

**III B.Tech I Semester Supplementary Examinations, May 2005**  
**COMPUTER GRAPHICS**  
**(Electronics & Computer Engineering)**

**Time: 3 hours**

**Max Marks: 80**

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

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1. (a) Apply the Bresenham's algorithm to turn up pixels along the line segment determined by points (5,7) and (12,11).  
(b) Give parametric equation of a line between points (1, 1, 2) and (14,14,10).
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?
3. Prove that the 2D rotation and scaling is commute if  $S_X = S_Y$ .
4. (a) What is the utility of segments? Explain the use of segment table for organizing information about the segments.  
(b) What are the various data structures that are used for storing segments? Comment on their relative merits and demerits.
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.
6. Derive transformation matrix for rotation about an arbitrary axis
7. Write an 3D clipping algorithms for Parallel and Perspective projections.
8. Write about the following:
  - (a) Generation of curves and surfaces.
  - (b) Sweeping method of interpolation.

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