Scilab Manual for Principles of Control System by Prof Mrugendra Vasmatkar Others VESIT[1]

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Experiment: 1

To analyse pole zero plot of a system

Scilab code Solution 1.1 pole zero plot for a given system

```
clc;
close;
//Scilab 5.5.0;64 bit(windows 7)
//laplace//
//pole zero plot for g(s)=(s^2+3s+2)/(s^2+7s+12)
s=%s;
p=poly([2 3 1],'s',"coeff")
q=poly([12 7 1],'s',"coeff")
V=syslin('c',p,q)
plzr(V)
syms s t ;
v =ilaplace('(2+(3*s)+s^2)/(s^2+(7*s)+12)',s,t)
disp(v,"V(t)=')
```

Experiment: 2

To find the characteristics equation and poles of a system

Scilab code Solution 2.1 characteristic equation and poles of system

```
1  clc;
2  close;
3  //Scilab 5.5.0;64 bit(windows 7)
4  //characteristic equation and poles of system
5  s=%s;
6  G=syslin('c',(5*(s+2))/((s+3)*(s+4)));
7  disp(G,"G(s)=")
8  x=denom(G);
9  disp(x,"Characteristics Equation=")
10 y=roots(x);
11 disp(y,"Poles of a system=")
```

Experiment: 3

To find the gain equation of a system from given poles and zeros

Scilab code Solution 3.1 gain equation of a system

```
1 clc;
2 close;
3 //Scilab 5.5.0;64 bit(windows 7)
4 //to find gain of a system from poles and zeros
5 printf("Given:Poles are s=-1,(-2+i),(-2-i); zeros s
    =-3+i,-3-i,Gain factor(k)=5 \n")
6 num=poly([-3+%i,-3-%i],'s','roots');
7 den=poly([-1,-2+%i,-2-%i],'s','roots');
8 G=(5*num)/den;
9 disp(G,"G(s)=")
```