

Roll No.

2219

B. E. 5th Semester (I. T.)

Examination – December, 2011

COMPUTER GRAPHICS

Paper : CSE-303-E

Time : Three hours]

[Maximum Marks : 100

Before answering the question, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt any *five* questions.

1. (a) Explain construction and working of the Direct View Storage Tube (DVST) with suitable diagram.
(b) Explain the functioning of Liquid crystal display.
2. (a) Implement the DDA algorithm to draw a line from (0, 0) to (6, 6).
(b) What is meant by antialiasing ? Explain various methods used to develop antialiasing sentives.
(c) Explain the frame buffer.

3. (a) Write down the transformation matrix for rotation by $\pi/2$ counterclockwise about a point $P(1, 1)$.
- (b) Prove that two 2D rotations about the origin commute i.e. $R_1 R_2 = R_2 R_1$.
4. (a) Draw the flowchart illustrating the logic of Sutherland-Hodgeman algorithm.
- (b) Find a normalization transformation from the window whose lower left corner is at $(0, 0)$ and upper right corner at (m, n) onto the normalized device screen so that aspect ratio remains same.
5. (a) Find the transformation which aligns the vector $V = i + j + k$ with the vector $N = 2i - j - k$.
- (b) Explain the difference between parallel and perspective projection.
6. (a) Explain depth buffer method for hidden surface detection.
- (b) Explain painter's algorithm.
7. (a) List the properties of Bezier curves.
- (b) Calculate the blending functions for periodic B-spline curves for $P = 4$.
8. Write short notes on :
- (a) Shading models;
- (b) Geometric transformation of images.