MCA/M-16
COMPUTER GRAPHICS
PAPER- MCA-14-44

**Compulsory Question**

1. Answer the following questions in brief :
    (a) Name and two popular graphics software along with the type of applications they are used for.
    (b) Why is a display processor used in graphics?
    (c) What is the purpose of decision parameter in Bresenhams line drawing algorithm?
    (d) Write the equation for drawing Bezier curves.
    (e) Illustrate composite transformation using a suitable example.
    (f) What is Dragging?
    (g) How are screen coordinates obtained in oblique parallel projection?
    (h) How is Morphing done between two objects?

## UNIT-I

2. Describe the purpose of the following in an interactive graphics system;
    (a) Coordinate systems.
    (b) Mouse and image scanner.

3. Describe the following classifications and categorize CRT, Plasma panel, and LCD as per following with justification:
    (a) Raster scan or random scan.
    (b) Emissive or non-emissive.
    (c) Refresh or non-refresh.

## UNIT-II

4. Distinguish between Symmetrical DDA and Simple DDA line drawing algorithms. Derive the points on a line with endpoints (3, 4) and (10,7) using both the algorithms.

5. (a) Can a circle be drawn using Cartesian coordinates? Justify.
    (b) What procedure is adopted for filling a polygon using scan-line fill algorithm?

## UNIT-III

6. Transform a box defined with vertices A(3,3), B(7.3), C(7,7) and D(3,7) to two times its size and placed at location such that the center of the square moves to (0,0). What will be the effect of shearing the original box with x-shear factor as 2?

7.　　(a)　Find the position of a point P (6, 2) defined in circular window of radius 8 units and center (1, 1) transformed into a normalized viewport.

　　　(b)　Bring out a distinction between Sutherland-Hodgman and Weiler-Atherton polygon clipping algorithms.

## UNIT-IV

8. Derive the information required to model a 3-D cube having the origin of the coordinate system placed at its center and each vertex of the cube at a distance of 2 units from the center. What is the significance of specifying plane equations of the faces of an object in modeling?

9. Describe the role of the following:
　　　(a)　Tweening in Animation.
　　　(b)　Interpolation in shading.