Code No.6117

# FACULTY OF SCIENCE

M.Sc. (Computer Science) Semester Examination

November/ December – 2005

## SUBJECT : COMPUTER GRAPHICS

**Paper – 1.5**

Time : 3 hours] [Max. Marks : 100

Answer *all* questions from Section A and Section B.
Each question carries 5 marks in Section A and 15 marks in Section B.

SECTION – A (8 × 5 = 40 Marks)

(SHORT ANSWER TYPE)

1. Explain Raster Scan displays and Random scan displays and outline major differences.
2. Explain about Video-Controller refresh operations.
3. Write about line attributes.
4. Write transformation matrices in 2-D for X-shem, and Y-shem with respect to origin.
5. Derive viewing transformation relations.
6. Define world coordinates, screen coordinates and normalized device coordinates.
7. Write about Cubic Bezier Curves.
8. Write notes on back-face detection.

SECTION-B (4×15=60 marks)

(ESSAY ANSWER TYPE)

9. (a) Write Bresenham's line drawing algorithm.

OR

(b) (i) Write mid-point algorithm for circle.

(ii) Write about flood-fill method.

10. (a) (i) Derive homogeneous matrices for 2-D transformation of 2-D object.

(ii) Derive transformation matrix in 2-D for rotation about an arbitrary point.

OR

(b) (i) Derive transformation matrix in 2-D for reflection about the line $y = -x$.

(ii) Explain about 3-D projections on 2-D screens and derive the matrix for perspective projection.

11. (a) Explain Cohen-Suther land line clipping method.

OR

(b) Explain Nicholl-lee-Nicholl line clipping method.

12. (a) (i) Explain about parallel and perspective projections.

(ii) Derive transformation matrix for perspective projection.

OR

(b) (i) Explain the method of obtaining transformation matrix for rotation about an arbitrary axis in 3-D.

(ii) Write notes on Z-buffer method.

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