

Note : Attempt All question

1. Determine the 4-point DFT and IDFT of the given signal

(a)  $x(n) = \begin{cases} 1, & 0 \leq n \leq 3 \\ 0, & \text{elsewhere} \end{cases}$  Type equation here.

(b) Discuss the various property of DFT.

2. Solve the following.

(a) Compute the eight-point circular convolution for the following sequences.

$$x_1(n) = (1/4)^n, 0 \leq n \leq 7$$

$$x_2(n) = \left(\frac{3\pi}{8}n\right), 0 \leq n \leq 7$$

(b) Compute the linear convolution for the above sequences.

3. Solve the following.

(a) Determine the DFT and IFFT of the given data sequence using radix-2 FFT algorithm

$$x_1(n) = \{2, 1, 4, 6, 5, 8, 3, 9\}$$