**Expt No:1**

**Date:23/6/17**

**Generation of Analog and Digital Signals**

clc;

clear all;

close all;

%unit impulse signal

n=-10:1:10;

N=10;

x=[zeros(1,N),1,zeros(1,N)];

subplot(4,2,1);

stem(n,x);

xlabel('samples');

ylabel('magnitude');

title('unit impulse signal');

%unit ramp signal

n=0:20;

subplot(4,2,2);

stem(n,n);

xlabel('samples');

ylabel('amplitude');

title('unit ramp signal');

%unit step signal

n=-10:1:10;

x=[zeros(1,10),ones(1,11)];

subplot(4,2,3);

stem(n,x);

xlabel('samples');

ylabel('magnitude');

title('unit step signal');

%exponential growing signal

n=-10:1:10;

a=2;

x=a.^(+n);

subplot(4,2,4);

stem(n,x);

xlabel('samples');

ylabel('magnitude');

title('exponential growing signal');

problem 1)

clc;clear all; close all;

t=0:0.01:2;

y=(-2\*t);

x=2\*exp(y);

figure(1)

subplot(2,2,1);

plot(t,x);

xlabel('time');

ylabel('magnitude');

title('x(t)=2e^(-2t) continuous');

n=linspace(0,10,50);

y=(-2\*0.2\*n);

x=2\*exp(y);

figure(1)

subplot(2,2,2);

stem(n,x);

xlabel('time');

ylabel('samples');

title('x(t)=2e^(-2t) discrete');

problem 2)

clc;clear all;close all;

%continuous x(t)=sin7t+sin10t continuous

t=0:0.001:2;

x1=sin(7\*t);

x2=sin(10\*t);

x=x1+x2;

subplot(2,2,3);

plot(t,x);

xlabel('time');

ylabel('magnitude');

title('x(t)=sin7t+sin10t continuous');

%discrete x(t)=sin7t+sin10t continuous

n=linspace(0,10,50)';

x1=sin(2\*pi\*(1.114/5)\*n);

x2=sin(2\*pi\*(1.591/5)\*n);

x=x1+x2;

subplot(2,2,4);

stem(n,x);

xlabel('samples');

ylabel('magnitude');

title('x(t)=sin7t+sin10t discrete');