**SARDAR VALLABHBHAI PATEL INSTITUTE OF TECHNOLOGY, VASAD**

**INFORMATION TECHNOLOGY DEPARTMENT**

**COMPUTER GRAPHICS(2151603)**

**ASSIGNMENT 3**

1. What is shear transformation? Explain x-shear and y-shear with example.
2. What is window and viewport? Retrive equation for the scaling factor to map the window to viewport in 2D viewing system.
3. How Nicholl-Lee-Nicholl line clipping algorithm with example.
4. Explain Cohen Sutherland line clipping algorithm for example.
5. What is scaling transformation? Prove that two scaling transformation commute that is S1S2=S2S1.
6. Justify that two successive rotations are additive.
7. Is simultaneous shearing same as shearing in one direction followed by shearing in another direction? Justify.
8. Consider the line L and triangle ABC. The equation of line L is y=1/2(x+4) and A(2,4), B(4,6), C(2,6). Reflect the triangle about L.

**ASSIGNMENT 4**

1. Differentiate parallel and perspective projection.
2. Explain types of projection.
3. Explain various light sources.
4. List various surface detection algorithms.
5. Derive 3D matrix with respect to arbitrary line.
6. Perform reflection of unit cube about the xy plane
7. Find the matrix for reflection with respect to the plane passing through the origin and having a normal vector whose direction is n=I+J+K.
8. The pyramid defined by A(0,0,0), B(1,0,0), C(0,1,0) and D(0,0,1)is rotated 45 degree about line L that has the direction V=J+K and passing through the point C(0,1,0). Find the coordinate of the rotated figure.

**Submisssion Date:**

**TYIT 1: 24th September 2018**

**TYIT 2: 24th September 2018 (10:00 to 11:00)**

**Submit ALA with Assignment**

Gargi Chauhan

Course Coordinator