Computer Graphics
(New) (1040)

P. Pages : 2

Time : Three Hours   Max. Marks : 100

Instructions to Candidates :
1. Do not write anything on question paper except Seat No.
2. Answersheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Attempt **any two** questions from each unit.
5. Draw neat diagrams wherever necessary.
6. Figures to the right indicate full marks.
7. Assume suitable data if necessary.

UNIT - I

1. a) What are various methods of for circle generation ? Write and explain Bresenham's circle generation Algorithm.   **10**

   b) Write and explain DDA algorithm for line generation with its advantages and disadvantages.   **10**

   c) Write short note on :   **10**

      i) Display File structure.

      ii) Thick line segment.

UNIT - II

2. a) What do you mean by polygon filling ? List different polygon filling techniques and explain seed fill algorithm in brief.   **10**

   b) Give the definition of segment. What are advantages of using segmentation ? Explain segment table with its data structure.   **10**

   c) List various scan conversion algorithms. Explain Run length encoding and cell encoding in detail.   **10**

UNIT - III

3. a) Define Homogenous co-ordinate system. What is its need ? Write 3D transformation matrices for transformation, scaling and rotation.   **10**

    b) What is projection ? List different types of projections and explain parallel projection with derivation.   **10**

    c) Solve following problems.   **10**

    i) Magnify the triangle with vertices A (0, 0), B (2, 2), C (6, 3) to thrice its size.

    ii) Show that scaling followed by rotation is equivalent to shearing.

UNIT - IV

4. a) What is clipping ? Explain cohen sutherland line clipping algorithm.   **10**

    b) What is the need of removal of hidden surfaces and lines list various algorithm for hidden surface removal. Discuss Painters algorithm in detail.   **10**

    c) Explain in brief clipping in 3D.   **10**

UNIT - V

5. a) Write and explain algorithm for Beizer curve generation.   **10**

    b) List and explain different types of color models.   **10**

    c) Write short note on :   **10**

    i) Graphics Application.

    ii) Hilbert's curve.

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