

iii)

```
[Knom,Gnom,gamma,info] = hinfsyn(Pnomdesign,nmeas,nctrl,...
    'METHOD','ric',... % Riccati solution
    'DISPLAY','on',... % verbose
    'TOLGAM',0.1); % gamma tolerance
```

Knom =

```
a =
      x1      x2      x3      x4      x5      x6
x1      -18.69      0      1      0      -1.042e-08      0
x2     -2.154e-15      0      0      1      -1.201e-24      0
x3      -87.04     -59.38      0      0      -9.215e-08      0
x4      19.76     -405.8      2.215     -20.2      -0.5922      534.6
x5      0.01322      0      0      0      -0.0005989      0
x6      36.23     -10.6      4.061     -0.3661     -1.086     -19.89
x7      63.38      0      0      0      -0.0001203      0
```

```
      x7
x1      -0.1468
x2     -1.692e-17
x3      -1.298
x4      0.01302
x5      0.0001038
x6      0.02388
x7      0.4958
```

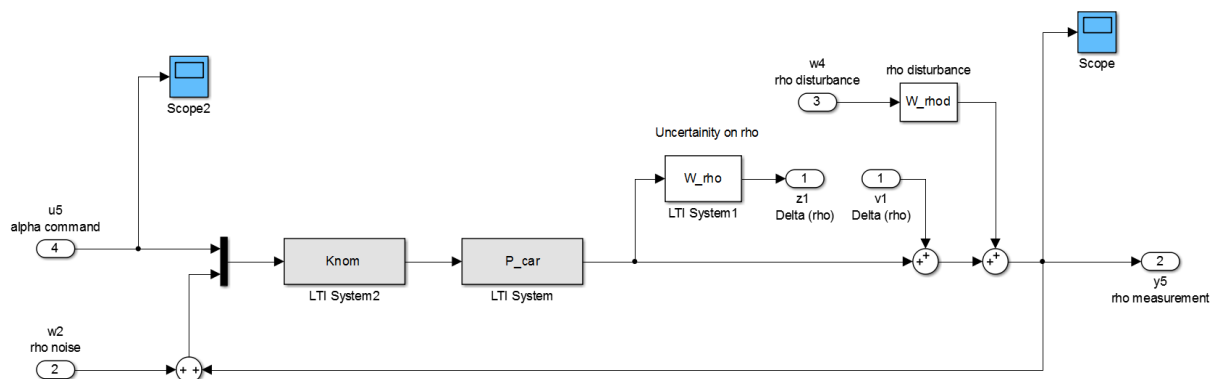
```
b =
      u1      u2
x1      0      20.78
x2      0      2.395e-15
x3      0      183.8
x4      0     -7.408e-15
x5      2.832     -2.847
x6      0      0
x7      0     -70.49
```

```
c =
      x1      x2      x3      x4      x5      x6
y1      0.02499     -0.007314      0.002801     -0.0002525     -0.0007488      0.6759
```

```
      x7
y1      1.647e-05
```

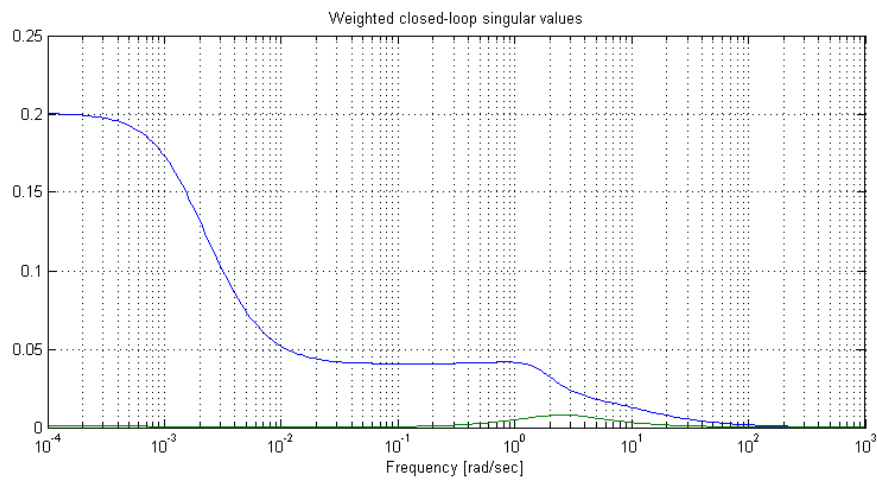
```
d =
      u1      u2
y1      0      0
```

iv)



b)

Gamma value achieved: 0.2143



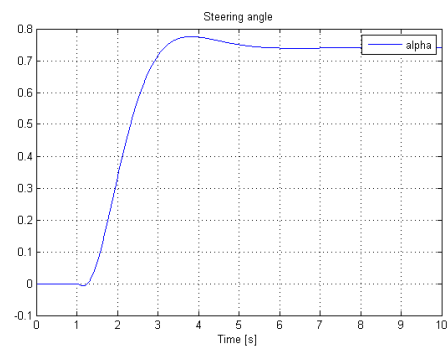
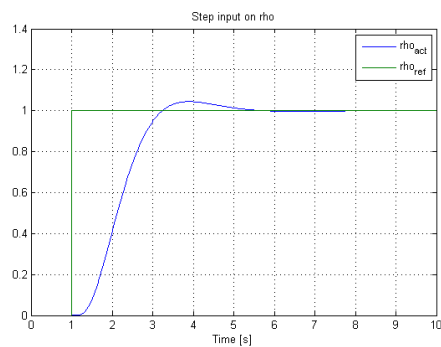
c)

```
% Find closed loop eigenvalues
G_cl=lft(Pnomdesign,Knom,nctrl,nmeas);
eig(G_cl)
```

```
1.0e+03 *
-0.0000 + 0.0000i
-1.0000 + 0.0000i
-0.0089 + 0.0001i
-0.0089 - 0.0001i
-0.0089 + 0.0000i
-0.0088 + 0.0000i
-0.0012 + 0.0012i
-0.0012 - 0.0012i
-0.0005 + 0.0000i
-0.0100 + 0.0173i
-0.0100 - 0.0173i
-0.0100 + 0.0173i
-0.0100 - 0.0173i
-0.0000 + 0.0000i
```

They all have a negative real part > stable.

d)



Looking at the steering angle, we can nicely see the non-minimum phase behavior