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53 (IT 602) CGMD

2021

COMPUTER GRAPHICS AND MULTIMEDIA

Paper : IT 602

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer Question No. **1** *and* ***any four*** *from the rest.*

1. 2×10=20

(a) Define the Pixel.

(b) What is resolution ?

(c) What is straight line in Computer Graphics ?

(d) What is rigid body transformation ?

Contd.

(e) The image of the point (5, 0) with respect to the x-axis is ..... ? .

(f) What is symmetry ?

(g) The transformation of point P in P' *Fig.* 1 ..... ? .

(h) The transformation of point P in *Fig.* 2 ..... ? .

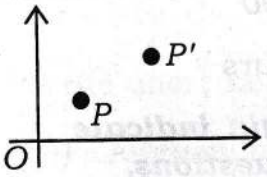

Fig. 1

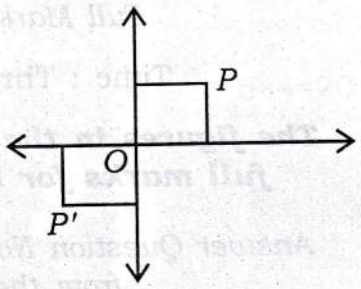

Fig. 2

(i) The three basic colour are ..... ? .

(j) In scaling operation it changes the size as well as ..... ? .

2. Describe the DDA line drawing algorithm. Using the algorithm, draw the line with end points (5, 2) and (13, 4). Write the advantages and disadvantages of the algorithm.

7+8+5=20

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3. What do you mean by rotation ? Why the rotation is important in computer graphics ? Derive the rotational matrix. Describe the rotation in 3-D. 5+5+5+5=20

4. Define composite transformation. *Fig.* 4 is the composite transformation of *Fig.* 3. Derive the composite transformation matrix of this transformation. 5+15=20

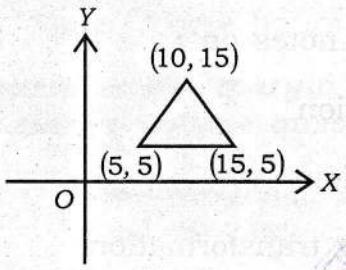

Fig. 3

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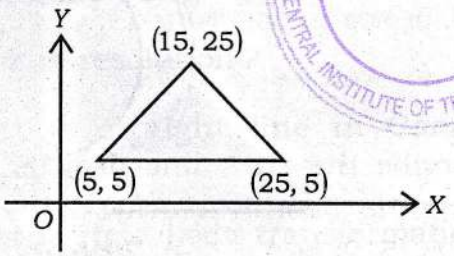

Fig. 4

5. Define the reflection. Find the reflection matrix with respect to the line $x - y = 0$. Hence find the reflection of the point (5, 3). Prove that reflection of reflection is the original. 5+10+5=20

6. Describe the Bézier curve and obtain the blending function with geometrical representation. Define the curvature continuity. 20

7. Write short notes on : 5×4=20

   (a) Animation

   (b) Projection

   (c) Viewing transformation

   (d) Boundary filling.

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