53 (CS 604) CPGR

2017

COMPUTER GRAPHICS

Paper : CS 604

Full Marks : 100

Time : Three hours

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

*Answer **any five** questions.*

1. *(a)* Justify the statement "Resolution is inversely proportional to the pixel size".

   (b) What do you mean by computer animation ?

   (c) Define C^0, C^1 and C^2 continuity of a curve.

   (d) Describe the parallel and perspective projection.

5×4

2. *(a)* Write the DDA line drawing algorithm.

(b) Apply Bresenham line drawing algorithm. Calculate the pixels on the line AB where co-ordinate of A is (0,0) and B is (8,4) respectively.

(c) What is the generalised Bresenham algorithm ?

8+8+4

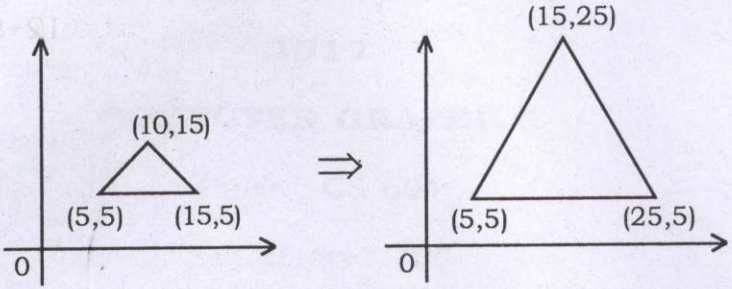
3. What is reflection ? Find the reflection matrix with respect to the line $y = x + 2$. Hence find the reflection of the point (5,5) with respect to that line. 4+12+4

4. *(a)* Describe the rotation in 3-D with rotational matrices. Also show the direction of rotation.

(b) Given a straight line (assume arbitrary two points as the line), after the uniform scaling is there any change in slope of the transformed line ?

12+8

5. In the following diagram it shows that the triangle changes after some transformation. Find the transformation matrix. 20

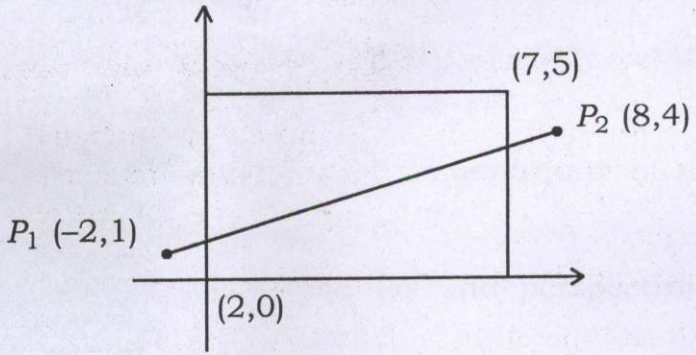


6. *(a)* Describe and formulate the viewing transformation in 2-D.

(b) Explain the Cohen-Sutherland clipping algorithm.

(c) Using the Cyrus-Beck algorithm clip the line P_1P_2 in the following diagram.

8+5+7



7. *(a)* Obtain the blending function of Hermite Curve.

(b) Explain the Cubic Bezier Curve.

12+8