REPORTS ON

Subject Code: ETE322

Subject Name: Digital Signal Processing Laboratory

Submitted T0:

MS. Sirajum Munira

Lecture

Dept. Of ETE, DIU

Submitted by:

Name: Mohamed Ali Yusuf

Id: 181-19-2035

Name: Aruba Tarin

Id :162-19-1899

Name of The project: Convolution

Theory:

Convolution, $y(n)=\sum_{k=-\infty} x(k)h(n-k)$

Procedure:

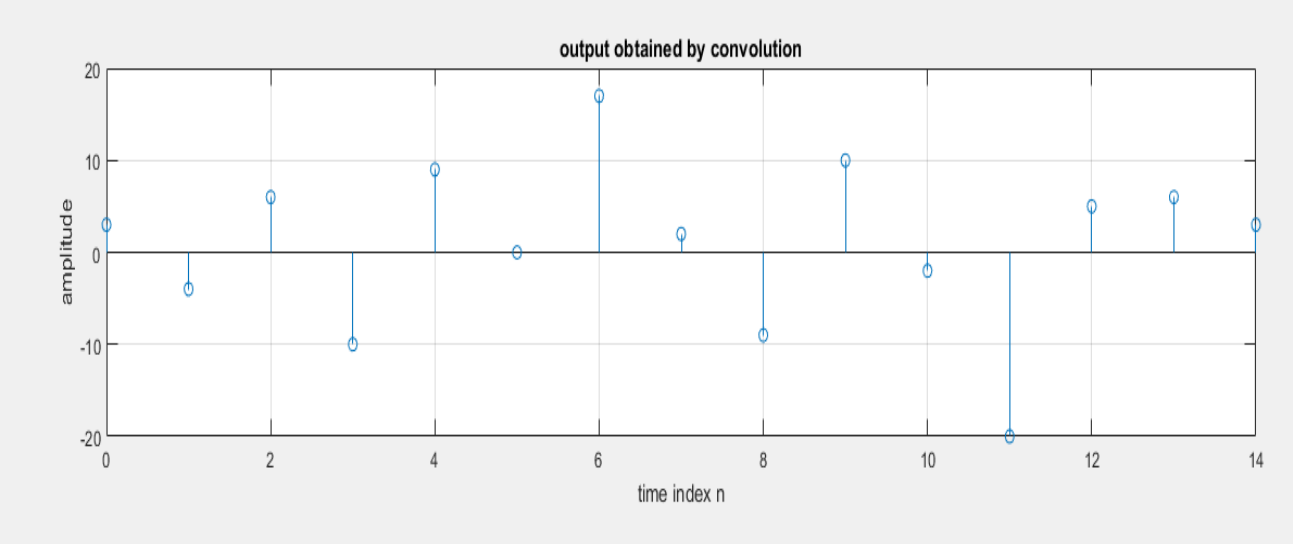
1. Open Command Prompt
2. Write down the program in the Editor Window
3. Input different parameters and generation functions.
4. Save and Run the program

Program:

1: Convolution

```
clf;
h=[3 2 1 -2 1 0 -4 0 3]; % impulse response
x=[1 -2 3 -4 3 2 1]; % input sequence
y=conv(h,x); n=0:14; subplot(2,1,1);
stem(n,y);xlabel('time index n');
ylabel('amplitude'); title('output obtained by convolution');
grid;x1 =[x zeros(1.8)];
y1=filter(h,1,x1); subplot(2,1,2);
stem(n,y1); xlabel('time index n');
ylabel('amplitude'); title('output general by filtering');
grid;
```

Answer:



Report:

Convolution is a mathematical way of combining two signals to form a third signal. It is the single most important technique in Digital Signal Processing

Convolution is important because it relates the three signals of interest: the input signal, the output signal, and the impulse response. This chapter presents convolution from two different viewpoints

Discussion:

The convolution theorem connects the time- and frequency domains of the convolution. Convolving in one domain corresponds to elementwise multiplication in the other domain.

The convolution theorem can be used to perform convolution via multiplication in the time domain.

The convolution theorem can be used beneficially for calculation of some convolutions that would be difficult to solve with the convolution integral.