clc;

close all;

clear all;

%problem 11.1

%%import the data in the fil\tsclient\E\BIOM480A3\Hw5\p11\_1.xls'e and plot the signal

problem11\_1 = load('/MATLAB Drive/BSP/emg\_healthy.txt');

t = problem11\_1(:, 1);

y1 = problem11\_1(:, 2);

N = length(y1);% find the length of the data per second

ls = size(y1); %% size

f = 1/N;% find the sampling rate or frequency

fs = 3000;

T = 1/fs % period between each sample

t1 = (0 : N-1) \*T;%t = (0:1:length(y1)-1)/fs; % sampling period

Nyquist = fs/2; figure;

subplot (3,1,1), plot(t,y1,'b');

title ('EMG signal of single muscle 40 month old patient ');

xlabel ('time (sec)');

ylabel ('Amplitute (V)');

grid on;

Y= abs(fft(y1)); Y(1) = [];

power = abs(Y(1:N/2)).^2;

nyquist = 1/(2\*0.001); freq = (1:N/2)/(N/2)\*nyquist;

subplot(212);

plot(freq,power);

grid on;

xlabel('Sample number (in Frequency)')

ylabel('Power spectrumen');

title({'Single-sided Power spectrum' ...

' (Frequency in shown on a log scale)'});

axis tight;

%%% RMS of the signal

rms\_y1 = sqrt(mean(y1.^2));

msgbox(strcat('RMS of EMG signal is = ',mat2str(rms\_y1), ''));

rms\_emg = rms (y1);

%%%%%AVR of the signal

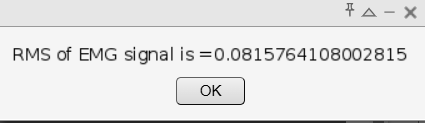
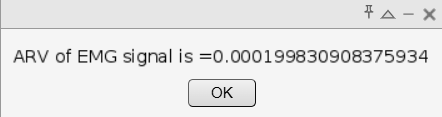
arv\_y1 = abs(mean(y1));

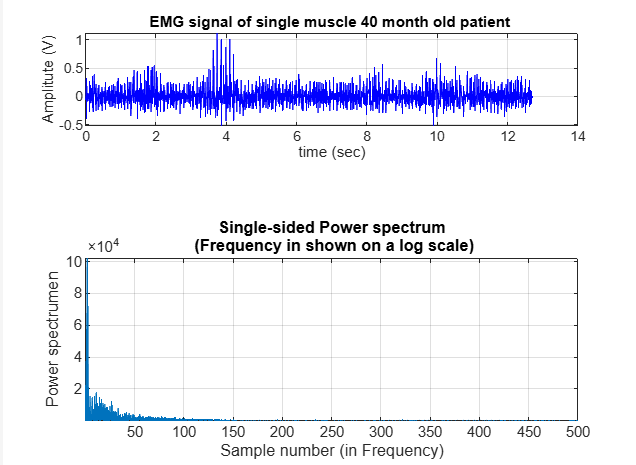
msgbox(strcat('ARV of EMG signal is = ',mat2str(arv\_y1), ''));

**OUTPUT:**

**T =**

**3.3333e-04**

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