**LAB # 12(Open Ended)**

**OBJECTIVE:** Generate the MatLab code tofind and plot the poles and zeros of the following given transfer functions by using pole and zero commands and identify stable, unstable and marginally stable system and why?

1. **G(s) = (b) G(s) =**

**SOFTWARE REQUIRED:** MATLAB

**METHODOLOGY:**

1. **Coding for part (a) (2) Coding for part (b)**

num = [100 300 0] num = [1 3]

den = [6 10 0 6000] den = [2 0.1 0]

g = tf(num,den) g = tf(num,den)

z=zero(g) z=zero(g)

p = pole(g) p = pole(g)

zplane(z,p) zplane(z,p)

num = [100 300 0]

den = [6 10 0 6000]

g = tf(num,den)

z=zero(g)

p = pole(g)

zplane(z,p)

**OBSERVATIONS:**

**FOR PART(a) FOR PART (b)**

z = z = -3

0 p = 0 -0.0500

-3

p =

-10.5876 + 0.0000i

4.4604 + 8.6345i

4.4604 - 8.6345i

**RESULTS & DISCUSSIONS:**

 **FOR PART (a):**

**FOR PART (b):  
CONCLUSIONS:**

For the results of part a the system is unstable and for the results of part b the system is highly stable because poles lies inside the circle.