

III B.Tech I Semester Regular Examinations, November/December 2005
COMPUTER GRAPHICS
(Mechatronics)

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What is the difference between simple DDA and Bresenham's line generation algorithm?
(b) Explain how dotted lines can be drawn.
(c) What is the method of producing a thick line segment? [4+4+8]
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 advantage? [6+10]
3. (a) Derive the transformation matrix that rotates an object point ' θ ' degrees about the origin. Represent the output in the matrix form.
(b) Find the new co-ordinates of the point p(2, -4), after rotating 30 degrees anti-clock-wise, about the origin. [10+6]
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). [16]
5. Explain the logic of the Sutherland-Hodgman algorithm with the help of a neat flowchart. Illustrate the working of your flowchart with the help of a suitable example. [16]
6. Derive transformation matrix for rotation about an arbitrary axis [16]
7. Write about the following:
 - (a) 3D clipping
 - (b) Shading algorithms [8+8]
8. Describe Bezier surface generation technique with examples. [16]
