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PGIIIS-N 1550 B-2K13

M.Sc. IIIrd Semester (CBCS) Degree Examination
Computer Science
(Computer Graphics)
Paper -SCT-3.1
(New)

Time : 3 Hours   Maximum Marks :80

Instructions: 1)   Q. No. 1 in Section A is Compulsory.

2)   Answer any **five** questions from Section **B**.

Section-A

1.   Answer the following: (10x2=20)

a)   What is Computer graphics?

b)   What is graphics software? What are its classifications?

c)   List out basic 3D transformations.

d)   Define composite transformations.

e)   List 2D primitives for filling rectangles.

f)   Define aspect ration.

g)   Define refresh buffer or frame buffer.

h)   What is visible surface detection?

i)   What is polygon clipping?

j)   Define SRGP.

Section-B

2.   a)   Explain Bresenham's line drawing algorithm with an example and write corresponding C program.   (6)

b)   What are the advantages of flat panel displays? Explain working of LCD display.   (6)

3   a)   Explain mid-point circle algorithm and trace the algorithm for the radius r=10 and central point (x,y)=(2,2).   (6)

b) Explain the ellipse clipping method with an example. (6)

4. a) Determine the transformation to shear the object square {(0,0), (10,0), (10,10), (0,10)} along:

    i) Y-direction with $Sh_y = 2$ related to $X_{ref} = 2$,

    ii) Both direction $Sh_x = 2$, $Sh_y = 3$. (6)

b) Define a Bezier curve. Write the properties of the Bezier curve. (6)

5. a) Derive the mathematical steps involved in generating the rotation matrix for rotating an object about any other pivot point (x,y). (6)

b) Explain window to view port mapping of 2-D objects. (6)

6. a) What is projection? Obtain mathematical description of perspective projection. Distinguish between persective and parallel projection. (6)

b) Explain basic three dimensional transformations with an example. (6)

7. a) Explain ray tracing method for visible surface detection. (6)

b) Explain procedure involved in viewing 3D objects in computer graphics. (6)

8. Write shorts on any **two** of the following: (6+6)

    a) Orthographic projection

    b) Illumination Models

    c) Quadratic surfaces

    d) Octrees and curved surfaces

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