LAB TASK-4

DIGITAL SIGNAL PROCESSING

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OBJECTIVE:
To obtain circular convolution between signals .

ALGORITHM:

1. Take inputof two signals and form a matrix of these signals
2. Add themdiagonally
3. Plot

CODE:

```
clc;
close all;
x=input('Enter x(n):\n');
h=input('Enter h(n):\n');
m=length(x);%length of sequence x(n)
n=length(h);%length of sequence h(n)
N=max(m,n);%length of output sequence y(n)
%For equating both sequence length
x=[x,zeros(1,N-m)];
h=[h,zeros(1,N-n)];
for n=1:N
    Y(n)=0;
    for i=1:N
        j=n-i+1;
        if(j<=0)
            j=N+j;
        end
        Y(n)=[Y(n)+x(i)*h(j)];
    end
end
n=0:N-1;%Range of all Sequences
subplot(311)
disp('First Sequence x(n) is:')
disp(x)
stem(n,x)
xlabel('n')
```

```
ylabel('x(n)')
title('First Sequence')
grid on;
subplot(312)
disp('Second Sequence h(n) is:')
disp(h)
stem(n,h)
xlabel('n')
ylabel('h(n)')
title('Second Sequence')
grid on;
subplot(313)
disp('Convoluted Sequence Y(n) is:')
disp(Y)
stem(n,Y)
xlabel('n')
ylabel('Y(n)')
title('Circular Convoluted Sequence')
grid on;
```

RESULT:

```
Enter x(n):
[2 3 4 5]
Enter h(n):
[8 9 10 11]
First Sequence x(n) is:
     2     3     4     5

Second Sequence h(n) is:
     8     9    10    11

Convoluted Sequence Y(n) is:
   134   136   134   128

>>
```