

1. Generate and plot each of the following sequences over the indicated interval.

a) $x(n) = \{-4, 3, -2, 5, 0, 3, 5, -8, 10\}$

```
n=[-4:1:4], x=[-4 3 -2 5 0 3 5 -8 10];  
n =  
-4 -3 -2 -1 0 1 2 3 4  
>>stem(n,x); title('Sequence of x(n)');  
xlabel('n'); ylabel('x(n)');
```

Plotting :

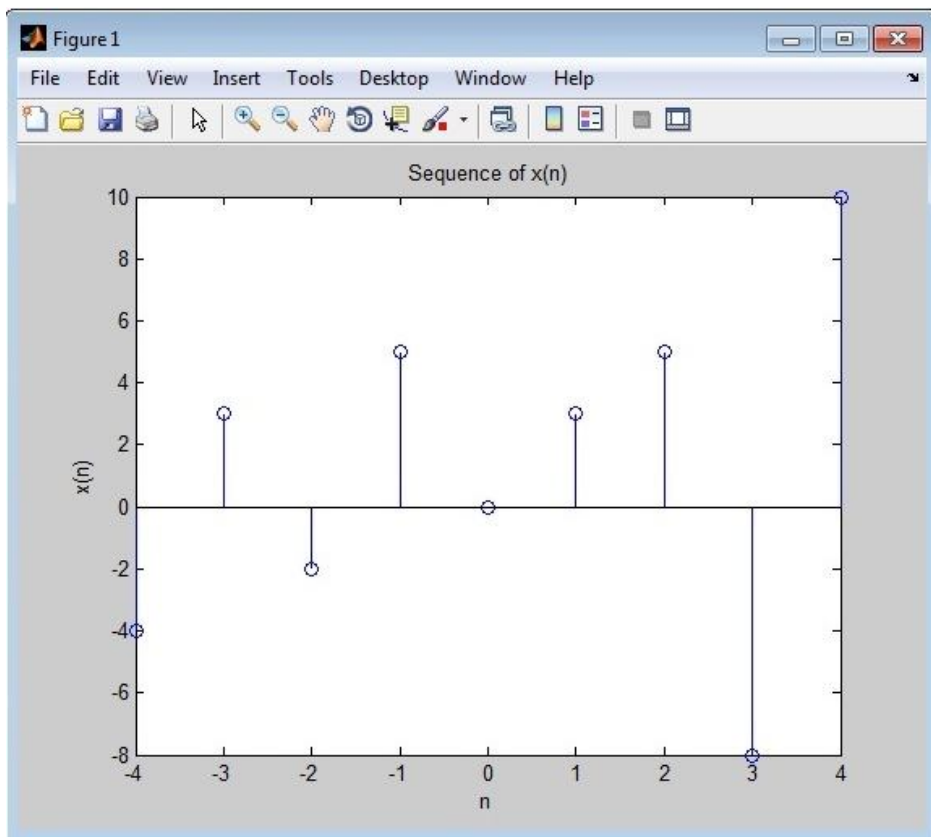


Fig-1:Sequence of x(n).

b) $x(n) = 2\delta(n + 2) - \delta(n - 4)$, $-5 \leq n \leq 5$ [for this problem need impseq.m file]

```
n=[-5:5];  
x=2*impseq(-2,-5,5)-impseq(4,-5,5);  
stem(n,x);title('Plotting of the sequence of 1(b)');xlabel('n'); ylabel('x(n)');
```

Plotting :

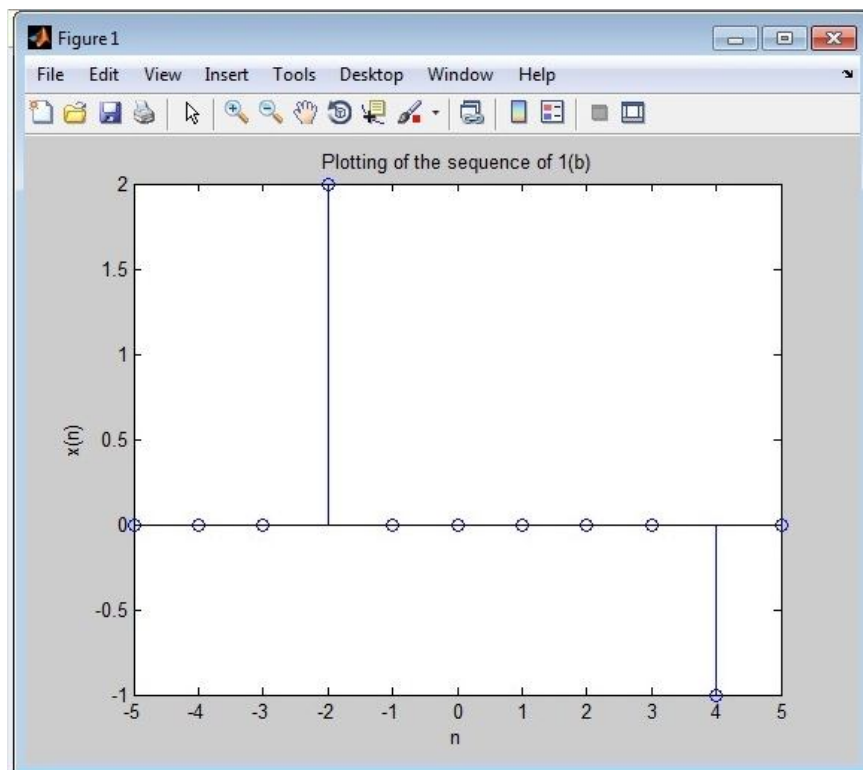


Fig-2 : Sequence of x(n).

d) $x(n) = \cos(0.04\pi n) + \sin(0.04\pi n)$, $0 < n < 20$

```
n=[ 0:1:20]; y= cos(0.04*pi*x)+sin(0.04*pi*x);  
>>stem(x,y);title('Sequence of x(n)')  
>>xlabel('n'); ylabel('x(n)');
```

Figure 2 :

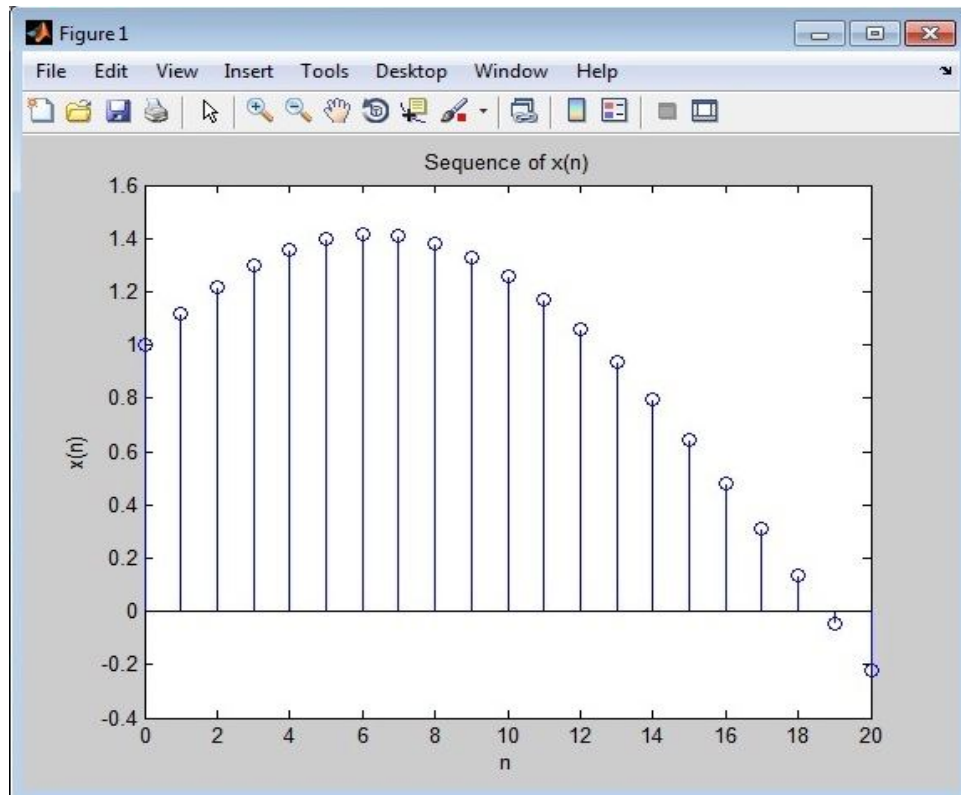


Fig-1:Sequence of x(n).

"Heavens Light is Our Guide"

Rajshahi University Of Engineering & Technology



Department of Computer Science and Engineering

Lab Report-2

Course no :714

Course title : Sessional based on Digital Signal Processing

Submitted to

Firoz Mahmud

Lecturer

Dept. Of CSE, RUET

Submitted By

Md. AltafHoshain

Roll no - 073014

1(a): Determine the convolution sum of the following signal :

$$X1(z)=2+3z^{-1}+4z^{-2}$$

$$X2(z)=3+4z^{-1}+5z^{-2}+6z^{-3}$$

$$X3(z)=x1(z)+x2(z)$$

```
x1=[2 3 4];  
x2=[3 4 5 6];  
x3=conv(x1,x2);  
subplot(221);stem(x1);title('Signal of x1(n)');xlabel('n'); ylabel('x(n)');  
subplot(222);stem(x2);title('Signal of x2(n)');xlabel('n'); ylabel('x(n)');  
subplot(223);stem(x3);title('Convolved signal x(n)');xlabel('n'); ylabel('x(n)');
```

Plotting :

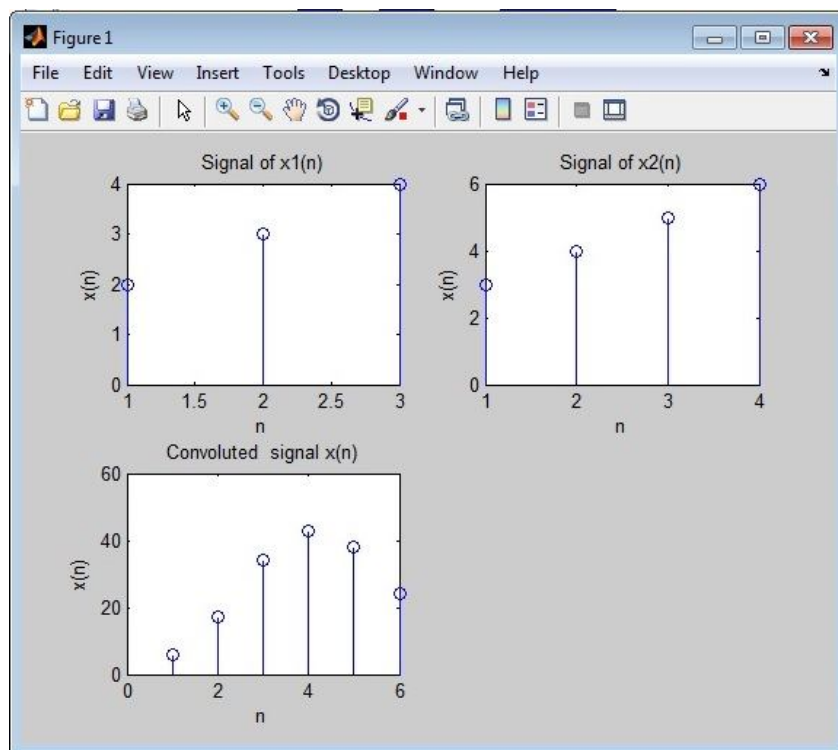


Fig :Signal of x(n).

1(b): Determine the convolution sum of the following signal by using conv_m.m file

$$X1(z)=z+2+3z$$

$$X2(z)=2z+4z+3+5$$

```
x1=[1 2 3];n1=[-1:1];  
x2=[2 4 3 5]; n2=[-2:1];  
x3=conv_m(x1,n1,x2,n2)  
subplot(221);stem(x1);title('Signal of x1(n)');xlabel('n'); ylabel('x(n)');  
subplot(222);stem(x2);title('Signal of x2(n)');xlabel('n'); ylabel('x(n)');  
subplot(224);stem(x3);title('Convolutd x(n)');xlabel('n'); ylabel('x(n)');
```

Plotting :

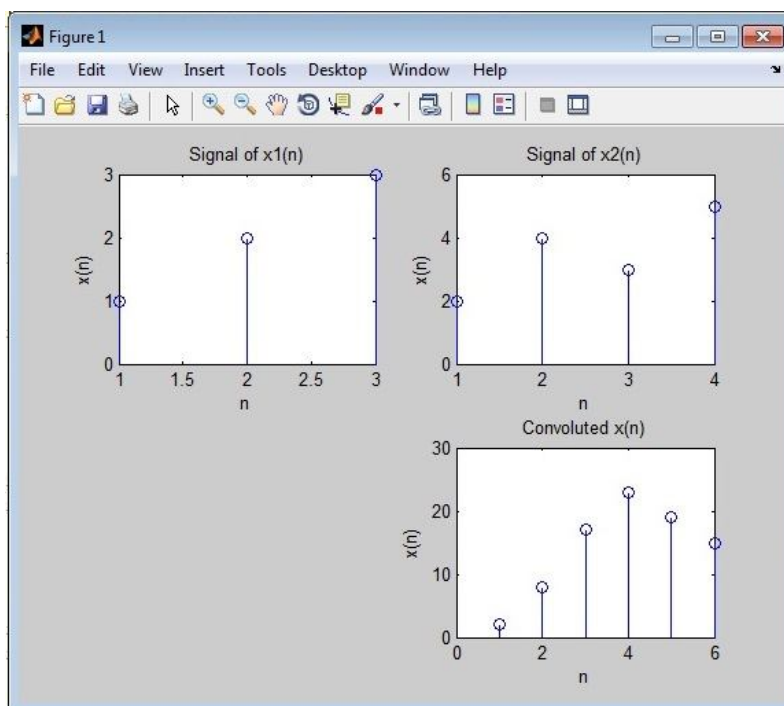


Fig : Signal of x(n).