Roll No. 1609128

Printed Pages : 3

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Time allowed : 3 hours]   [Maximum marks : 100

Note : Attempt **five** questions, selecting at least **one** question from each unit.

Unit–I

1. (i)   Explain in detail the graphics system configuration, the combination of Hardware and Software essential for computer graphics.   10

    (ii) Write at least three interactive input methods and their modes of operation.   10

2. (a)   How can Bresenham's algorithm for line drawing be modified so that antialiasing effects are produced while generating a straight line.   10

    (b)   Write the advantages and disadvantages of floodfill and boundaryfill algorithms.   10

Unit–II
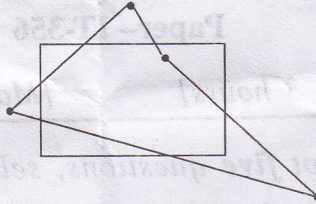
3. (a)   How are Trivial Accept and Trivial Reject carried out in Liang-Barsky algorithm.   15

    (b)   Differentiate between viewport and window.   5

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4. Write the algorithm and use it to clip the polygon using Sutherland-Hodgman algorithm, given below.

Write all the steps.

Unit–III

5. (a) What are the perspective anomalies which distort actual size and shapes ? 10

(b) Briefly explain all categories of parallel projections. 10

6. (a) Show that uniform scaling, that is same scaling factors taken along both directions and a rotation forms a commutative pair of operations. 10

(b) Find the transformation matrix which converts a square with a diagonal [(3,4), (8, 9)] to a unit square at origin. 10

Unit–IV

7. Write down the general characteristics of B-spline curves ? Briefly discuss open and closed B-spline curves.   20

8. Briefly discuss the following algorithms for hidden surface removal :   10+10

   (i)   Z-Buffer Algorithm

   (ii) Depth sorting or Painter's algorithm.