

Duration: 3 Hours

Total Marks 80

N.B: 1) Question **number 1** is compulsory.

2) Attempt **any three** out of the remaining.

3) Assume suitable data if **necessary** and justify the assumptions.

4) Figures to the **right** indicate full marks.

Q.1 Attempt **any four**

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- i. Give applications of Computer Graphics.
- ii. What is an antialiasing? Explain any 3 antialiasing techniques.
- iii. Compare DDA and BRESENHAM line drawing algorithm.
- iv. Explain Viewing transformation pipeline.
- v. Give fractal dimension of Koch curve.

Q.2

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- a. Given a line AB where A(0,0) and B(1,3) find out all the coordinates of line AB using DDA algorithm.
- b. Describe different traditional animation techniques.

Q.3

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- a. Describe homogeneous coordinates.
- b. Describe with neat diagram Boundary Fill and Flood fill algorithm.

Q.4

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- a. Derive window to viewport coordinate transformation.
- b. Derive matrix for 2D rotation at any arbitrary (fix) point.

Q.5

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- a. Give properties of Bezier curve.
- b. Describe with neat diagram Sutherland Hodgman polygon clipping algorithm.

Q.6

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- a. Describe with neat diagram Depth Buffer algorithm.
- b. What is projection? Explain with neat diagram different perspective projections.