Contents

Prelab 3

```
m = 0.94;
r = 6.36*10^-3;
Rm = 2.6;
Kt = 7.67*10^-3;
Km = 7.67*10^-3;
Kg = 3.71;
Jm = 3.9*10^-7;

a = m*r*r*Rm + Kg*Kg*Jm*Rm;
b = Kg*Kg*Kt*Km;
c = Kg*Kt*r;

K = 10;

sim('pl3');
figure;
plot(simin.Time, simin.Data);
hold on;
plot(simout.Time, simout.Data,'-.');
legend('Step Input','Position');
xlabel('time (s)');

cfinal = simout.Data(end);
percent_os = (max(simout.Data) - cfinal)/ cfinal * 100
time1_index = find(simout.Data >= 0.1*cfinal,1);
time1 = simout.Time(time1_index);
time9_index = find(simout.Data >= 0.9*cfinal,1);
time9 = simout.Time(time9_index);
rise_time = time9 - time1
```
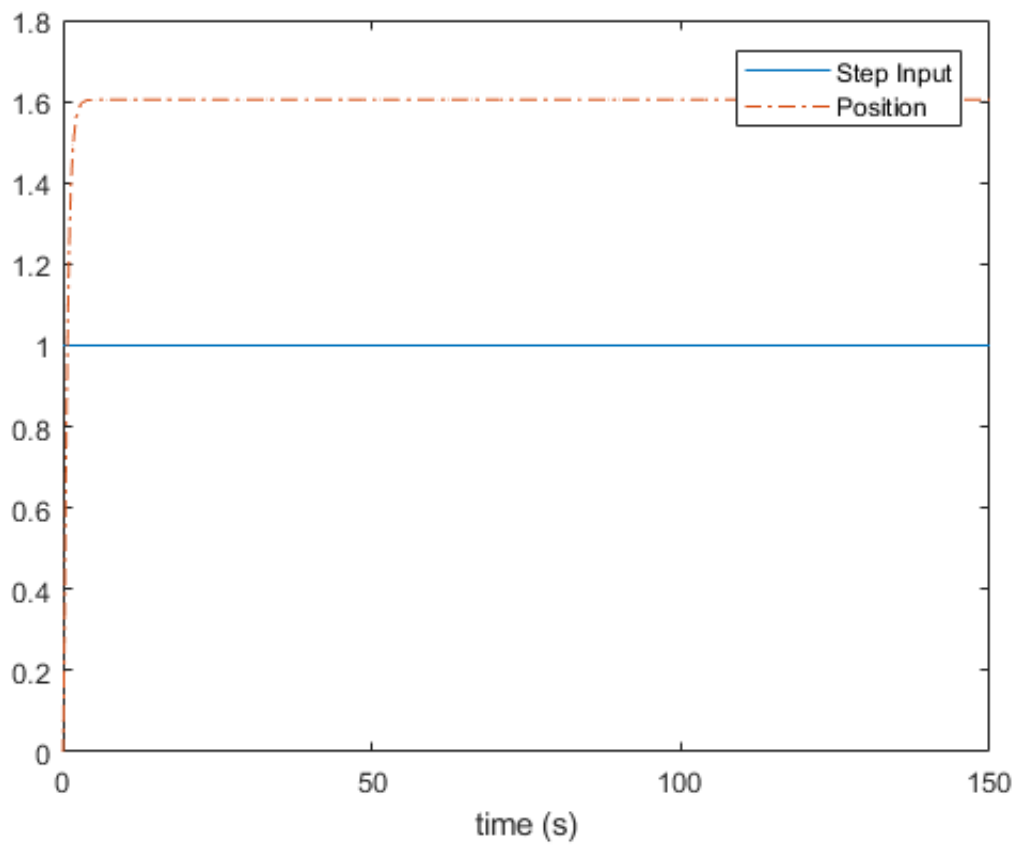
```
percent_os =

    0.0199


rise_time =

    1.3600
```

simulink

```
close_system('pl3')
open_system('pl3')
```


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