Sl. No.

B2.4-R5 : COMPUTER GRAPHICS AND MULTIMEDIA SYSTEMS

NOTE :
1. **Answer question 1 and any FOUR from questions 2 to 7.**
2. **Parts of the same question should be answered together and in the same sequence.**

Total Time : 3 Hours   **Total Marks : 100**

1. (a) What are the disadvantages of DDA algorithm ?
    (b) Distinguish between window port and view port.
    (c) Define Pixel and frame buffer.
    (d) Differentiate bitmap with pixmap.
    (e) List the types of polygon and various polygon filling algorithms.
    (f) Define aspect ratio.
    (g) What is the degree of curve in Hermite spline curve ?   **(7x4)**

2. (a) Explain and write steps for DDA line drawing algorithm.
    (b) List out basic transformation techniques. Explain scaling transformation with respect to 2D.   **(9+9)**

3. (a) Compare Bitmap Graphics and Vector Based Graphics.
    (b) List and explain the desirable features in multimedia systems.
    (c) Explain scan line algorithm of polygon clipping.   **(6+6+6)**

4. (a) An image of size (640 × 480) pixels, how many KB are required to store this image in two cases : 1 - Binary image 2 - Grayscale image ?
    (b) Explain boundary fill algorithm with pseudo code. Also mention its limitations if any.
    (c) Compare vector scan display and raster scan display (write any 4 points).   **(6+7+5)**

5. (a) Use Bresenham's line drawing algorithm to rasterize line from (6, 5) to (15, 10).
    (b) Explain computer animation in detail.   **(9+9)**

6. (a) Write procedure to fill polygon with flood fill.
    (b) List the components of multimedia system.
    (c) Write 2D and 3D scaling matrix.   **(7+5+6)**

7. (a) What are basic illumination models ?
    (b) Explain curve generation using Interpolation technique.
    (c) Explain midpoint subdivision line clipping algorithm.   **(6+6+6)**

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