

Duration: 3 Hours

Total Marks assigned: 80

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.

1. (a) What is antialiasing? Explain any one method of antialiasing. [05]
(b) Define shearing and give example. [05]
(c) Derive the transformation matrix for fixed point scaling. [05]
(d) Explain inside outside test used in filling algorithm. [05]
2. (a) Explain the midpoint circle generation algorithm. [10]
(b) Discuss all the steps used in reflection of an object about an arbitrary line with an example. [10]
3. (a) Explain the Cohen-Sutherland line clipping algorithm with suitable example. [10]
(b) Explain any one polygon clipping algorithm. [10]
4. (a) Define window, viewport and derive window to viewport transformation. [10]
(b) Discuss parallel and perspective projections. [10]
5. (a) Discuss Bezier curve with its properties. [10]
(b) Explain Gouraud and Phong shading along with their advantages and disadvantages. [10]
6. Write a short note on any **two** of the following [20]
 - (a) 3-D representation methods.
 - (b) Area Subdivision method
 - (c) Fractals.

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