The Prelab

1. Use MATLAB to design an elliptic filter to meet the following specifications:
   f_{pass}: 4 kHz
   A_{pass}: 0.1 dB
   f_{stop}: 4.5 kHz
   A_{stop}: 50 dB

2. What order of filter is this? Plot the magnitude of the filter you have designed.

3. Implement the filter as a cascade of second-order filter sections. Store the filter coefficients in a text file. This file will be a header file which you will include in your program and compile in the main program.

```
//========== elliptic.cof =========
// This file is used in the IIR lab
// Created by Hector Erives 8/2008

 #define Sections 4

float b[Sections][3]={
{ 1.0000000000, 0.1172762163, 1.0000000000},
            . . .
{ 1.0000000000,-1.6703650090, 1.0000000000}};
float a[Sections][3]={
{ 1.0000000000,-1.5341039500, 0.6090265482},
            . . .
{ 1.0000000000,-1.7035048681, 0.9772932709}};
```

4. Use MATLAB to find out the order of a Butterworth filter to meet the same specifications of Part 1.

5. What order of filter is this? Plot the magnitude of the filter you have designed.