10547

MCA/D-15

COMPUTER GRAPHICS

PAPER-MCA-501

Time Allowed: 3 Hours Maximum Marks: 80

Note: Attempt Five questions in all, selecting at least one question from each Unit. Question No. 1 is compulsory. All questions carry equal marks.

Compulsory Question

1. Answer the following in brief :
   (a) Which printer in your opinion will be most suitable for obtaining graphics output?
   (b) In what way does aspect ratio characterize display devices?
   (c) How is a frame buffer loaded?
   (d) Write down the equations used for drawing Bezier curves.
   (e) Distinguish between Zooming and Panning.
   (f) Describe how interpolations in used in Gouraud shading.
   (g) What is the role of a stack in stack based seed fill algorithm.
   (h) What is Morphing?

UNIT-I

2. What are the components of Raster Graphics system? Describe the various input devices which you can make use of for pointing purposes.

3. How are the terms resolution and persistence related to display devices? Describe the following in the context of display devices :
   (a) Shadow mask CRT
   (b) Non-emissive display devices.

UNIT-II

4. Describe the various coordinate system used in graphics and describe where each of these is mot suitable to be used.

5. Explain the steps that are required to scan-convert a circle using Bresenham's algorithm. Obtain the points on a circle with centre (2,,2) and radius 4 using this algorithm.

UNIT-III

6. Transform a square defined with vertices A (2,2), B(6,2), C(6,6) and D(2,6) to half its size and placed at location such that centre of the square moves to (0,0).

7. Compare mid-point subdivision line clipping algorithm with Cohen-Sutherland line clipping algorithm.

UNIT-IV

8. (a) Give a distinction between orthographic and oblique parallel projections.
   (b) What is the underlying concept of depth sort algorithm?

9. Consider a 3-D object of your choice and describe how it will be modeled for a graphics application. Describe the significance of including plane equations in the model.