```
% Chebyshev-I Low Pass Filter
                                                    % Chebyshev-I Band Pass Filter
clc;
                                                    clc:
close all;
                                                    close all;
                                                    wp = [60 \ 200]/500;
alphap = 0.15;
alphas = 0.9;
                                                    ws = [50 \ 250]/500;
wp = 0.3*pi;
                                                    alphap = 3;
ws = 0.5*pi;
                                                    alphas = 40;
                                                    [n,wp] = cheb1ord(wp,ws,alphap,alphas);
[n,wn] =
cheb1ord(wp/pi,ws/pi,alphap,alphas);
                                                    [b,a] = cheby1(n,alphap,wp);
                                                    [h,w] = freqz(b,a);
[b,a] = cheby1(n,alphap,wn);
[h,w] = freqz(b,a);
                                                    subplot(2,1,1);
subplot(2,1,1);
                                                    plot(w/pi,20*log10(abs(h)));
                                                    xlabel('Normalized Frequency');
plot(w/pi,20*log10(abs(h)));
                                                    ylabel('Gain [db]');
xlabel('Normalized Frequency');
ylabel('Gain [db]');
                                                    title('Magnitude response');
title('Magnitude response');
                                                    subplot(2,1,2);
subplot(2,1,2);
                                                    plot(w/pi,angle(h));
plot(w/pi,angle(h));
                                                    xlabel('Normalized Frequency');
xlabel('Normalized Frequency');
                                                    ylabel('Phase [radians]');
ylabel('Phase [radians]');
                                                    title('Phase response');
title('Phase response');
                                                    % Chebyshev-I Band Stop Filter
% Chebyshev-I High Pass Filter
                                                    clc;
                                                    close all;
clc;
                                                    wp = [50 \ 250]/500;
close all;
                                                    ws = [60 \ 200]/500;
alphap = 1;
                                                    alphap = 3;
alphas = 15;
wp = 0.3*pi;
                                                    alphas = 40;
ws = 0.2*pi;
                                                    [n,ws] = cheb1ord(wp, ws, alphap, alphas);
                                                    [b,a] = cheby1(n, alphap, ws, 'stop');
[n,wn] =
cheb1ord(wp/pi,ws/pi,alphap,alphas);
                                                    [h,w] = freqz(b,a);
[b,a] = cheby1(n,alphap,wn,'high');
[h,w] = freqz(b,a);
                                                    subplot(2,1,1);
                                                    plot(w/pi, 20*log10(abs(h)));
subplot(2,1,1),
                                                    xlabel('Normalized Frequency');
plot(w/pi,20*log10(abs(h)));
                                                    ylabel('Gain in dB');
xlabel('Normalized Frequency');
                                                    title('Magnitude Response');
vlabel('Gain [db]');
title('Magnitude response');
                                                    subplot(2,1,2);
                                                    plot(w/pi, angle(h));
subplot(2,1,2),
                                                    xlabel('Normalized Frequency');
plot(w/pi,angle(h));
                                                    ylabel('Phase in Radians');
xlabel('Normalized Frequency')
                                                    title('Phase Response');
ylabel('Phase [radians]');
title('Phase response');
```

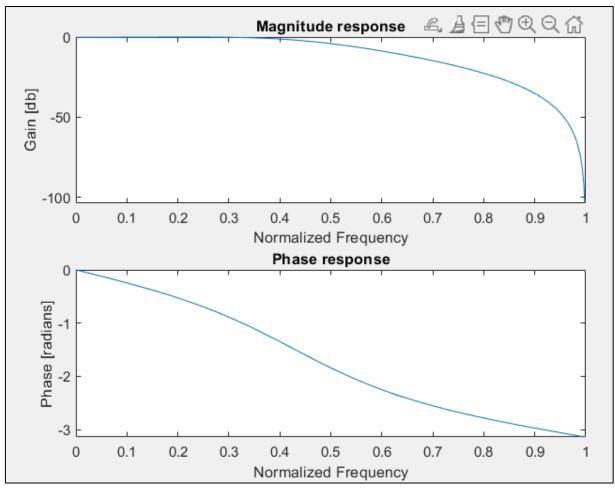


Fig. i) Chebyshev-I Low Pass Filter

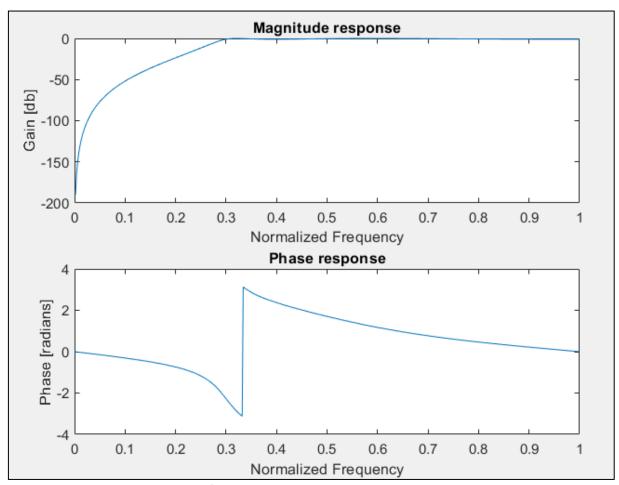


Fig. ii) Chebyshev-I High Pass Filter

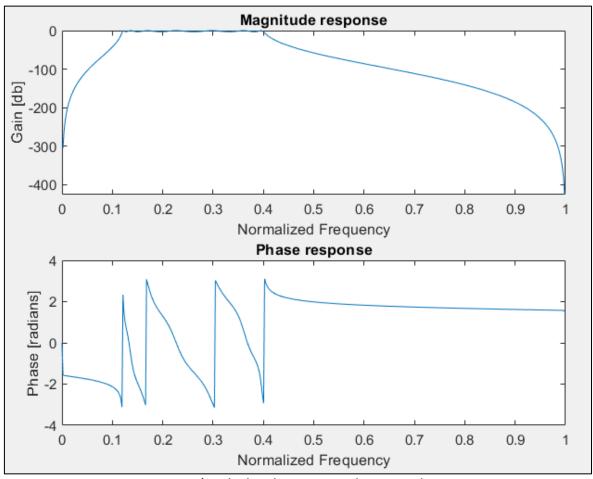


Fig. iii) Chebyshev-I Band Pass Filter

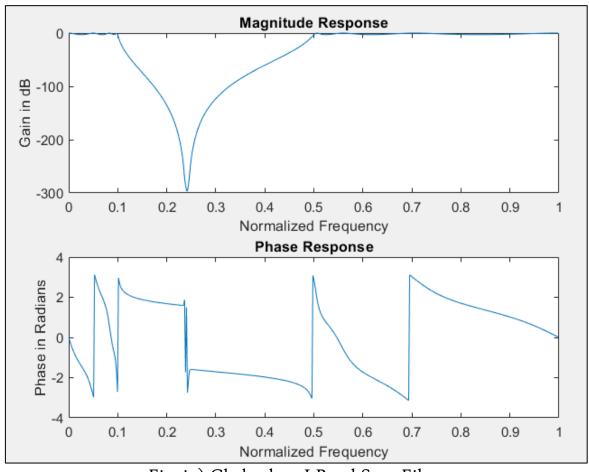


Fig. iv) Chebyshev-I Band Stop Filter