

(3 Hours)

[Total Marks : 80]

- N.B.**
- 1) Questions No. 1 is compulsory.
 - 2) Solve any three questions out of remaining questions.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever necessary.

1. **Write short notes on the following:** 20
 - a) Types of geometric modeling
 - b) Anti aliasing
 - c) Effects of Scan conversion
 - d) features and applications of analysis software
2.
 - a) Use Bresenham's algorithm to scan convert a line from (3,3) to (8,7). 10
 - b) Explain the polygon fill using boundary fill algorithm. 10
3. Find a transformation matrix which aligns the vector $V=3I+2J+K$ with the vector $M=3I+J+K$. 20
4.
 - a) Explain in detail Cohen-Sutherland Line clipping algorithm. 10
 - b) Explain Z-Buffer algorithm for hidden surface removal. 10
5.
 - a) Construct a Bezier curve of order 3 and four polygon vertices A(1,2), B(4,5), C(7,9) and D(9,3). 10
 - b) Explain in detail about the data exchange formats. 10
6. **Write short notes on the following:** 20
 - (i) Shading models
 - (ii) Animation
 - (iii) Window and viewport transformation
 - (iv) Projections.