**OST EXP NO:-8**

PART 1: LOW PASS FILTER

clc;

clear all;

a1=3;

a2=15;

bp=2;

bs=4.828;

x=(0.5)\*(log(10^(0.1\*a2)-1)-log(10^(0.1\*a1)-1));

y=log(bs)-log(bp);

N=x/y

disp("LOW PASS FILTER")

disp("order")

disp(N)

N=ceil(N)

disp(N)

z=(10^(0.1\*a1)-1)^(1/2\*N);

v=bp/z;

disp("cutoff frequency")

disp(v)

s=%s

H\_norm=1/(s^2+1.414\*s+1)

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

disp("TRANSFER FUNCTION")

disp(H\_designed)

**PART 2:-HIGH PASS FILTER**

a1=3;

a2=15;

bp=4.828;

bs=2;

x=(0.5)\*(log(10^(0.1\*a2)-1)-log(10^(0.1\*a1)-1));

s=log(bp)-log(bs);

N=x/s;

N=ceil(abs(N))

disp("HIGH PASS FILTER")

disp("order")

disp(N)

z=(10^(0.1\*a1)-1)^(1/2\*N);

v=bp/z;

disp("cutoff frequency")

disp(v)

s=%s

H\_norm=1/(s^2+1.414\*s+1)

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

disp("TRANSFER FUNCTION")

disp(H\_designedhpf)

OUTPUT:

