Department of ECE

Assignment –II

PART-A

1. Explain the symmetry properties of DFTs which provide basis for fast algorithms
2. What is the advantage of in-place computation?
3. Indicate the number of stages, the number of complex multiplications at each stage, and the total number of multiplications required to compute 64-point FFT using radix-2 algorithm
4. What is meant by radix-2 FFT?
5. Give transforms pair equation of DCT
6. Compute the IDFT of X(N) = {1,0,1,0}
7. What are the differences and similarities between DIF and DIT algorithms?
8. Compute the DFT of x(n) =δ(n)

PART-B

1. Draw a 8 point radix 2 DIT FFT flow graphs and obtain DFT of the following Sequence x(n)=(0,1,-1,0,0,2,-2,0)
2. Develop a Radix-2, 8-point DIF FFT algorithm with neat flow chart
3. By means of the DFT & IDFT, determine the sequence x3 (n) corresponding to the circular Convolution of the sequence x1 (n) and x2(n).

$x_1(n) = \{2, 1, 2, 1\}, x_2(n) = \{1, 2, 3, 4,\}$ (↑ under 2 and under 1)

4. .i) Find 8- point DFT of sequence $x(n) = \{1, -3 \le n \le 3$ using radix 2 DIF FFT algorithm

   ii) State any Six properties of DFT