Assignment – 1

Q1. Given 1D data below, perform Discrete Fourier Transform as well as Inverse Discrete Fourier Transform.

f(x) = [2, 3, 1, 0, 7]

Q2. Perform Fast Fourier Transform on sample data given below:

f(x) = [1, 2, 3, 4, 5, 6, 7]

Q3. Perform Discrete Fourier Transform as well as Inverse Discrete Fourier Transform. on 2D data provided below:

f(x,y) =

5	4	2
6	1	3
1	2	5

Q4. Prove Convolution Theorem of Fourier Transform which states that “Convolution done in spatial domain is same as the product of spectrums in Fourier domain” using an example.