

Code No: P0501/R05

Set No. 3

**III B.Tech II Semester Supplementary Examinations, Nov/Dec 2009
COMPUTER GRAPHICS
(Computer Science & Engineering)**

Time: 3 hours

Max Marks: 80

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

1. List the operating characteristics of
 - (a) Raster refresh systems
 - (b) Vector refresh systems
 - (c) Plasma panel
 - (d) LCDs. [4×4=16]

2. (a) Write the modified version of boundary-fill algorithm for a 4-connected region to avoid excessive stacking by incorporating scan-line methods.
(b) Devise a parallel method for implementing line-type function. [8+8]

3. (a) Perform a 45° rotation of a triangle A(0,0), B(1,1) and C(5,2) about P(-1,-1).
(b) Magnify the triangle with vertices A(0,0), B(1,1) and C(5,2) to thrice its size while keeping B(1,1) fixed. [8+8]

4. (a) List the algorithms which are suitable for line clipping when the clipping polygon is non-rectangular window.
(b) Explain about the following categories of lines with respect to rectangular clipping window. [8+8]
 - i. Completely visible
 - ii. Clipping-candidate
 - iii. Completely invisible.

5. (a) Determine the blending functions for uniform periodic B-spline curve for $d=6$.
(b) Write the equation for the basic illumination model using a single point light source and constant surface shading for the faces of a specified polyhedron. [8+8]

6. Given a unit cube with one corner at (0, 0, 0) and the opposite corner at (1, 1, 1), derive the transformations necessary to rotate the cube by θ degrees about the main diagonal (from (0, 0, 0) to (1, 1, 1) in the counter clock-wise direction when looking along the diagonal toward the origin. [16]

7. (a) Explain the depth-buffer method to display the visible surfaces of a given polyhedron.
(b) How can the storage requirements for the depth buffer be determined from the definition of the objects to be displayed? [8+8]

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8. (a) List and explain about the steps of animation.
(b) What are the various types of interpolation used in animation. [8+8]

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