

QP Code : 12589

(3 Hours)

[Total Marks : 80]

- N.B. :** (1) Questions 1 is **compulsory**.
 (2) Solve any three of the remaining
 (3) Assume suitable data if necessary

1. (a) Explain 8 connected flood fill algorithm in detail. 5
 (b) Differentiate between random scan and raster Scan techniques. 5
 (c) Explain Liang Barsky line clipping algorithm in detail. 10
2. (a) Derive Bresenham's line drawing algorithm for lines with slope <1 10
 (b) Explain parallel and perspective projections. Also derive the matrix for perspective projection. 10
3. (a) Derive the matrix for 2 D rotation about an arbitrary point. 10
 (b) Explain Gouraud and Phong shading techniques with their advantages and disadvantages. 10
4. (a) Explain midpoint circle algorithm. Use the same to plot the circle, whose radius is 10 units. 10
 (b) Explain any one polygon clipping method in detail. 10
5. (a) Define window, view port and hence derive window to view port transformation. 10
 (b) Explain what is meant by Bezier curve. State its properties and hence explain how a Bezier surface can be generated from Bazier curve. 10
6. Write short notes on **any two** following :- 20
 - (i) Half toning and dithering techniques
 - (ii) Open GL basic primitives
 - (iii) Sweep representation