Roll. No: Date:

Experiment No:1.a)

ADDITION OF TWO MATRICES

AIM: To write the program to perform the sum of two sequences using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP .

PROGRAM:

```
clc;
clear all;
a=[1 2 3;1 2 3;1 2 3];
a =
   1   2   3
   1   2   3
   1   2   3
b=[2 1 3;2 1 3;2 1 3];
b =
   2   1   3
   2   1   3
   2   1   3
 c=a+b;
c =
   3   3   6
   3   3   6
   3   3   6
```

Roll. No: Date:

Experiment No:1.b)

SUBTRACTION OF TWO MATRICES

AIM: To write the program to perform the subtraction of two sequences using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP .

PROGRAM:

```
clc;
 clear all;
 a=[1 2 3;1 2 3;1 2 3];
a =
   1   2   3
   1   2   3
   1   2   3
 b=[2 1 3;2 1 3;2 1 3];
b =
   2   1   3
   2   1   3
   2   1   3
c=b-a;
c =
   1  -1   0
   1  -1   0
   1  -1   0
```

Roll. No: Date:

Experiment No:1.c)

MULTIPLICATION OF TWO MATRICES

AIM: To write the program to perform the multiplication of two sequences using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP.

PROGRAM:

```
clc;
 clear all;
 a=[1 2 3;1 2 3;1 2 3];
a =
    1    2    3
    1    2    3
    1    2    3
 b=[2 1 3;2 1 3;2 1 3];
b =
    2    1    3
    2    1    3
    2    1    3
 c=a*b;
c =
   12    6   18
   12    6   18
   12    6   18
```

Roll. No: Date:

Experiment No:1.d)

TRANSPOSITION OF TWO MATRICES

AIM: To write the program to perform the transposition of sequence using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP .

Program:

```
clc;
 clear all;
 a=[1 2 3;1 2 3;1 2 3];
a =
    1    2    3
    1    2    3
    1    2    3
 x=a';
x =
    1    1    1
    2    2    2
    3    3    3
```

Roll. No: Date:

Experiment No: 2.a)

GENERATION OF SINE WAVEFORM

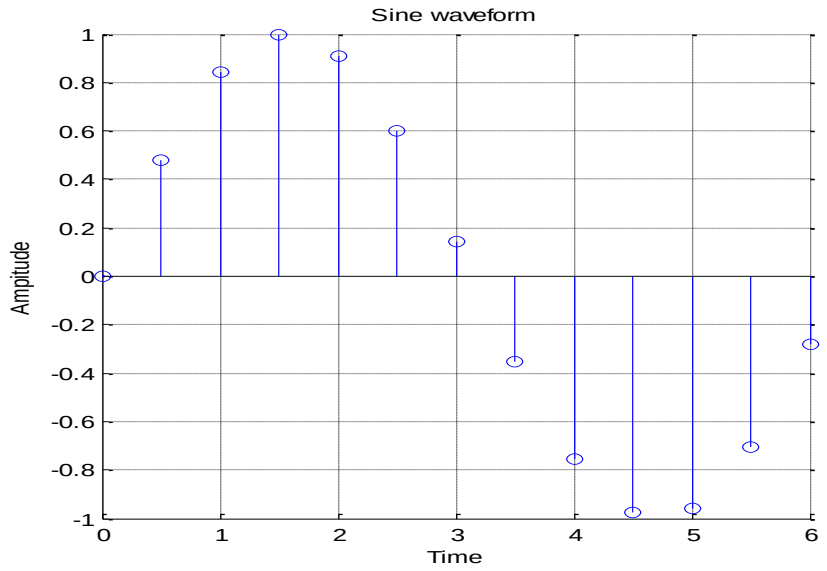
AIM: To generate sine waveform using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP

PROGRAM:

```
clc;
clear all;
n=0:0.5:2*pi;
y=sin(n);
stem(n,y);
xlabel('Time');
ylabel('Ampitude');
title('Sine waveform');
grid;
```

Waveform:



RESULT:The output waveforms are observed and plotted the graph.

Roll. No: Date:

Experiment No: 2.b)

GENERATION OF COSINE WAVEFORM

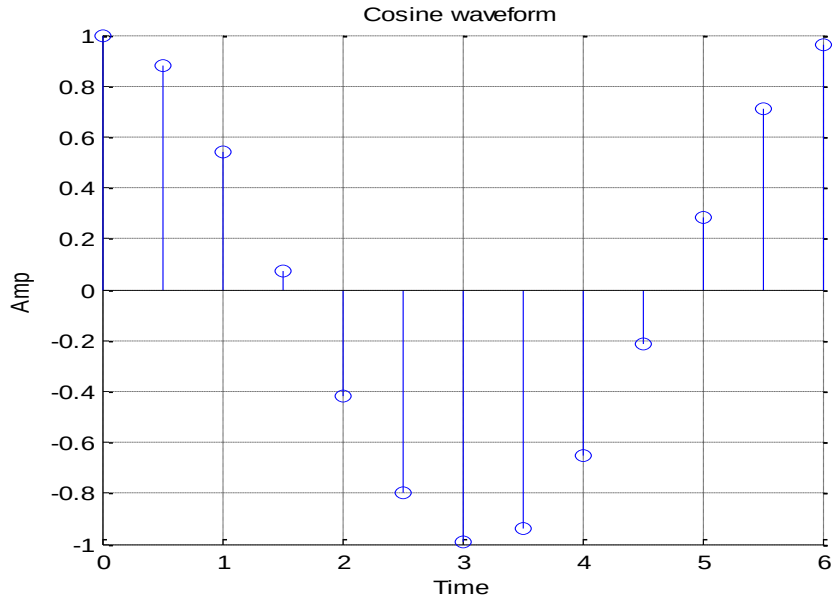
AIM: To generate cosine waveform using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP

PROGRAM:

```
clc;
clear all;
n=0:0.5:2*pi;
y=cos(n);
stem(n,y);
xlabel('Time');
ylabel('Amp');
title('Cosine waveform');
grid;
```

Waveform:



RESULT: The output waveforms are observed and plotted the graph.

Roll. No: Date:

Experiment No:2.c)

GENERATION OF RAMP WAVEFORM

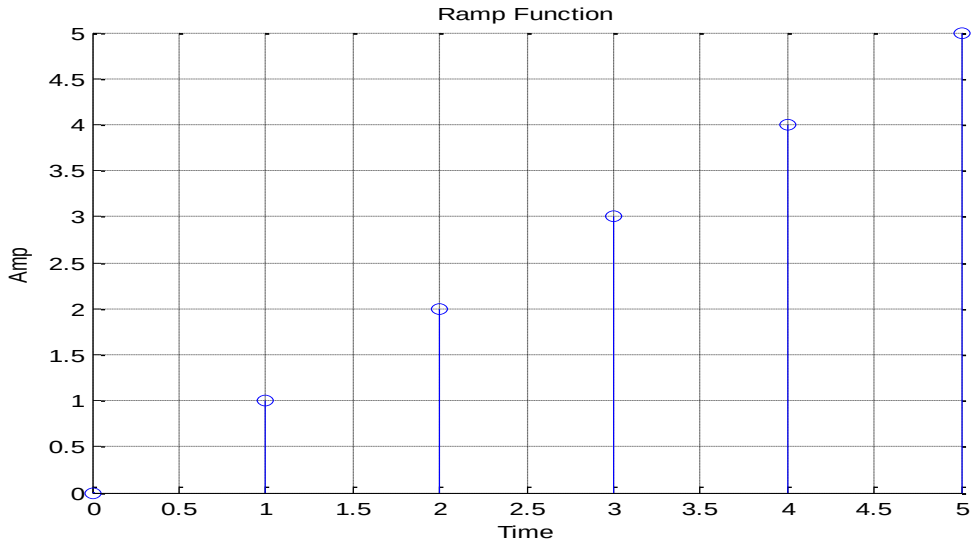
AIM: To generate Ramp Waveform using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP

PROGRAM:

```
clc;
clear all;
n=5;
t=0:1:n;
y=(t);
stem(t,y);
xlabel('Time');
ylabel('Amp');
title('Ramp Function');
grid;
```

Waveform:



RESULT: The output waveforms are observed and plotted the graph.

Roll. No: Date:

Experiment No: 2.d)

GENERATION OF TRINGULAROULSE WAVEFORM

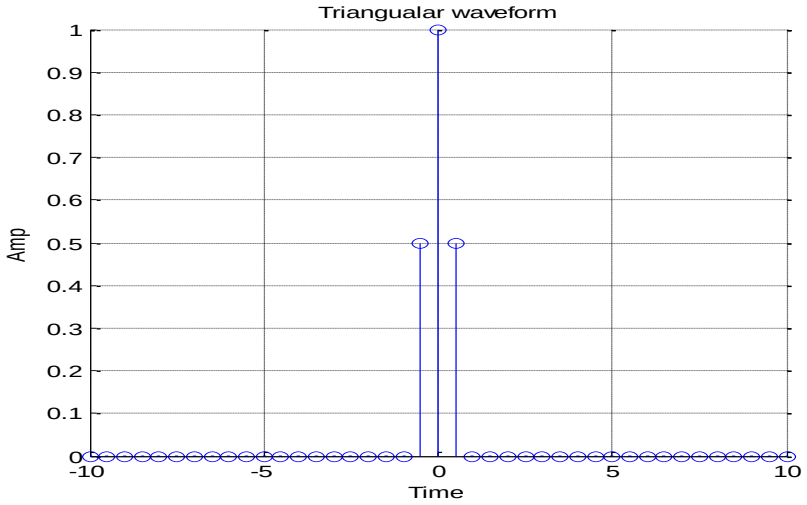
AIM: To generate Triangular Pulse Waveform using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP

PROGRAM:

```
clc;
clear all;
T=-10:0.5:10;
w=2;
y=tripuls(T,w);
stem(T,y);
xlabel('Time');
ylabel('Amp');
title('Triangualar waveform');
grid;
```

Waveform:



RESULT: The output waveforms are observed and plotted the graph.

Roll. No: Date:

Experiment No: 2.e)

GENERATION OF UNIT IMPULSE FUNCTION

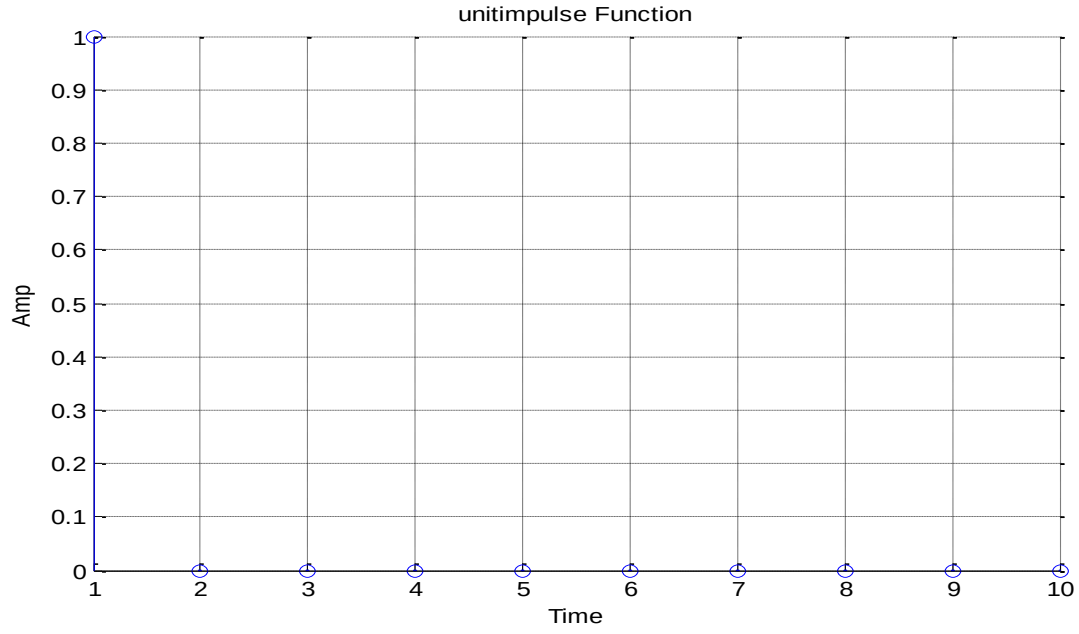
AIM: To generate Unit Impulse function using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP

PROGRAM:

```
clc;
clear all;
t=0:0.01:1;
y=[1;zeros(9,1)];
stem(y);
xlabel('Time');
ylabel('Amp');
title('unitimpulse Function');
grid;
```

Waveform:



RESULT: The output waveforms are observed and plotted the graph.

Roll. No: Date:

Experiment No:2.f)

GENERATION OF UNIT STEP FUNCTION

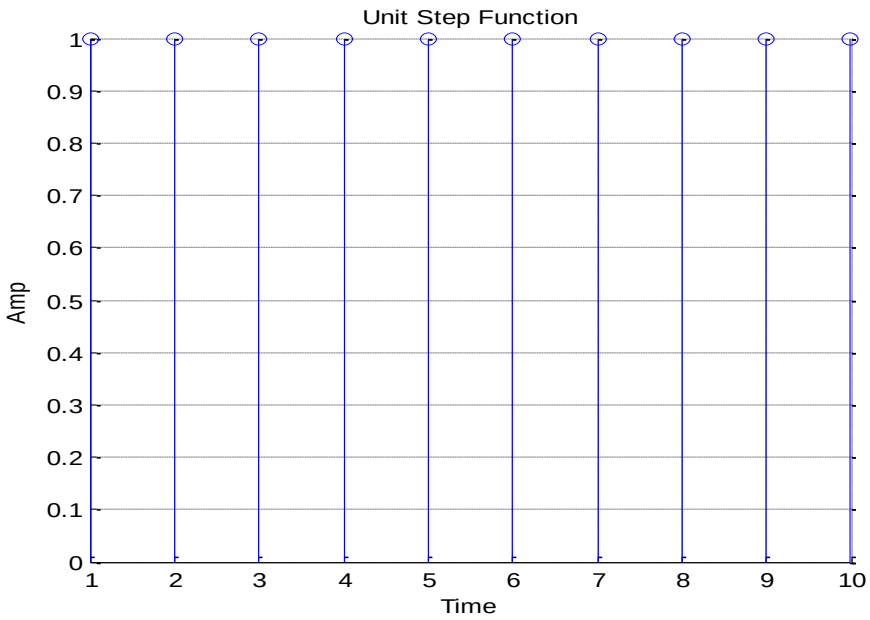
AIM: To generate Unit Step function using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP

PROGRAM

```
clc;
clear all;
t=0:0.01:1;
y=ones(10,1);
stem(y);
xlabel('Time');
ylabel('Amp');
title('Unit Step Function');
grid;
```

Waveform;



Roll. No: Date:

Experiment No: 2.g)

GENERATION OF SQUARE WAVEFORM

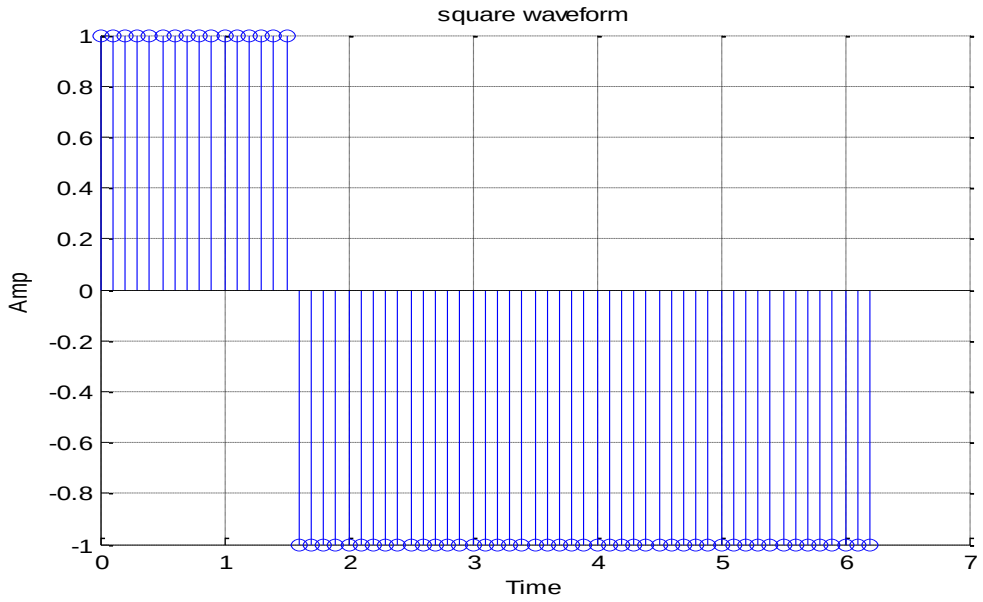
AIM: To generate Square Waveform using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP

PROGRAM

```
clc;
clear all;
t=0:0.1:2*pi;
duty=25;
x=square(t,duty);
stem(t,x);
xlabel('Time');
ylabel('Amp');
title('square waveform');
```

Waveform:



RESULT: The output waveforms are observed and plotted the graph.

Roll. No: Date:

Experiment No: 2.h

GENERATION OF SINC WAVEFORM

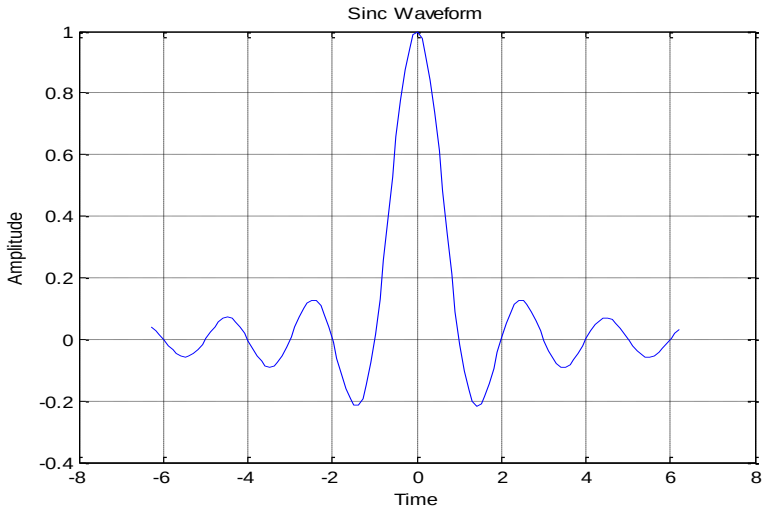
AIM: To generate sinc waveform using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP .

PROGRAM:

```
clc;
clear all;
x=-2*pi:0.1:2*pi;
y=sinc(x);
plot(x,y);
grid;
xlabel('Time');
ylabel('Amplitude');
title('Sinc Waveform');
```

Wavform:



RESULT: The output waveforms are observed and plotted the graph.

Roll. No: Date:

Experiment No:3.a)

ADDITION OF TWO SIGNALS

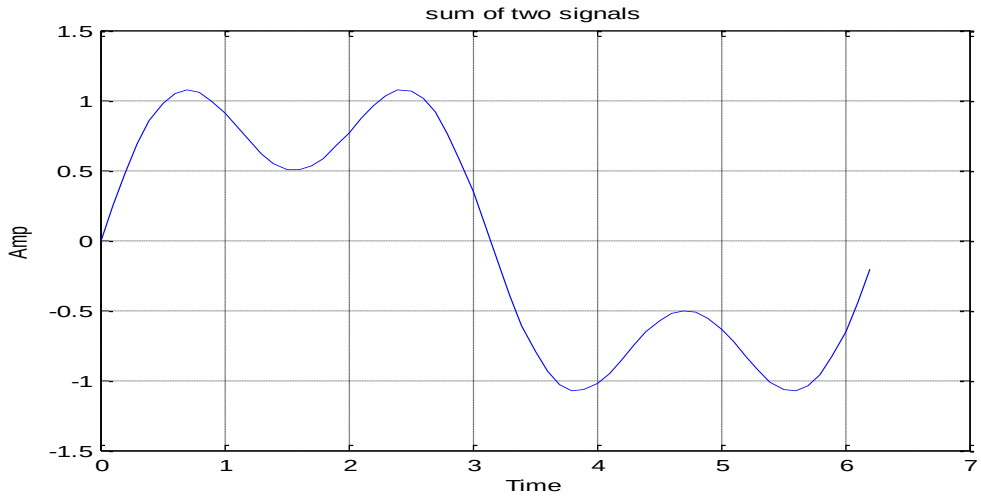
AIM: To write the program to perform the sum of two signals using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP .

Program:

```
clc;
clear all;
t=0:0.1:2*pi;
y1=sin(t);
y2=sin(t*3)/2;
y=y1+y2;
plot(t,y);
xlabel('Time');
ylabel('Amp');
title('sum of two signals');
grid;
```

Waveform:



RESULT: The output waveforms are observed and plotted the graph.

Roll. No: Date:

Experiment No: 3.b)

FOLDING OF SIGNAL

AIM: To write the program to perform the folding of signals using MATLAB 7.1.

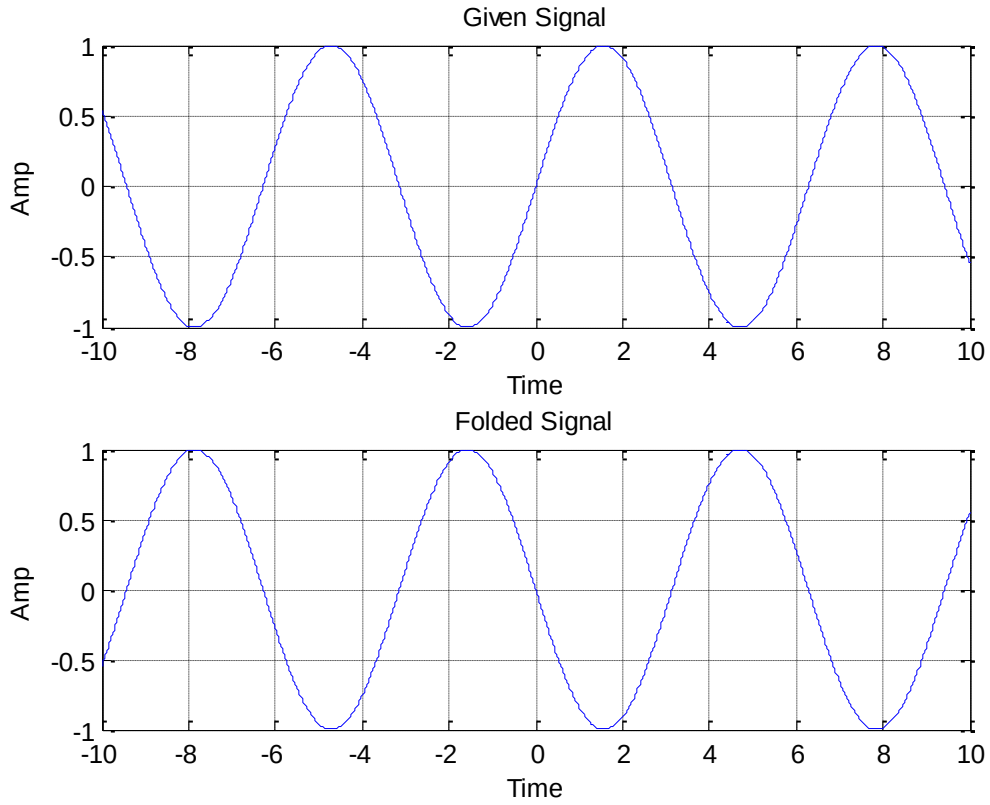
APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP .

Program:

```
clc;
clear all;
t=-10:0.01:10;
y0=sin(t);
y1=flipud(y0')';
subplot(2,1,1);
plot(t,y0);
xlabel('Time');
ylabel('Amp');
title('Given Signal');
grid;
subplot(2,1,2);
plot(t,y1);
xlabel('Time');
ylabel('Amp');
title('Folded Signal');
grid;
```

Roll. No: Date:

Waveform:



RESULT: The output waveforms are observed and plotted the graph.

Roll. No: Date:

Experiment No:3.c)

MULTIPLICATION OF TWO SIGNALS

AIM: To write the program to perform the multiplication of two signals using MATLAB 7.1.

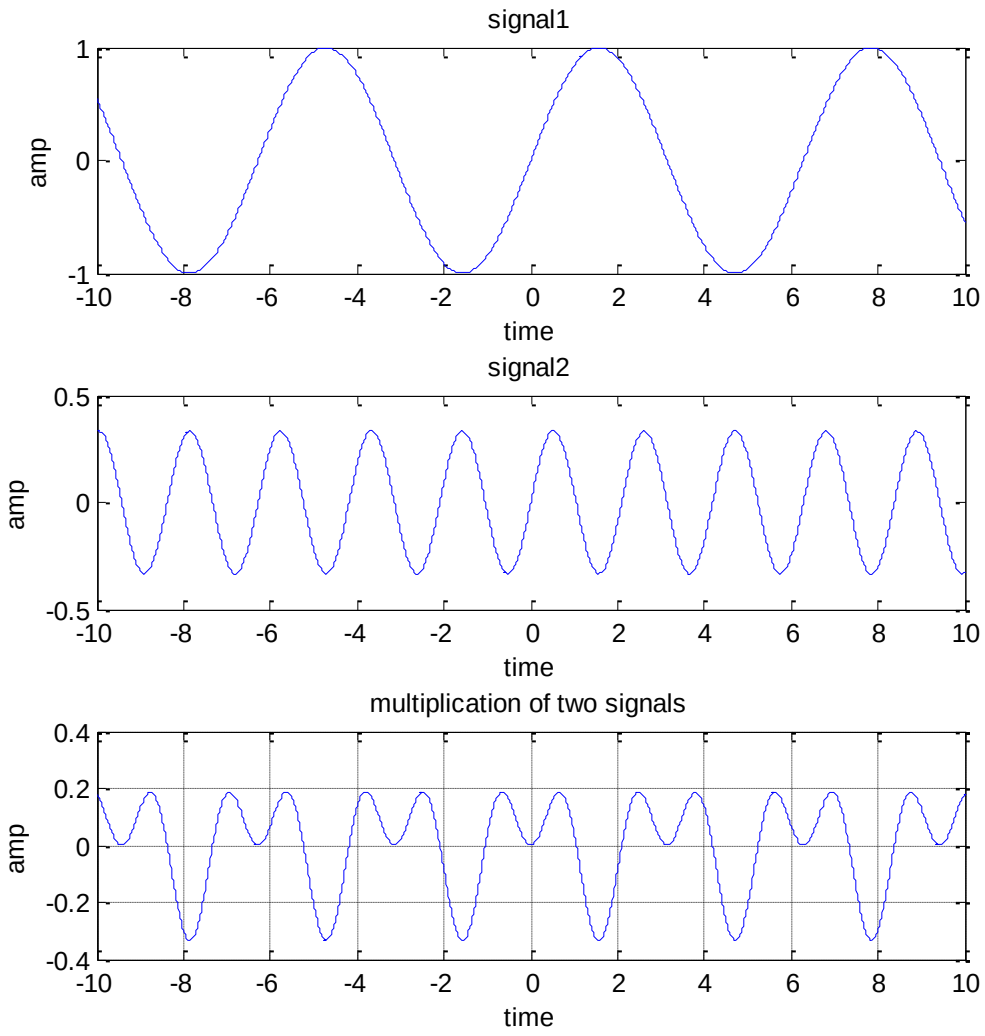
APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP .

Program:

```
clc;
clear all;
t=-10:0.01:10;
y0=sin(t);
subplot(3,1,1);
plot(t,y0);
xlabel('time');
ylabel('amp');
title('signal1');
y1=sin(t*3)/3;
subplot(3,1,2);
plot(t,y1);
xlabel('time');
ylabel('amp');
title('signal2');
y=y0.*y1;
subplot(3,1,3);
plot(t,y);
xlabel('time');
ylabel('amp');
title('multiplication of two signals');
grid;
```

Roll. No: Date:

Waveform:



RESULT: The output waveforms are observed and plotted the graph.

Roll. No: Date:

Experiment No:4

EVEN AND ODD PARTS OF THE SIGNALS

AIM: To write the program to find the even and odd part of the signals using MATLAB 7.1.

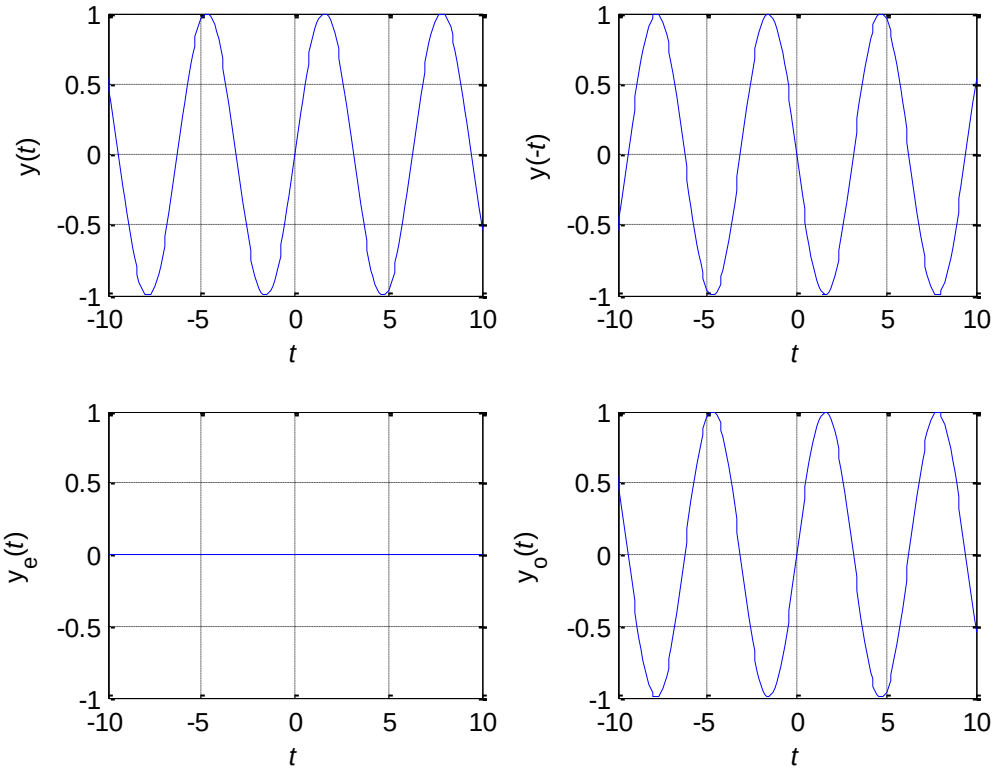
APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP

PROGRAM:

```
clc;
clear all;
tmin=-10;tmax=10;
t=tmin:0.1:tmax;
y0=sin(t);%The given signal
y1=y0(end:-1:1);%Time reversal of signal
ymax=max([max(y0),max(y1)]);
ymin=min([min(y0),min(y1)]);
subplot(2,2,1),plot(t,y0);
xlabel('\itt'),ylabel('y({\itt})');
grid;
subplot(2,2,2),plot(t,y1);
xlabel('\itt'),ylabel('y({-\itt})');
grid;
ye=(y0+y1)/2;%Even part of the signal
yo=(y0-y1)/2;%Odd part of the signal
subplot(2,2,3),plot(t,ye);
xlabel('\itt'),ylabel('y_e({\itt})');
grid;
subplot(2,2,4),plot(t,yo);
xlabel('\itt'),ylabel('y_o({\itt})');
grid;
```

Roll. No: Date:

Waveform:



RESULT: The output waveforms are observed and plotted the graph.

Roll. No: Date:

Experiment No:5

LINEAR CONVOLUTION

AIM: To write the program to perform Linear convolution of two sequences using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP

PROGRAM

```
clc;
clear all;
x=input('enter the inputx(n)');
h=input('enter the inputh(n)');
y=conv(x,h);
subplot(1,3,1);
stem(x);
xlabel('x');
ylabel('magnitude');
title('plot(x)');
subplot(1,3,2);
stem(h);
xlabel('h');
ylabel('magnitude');
title('plot(h)');
subplot(1,3,3);
stem(y);
xlabel('y');
ylabel('magnitude');
title('convolution');
```

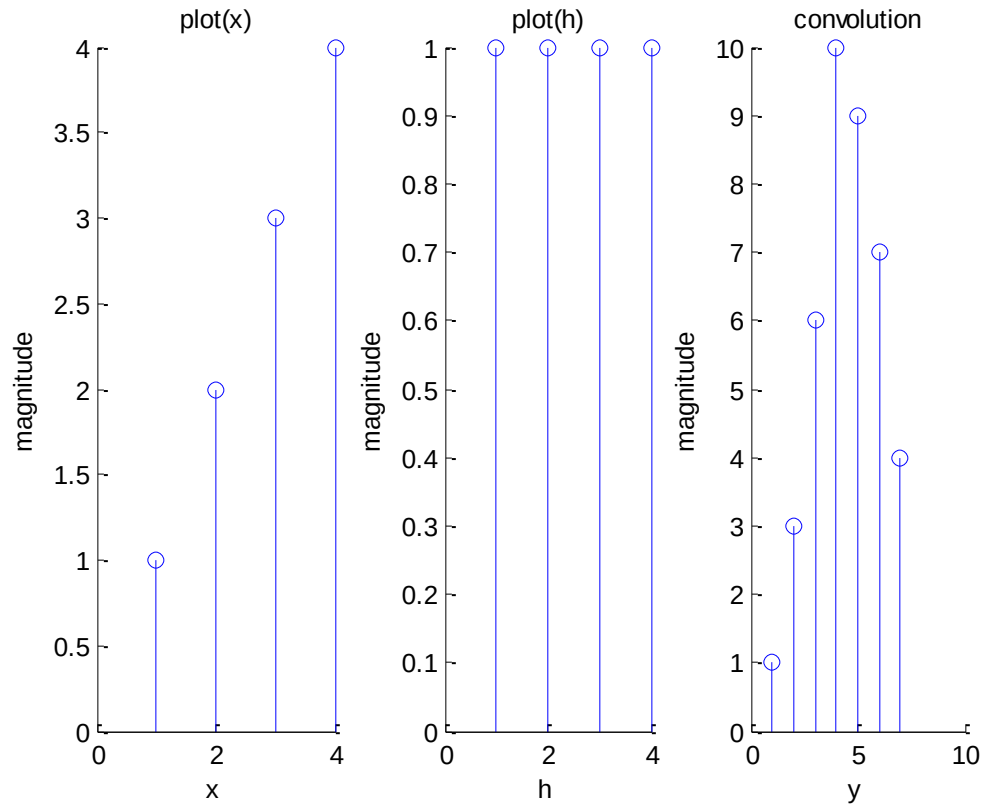
Roll. No: Date:

Input: enter the inputx(n)[1 2 3 4];

enter the inputh(n)[1 1 1 1];

output: Linear convolution of two sequences using MATLAB 7.1 has been generated as output [1 3 6 10 9 7 4]

Waveform:



RESULT: The output waveforms are observed and plotted the graph.

Roll. No: Date:

Experiment No:6.a)

AUTO CORRELATION

AIM: To write the program to perform Auto Correlation of two sequences using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP

PROGRAM:

```
clc;
 clear all;
 a=input('enter the input of a(n)');
 c=xcorr(a,a);
 subplot(1,2,1);
 stem(a);
 xlabel('time');
 ylabel('Amp');
 title('a(n)');
 subplot(1,2,2);
 stem(c);
 xlabel('time');
ylabel('Amp');
title('c(n)');
```

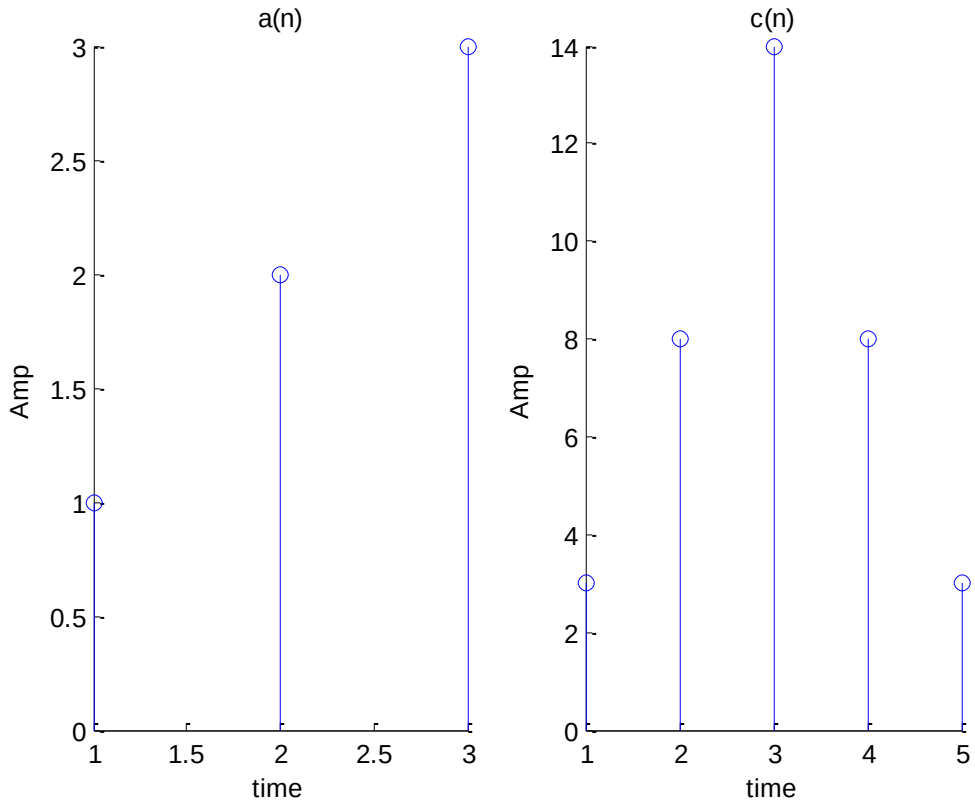
Input: enter the input of a(n)[1 2 3]

Output: The sequence thus generated after auto correlation is [3 8 14 8 3].

RESULT: The output waveforms are observed and plotted the graph.

Roll. No: Date:

Waveform:



Experiment No:6.b)

CROSS CORRELATION

AIM: To write the program to perform Cross Correlation of two sequences using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP

PROGRAM:

```
clc;
 clear all;
 a=input('input x(n)');
 b=input('input h(n)');
 c=xcorr(a,b);
 subplot(1,3,1);
 stem(a);
 xlabel('a');
 ylabel('magnitude');
 title('plot(a)');
 subplot(1,3,2);
 stem(b);
 xlabel('b');
 ylabel('magnitude');
 title('plot(b)');
 subplot(1,3,3);
 stem(c);
 xlabel('time');
ylabel('magnitude');
title('cross correlation(c)');
```

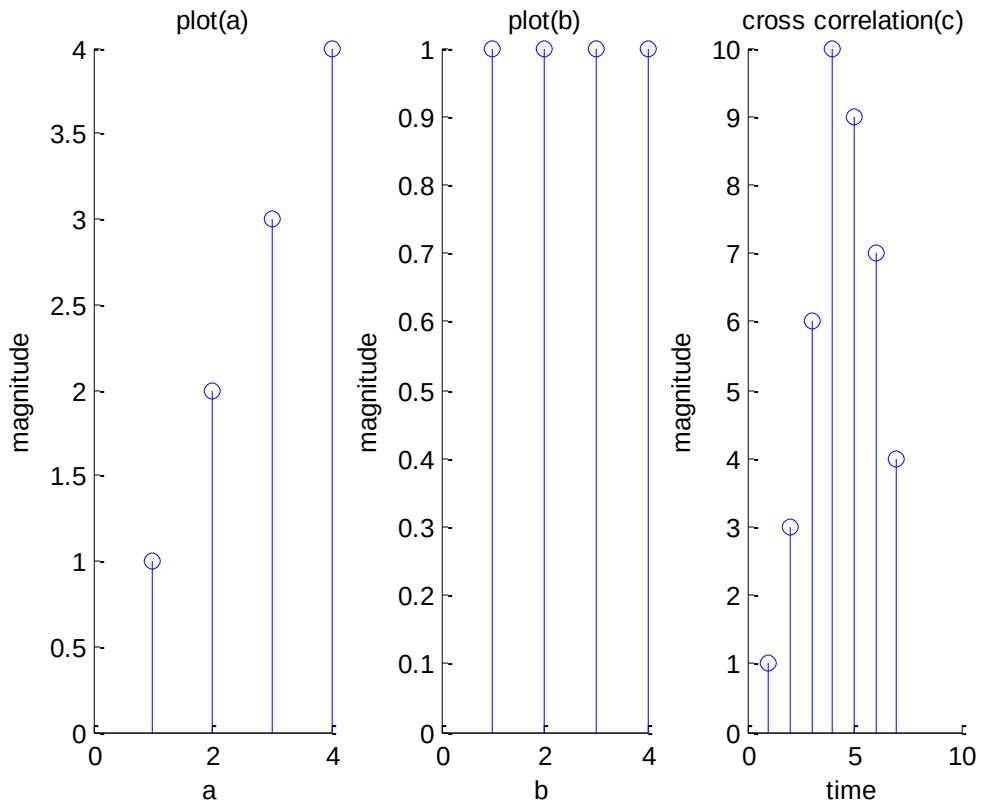
Roll. No: Date:

Input: input x(n)[1 2 3 4];

input h(n)[1 1 1 1];

Output: The two sequences have been cross correlated giving rise to c[1 3 6 10 7 4],thus verified cross correlation of two sequences.

Waveform:



RESULT: The output waveforms are observed and plotted the graph.

Experiment No: 7

FOURIER TRANSFORM

AIM: To write the program for finding the Fourier Transform of given a signal and plotting its magnitude and phase spectrum using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP

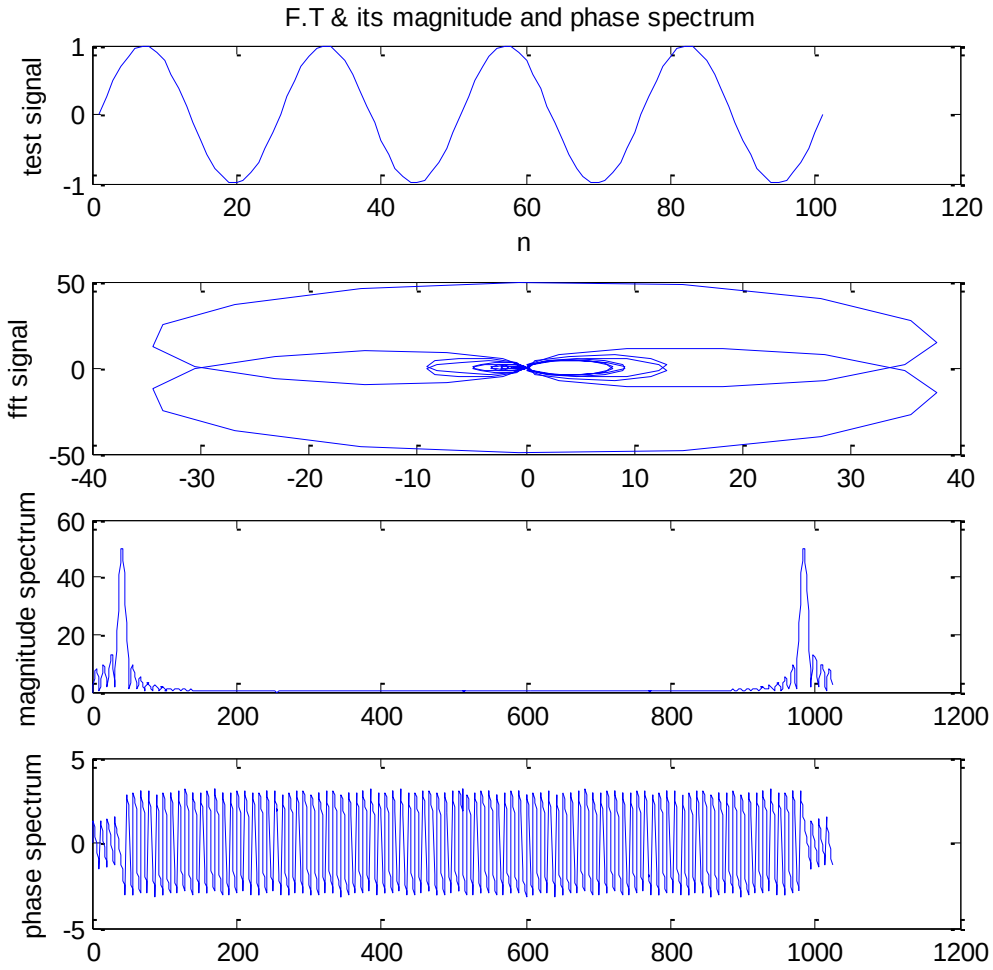
PROGRAM:

```
clc;
clear all;
n=0:100;
N=1024;
signal=sin(2*pi*n/25);
Subplot (4, 1, 1);
plot (signal);
xlabel('n');
ylabel('test signal');
title('F.T & its magnitude and phase spectrum ');
fft_out=fft(signal,N);
subplot(4,1,2);
plot(fft_out);
ylabel('fft signal');
mag_fft=abs(fft_out);
subplot(4,1,3);
plot(mag_fft);
ylabel('magnitude spectrum');
phase_out=angle(fft_out);
subplot(4,1,4);
```

plot(phase_out);

ylabel('phase spectrum');

Waveform:



RESULT: The output waveforms are observed and plotted the graph.

Roll. No: Date:

Experiment No:8

RESPONSE OF LTI SYSTEMS

AIM: To write the program for computation of unit impulse unit step and sinusoidal response of the given LTI system and verifying its physical realizability and stability properties by using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP

PROGRAM

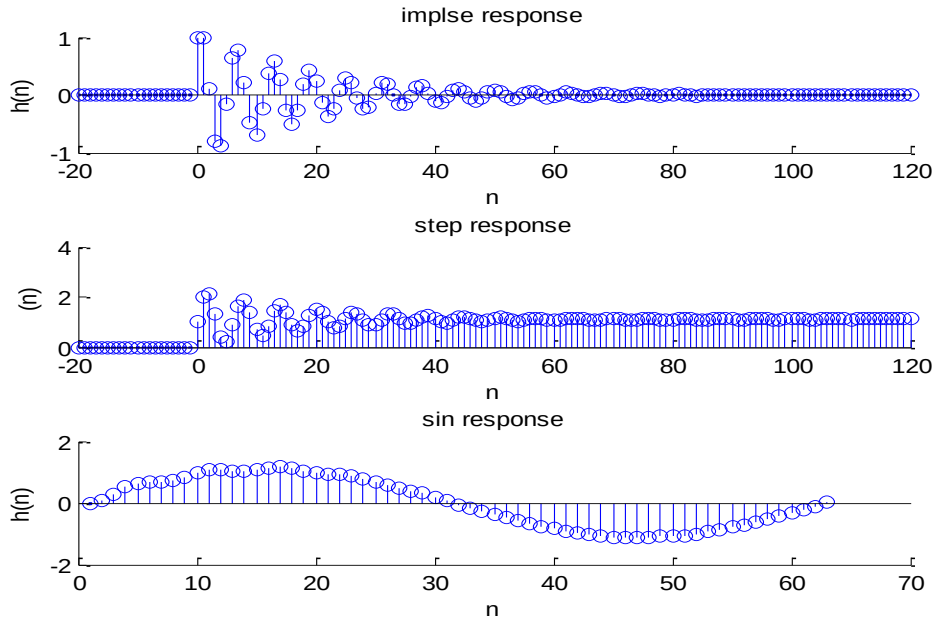
```
clc;

clear all;

b=[1];

a=[1,-1,.9];

n=(-20:120);

x=(n==0);

h=filter(b,a,x);

subplot(3,1,1);

stem(n,h);

title('implse response');

xlabel('n');

ylabel('h(n)');

x=(n>=0);

s=filter(b,a,x);
```

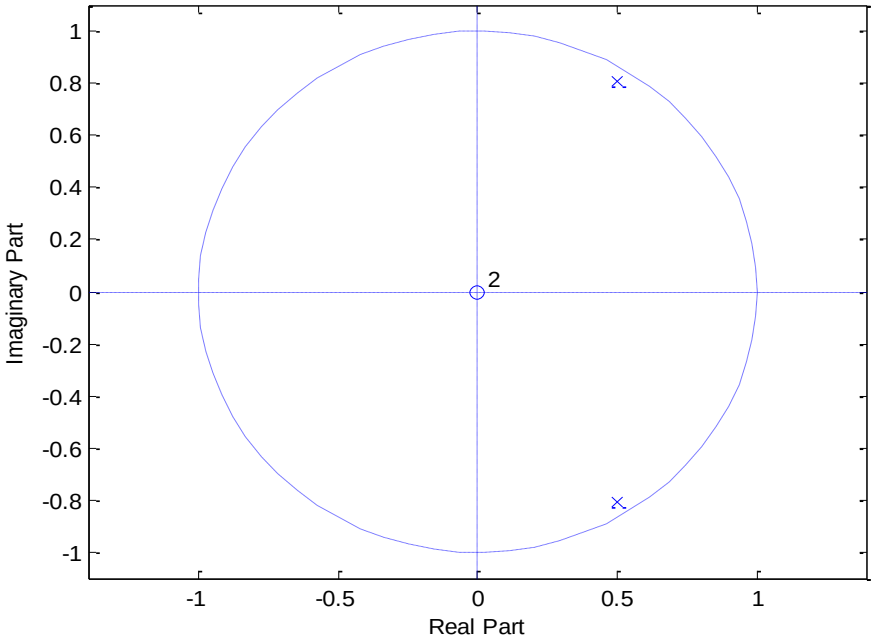
```
subplot(3,1,2);

stem(n,s);

title('step response');

xlabel('n');

ylabel('(n)');

t=0:.1:2*pi;

x1=sin(t);

h=filter(b,a,x1);

subplot(3,1,3);

stem(h);

title('sin response');

xlabel('n');

ylabel('h(n)');

figure;

zplane(b,a);
```

RESULT: The output waveforms are observed and plotted the graph.

Roll. No: Date:

Waveform:





Roll. No: Date:

Experiment No:9

GIBBS PHENOMENON

AIM: To write the program to perform the operation of Gibbs Phenomenon using MATLAB 7.1.

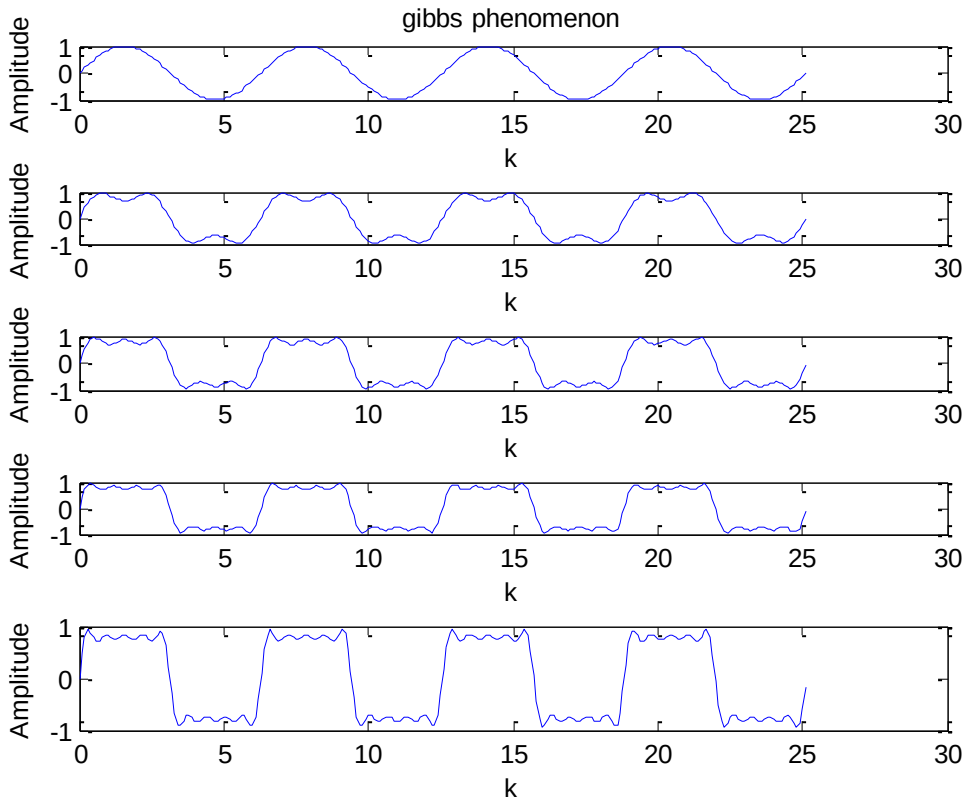
APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP

PROGRAM:

```
clc;
clear all;
close all;
t=0:0.1:(pi*8);
y=sin(t);
subplot(5,1,1);
plot(t,y);
xlabel('k');
ylabel('Amplitude');
title('gibbs phenomenon');
h=2;
k=3;
for k=3:2:9
   y=y+sin(k*t)/k;
   subplot(5,1,h);
plot(t,y);
xlabel('k');
ylabel('Amplitude');
h=h+1;
end;
```

Roll. No: Date:

Waveform:



RESULT: The output waveforms are observed , Gibbs Phenomenon is verified and plotted the graph.

Experiment No:10.a)

LOCATION OF ZEROS & POLES IN S-PLANE

AIM: To write the program to locate the Zeros and Poles and plot the Pole-Zero maps in S-Plane using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP

PROGRAM:

```
clc;
clear all;
b=input('enter the numerator coefficients');
a=input('enter the denominator coefficients');
H=tf(b,a);
[p,z]=pzmap(H);
disp('zeros are at');disp(z);
disp('poles are at');disp(p);
figure;
pzmap(H);
```

Input: enter the numerator coefficients=[1 -2 1]

enter the denominator coefficients=[1 6 11 6]

Output: zeros are at

1

1

poles are at

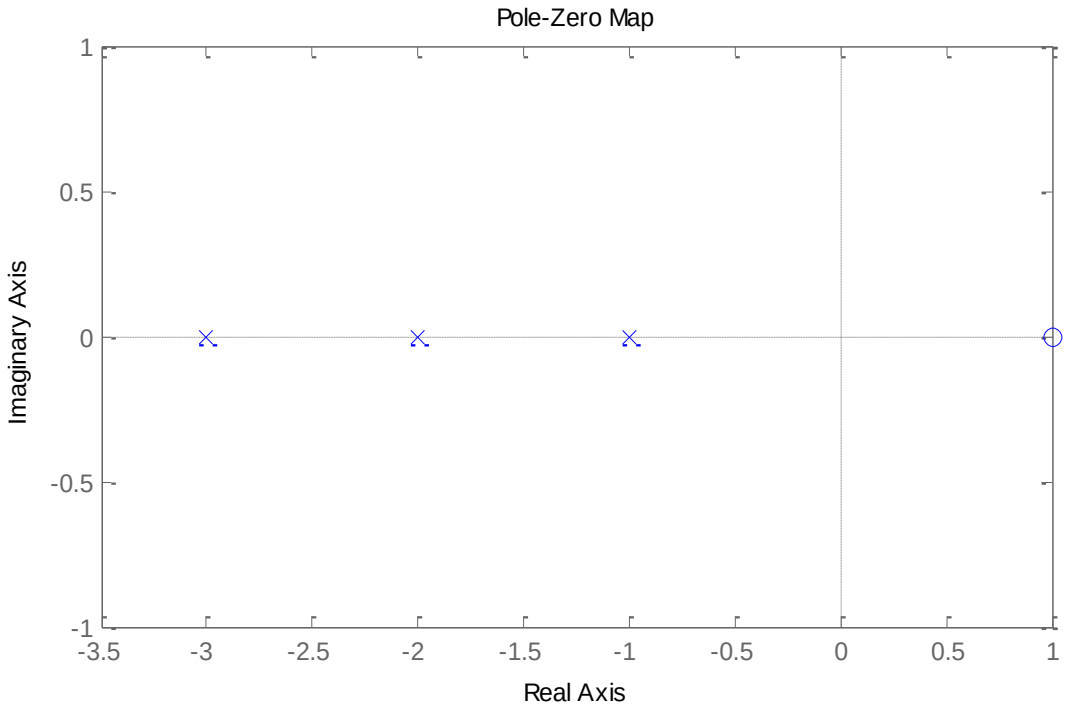
-3.0000

-2.0000

-1.0000

Roll. No: Date:

Waveform:



RESULT: Poles & Zeros are located and plotted the pole-zero Maps in S-Plane.

Roll. No: Date:

Experiment No:10.b)

LOCATION OF ZEROS & POLES IN Z-PLANE

AIM: To write the program to locate the Zeros and Poles and plot the Pole-Zero maps in Z-Plane using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP

PROGRAM:

```
clc;
clear all;
num=input('enter the numerator coefficients');
den=input('enter the denominator coefficients');
disp('zeros are at');
disp('z');
disp('poles are at');
disp('p');
zplane(num,den);
```

Input: enter the numerator coefficients =[1 -1]

enter the denominator coefficients =[1 1 0.16]

Output:

zeros are at

0

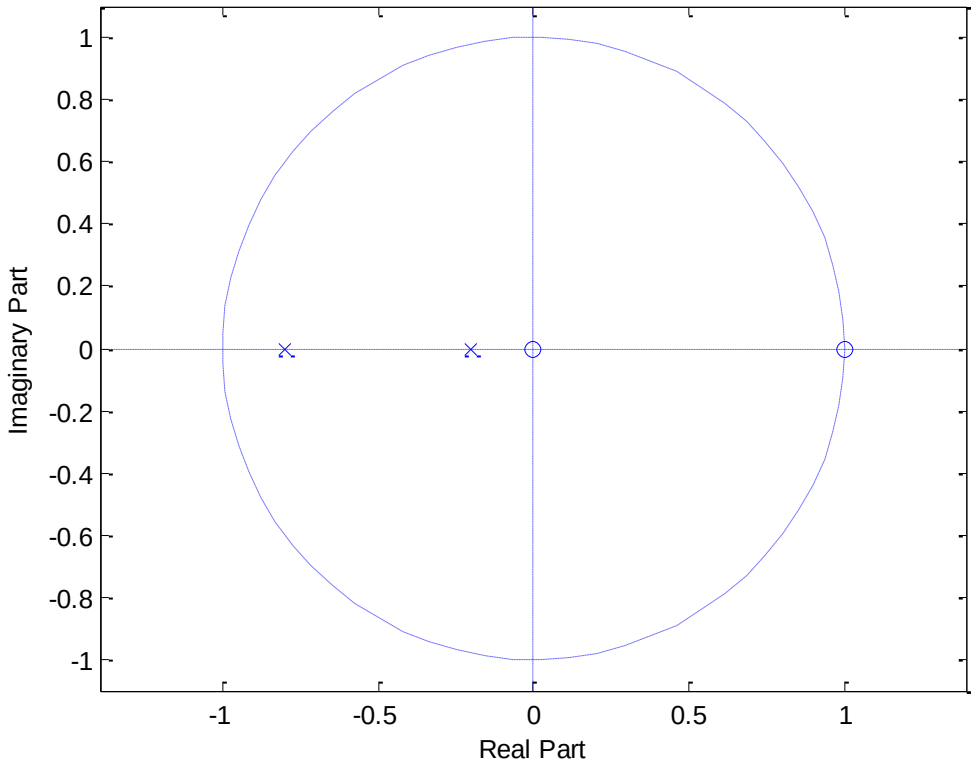
1

poles are at

-0.8000

-0.2000

Waveform:



RESULT: Poles & Zeros are located and plotted the pole-zero Maps in Z-Plane.

Experiment No:11

WEINER-KHINCHINE RELATION

AIM: To write the program to verify the weiner-khinchine relation using MATLAB 7.1.

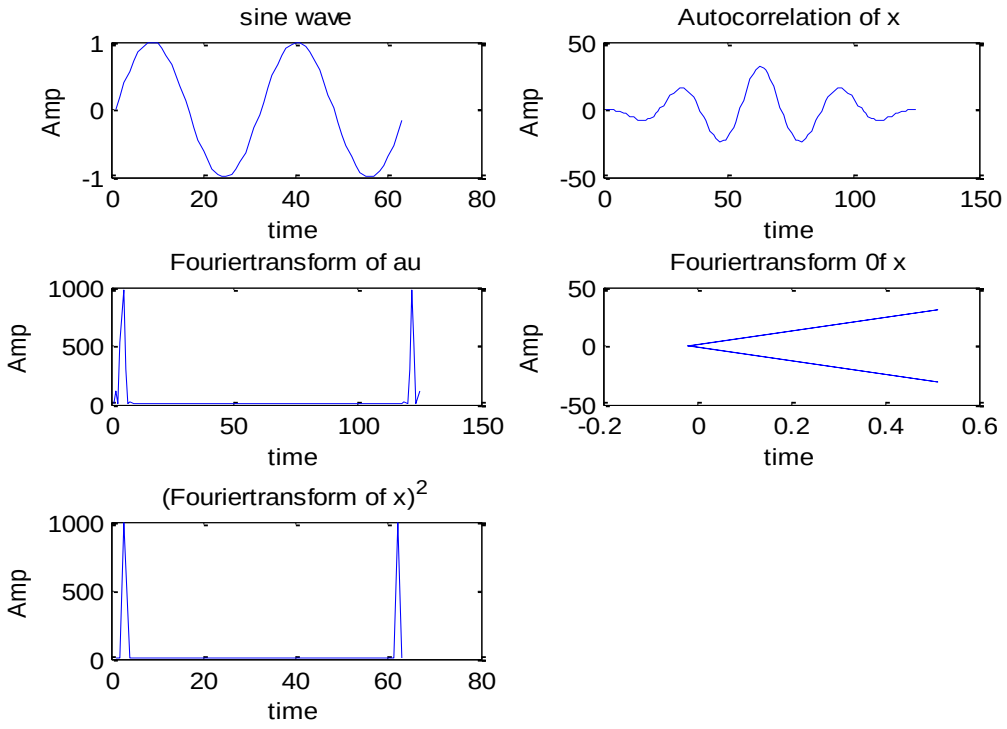
APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP

PROGRAM:

```
clc;
clear all;
t=0:0.1:2*pi;
x=sin(2*t);
subplot(3,2,1);
plot(x);
xlabel('time');
ylabel('Amp');
title('sine wave');
au=xcorr(x,x);
subplot(3,2,2);
plot(au);
xlabel('time');
ylabel('Amp');
title('Autocorrelation of x');
v=fft(au);
subplot(3,2,3);
plot(abs(v));
xlabel('time');
ylabel('Amp');
title('Fouriertransform of au');
fw=fft(x);
```

```
subplot(3,2,4);
plot(fw);
xlabel('time');
ylabel('Amp');
title('Fouriertransform 0f x');
fw2=(abs(fw)).^2;
subplot(3,2,5);
plot(fw2);
xlabel('time');
ylabel('Amp');
title('(Fouriertransform of x)^2');
```

Waveform:



RESULT: The output waveforms are observed ,weiner-khinchine relation is verified and plotted the graph.

Roll. No: Date:

Experiment No:12

REMOVAL OF NOISE BY AUTOCORRELATION

AIM: To write the program to remove the noise by Autocorrelation using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP

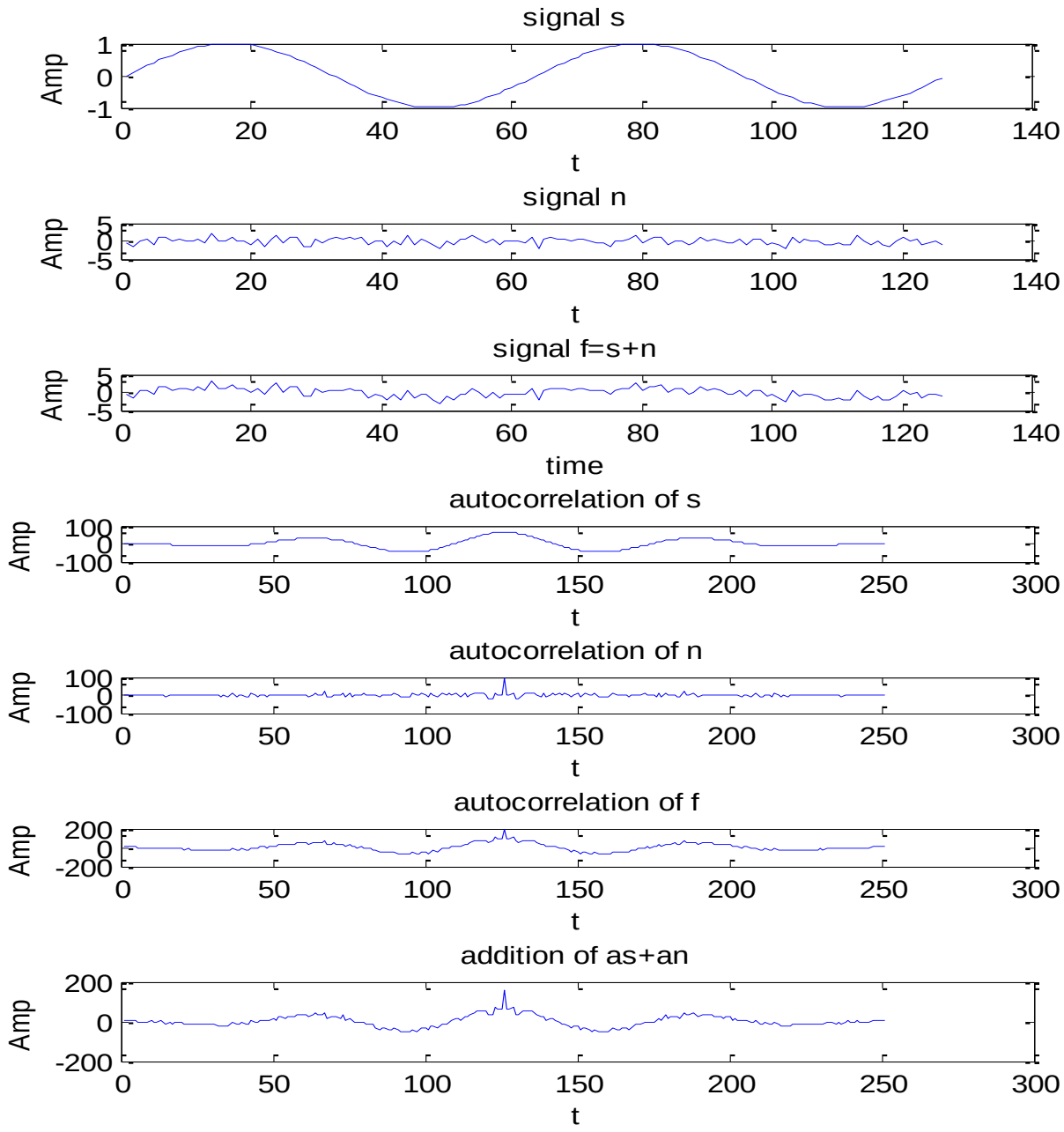
PROGRAM:

```
clc;
clear all;
t=(0:0.1:pi*4);
s=sin(t);
%k=2;
subplot(7,1,1);
plot(s);
xlabel('t');
ylabel('Amp');
title('signal s');
n=randn([1 126]);;
subplot(7,1,2);
plot(n);
xlabel('t');
ylabel('Amp');
title('signal n');
f=s+n;
subplot(7,1,3);
plot(f);
xlabel('time');
ylabel('Amp');
title('signal f=s+n');
```

```
as=xcorr(s,s);
subplot(7,1,4);
plot(as);
xlabel('t');
ylabel('Amp');
title('autocorrelation of s');
an=xcorr(n,n);
subplot(7,1,5);
plot(an);
xlabel('t');
ylabel('Amp');
title('autocorrelation of n');
af=xcorr(f,f);
subplot(7,1,6);
plot(af);
xlabel('t');
ylabel('Amp');
title('autocorrelation of f');
hh=as+an;
subplot(7,1,7);
plot(hh);
xlabel('t');
ylabel('Amp');
title('addition of as+an');
```

Roll. No: Date:

Waveform:



RESULT: The output waveforms are observed that the noise is removed by using auto correlation and plotted the graph.

Roll. No: Date:

Experiment No:13

EXTRACTION OF SIGNAL MASKED BY NOISE USING CROSS CORRELATION

AIM: To write the program to extract the periodic signal masked by noise using Crosscorrelation using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP

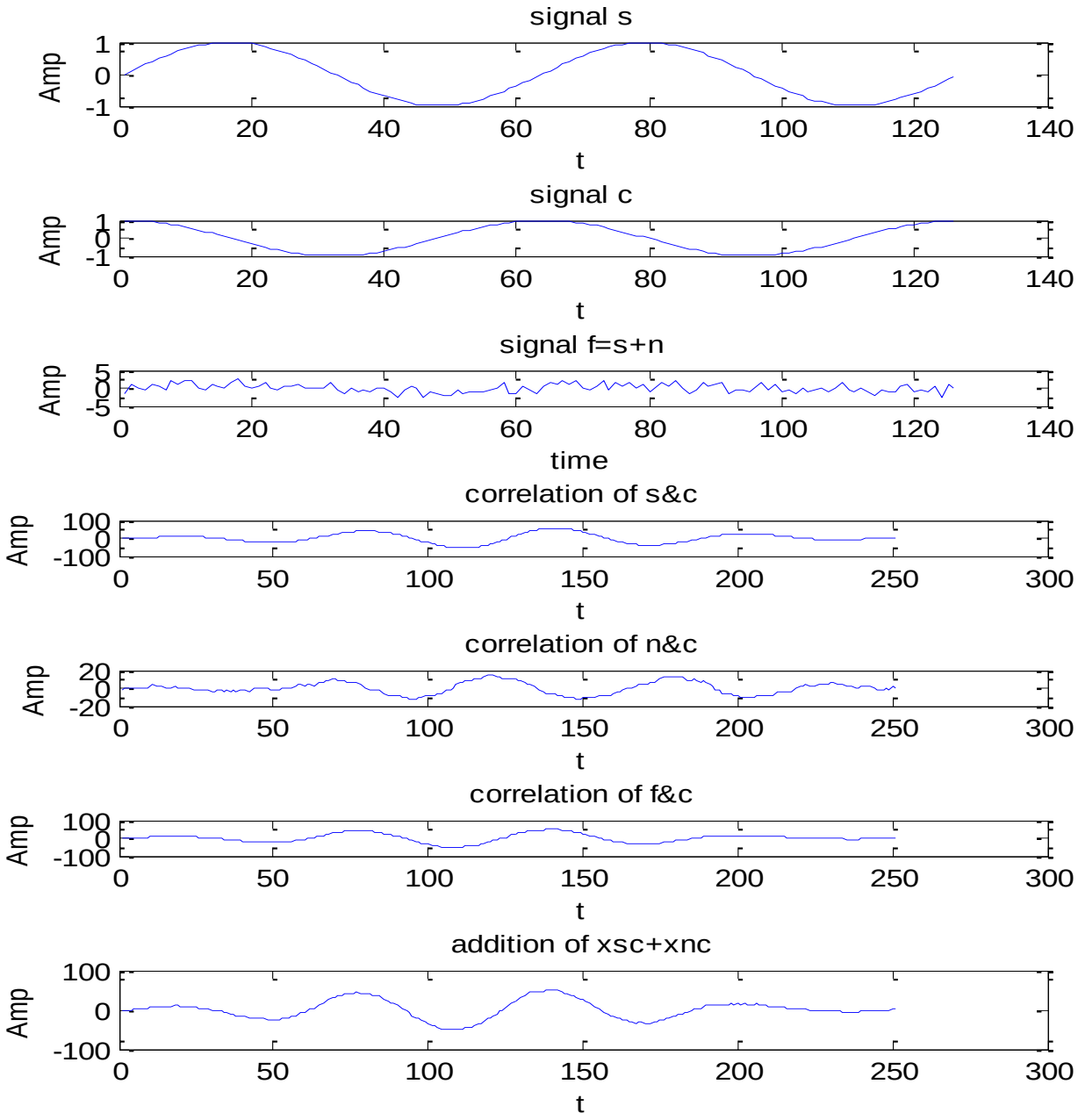
PROGRAM:

```
clc;
clear all;
t=(0:0.1:pi*4);
s=sin(t);
%k=2;
subplot(7,1,1);
plot(s);
xlabel('t');
ylabel('Amp');
title('signal s');
c=cos(t);
subplot(7,1,2);
plot(c);
xlabel('t');
ylabel('Amp');
title('signal c');
n=randn([1 126]);
f=s+n;
subplot(7,1,3);
plot(f);
xlabel('time');
```

```
ylabel('Amp');
title('signal f=s+n');
xsc=xcorr(s,c);
subplot(7,1,4);
plot(xsc);
xlabel('t');
ylabel('Amp');
title('correlation of s&c');
xnc=xcorr(n,c);
subplot(7,1,5);
plot(xnc);
xlabel('t');
ylabel('Amp');
title('correlation of n&c');
xfc=xcorr(f,c);
subplot(7,1,6);
plot(xfc);
xlabel('t');
ylabel('Amp');
title('correlation of f&c');
hh=xsc+xnc;
subplot(7,1,7);
plot(hh);
xlabel('t');
ylabel('Amp');
title('addition of xsc+xnc');
```

Roll. No: Date:

Waveform:



RESULT: The output waveforms are observed that periodic signal masked by noise is extracted by using cross correlation and plotted the graph.

Roll. No: Date:

Experiment No: 14.a)

LAPLACE TRANSEFORM OF WAVEFORM

AIM: To write the program to perform the Laplace Transform of waveform using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP

PROGRAM:

```
clc;
clear all;
syms t w s
f1=sin(w*t);
f2=sin(w*(t-1));
v1=laplace(f1);
v2=laplace(f2);
disp('v1=')
pretty(v1);
disp('v2=')
pretty(v2);
```

Output:

```
v1=          w
             -------
             2   2
             s  + w
v2=      cos(w) w        sin(w) s
         --------    -   --------
          2   2           2   2
          s  + w          s  + w
```

Roll. No: Date:

Experiment No: 14.b)

WAVEFORM SYNTHESIS USING LAPLACE TRANSEFORM

AIM: To write the program to synthesis the waveform by Laplace Transform using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP

PROGRAM:

```
clc;
clear all;
syms s;
T=1;
F1=1-exp(-T*s/2);
F2=s*(1+exp(-T*s/2));
F=F1/F2;
f=ilaplace(F);
pretty(simplify(f));
ezplot(f);
```

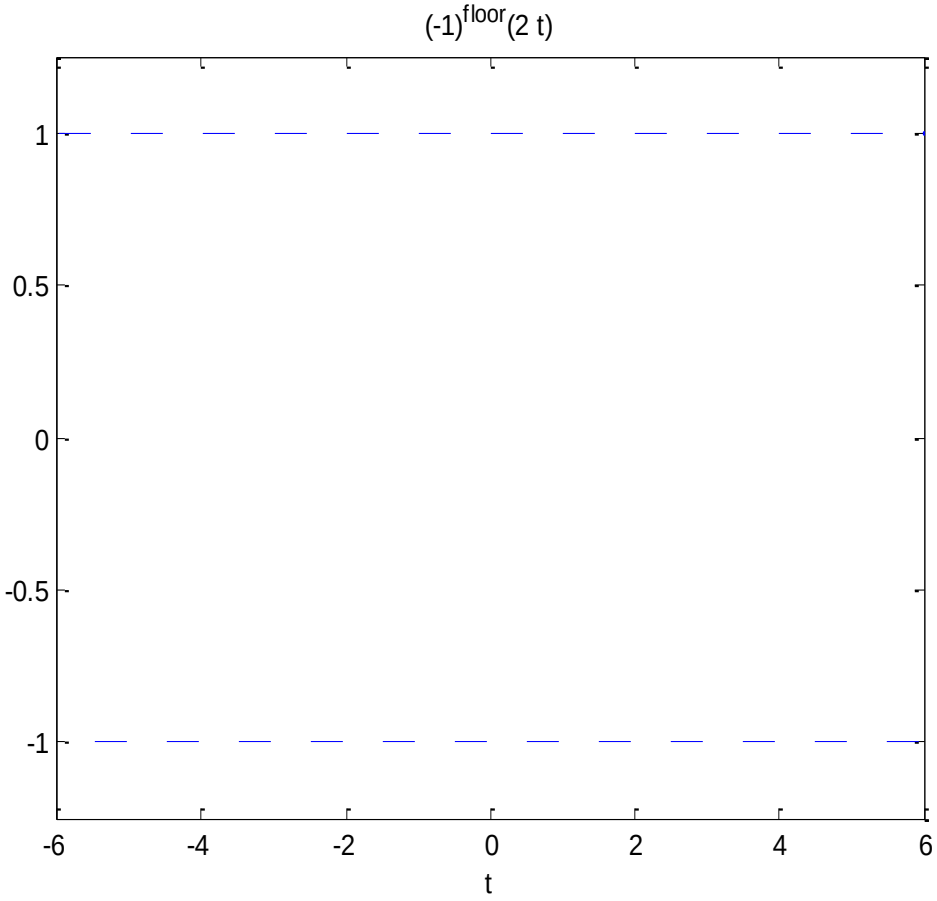
Output :

```
floor(2 t)
(-1)
```

RESULT: The Laplace Transform of the waveforms are observed and synthesized by using Laplace Transform and plotted the graph.

Roll. No: Date:

Waveform:



Experiment No:15

SAMPLING THEOREM VERIFICATION

AIM: To write the program to verify the Sampling Theorem using MATLAB 7.1.

APPARATUS: Software-MATLAB 7.1, Operating System-Windows XP

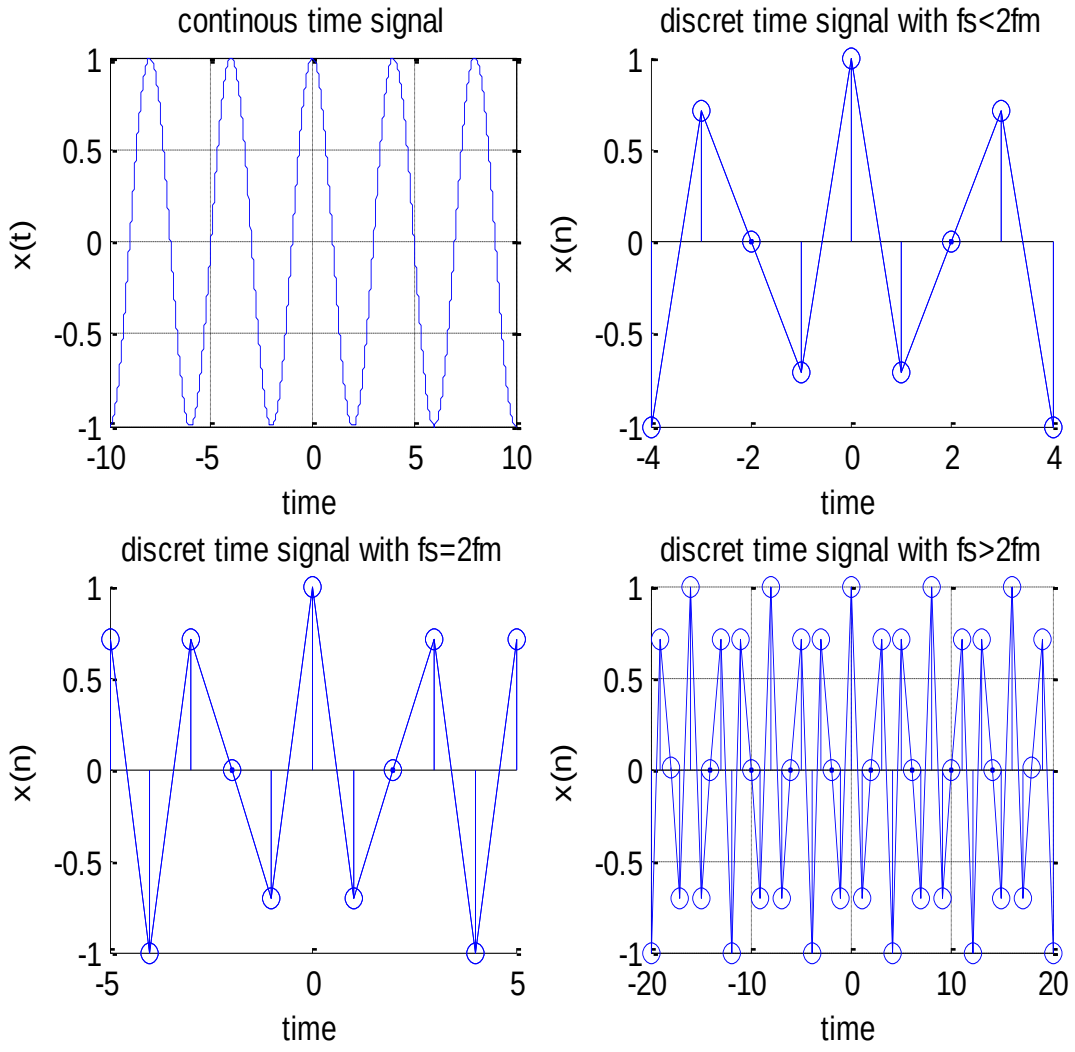
PROGRAM:

```
clc;
clear all;
t=-10:.01:10;
T=4;
fm=1/T;
x=cos(2*pi*fm*t);
subplot(2,2,1);
plot(t,x);
xlabel('time');
ylabel('x(t)');
title('continous time signal');
grid;
n1=-4:1:4;
fs1=1.6*fm;
fs2=2*fm;
fs3=8*fm;
x1=cos(2*pi*fm/fs1*n1);
subplot(2,2,2);
stem(n1,x1);
xlabel('time');
ylabel('x(n)');
```

```
title('discret time signal with fs<2fm');
hold on
subplot(2,2,2);
plot(n1,x1);
grid;
n2=-5:1:5;
x2=cos(2*pi*fm/fs1*n2);
subplot(2,2,3);
stem(n2,x2);
xlabel('time');
ylabel('x(n)');
title('discret time signal with fs=2fm');
hold on
subplot(2,2,3);
plot(n2,x2);
grid;
n3=-20:1:20;
x3=cos(2*pi*fm/fs1*n3);
subplot(2,2,4);
stem(n3,x3);
xlabel('time');
ylabel('x(n)');
title('discret time signal with fs>2fm');
hold on
subplot(2,2,4);
plot(n3,x3);
grid;
```

Roll. No: Date:

Waveform:



RESULT: The output waveforms are observed , Sampling Theorem is verified and plotted the graphs.

Roll. No: Date: