| Duration: 3 Hours   | Total Marks 80                    |
|---|-----------------------------------|
| <b>N.B:</b> 1) Question <b>number 1</b> is compulsory.  |                                   |
| 2) Attempt <b>any three</b> out of the remaining.   | 38 <sup>7</sup> (5 <sup>5</sup> ) |
| 3) Assume suitable data if <b>necessary</b> and justify the assumptions.  |                                   |
| 4) Figures to the <b>right</b> indicate full marks.   |                                   |
| Q.1 Attempt any four  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.         | 20                                |
| Q.2   | 20                                |
| <ul> <li>a. Given a line AB where A(0,0) and B(1,3) find out all the coordinates of AB using DDA algorithm.</li> <li>b. Describe different traditional animation techniques.</li> </ul>   | line                              |
| Q.3  Describe homeocomeous condinates   | 20                                |
| <ul> <li>a. Describe homogeneous coordinates.</li> <li>b. Describe with neat diagram Boundary Fill and Flood fill algorithm.</li> <li>Q.4</li> <li>a. Derive window to viewport coordinate transformation.</li> <li>b. Derive matrix for 2D rotation at any arbitrary (fix) point.</li> </ul> | 20                                |
|   | *                                 |
| Q.5 a. Give properties of Bezier curve.   | 20                                |
| b. Describe with neat diagram Sutherland Hodgman polygon clipping algorithm.  |                                   |
| Q.6   | 20                                |
| <ul> <li>a. Describe with neat diagram Depth Buffer algorithm.</li> <li>b. What is projection? Explain with neat diagram different perspective projections.</li> </ul>  |                                   |