with vertices A(6, 6), B(12, 6), C(6, 10) and C(12, 10) to twice its size keeping point (6, 6) fixed.

Unit III

5. What is the role of parameter in clipping lines using Liang-Barsky line clipping algorithm ? Describe the algorithm in detail and use the algorithm to clip a line with end points (6, 7) and (8, 10) against a viewport with diagonal vertices at (2, 3) and (10, 9).

6. Distinguish between Parallel projection and Perspective projection and describe, how points defined in eye co-ordinate system can be mapped onto screen co-ordinate system using these projections ?

Unit IV

7. What is the parametric representation of cubic curves ? How are Bezier curves drawn using parametric representation ? Are Bezier curves based on interpolation or approximation ?

8. Bring out a comparison between Depth buffer and area subdivision hidden surface algorithms.