

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.  $R_1R_2 = R_2R_1$ .
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.