

[Time: Three Hours]

[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) Define the following terms: Resolution, Aspect Ratio, Phosphorescence and Fluorescence. 05  
b) What is the purpose of Inside-Outside Test, explain any one method. 05  
c) Draw the diagram of CRT and explain its working. 05  
d) What do you understand by Control points, Degree of Continuity, Local and Global control w.r.t. Curve Generation? 05
- Q 2 a) Explain DDA Line drawing algorithm and Plot the points for line AB (A (10, 15) B (5,25) using it. 10  
b) Explain Area subdivision algorithm for hidden surface removal. 10
- Q 3 a) What is aliasing, how it affects the appearance of an object. Explain any two Anti-aliasing methods. 10  
b) Explain Liang Barsky line clipping algorithm, what is its benefit over Cohen Sutherland algorithm? Clip the line with co-ordinates (5, 10) and (35, 30) against the window  $(x_{min}, y_{min}) = (10, 10)$  and  $(x_{max}, y_{max}) = (20, 20)$ . 10
- Q 4 a) What is shading? Explain Gouraud and Phong Shading with their pros and cons. 10  
b) Explain what is meant by B Spline curve? State the various properties of B Spline curve. 10
- Q 5 a) Explain Scan line polygon fill algorithm with the help of suitable diagrams. 10  
b) Explain the steps for 2D reflection w.r.t. line  $y=mx$  and also derive a composite transformation Matrix. 10
- Q 6 Write short notes on (any two) 20  
a) Fractals  
b) Sweep Representation and CSG Method  
c) Bezier curve and the properties  
d) Halftone and Dithering