**MGM’s College of Engineering & Technology, NOIDA**

**Subject –Computer Graphics Subject Code: RCS -603**

**CLASS TT-CS**

**ASSIGNMENT No-2**

1. What do you mean by normalization transformation? Why is it needed?

2. What is workstation transformation?

3. Use Cohen-Sutherland line clipping method to clip a line starting from (-13, 5) and ending at (17, 11) against the window having its lower left corner at (-8,-4) and upper right corner at (12, 8).

4.What are the limitations of Sutherland-Hodgeman polygon clipping algorithm.

5.Explain and state the advantages of Weiler - Atherton polygon clipping algorithm.

6.Prove that two scaling transformation commute i.e S1S2=S2S1.

7.Reflect the object with vertices A(5, 5), B(4, 0) and C(7, 5) about

( i) x- axis ( ii) y-axis using appropriate transformation matrices.

8.Write short notes on:

a>Generalized clipping

b>Multiple windowing

9. Use Cohen –Sutherland algorithm to find the visible portion of the line P(40,80) ,Q(120,30) inside the window . The window is defined as ABCD: A(20,20),B(60,20),C(60,40) and D(20,40).

10. Rotate a triangle defined by A(0,0) ,B(6,0) and C(3,3) by 90 degree about origin in anticlockwise direction.

11.Show that transformation matrix about a line y=x is equivalent to reflection relative to x-axis followed by anticlockwise rotation of 90 degree.

12.Let P1(-1,-2),P2(2,4) be two end points of a line .Use Liang Barsky line clipping algorithm for the window coordinate xwmin=0,xwmax=1,ywmin=0,ywmax=1.

13)write the short notes on

(a)Point Clipping (b) line clipping c)Text Clipping d) curve clipping

14)Use the Liang –Barsky line clipping algorithm to clip the line P1(-15,-30) ,P2(30,60) against window (0,0) and (15,15) .

15) Suppose there is a rectangle ABCD whose coordinates are A(1,1) ,B(4,1),C(4,4)and D(1,4).And the window coordinate are(2,2),(5,2),(5,5),(2,5).And the given viewport location is(0.5,0),(1,0),(1,0.5),(0.5,0.5).Derive the viewing transformation matrix.

16) Can you use line clipping algorithm for polygon clipping? Justify your answer.