clear all

clc

t=[0:1:8000];

fun=sin(2\*pi\*100\*t/8200)+sin(2\*pi\*200\*t/8200)+sin(2\*pi\*500\*t/8200)+sin(2\*pi\*2000\*t/8200)+sin(2\*pi\*4000\*t/8200);

[a,b]=lpf();

[c,d]=hpf();

[e,f]=bpf();

y1=conv(a,fun);

y2=conv(b,fun);

y3=conv(c,fun);

y4=conv(d,fun);

y5=conv(e,fun);

y6=conv(f,fun);

figure

stem(abs(fft(fun)));

title('DFT of the composite signal');

figure

stem(abs(fft(y1)));

title('DFT of the LPF signal without windowing');

figure

stem(abs(fft(y2)));

title('DFT of the LPF signal with windowing');

figure

stem(abs(fft(y3)));

title('DFT of the HPF signal without windowing');

figure

stem(abs(fft(y4)));

title('DFT of the HPF signal with windowing');

figure

stem(abs(fft(y5)));

title('DFT of the BPF signal without windowing');

figure

stem(abs(fft(y6)));

title('DFT of the BPF signal with windowing');

%{

figure

fvtool(y2);

fvtool(y3);

fvtool(y4);

fvtool(y5);

fvtool(y6);

%}