Q. P. Code : 34876

[Time: 3 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** from **2 to 6** from remaining **five** Questions.

1. Attempt **Any Four** **20**
 (a) Explain DDA line drawing algorithm in detail with an example.
 (b) Give a 3 * 3 homogeneous Co-ordinate transformations matrix for each of the following translations:
  A. Shift the image to the right 3-units.
  B. Shift the image up 2 units.
  C. Move the image down 14 unit and right 1 unit.
  D. Move the image down 2/3 unit and left 4 units.

2. (a) Explain boundary fill algorithm to fill closed regions, list it's advantages and disadvantages. **10**
 (b) Discuss the types of projection in computer graphics. **10**

3. (a) What are the Fractals? How to determine the fractals dimensions and write the fractal generation procedure for Koch curve. **10**
 (b) Derive bresenham's line drawing algorithm to rasterize a line A=(5,5) to B=(9,14). **10**

4. (a) Consider the clipping window and the lines shown in following figure. Find the region codes for each end point and identify whether the line is completely visible, partially visible or completely invisible. **10**
 10
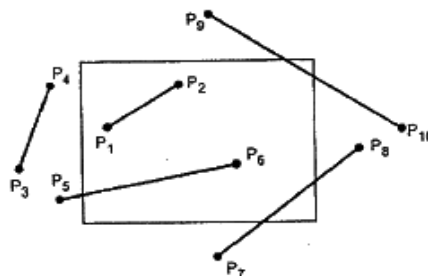
 (b) Explain Weiler-Atherton Algorithm.

5. (a) Find the normalization transformation window to viewpoint, with window, lower left comer at 10 (1,1) upper right comer at (3,5) onto a viewpoint with lower left comer at (0,0) and upper right comer at (1/2,1/2). **10**
 (b) What is computer Graphics? Explain Elements of computer graphics. **10**

6. Write a short note on (**ANY FOUR**) **20**
  (i) Inside-outside tests (ii) Shearing transformation
  (iii) B-Rep (iv) CSG
  (v) Sirpenski Triangle

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