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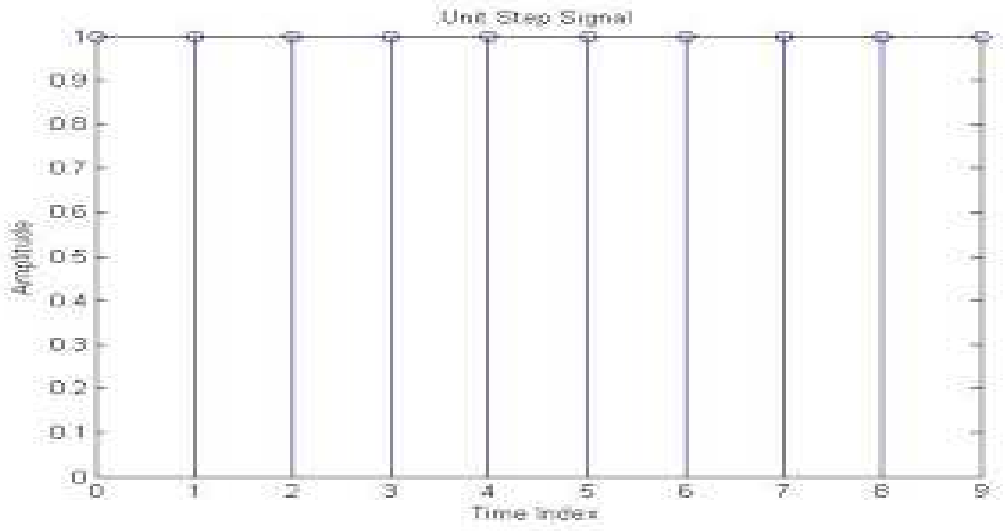
Practical No.: 1

Aim: Write a MATLAB program to generate the following elementary signals:

iv)	Unit step sequence	iv) Sine signal
v)	Unit step signal	v) Cosine signal
vi)	Unit ramp	vi) Exponential signal

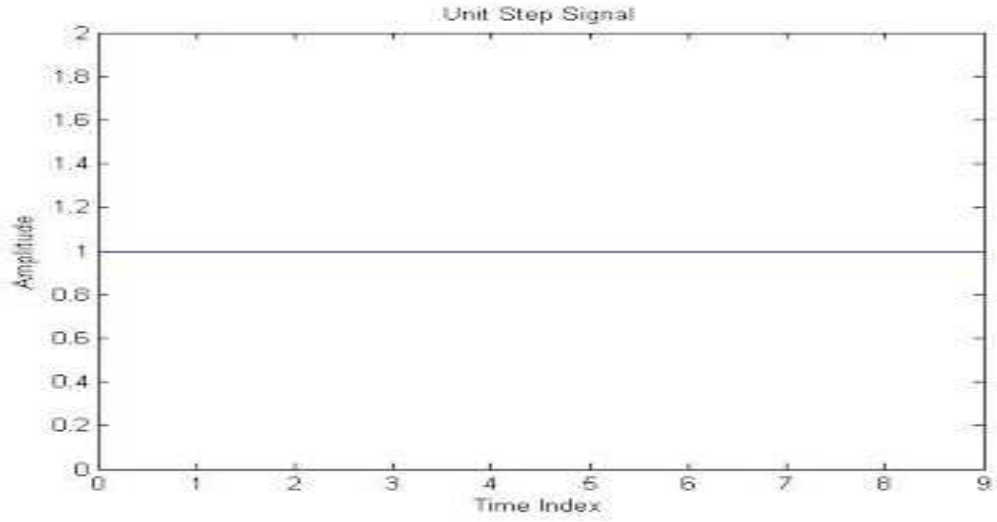
(i) MATLAB program to generate Unit Step sequence.

```
n=input ('Enter the length of the step sequence N=');
                % Get the length of the require sequence from the user
t=0:n-1;        % defines the time axis
y=ones(1,n);   % defines an 1 x n matrix which is filled with ones
stem(t,y);      %displays the data as lines
ylabel ('Amplitude');                % name the Y axis
xlabel ('Time Index');               %Name the x axis
TITLE ('Unit Step Signal');          % Giving the title for the plot
```



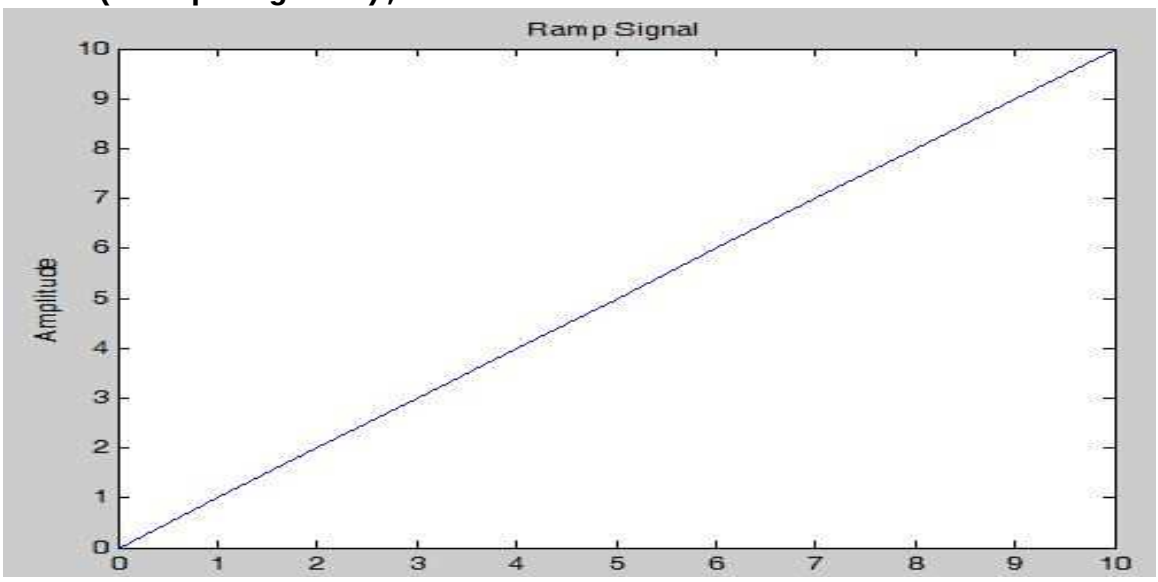
(ii) MATLAB program to generate Unit Step signal.

```
n=input ('Enter the lenght of the step sequence N=');
                 % Get the length of the require sequence from the user
t=0:n-1;        % defines the time axis
y=ones(1,n);    % defines an 1 x n matrix which is filled with one
plot(t,y);      % Plot the graph
ylabel ('Amplitude');          % name the Y axis
xlabel ('Time Index');          %Name the x axis
TITLE ('Unit Step Signal');    % Giving the title for the plot
```



(iii) MATLAB program to generate Unit ramp Signal.

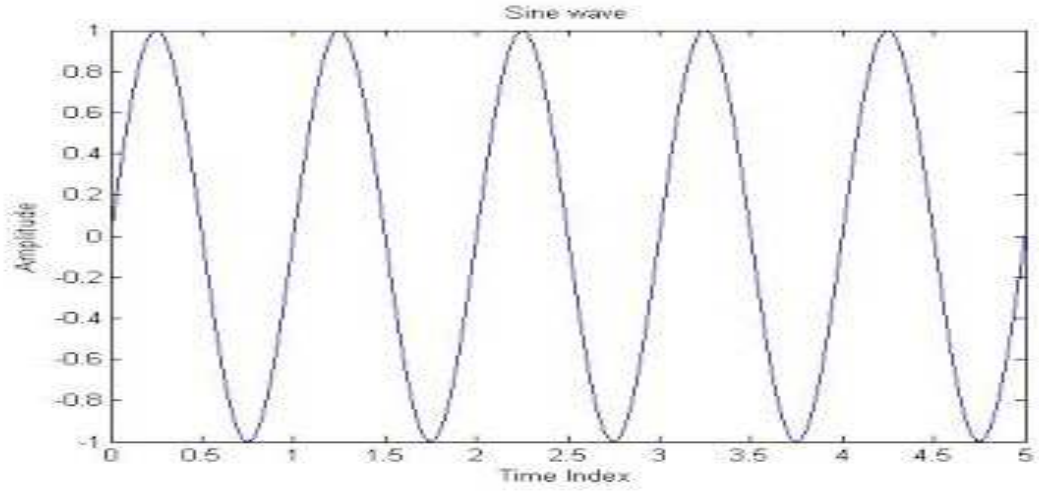
```
n=input ('Enter the length of the sequence N= ');
t=0:n;
y=t;
plot(t,y);
ylabel ('Amplitude');
xlabel ('Time Index');
TITLE ('Ramp Signal');
```



(iv) MATLAB program to generate Sine Wave Signal.

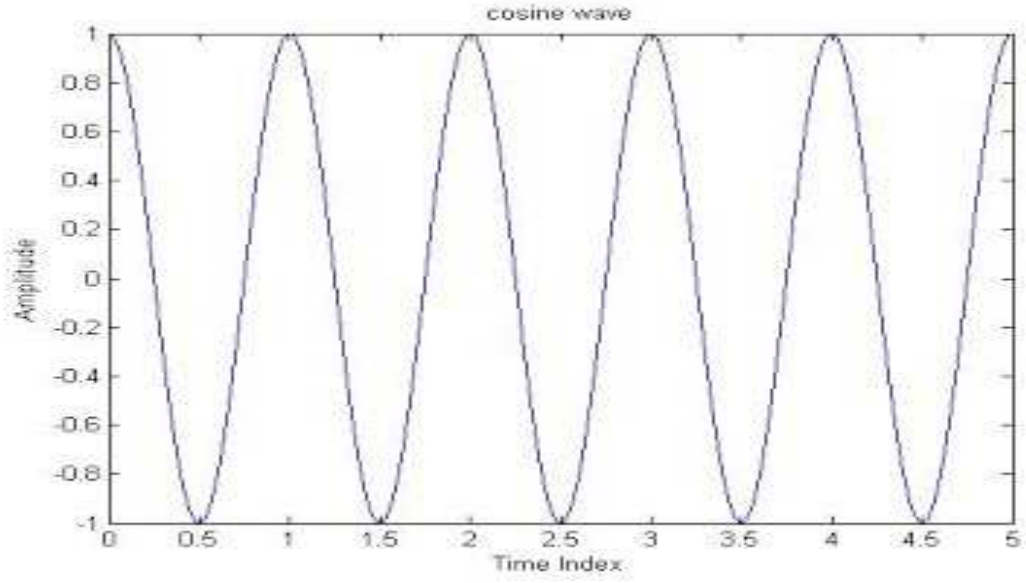
```
f= input('enter the frequency in hertz of the sine wave');
t=0:.0001:5;
y=sin(2*pi*f*t);
plot(t,y);
ylabel ('Amplitude');
xlabel ('Time Index');
```

```
TITLE ('Sine wave');
```



(v) MATLAB program to generate Cosine Wave Signal.

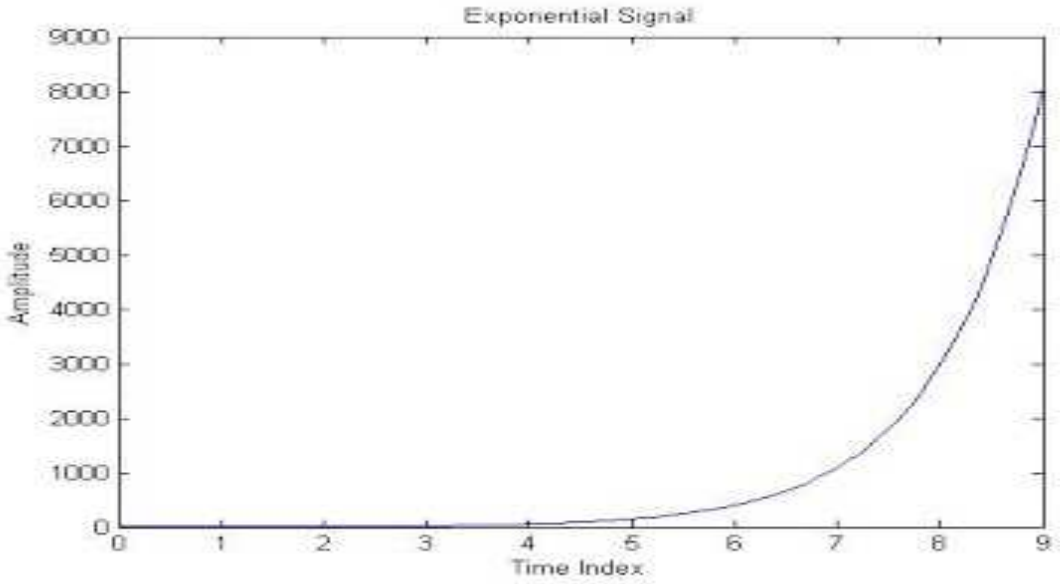
```
f= input('enter the frequency in hertz of the sine wave');
t=0:.0001:5;
y=cos(2*pi*f*t);
plot(t,y);
ylabel ('Amplitude');
xlabel ('Time Index');
TITLE ('cosine wave');
```



(vi) MATLAB program to generate Exponential signal Signal.

```
n=input('Enter the duration of the signal N = ');
a=input ('Enter the scaling factor a = ');
t=0:.1:n-1;
y=exp(a*t);
```

```
plot(t,y);
ylabel ('Amplitude');
xlabel ('Time Index');
TITLE ('Exponential Signal');
```



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Practical No.: 2

Aim: Write a MATLAB program to generate the following sequences.

a) 0.5*n*cos(2*∏*n+(∏/4))

b) x1=cos((2*∏*n)/256)

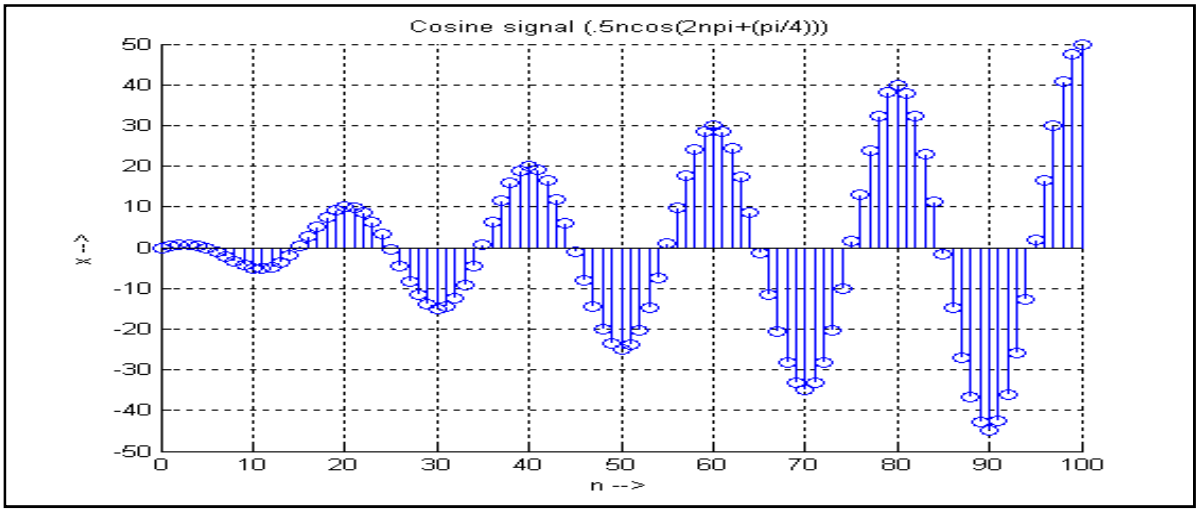
x2=cos((6*∏*n)/256)

x=x1+x2

MATLAB Program.

```
% Matlab program <cosine_signal.m>
% This program is for generating the given cosine signal

clc;                                                    %Clear the window
close all;                                              %Close all files
clear all;                                              %Clear the screen

n=0:1:100;                                              %Range of n
y=cos(.05*((2*pi*n)+(pi/4)));
x=.5.*n.*y
stem(n,x);
grid on;
title('Cosine signal (.5ncos(2npi+(pi/4)))');
xlabel('n -->');
ylabel('x -->');
```

MATLAB Figure:

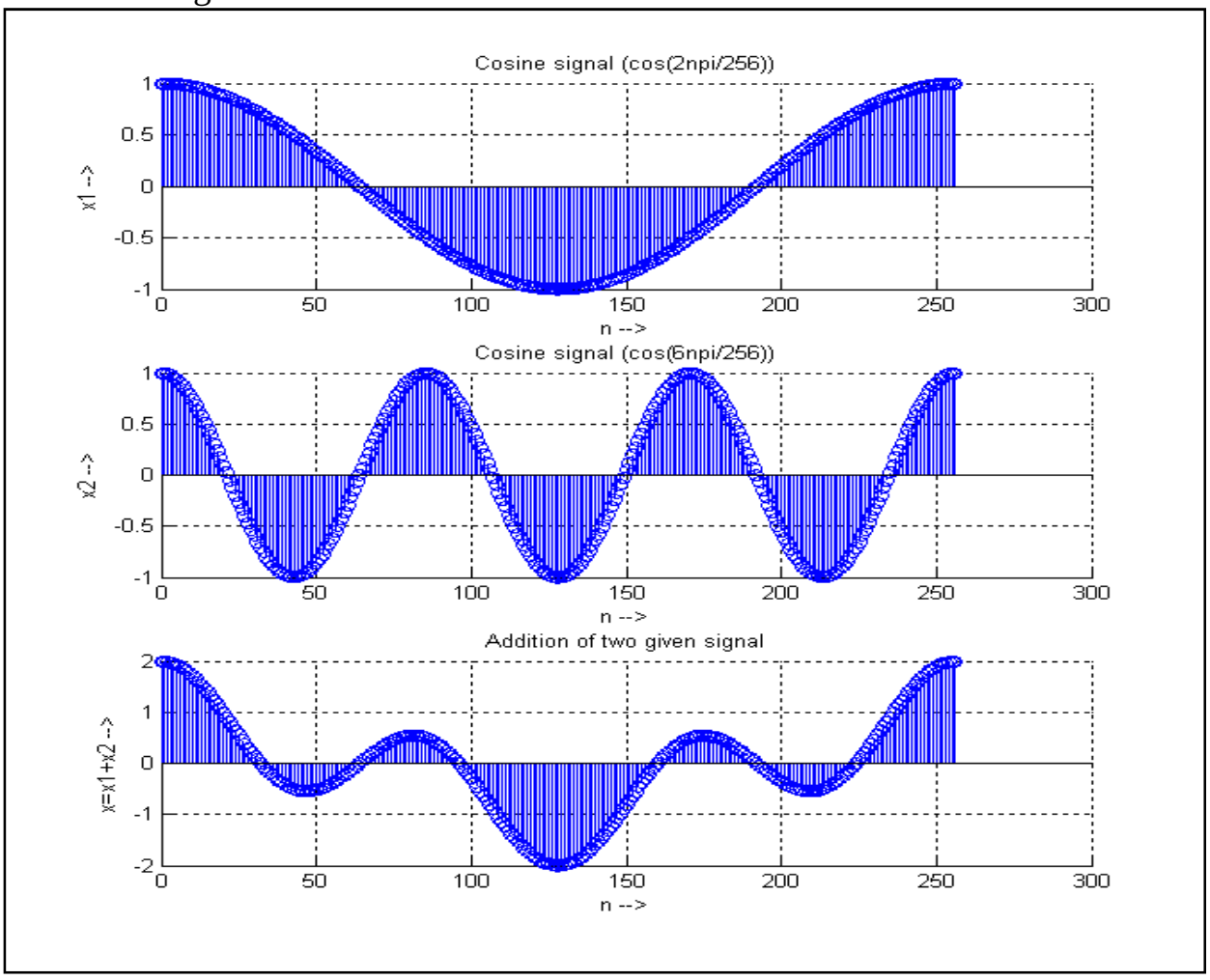


MATLAB Program.

```
% Matlab program <addition_of_signal.m>
% This program is for adding the given two cosine signal

clc;                                    %Clear the window
close all;                              %Close all files
clear all;                              %Clear the screen


n=0:1:256                               %Range of n

x1=cos(2*pi*n/256);
subplot(3,1,1);
stem(n,x1);
grid on;
title ('Cosine signal (cos(2npi/256))');
xlabel('n -->');
ylabel('x1 -->');

x2=cos(6*pi*n/256);
subplot(3,1,2);
stem(n,x2);
grid on;
title ('Cosine signal (cos(6npi/256))');
xlabel('n -->');
ylabel('x2 -->');
```

```
x=x1+x2;
subplot(3,1,3);
stem(n,x);
grid on;
title ('Addition of two given signal');
xlabel('n -->');
ylabel('x = x1+x2 -->');
```

MATLAB Figure:



CONCLUSION: