ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING

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Section: C(1)

Course no.: EEE 4606
Assignment no : 04

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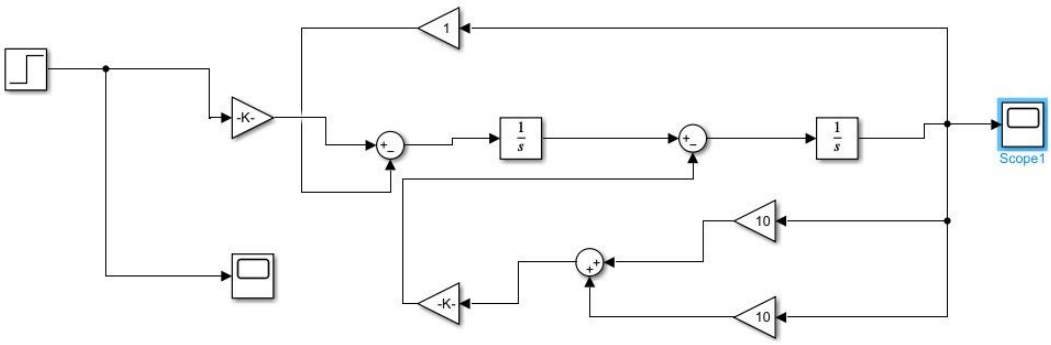
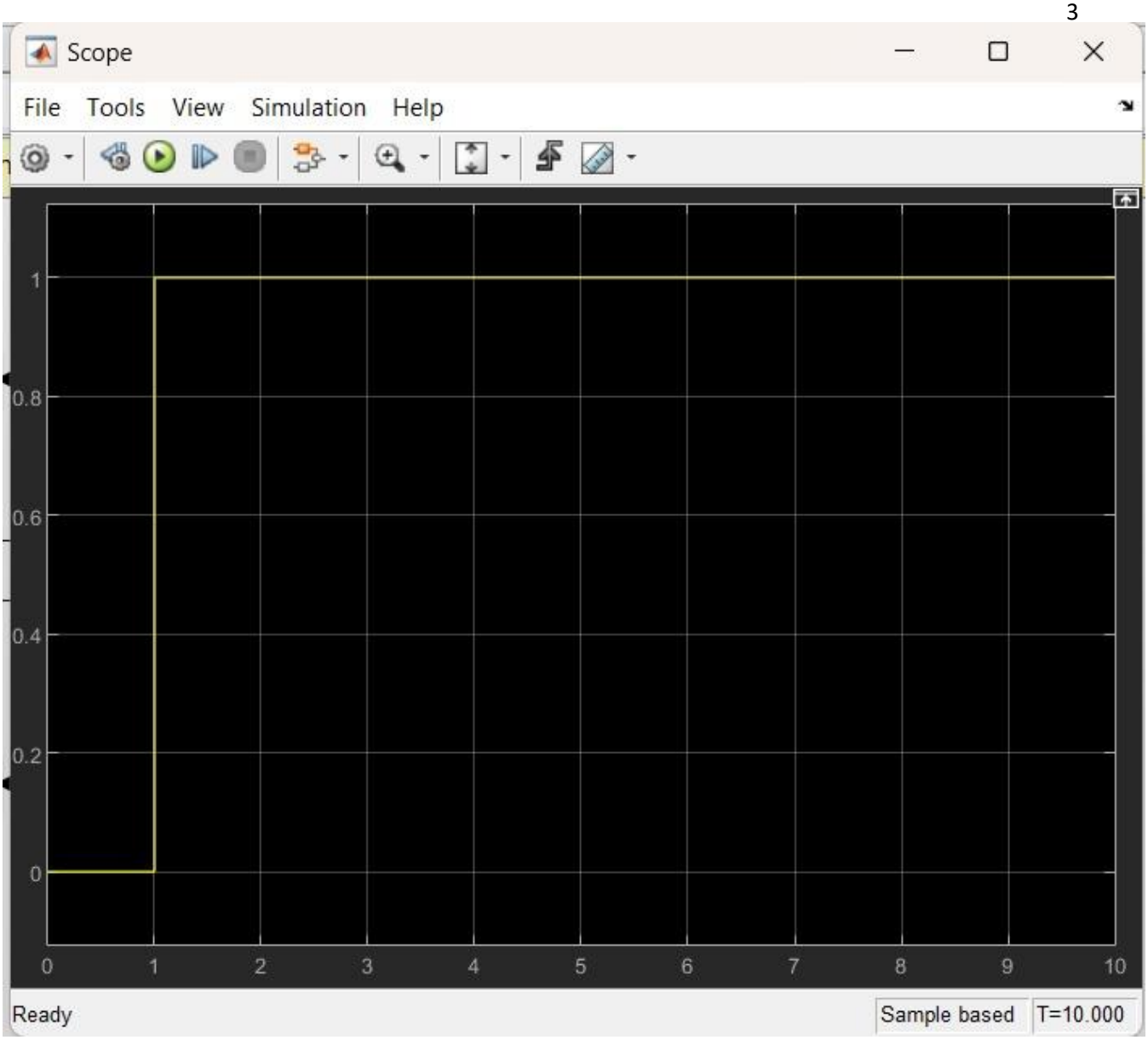
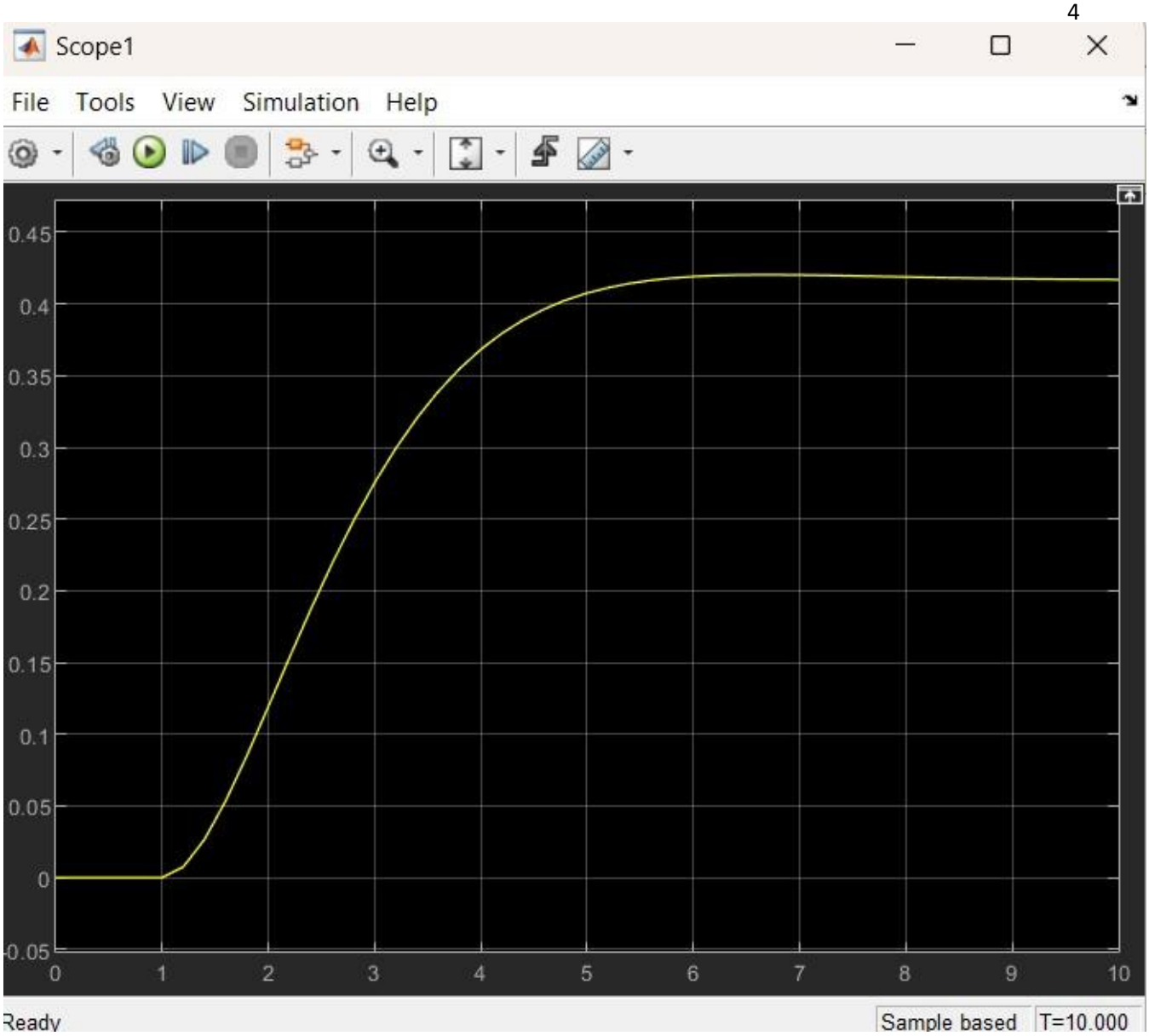
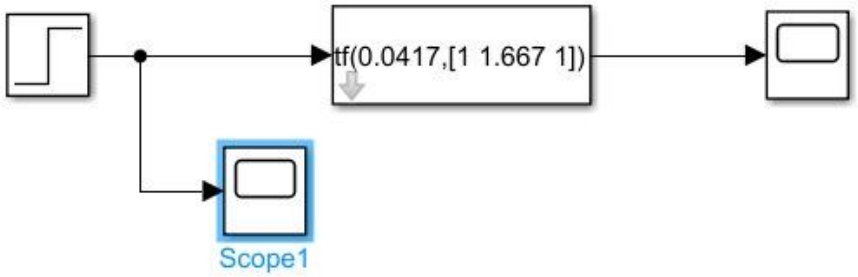
Task1:

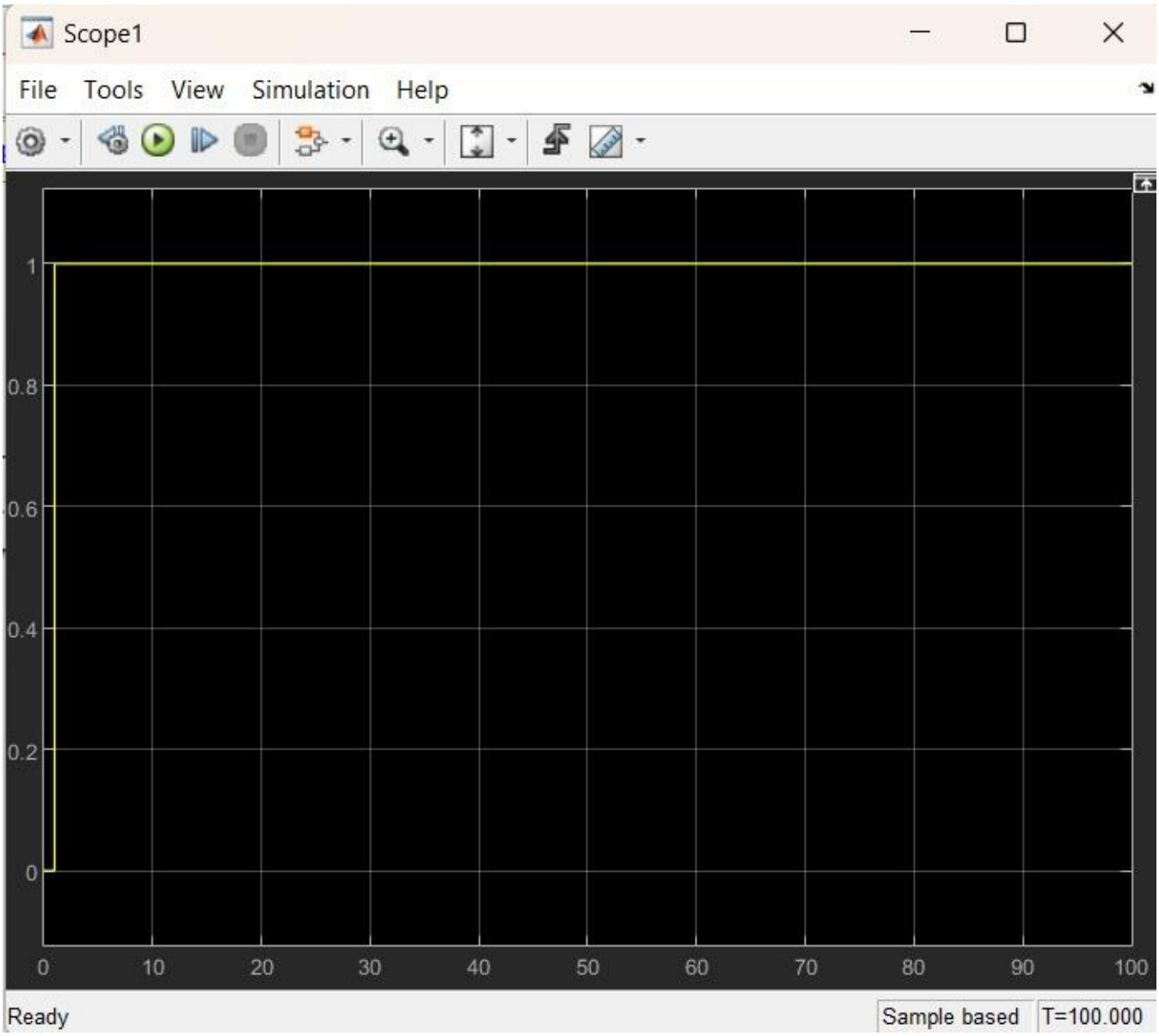


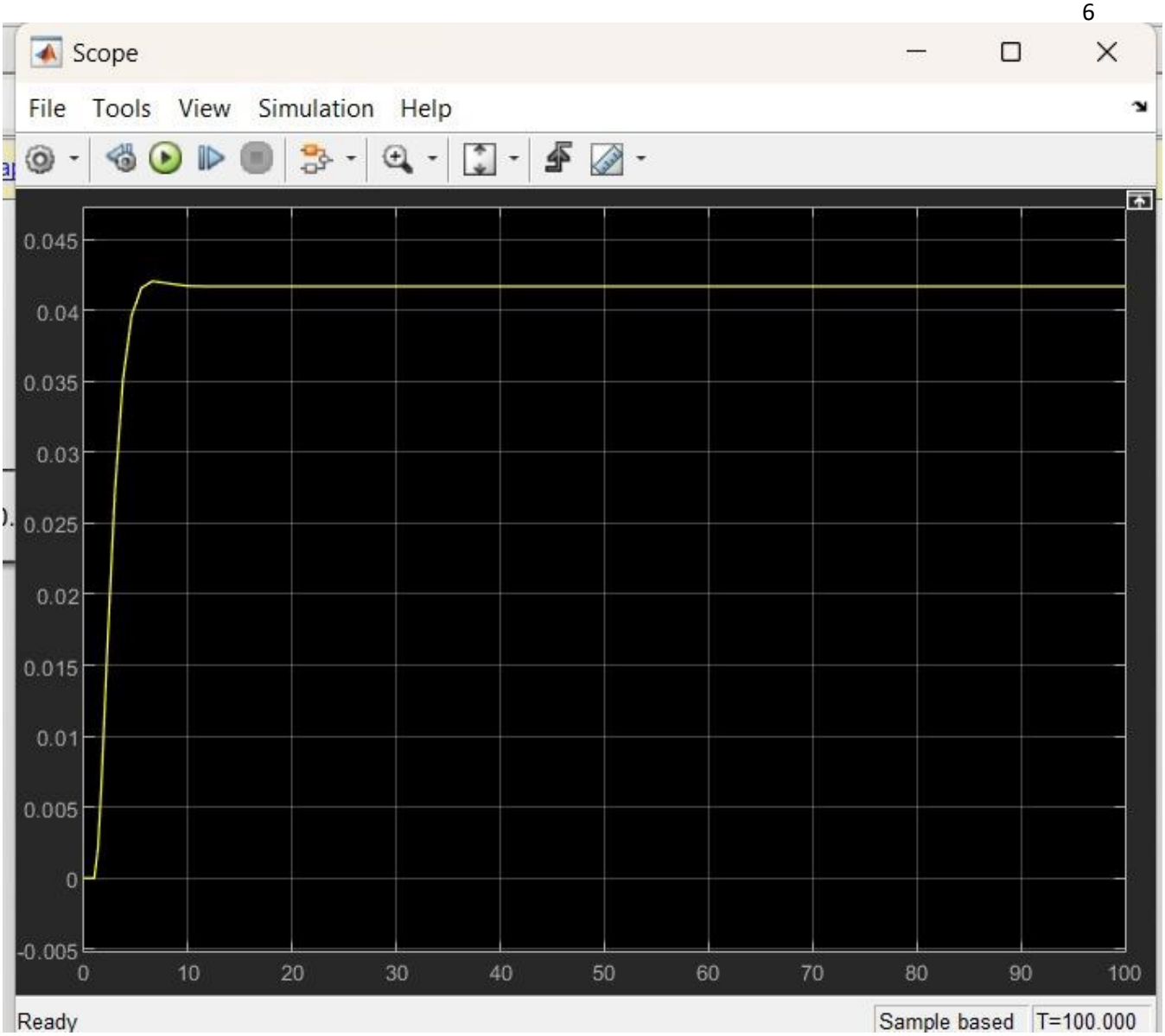

Scope
File Tools View Simulation Help
1
0.8
0.6
0.4
0.2
0
0 1 2 3 4 5 6 7 8 9 10
Ready
Sample based
T=10.000


Scope1
File Tools View Simulation Help
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-0.05
0 1 2 3 4 5 6 7 8 9 10
Ready
Sample based
T=10.000

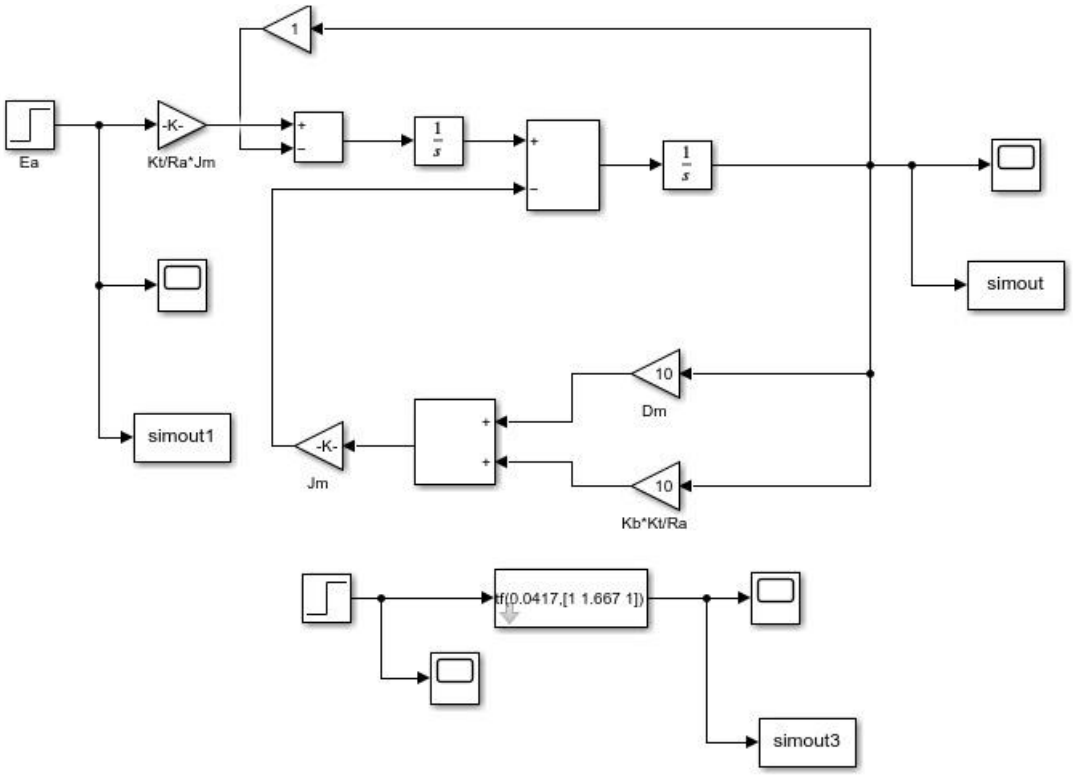
Task02:


tf(0.0417,[1 1.667 1])
Scope1


Scope1
File Tools View Simulation Help
1
0.8
0.6
0.4
0.2
0
0 10 20 30 40 50 60 70 80 90 100
Ready
Sample based
T=100.000


Scope
File Tools View Simulation Help
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
-0.005
0 10 20 30 40 50 60 70 80 90 100
Ready
Sample based
T=100.000

Task03:

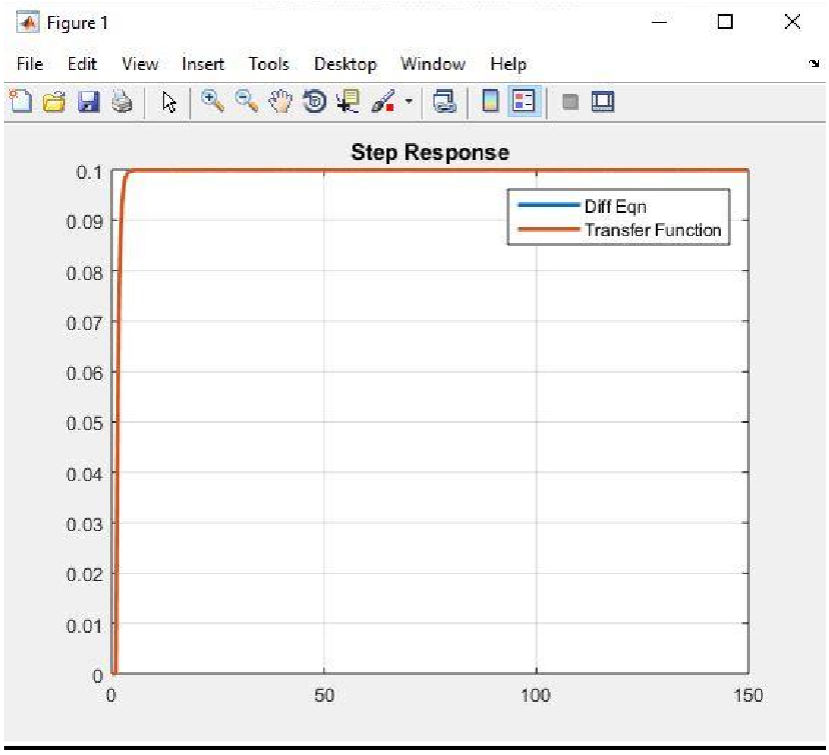

1
Ea
-K-
Kt/Ra*Jm
+
-
1
s
+
-
1
s
simout
simout1
10
Dm
-K-
Jm
+
+
10
Kb*Kt/Ra

tf(0.0417,[1 1.667 1])
simout3

```
t=simout.time;
y = simout.signals.values;
t1=simout3.time;
y1 = simout3.signals.values;
figure(1)
plot(t,y,'linewidth',2)
hold on
plot(t1,y1,'linewidth',2)
legend('Diff Eqn','Transfer Function')

title('Step Response')

grid on
```



Task04

Editor - E:\6th semester\lab courses\EEE 4606\lab4_task3.m

```
1 -    num = 0.0417;
2 -    den = [1 1.667 1];
3 -    t = 0:0.01:150;
4 -    step(tf(num,den),t,'r')
5
6
7
```

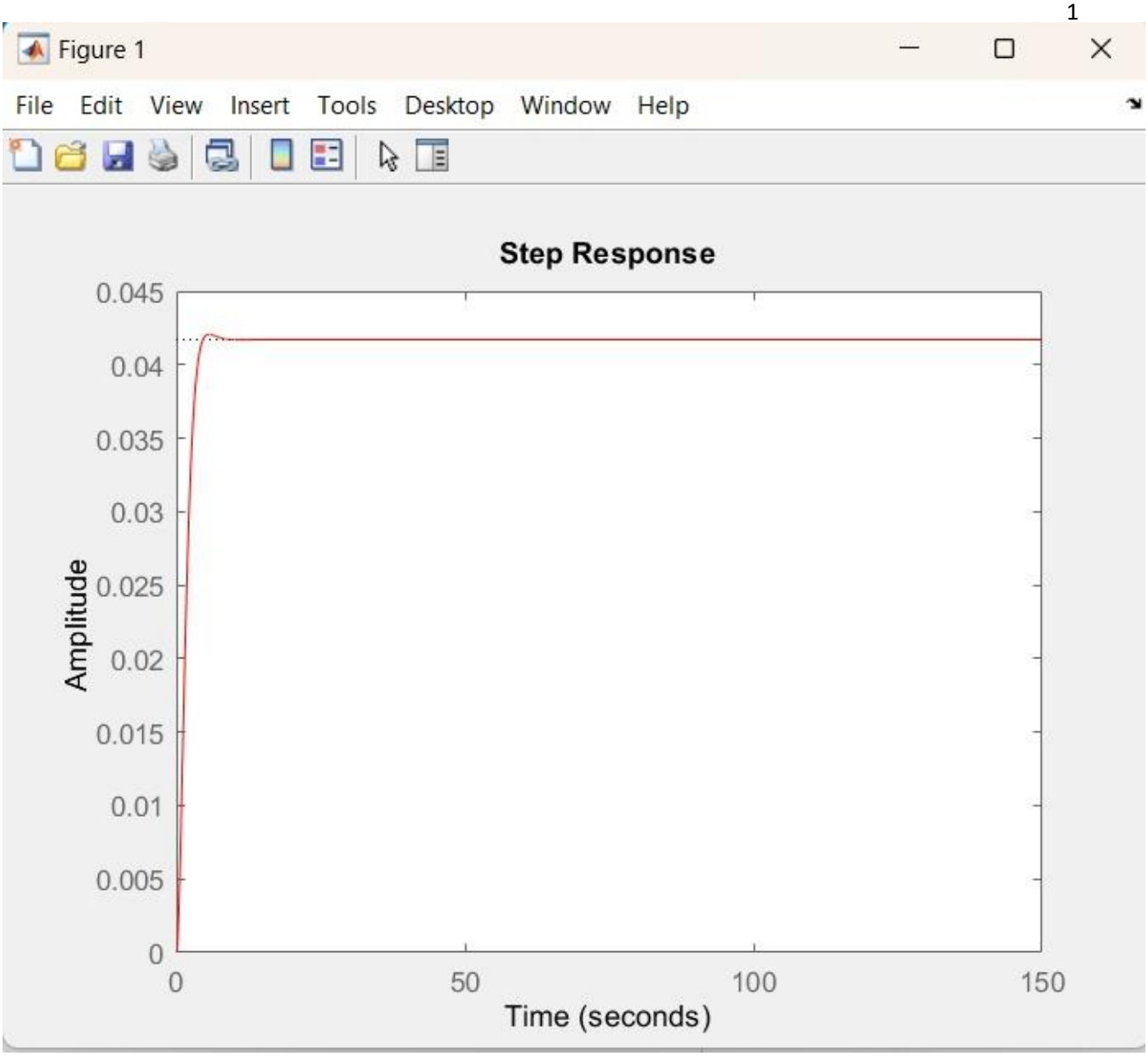


Figure 1
File Edit View Insert Tools Desktop Window Help
Step Response
Amplitude
Time (seconds)
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
0
50
100
150

Task05

```
clc
close all
clear all

num=0.0417;
den=conv([1 0],[1 1.667]);
rlocus(num,den)
axis([-5 3 -5 5])
zeta=0.69;
Wn=1.8;
sgrid(zeta, Wn)
[K poles] = rlocfind(num,den)
[numCL, denCL] = cloop(K*num, den)
step(numCL,denCL)
```

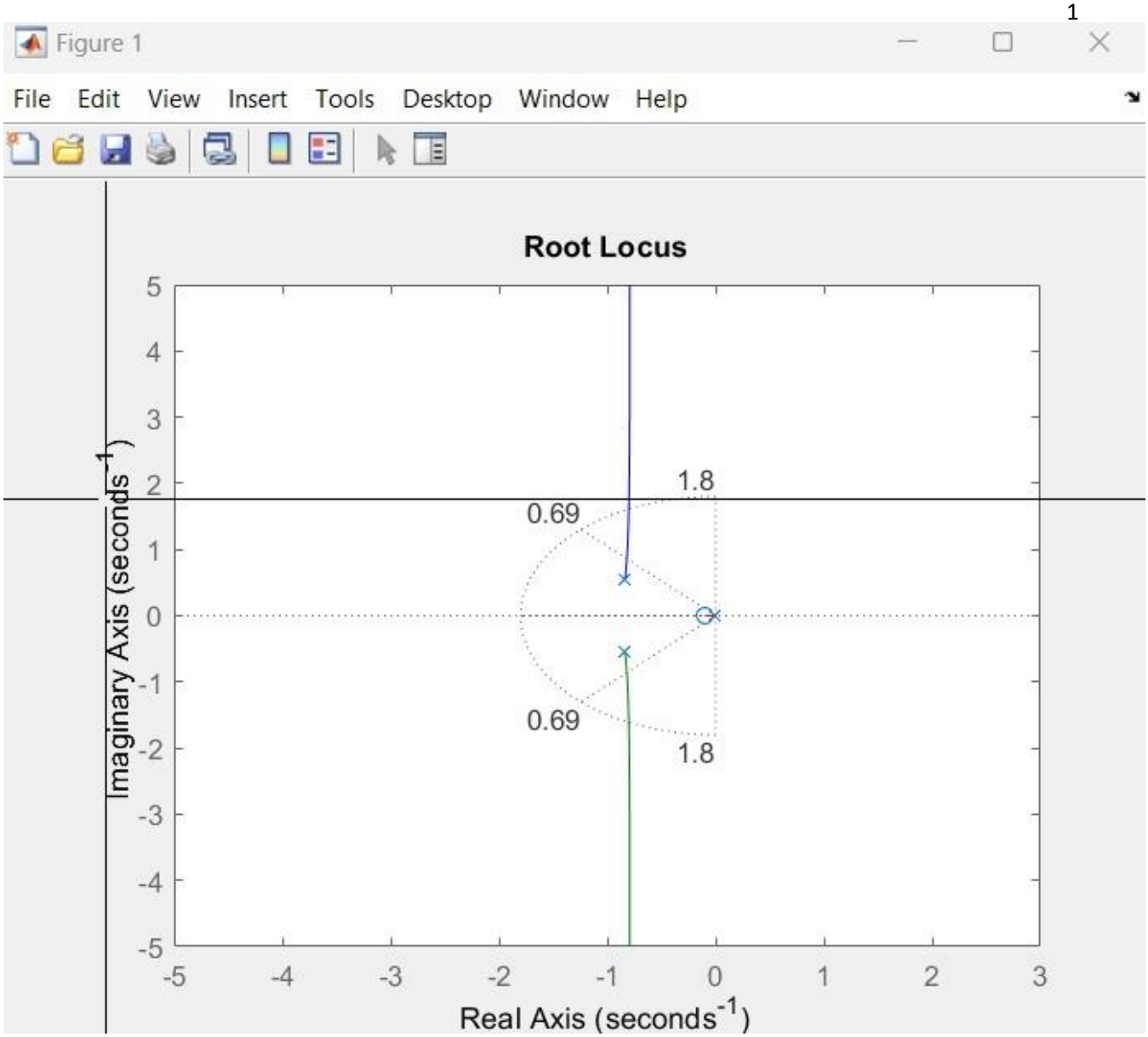


Figure 1
File Edit View Insert Tools Desktop Window Help
Root Locus
Imaginary Axis (seconds-1)
Real Axis (seconds-1)
1.8
0.69
0.69
1.8
5
4
3
2
1
0
-1
-2
-3
-4
-5
-5 -4 -3 -2 -1 0 1 2 3

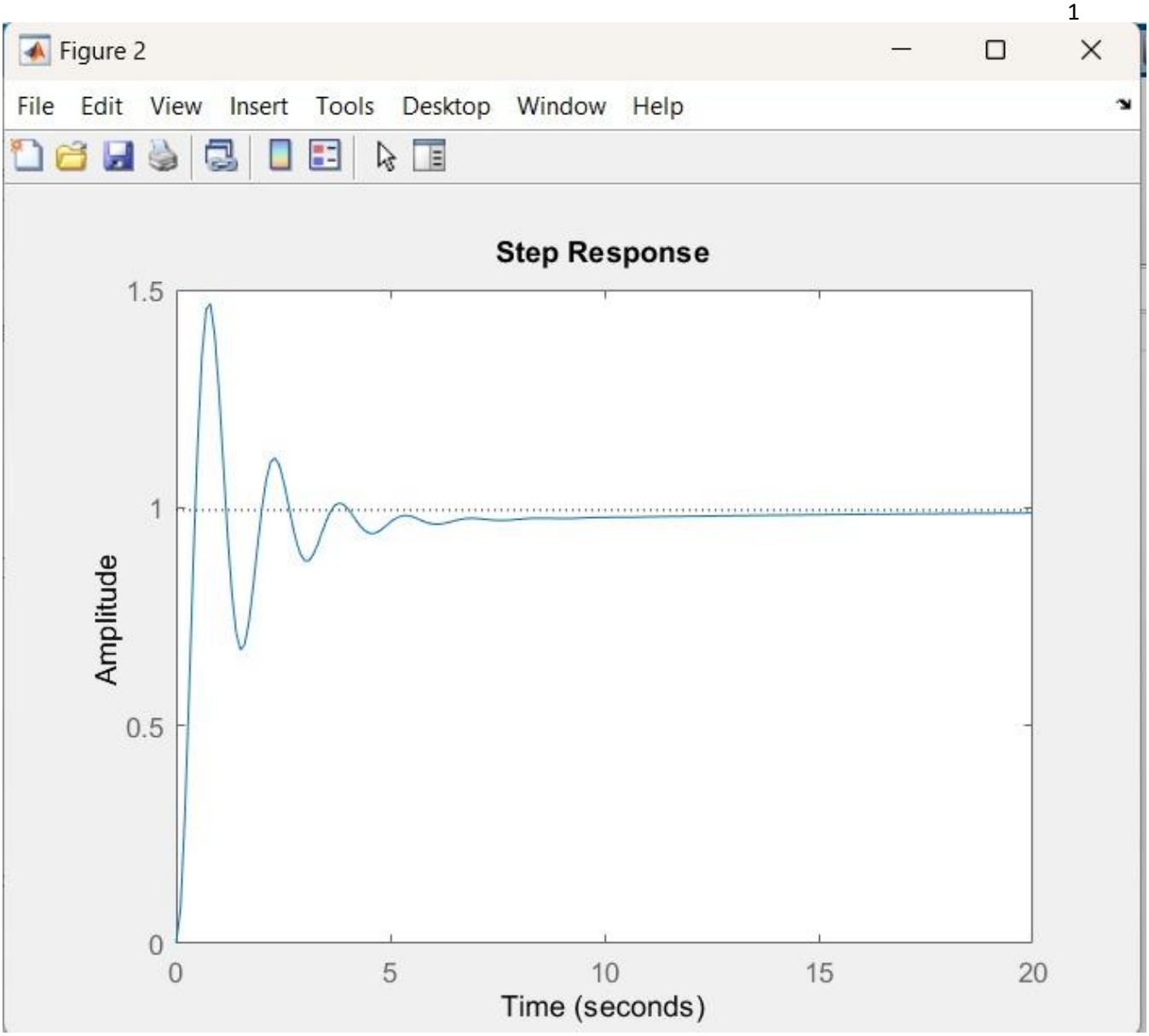
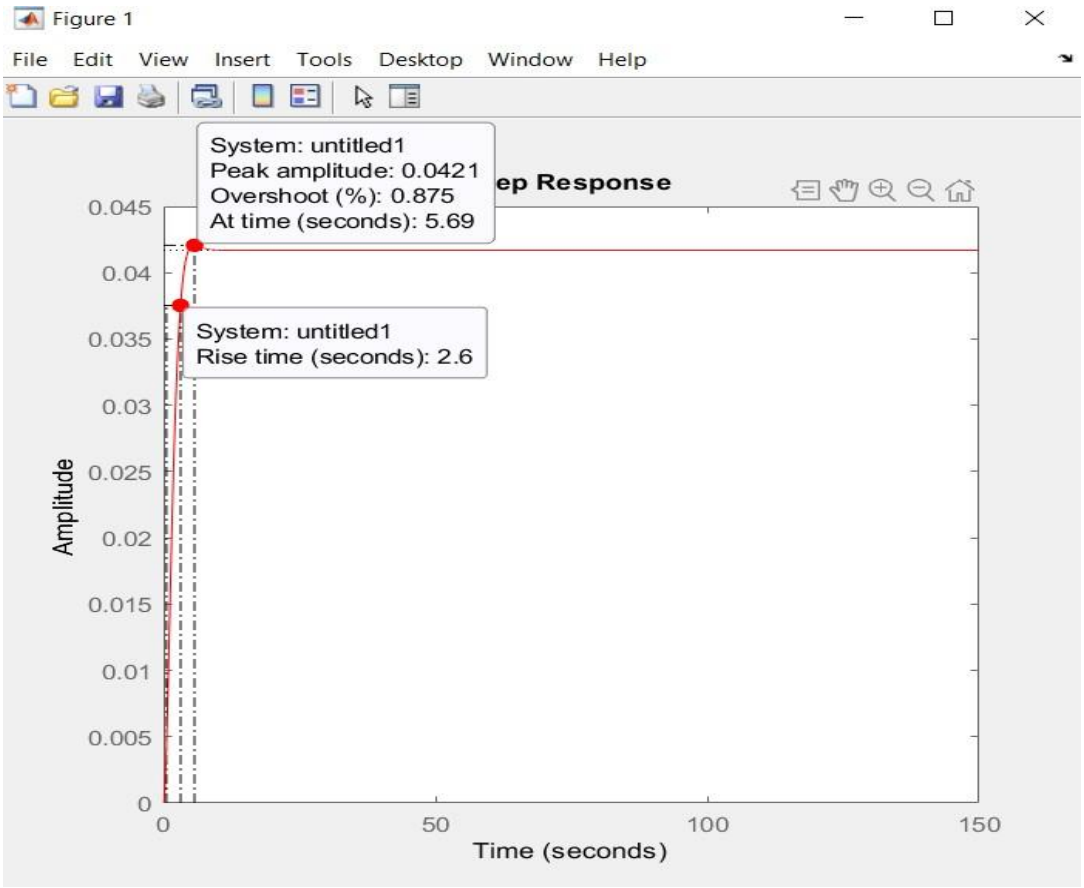


Figure 2
File Edit View Insert Tools Desktop Window Help
Step Response
Amplitude
Time (seconds)
0
0.5
1
1.5
0
5
10
15
20

Task06



Task07

```
Zo=0.1;
Po=0.01;
numo=[0.0417 0.0417*Zo];
deno=[1 1.667+Po 1+(1.667*Po) Po];
rlocus(numo,deno)
axis([-5 3 -5 5])
sgrid(0.69,1.8)
[Kp, poles]=rlocfind(numo,deno)
figure
t=0:0.1:20;

[numc, denc] = cloop(Kp*numo, deno);
axis ([0 20 0 12])
step (numc,denc,t)
```

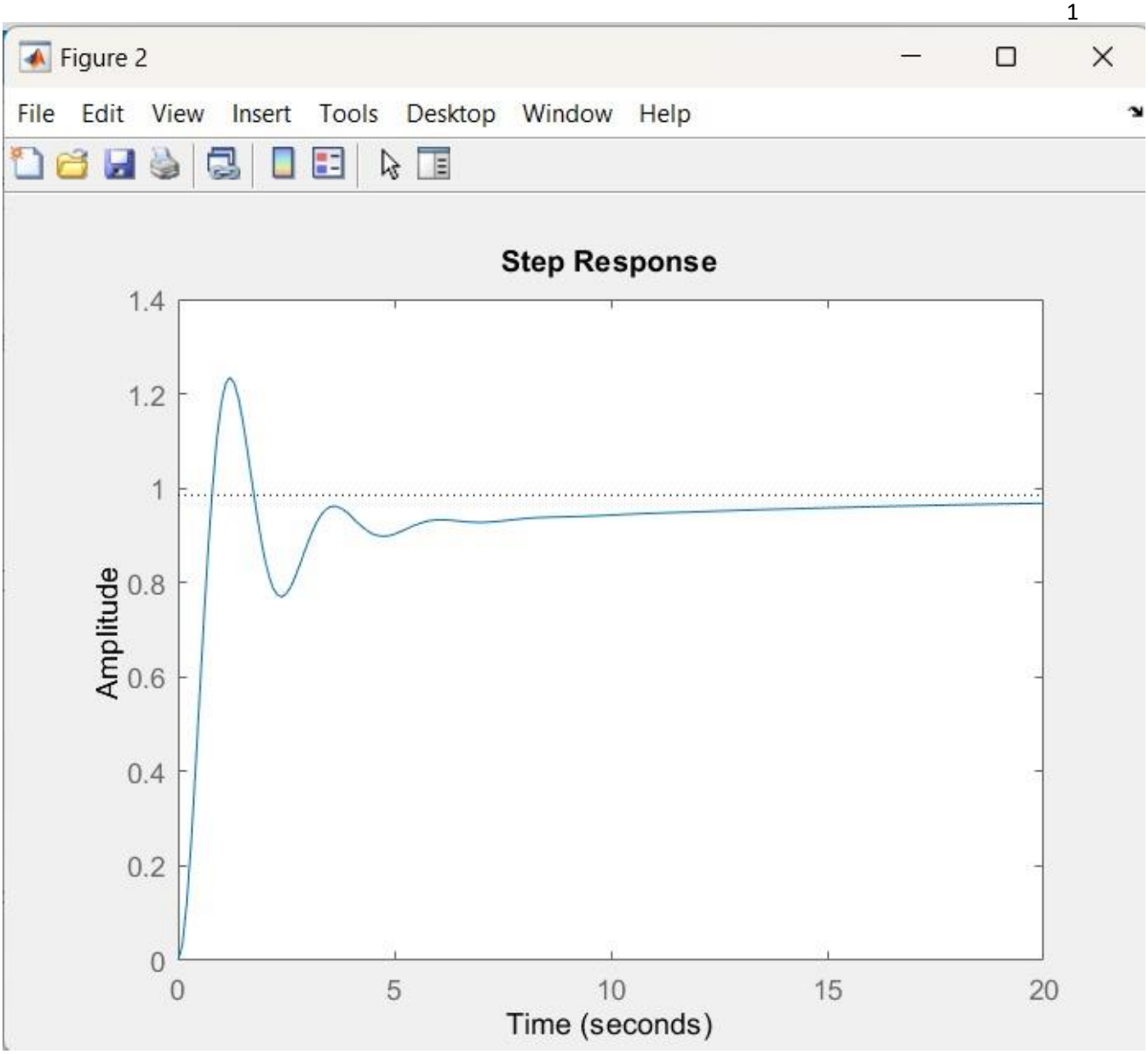


Figure 2
File Edit View Insert Tools Desktop Window Help
Step Response
Amplitude
Time (seconds)
0
0.2
0.4
0.6
0.8
1
1.2
1.4
0
5
10
15
20

Task08

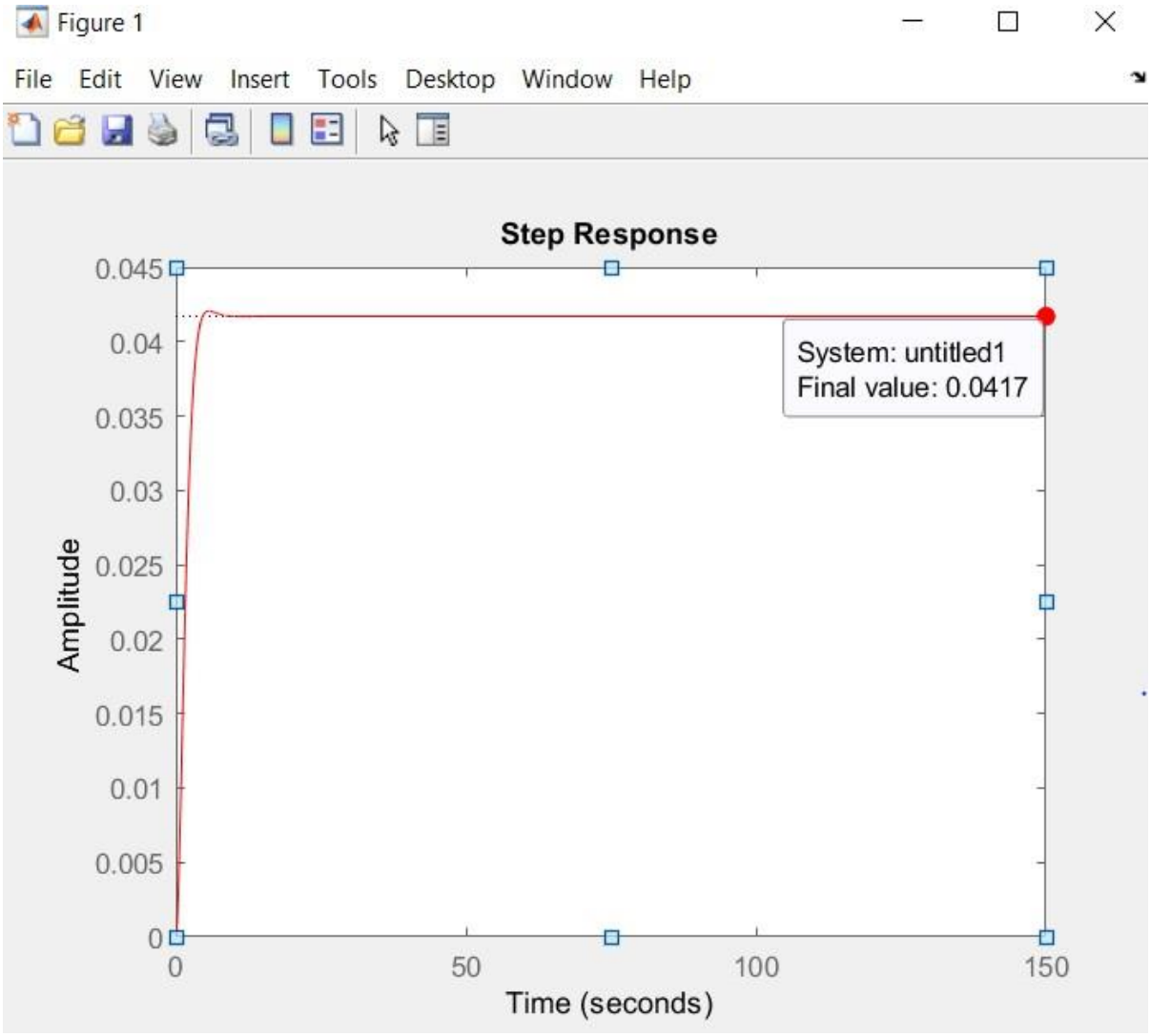


Figure 1
File Edit View Insert Tools Desktop Window Help
Step Response
System: untitled1
Final value: 0.0417
Amplitude
Time (seconds)
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
0
50
100
150