

B.Tech. Degree VI Semester Examination June 2005

CS 603 COMPUTER GRAPHICS (2002 Admissions)

Time: 3 Hours

Maximum Marks: 100

- I a) Differentiate between Raster scan and Random scan display systems. (10)
b) Explain any four logical input devices. (10)
OR
- II a) Explain Bresenham's circle drawing algorithm. (10)
b) Explain scan line algorithm for filling a polygon. (10)
- III a) Explain Cohen-Sutherland algorithm for clipping a line against a regular window. (10)
b) Give homogeneous co-ordinate transformation matrices for the following:
i) Shifting the image to the right by 3 units and up by 5 units
ii) Rotation by 45° counter clockwise
iii) Rotation by 90° clockwise
iv) Scaling the image in the x-direction to be twice and in the y-direction to be one half (10)
OR
- IV a) Explain window-to-viewport co-ordinate transformations. (10)
b) Given a triangle A(0,0), B(1,1) and C(6,2). Write down the transformation matrix to magnify the triangle to twice its size keeping C(6,2) fixed. (10)
- V a) Explain Bezier curves and B-Spline curves. (10)
b) What is a Hermite polynomial? Explain its use. (10)
OR
- VI Briefly explain 3-D clipping and its hardware implementation. (20)
- VII a) Explain BSP trees and Octree methods for hidden surface removal. (10)
b) Differentiate between object space and image space algorithm. (10)
OR
- VIII a) Explain scan line method for hidden surface removal. (10)
b) Explain Z-buffer and area subdivision method for removing hidden surfaces. (10)
- IX a) Explain Phong and Gourad shading models. (10)
b) Discuss about RGB and CMY colour models. (10)
OR
- X Explain ray tracing algorithm for surface rendering. (20)

