

[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

- 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) 20
 a) Koch curve
 b) Sweep representation
 c) Gouraud and phong shading
 d) Inside Outside test