**EGN3204 — Engineering Software Tools**

**Pensacola (82151) Section, Fall 2014**

**Problem Set #6 (October 2nd, 2014 Lecture)**

**(Word, Matlab R2013a)**

James Davis

1. The matlab code for problem one is given in Figure 1 and the graph output for problem one is given in Figure 2.

%James Davis, EGN3204, Fall 2014

% MATLAB m file for problem 1

%clears all the input

clear all

%setting up variables

t = linspace(0,5\*10^-3,2000);

sinusoid = 3\*sin(t\*500\*pi)+2;

pulse\_train = 2.5\*square(t\*400\*pi,50)+2.5;

triangle\_wave = 3.5\*sawtooth(t\*800\*pi,0.5) - 2.5;

%plotting the variables

figure(1)

plot(t,sinusoid,'k-',t,pulse\_train,'r-',t,triangle\_wave,'b-',...

'LineWidth',3);

xlabel ('time (s)');

ylabel ('oscilloscope reading(V)');

title ('Plot by James Davis');

axis ([0 5\*10^-3 -8 10]);

set(gca,'XTick',0:5\*10^-4:5\*10^-3);

set(gca,'YTick',-8:1:10);

grid on;

legend('y\_{1} = 3sin(500pi\*t)','y\_{2} = 2.5square(400pi\*t,50)+2.5',...

'y\_{3} = 3.5sawtooth(800pi\*t,0.5)-2.5');

**Figure 1.** The matlab code for problem 1.



**Figure 2.** The graph output when the code from Figure 1 is run.

2. The matlab code for problem two is given in Figure 3. The graph output for the matlab code is given in Figures 4 – 10. Figure 4 is the graph for figure(1) and Figure 9 is the graph for figure(6) and the rest follow respectively.

%James Davis, EGN3204, Fall 2014

% MATLAB m file for problem 2

clear all

%definig variables

n = 0:1:10;

x1 = (0.75).^n;

x2 = (0.95).^n;

x3 = (1.1).^n;

x4 = (-0.65).^n;

x5 = (-0.9).^n;

x6 = (-1.2).^n;

%figure 1

figure(1)

stem(n,x1);

xlabel ('n')

set(gca,'XTick',0:1:10);

ylabel ('x\_1[n] = (0.75)^n');

title('Plot by James Davis');

grid on;

%figure 2

figure(2)

stem(n,x2);

xlabel ('n')

set(gca,'XTick',0:1:10);

ylabel ('x\_2[n] = (0.95)^n');

title('Plot by James Davis');

grid on;

%figure 3

figure(3)

stem(n,x3);

xlabel ('n')

set(gca,'XTick',0:1:10);

ylabel ('x\_3[n] = (1.1)^n');

title('Plot by James Davis');

grid on;

%figure 4

figure(4)

stem(n,x4);

xlabel ('n')

set(gca,'XTick',0:1:10);

ylabel ('x\_4[n] = (-0.65)^n');

title('Plot by James Davis');

grid on;

%figure 5

figure(5)

stem(n,x5);

xlabel ('n')

set(gca,'XTick',0:1:10);

ylabel ('x\_5[n] = (-0.9)^n');

title('Plot by James Davis');

grid on;

%figure 6

figure(6)

stem(n,x6);

xlabel ('n')

set(gca,'XTick',0:1:10);

ylabel ('x\_6[n] = (-1.2)^n');

title('Plot by James Davis');

grid on;

**Figure 3.** The matlab code for problem two.



**Figure 4.** The graph output for figure(1)



**Figure 5.** The graph output for figure(2)



**Figure 6.** The graph output for figure(3)



**Figure 7.** The graph output for figure(4)



**Figure 8.** The graph output for figure(5)



**Figure 9.** The graph output for figure(6)