

Assignment No: 2
Digital Signal Processing
ETIT-308

Question 1. Write the advantages of FFT over DFT. Calculate the Number of multiplication needed in the Calculation of DFT using FFT algorithm

Question. 2 What is the Principal of designing FIR filter using Window Function

Question.3 Differentiate between DIT and DIF algorithm and Also List the Four Properties of DFT

Question.4 What is the Reason that FIR Filters are always stable? Compute the DFT of the sequence whose values for one period is given by $\{1, 1, -2, -2\}$

Question.5 Compute the DFT of the Sequence $X(n) = \cos(n \cdot 3.14/2)$ whose $N=4$ using DIF FFT Algorithm.

Question.6 Given $x(n) = 2^n$ and $N=10$, find $X(k)$ using DIT-FFT algorithm.

Question.7 Find the IDFT of the sequence
$$X(k) = \{1, 8+j, 5, 9-2j, 0, 1-2j, 0, 1-2j\}$$

Question.8 Derive and Explain N-Point Radix-2 DIF FFT Algorithm. For $N=8$ draw the signal flow graph.

Question.9 Find the Discrete-Fourier Transform (DFT) of the sequence $x(n) = \{1, 1, 0, 0\}$ and find the IDFT of $Y\{k\} = \{1, 0, 1, 0\}$