Digital Signal Processing Laboratory
Lab 6 Exercises

1. We have an electromyography (EMG) measured data file "EMG.mat" with a sampling frequency of 2000 Hz. Please write a MATLAB program to load the 3rd channel data set of EMG and complete the following tasks.

   (a) Use "decimate" function to down sample the signal with the frequencies of 1000, 400, and 200 Hz, and plot the original and 3 resampling EMG waveforms in a single figure.

   (b) Use "downsample" function to down sample the signal with the frequencies of 1000, 400, and 200 Hz, and plot the original and 3 resampling EMG waveforms in a single figure.

   (c) Use "resample" function to down sample the signal with the frequencies of 1500, 800, and 200 Hz, and plot the original and 3 resampling EMG waveforms in a single figure.

   (d) Compare the results in (a), (b), and (c) and give some comments.