Tribhuvan University

Institute of Engineering

Pulchowk Campus

Lab Report on :

FOURIER TRANSFORM

Submitted By:

Saugat Kafley (075BCT099)

Submitted To:

Ganesh Gautam

Department of Electronics and Computer Engineering

Submission Date:

August 24 , 2022

DSAP Lab3 Fourier transform

a) FFT of x = [1.5 2.3 0 1 6.37]

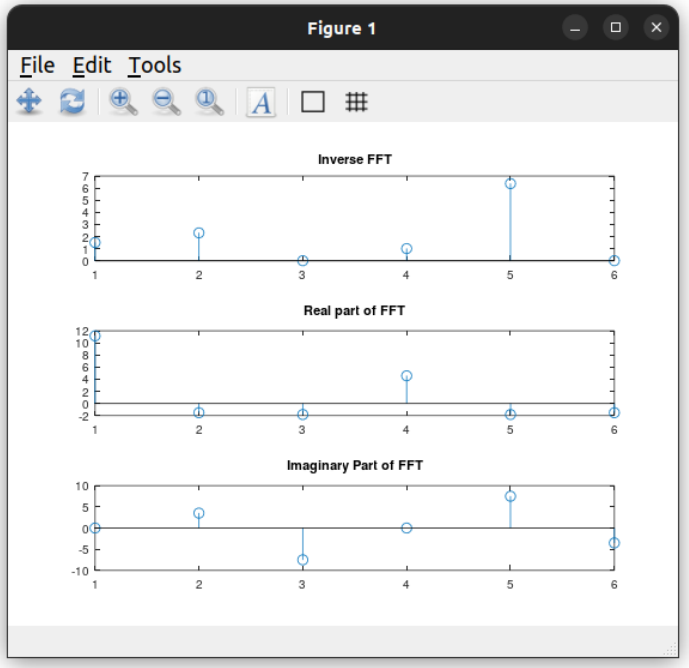
Code:

```
clc;
%x= [6 -2+2i -2 -2-2i];
x = [1.5 2.3 0 1 6.37];
y = fft(x,6)
z = ifft(y)

subplot(3,1,1)
stem(z);
title('Inverse FFT');

subplot(312);
stem(real(y))
title('Real part of FFT');

subplot(313)
stem(imag(y))
title('Imaginary Part of FFT');
```

Output:

```
y =

 Columns 1 and 2:

   11.1700 +       0i   -1.5350 +  3.5247i

 Columns 3 and 4:

   -1.8350 -  7.5084i    4.5700 +       0i

 Columns 5 and 6:

   -1.8350 +  7.5084i   -1.5350 -  3.5247i

z =

 Columns 1 through 4:

   1.5000e+00   2.3000e+00   5.9212e-16   1.0000e+00

 Columns 5 and 6:
```

6.3700e+00 1.4803e-16



b) FFT of x= [0 1 2 3]

Code:

```
clc;
clear all;
x= [0 1 2 3]
y = fft(x,4)
subplot(3,1,1)
stem(x);
title('stem(x)');
subplot(312);
stem(real(y))
title('Real part of FFT');
subplot(313)
stem(imag(y));
title('Imag part of FFT');
```

Output:

```
x =

  0   1   2   3
```

y =

6 + 0i -2 + 2i -2 + 0i -2 - 2i