

IV B.Tech I Semester Supplementary Examinations, April/May 2005
COMPUTER GRAPHICS
(Common to Mechanical Engineering, Mechatronics and Production Engineering)

Time: 3 hours**Max Marks: 70**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain the concepts of aliasing and antialiasing. How can the effects of aliasing be minimized?
(b) Write short notes on frame buffer.
2. (a) Explain the role of display interpreter in graphical display, with a block diagram.
(b) What is meant by normalized device co-ordinate system? What are its advantages?
3. Give the homogeneous co-ordinate transformation matrices for the following transformations:
 - (a) Entire picture three times as large
 - (b) Counter clock-wise rotation about the origin, by 90 degrees.
4. Find the normalization transformation that maps a window whose lower left corner is at (1,1) and upper right corner is at (3,5) onto (a) a view port that is the entire normalized device screen and (b) a view port that has the lower left corner at (0,0) and upper right corner at (1/2,1/2).
5. Explain the Cohen-Sutherland algorithm for finding the category of a line segment. Show clearly how each category is handled by the algorithm.
6. (a) Write about 3D viewing transformations.
(b) Write the 3D homogeneous transformation matrix for each of the following transformation
 - i. shift 0.5 in X , 2.0 in Y and -0.2 in Z
 - ii. Rotate by $\pi/4$ about X axis
7. Explain the following:
 - (a) Painter's algorithm
 - (b) Warnock's algorithm.
8. (a) What are the advantages of B-splines over Bezier Curves?
(b) Differentiate between interpolation and approximation in spline representations.

(c) Give the applications of raster scan graphics.
