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(Printed Pages 4)

24272-C

B.C.A. (Fourth Semester) Examination, 2024

Paper : IV

(BCA-404)

(Computer Graphics and Animation)

Time : Three Hours] *[Maximum Marks : 70*

Note : Attempt Questions from **all** sections as per instructions.

Section-A

(Very Short Answer Type Questions)

Note : Attempt **all** parts of this question. Give answer of each part in about 50 words.

1.5×10=15

1. (i) What is Geometric Transformation?
   (ii) Define Computer Graphics.
   (iii) Define refresh buffer/frame buffer.

P.T.O.

(iv) Define aspect ratio.
(v) What is meant by antialiasing?
(vi) Define Scaling and what are the types of scaling.
(vii) What is Polygon clipping.
(viii) What is key frame?
(ix) What is pseudo animation?
(x) What is Koch Curve?

Section-B

(Short Answer Type Questions)

Note : Attempt **all** questions. Give answer of each question in about 200 words.

7×5=35

2. Differentiate between Vector scan display and Raster scan display.

OR

Explain with diagram raster scan display technique.

3. Consider the line from (0, 0) to (4, 6). Use DDA alogorithm to rasterize this line.

OR

Translate the polygon with co-ordinates A(2, 5), B(7, 10) and C(10, 2) by 3 units in x direction and 4 units in y direction.

4. A point (4, 3) is rotated counter clockwise by an angle of 450. Find the rotation matrix and the resultant point.

OR

Find a transformation of triangle A(1, 0), B(0, 1), C(1, 1) by:

(i) Rotating 45^0 about the origin and then translating one unit in x and y direction.

(ii) Translating one unit in x and y direction and then rotating 45^0 about the origin.

5. **Explain the functions** for segmenting the display.

OR

Explain in detail the Kuhn-Sutherland line clipping algorithm?

6. Explain the importance of Motion Specification.

OR

What is Morphing? Explain in detail about morphing with an example.

Section-C

(Long Answer Type Questions)

Note : Attempt any **two** questions. Give answer of each question in 500 words.

$10 \times 2 = 20$

7. Consider the line from (5, 5) to (13, 9). Use the Bresenham's algorithm to rasterize this line.

8. Write a program in C to fill polygon using Boundary fill algorithm.

9. Derive the expression for decision parameter used in Bresenham's Circle algorithm.

10. How is Viewport different from a window? Give an example?

11. Differentiate between DDA and Bresenham's line drawing algorithm.