**OST EXPERIMENT 8**

**CODE:**

clc;

clear all;

*//LOW PASS FILTER*

a1=3; *//wp*

a2=15; *//ws*

bp=2; *//Passband*

bs=4.828; *//Stopband*

x=(0.5)\*(log(10^(0.1\*a2)-1)-log(10^(0.1\*a1)-1)); *//Numerator of formula of Order*

y=log(bs)-log(bp); *//Denominator of Formula of Order*

N=x/y

disp("LOW PASS FILTER")

disp("order")

disp(N)

N=ceil(abs(N)) *//To choose Higher value of absolute of N*

disp(N)

z=(10^(0.1\*a1)-1)^(1/2\*N); *// to find Cutoff Frequency(Denominator)*

v=bp/z;

disp("cutoff frequency")

disp(v)

s=%s

H\_norm=1/(s^2+1.414\*s+1) *//To find Transfer Function*

H\_designed=horner(H\_norm,s/v); *//Normalisation Function*

disp("TRANSFER FUNCTION")

disp(H\_designed)

*//HIGH PASS FILTER*

a1=3; *//wp*

a2=15; *//ws*

bp=4.828; *//Passband*

bs=2; *//Stopband*

x=(0.5)\*(log(10^(0.1\*a2)-1)-log(10^(0.1\*a1)-1)); *//Numerator of formula of Order*

s=log(bp)-log(bs); *//Denominator of Formula of Order*

N=x/s;

N=ceil(abs(N)) *//To choose Higher value of absolute of N*

disp("HIGH PASS FILTER")

disp("order")

disp(N)

z=(10^(0.1\*a1)-1)^(1/2\*N); *// to find Cutoff Frequency(Denominator)*

v=bp/z;

disp("cutoff frequency")

disp(v)

s=%s

H\_norm=1/(s^2+1.414\*s+1) *//To find Transfer Function*

H\_designedhpf=horner(H\_norm,v/s); *//Normalisation Function*

disp("TRANSFER FUNCTION")

disp(H\_designedhpf)

**OUTPUT:**

