clc;clear;

Amin=input('Enter the value of alpha min:');

Amax=input('Enter the value of alpha max:');

Wp=input('Enter the value of omegaP:');

Ws=input('Enter the value fo omegaS:');

Wns=Ws/Wp;

E=sqrt(10^(0.1\*Amax)-1);

n=10\*log10((10^(0.1\*Amin)-1)/(10^(0.1\*Amax)-1))/(20\*log10(Wns));

n=ceil(n);

Wb=E^(-1/n)\*Wp;

A1=tf([0 Wb^n],[1 Wb]);Ti=1;

if(mod(n,2)==0)

theta=90/n;

Q=0.5\*cos(theta);

for i=1:n/2

T(i)=tf([0 0 1],[1 (Wb/Q) (Wb^2)]);

Ti=Ti\*T(i);

end

else

Q=0.5\*cos(0);

for i=1:((n+1)/2)

T(i)=tf([0 0 1],[1 (Wb/Q) (Wb^2)]);

Ti=Ti\*T(i);

end

end

if(mod(n,2)~=0)

Ti=A1\*Ti;

end

bode(Ti);

grid on;