

COMPUTER GRAPHICS

Paper-PE-CS-A404A

Time Allowed : 3 Hours]

[Maximum Marks : 75

Note : Attempt **five** questions in all, selecting at least **one** question from each Unit. All questions carry equal marks.

UNIT-I

- (a) Write and explain the midpoint circle drawing algorithm with the help of suitable example. 8
- (b) Write an algorithm for Bresenham's line generation which will work for all slopes. 7
- (a) Write the advantages and disadvantages of Floodfill and Boundaryfill algorithms. 8
- (b) Explain in detail the Scan Line Algorithm for Area filling of Polygonal areas. 7

UNIT-II

- (a) Why are Matrices used for implementing transformations ? What are Homogeneous coordinates ? What is the significance of this Co-ordinate system ? 10
- (b) Differentiate between Viewport and Window. 5

4. (a) Write a short note on viewing pipeline with respect to Three-dimensional viewing. 5
- (b) Show how Shear transformation may be expressed in terms of Rotation and Scaling. 10

UNIT-III

5. (a) What do you understand by Clipping ? Discuss text Clipping. 5
- (b) Suggest modification to Sutherland-Hodgeman Polygon clipping algorithm to clip concave. 10
6. Explain the concept of Parallel Projections in three-dimensional viewing. Also find the transformation matrix for providing any parallel projection on to the x,y plane. 15

UNIT-IV

7. What do you understand by Hidden surface Elimination ? Explain the depth buffer algorithm for hidden surface elimination. Also discuss the limitation of depth buffer algorithm. 15
8. (a) Explain the procedure for creating a Beizer curve. Also explain the properties of Beizer curve. 8
- (b) What is difference between Interpolation and approximation splines ? Explain. 7