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Signal Processing Lab

Subject- Digital Signal Processing

EXPERIMENT NO. 8

Aim: Write a program to find DFT and IDFT using Scilab.

Software Used: Scilab software.

Code:

1.
```
clear;
clc;
close;

x = [1,1,0,0];
//DFT Computation
X = fft(x , -1);

Y = [1,0,1,0];
//IDFT Computation
y = fft(Y , 1);

//Display sequence X[k] and y[n] in command window
disp(X, "X[k] = ");
disp(y, "y[n] = ");
```

2.
```
x = [0,1,2,3];
//DFT Computation
X = fft(x , -1); // -1 for FFT

Y = [8,-2,0,-2];
//IDFT Computation
y = fft(Y , 1); // +1 for IFFT

//Display sequence X[k] and y[n] in command window
disp(X, "X[k] = ");
disp(y, "y[n] = ");
```

Output:

1.

```
 X[k] =

    2.    1. - i    0.    1. + i

 y[n] =

    0.5    0.    0.5    0.

-->
```

2.

```
X[k] =

   6.   -2. + 2.i   -2.   -2. - 2.i

y[n] =

   1.    2.    3.    2.

-->
```

Conclusion:

In this experiment we learnt how to compute DFT & IDFT using ‘fft’ function in Scilab. The function calculates DFT when the second parameter is set to -1 and IDFT when it is set to +1.