Total number of printed pages–4

53 (IT 602) CGRM

2019

COMPUTER GRAPHICS & MULTIMEDIA

Paper : IT 602

Full Marks : 100

Time : Three hours

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

*Answer **any five** questions.*

1. *(a)* Distinguish between Raster Scan Display and Random Scan Display. 5

   (b) Explain refresh Cathode Ray Tube with neat diagram. 10

   (c) Explain the functions of Computer Graphics. 5

Contd.

2. *(a)* Derive the steps in Midpoint circle algorithm. 10

(b) Calculate the pixel positions along a straight line AB having end points A (5,5) and B (13,9) using Bresenham's line drawing algorithm. 10

3. *(a)* Give the Matrix Representation for the following 3D transformations : 10

(i) Translation

(ii) Rotation

(iii) Scaling

(iv) Reflection.

(b) Translate an object ABC with $A(1,1)$, B (3,1) and $C(2,3)$ by 3 units along X axis and 4 units along Y axis. 5

(c) Scale the triangle ABC as $A(2,2)$ $B(4,2)$, $C(3,4)$ for given values of S_x and S_y–

(i) $S_x = 2$, $S_y = 2.5$

(ii) $S_x = S_y = 0.5$ 5

4. *(a)* Find the mirror reflection of triangle $P(10,50)$, $Q(40,80)$ and $R(10,80)$ about line $y = 2x + 4$. 10

(b) Scale an object $ABCD$ with respect to point A by scaling factors $S_x = 2$ and $S_y = 3$ as $A(2,1)$, $B(5,1)$, $C(5,3)$, $D(2,3)$. 5

(c) A rectangle $A(2,2)$, $B(5,2)$, $C(5,3)$ and $D(2,3)$ is rotated by 90° about origin in Anticlockwise direction. Find new co-ordinate of rectangle after rotation. 5

5. *(a)* What is animation ? Write a note on key frame animation. 10

(b) Develop the perspective transformation of an object onto xy plane with the center of projection at (100,100,–100). What will be the projection of line segment AB with $A(150,250,150)$ and $B(250,350,100)$? 10

6. Write short notes on : 10×2=20

(a) Hidden-surface removal

(b) MPEG standard.