**EEM-301 MATLAB PROJECTS**

**1.3)**

**a)**

nx=[-3:7];

x=[0 0 0 2 0 1 -1 3 0 0 0];

stem(nx,x)



**b)**

nx=[-3:7];

x=[0 0 0 2 0 1 -1 3 0 0 0];

ny1=[-1:9];

ny2=[-4:6];

ny3=[-7:3];

ny4=[-8:2];

y1=x;

y2=x;

y3=x;

y4=x;

**c)**

nx=[-3:7];

x=[0 0 0 2 0 1 -1 3 0 0 0];

ny1=[-1:9];

ny2=[-4:6];

ny3=[-7:3];

ny4=[-8:2];

y1=x;

y2=x;

y3=x;

y4=x;

stem(ny1,y1)



y2, y3, y4;





**2.1)**

**a)**



**b)**

n = [0:5];

x = [1 1 1 1 1 1];

y = conv(x,x);

ny=[0 1 2 3 4 5 6 7 8 9 10];

stem(ny,y)



**c)**

n = [0:5];

h = n;

x = [1 1 1 1 1 1];

y = conv(x,h);

ny = [0 1 2 3 4 5 6 7 8 9 10];

stem(ny,y)



**d)**

n = [0:5];

h = [-5:0];

x = [1 1 1 1 1 1];

y2 = conv(x,h);

ny2 = [-5 -4 -3 -2 -1 0 1 2 3 4 5];

stem(ny2,y2)



**2.2)**

**a)**

a1 = [1];

b1 = [0.5 1 2];

**b)**

a2 = [1 -0.8];

b2 = [2];

**c)**

a3 = [1 -0.8];

b3 = [0 2];

**d)**

a1 = [1];

b1 = [0.5 1 2];

a2 = [1 -0.8];

b2 = [2];

a3 = [1 -0.8];

b3 = [0 2];

x = [1 2 3 4];

y1 = filter(b1,a1,x)

y2 = filter(b2,a2,x)

y3 = filter(b3,a3,x)

y1 = 0.5000 2.0000 5.5000 9.0000

y2 = 2.0000 5.6000 10.4800 16.3840

y3 = 0 2.0000 5.6000 10.4800

**2.7)**

**a)**

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y[n] = x[n] \* h[n]  

h = [0 2 0 -2 0 0 0];

x = [0 0 1 0 1 0 0];

ny = [-4:8]

y = conv(x,h);

stem(ny,y)

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