

[3 Hours]

[Total Marks: 80]

Please check whether you have got the right question paper.

- N.B: (1) Question No.1 is compulsory
 (2) Attempt any three of remaining five questions
 (3) Assume any suitable data if necessary and justify the same



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|-----|----|---|----|
| Q 1 | a) | What is aliasing and antialiasing? | 5 |
| | b) | Write the flood fill approach for 8 connected method. | 5 |
| | c) | Explain the concept of halftoning with example. | 5 |
| | d) | Prove that two successive rotations are additive | 5 |
| Q 2 | a) | Plot the points for midpoint ellipse with $r_x=3$ and $r_y=5$ for region 1. | 10 |
| | b) | Explain the steps for 2D rotation about arbitrary point. | 10 |
| Q 3 | a) | Explain Liang Barsky line clipping algorithm. Apply the algorithm to the line with coordinates (30,60) and (60,25) against the window $(x_{min}, y_{min})=(10,10)$ and $(x_{max}, y_{max})=(50,50)$. | 10 |
| | b) | Explain Weiler Artherton polygon clipping algorithm with suitable example. | 10 |
| Q 4 | a) | What is window and viewport? Derive the matrix for viewport transformation. | 10 |
| | b) | Explain what is meant by Bezier curve? State the various properties of Bezier curve. | 10 |
| Q 5 | a) | What is meant by parallel and perspective projection? Derive matrix for perspective projection. | 10 |
| | b) | Explain Z Buffer algorithm for hidden surface removal. | 10 |
| Q 6 | | Write short notes on(any two) | |
| | a) | Koch curve | |
| | b) | Sweep representation | 20 |
| | c) | Gouraud and phong shading | |
| | d) | Inside Outside test | |