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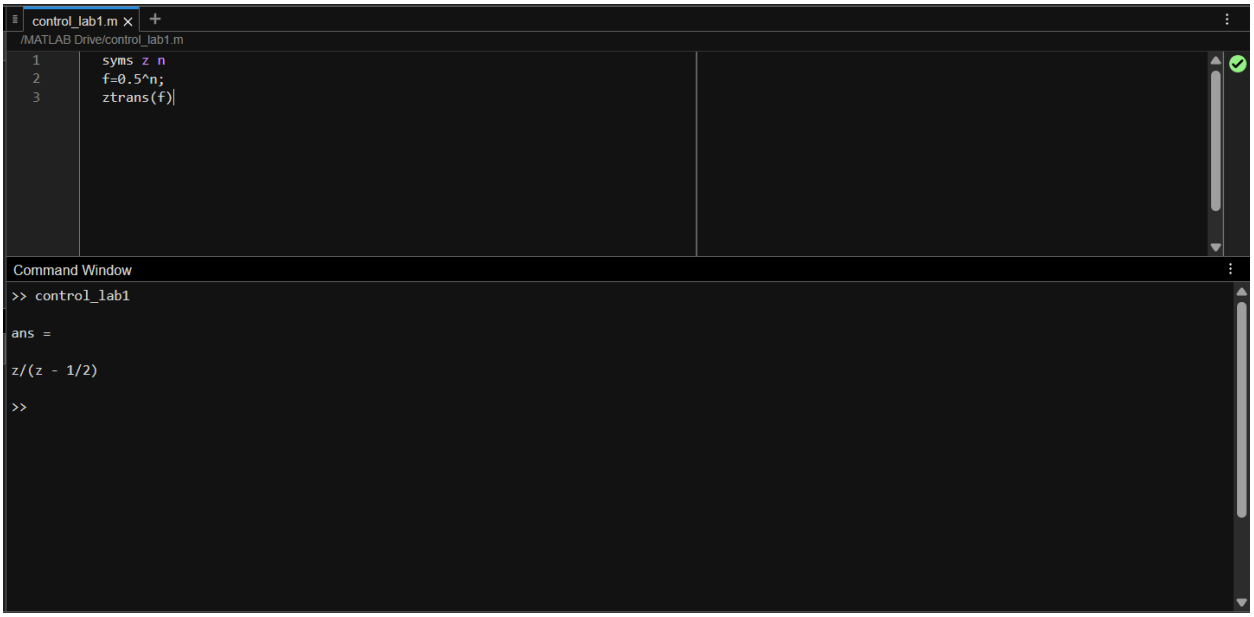
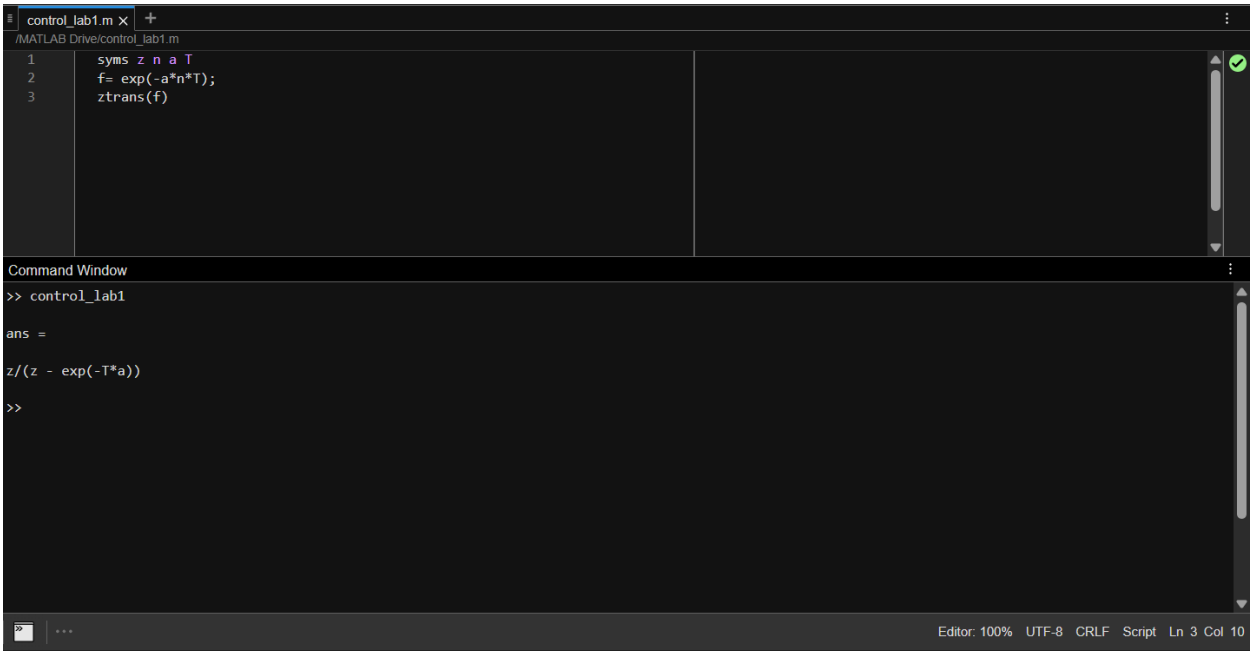
قسم : حاسبات

Q1.1



Q1.2



Q2.1

control_lab1.m

/MATLAB Drive/control_lab1.m

```
1  syms z n
2  FZ=3*z/(z+1);
3  iztrans(FZ)
```

Command Window

```
>> control_lab1

ans =

3*(-1)^n

>>
```

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Q2.2

control_lab1.m

/MATLAB Drive/control_lab1.m

```
1  syms z n
2  FZ=18*z^3/(18*z^3+3*z^2-4*z-1);
3  iztrans(FZ)
```

Command Window

```
>> control_lab1

ans =

(9*(1/2)^n)/25 + (26*(-1/3)^n)/25 + (2*(-1/3)^n*(n - 1))/5

>>
```

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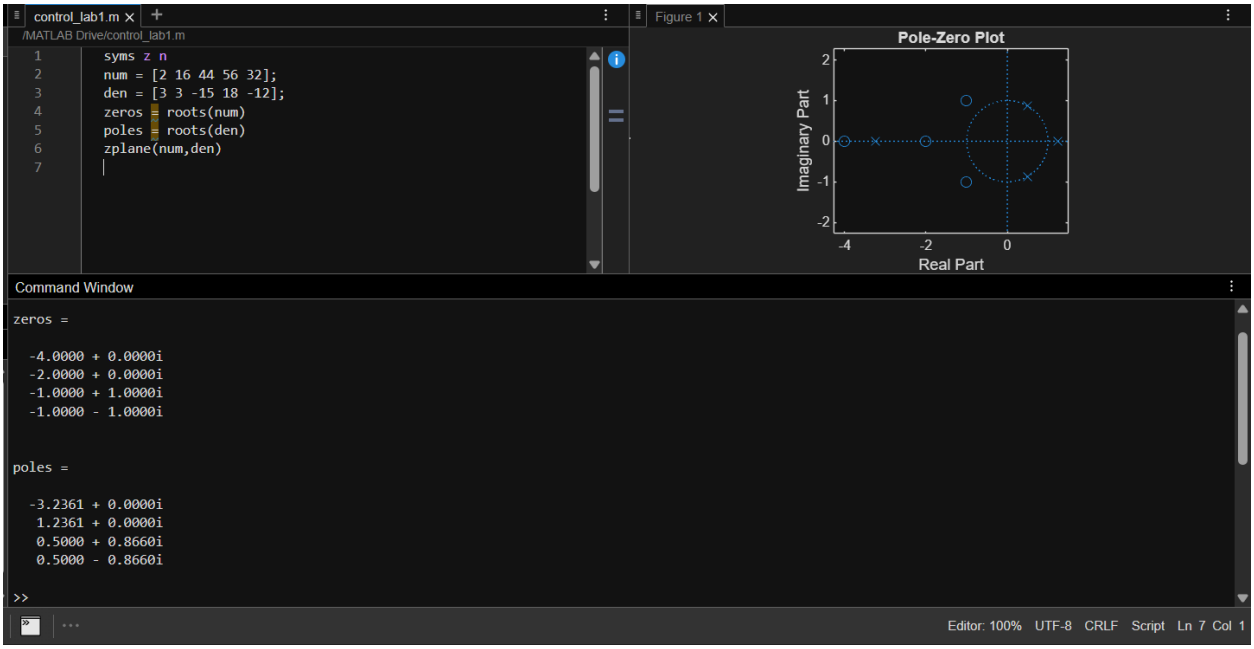
Q.3


control_lab1.m
/MATLAB Drive/control_lab1.m
1 syms z n
2 num = [2 16 44 56 32];
3 den = [3 3 -15 18 -12];
4 zeros = roots(num)
5 poles = roots(den)
6 zplane(num,den)
7
Figure 1
Pole-Zero Plot
Imaginary Part
Real Part
2
1
0
-1
-2
-4
-2
0
Command Window
zeros =
-4.0000 + 0.0000i
-2.0000 + 0.0000i
-1.0000 + 1.0000i
-1.0000 - 1.0000i
poles =
-3.2361 + 0.0000i
1.2361 + 0.0000i
0.5000 + 0.8660i
0.5000 - 0.8660i
>>
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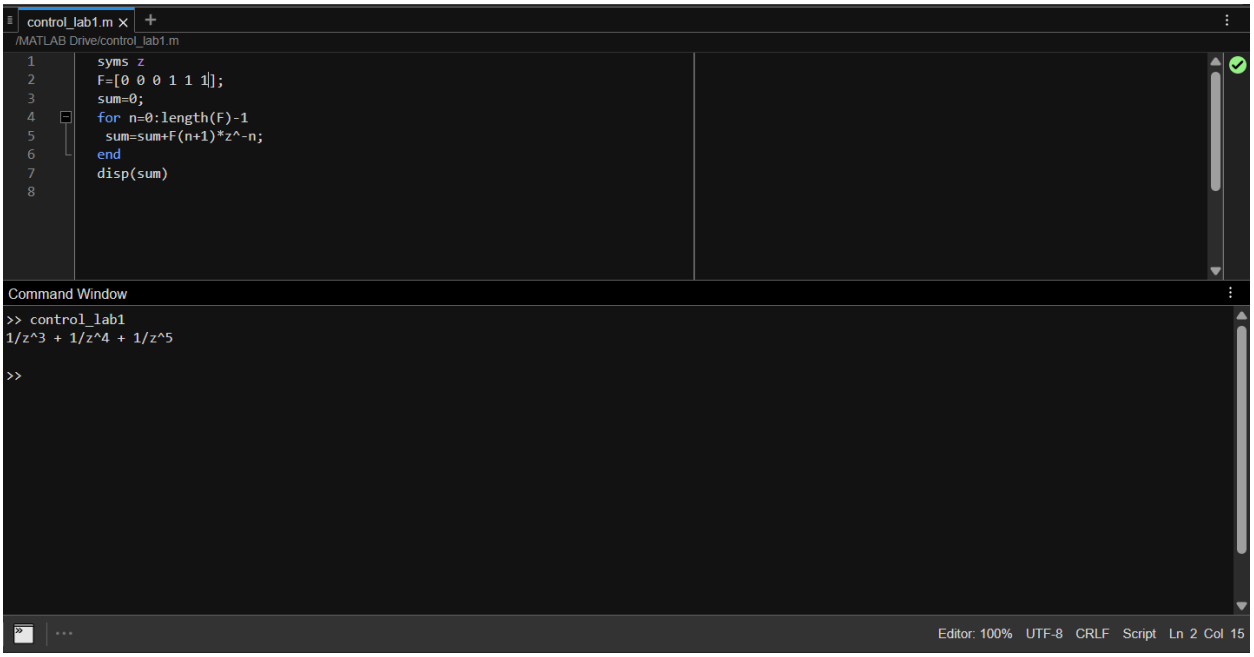
Q4.1


control_lab1.m
/MATLAB Drive/control_lab1.m
1 syms z
2 F=[0 0 0 1 1 1];
3 sum=0;
4 for n=0:length(F)-1
5 sum=sum+F(n+1)*z^-n;
6 end
7 disp(sum)
8
Command Window
>> control_lab1
1/z^3 + 1/z^4 + 1/z^5
>>
Editor: 100% UTF-8 CRLF Script Ln 2 Col 15

Q4.2


control_lab1.m
/MATLAB Drive/control_lab1.m
syms z
F=[0 2^-0.5 1 2^-0.5 0 0];
sum=0;
for n=0:length(F)-1
sum=sum+F(n+1)*z^-n;
end
disp(sum)
Command Window
>> control_lab1
2^(1/2)/(2*z) + 2^(1/2)/(2*z^3) + 1/z^2
>>
Editor: 100% UTF-8 CRLF Script Ln 8 Col 1