B.Tech

(SEM V) ODD SEMESTER THEORY EXAMINATION 2009-10
COMPUTER GRAPHICS

Time : 3 Hours]　　　　　　　　　　　　　　　*[Total Marks : 100*

Note :　　*Attempt all questions.*

1　Answer any **four** questions :　　　　　　　　5×4=20

　(a)　Write a general function for Rasterization.

　(b)　Explain the role of pixel and frame buffer in graphics devices.

　(c)　How much time is spent scanning across each row of pixels during screen refresh on a raster system with resolution of 1280 × 1024 and a refresh rate of 60 frames per second ?

　(d)　Consider two raster systems with resolutions of 640 × 480 and 1280 × 1024. How many pixels could be accessed per second in each of these systems by a display controller that refreshes the screen at a rate of 60 frames per second ?

　(e)　Explain how to display file structure and control test.

　(f)　Compare the computation done in Digital Differential Analyzer (DDA) algorithm with Bresenham's line drawing algorithm.

2 Answer any **four** questions : 5×4=20

(a) What is a segment and segment table ? Write the utility of segment.

(b) Write a procedure for creating, deleting and renaming segments.

(c) Explain visibility in detail.

(d) Write a boundary fill procedure to fill an 8-connected region.

(e) Explain scan fill algorithm with the help of suitable example.

(f) Explain different procedures for image transformation.

3 Attempt any **two** questions : 10×2=20

(a) Write a procedure for rotation and translation transformation. Derive reflection metrics for reflection about the X axis.

(b) Write and compare Cohen-Sutherland line clipping, Liang-Barsky line clipping and Nicholl-Lee-Nicholl line clipping.

(c) What is window-to-view point coordinate transformation ? What are issues related to multiple windowing ?

4 Attempt any **two** questions : 10×2=20

(a) Explain parallel projection, perspective projection and depth curing projection for 3-D display methods.

(b) Explain event handling with the help of example.

(c) What is echoing and its use ? Write different interactive techniques in computer graphics.

5 Answer any **two** questions : 10×2=20

(a) Make a comparison of Bezier, Hermite and B-spline algorithms for curve generation.

(b) List the advantages and disadvantages of Back-face detection, Dept-Buffer method and A Buffer method.

(c) Explain in detail different illumination methods and different Randering methods.