2316　　　　　　35

Class – B.Sc. (IT)6th SEM

Paper –1 Option(I): Computer Graphics

Time Allowed : 3 Hours　　　　Maximum Marks : 75

Attempt any 5 questions.

1. (a) Derive Bresenham line Drawing algorithm. Explain how it is better than DDA line drawing Algorithm.　　10

    (b) Trace all the intermediate points on the line defined from A (0,6) to B (4,0) using Bresenham line algorithm.　　5

2. Explain in detail Mid-point Circle generating algorithm.　　15

3. Describe 3D rotation about x, y and z axis. Also write the corresponding transformation matrix. 15

4. (a) Prove that 2 successive 2-D rotation are additive i.e.,

    $R(\theta 1). R(\theta 2) = R(\theta 1 + \theta 2)$

    (b) Derive the equation for reflection on $y = x$

5. What do you mean by clipping operation ? List various clipping algorithm and discuss any one in detail.　　15

6. Derive a transformation matrix to Align a vector V (v_x, v_y, v_z) with unit vector K.　　15

7. Explain the z-buffer algorithm for hidden surfaces and also explain its limitations.　　15

8. Explain the following :

    (a) Inverse transformation

    (b) Antialiasing

    (c) Homogenous co-ordinate system　　5x3=

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