

## Advanced Digital Signal Processing Lab

Code: EC642

### LAB-4

1. Write a function in MATLAB to calculate DFT and IDFT of a sequence.
2. Calculate 4-point DFT of following sequences and thereby IDFT:
  - (a)  $x[n] = 3\delta[n] - 2\delta[n-2] + 3\delta[n-3]$
  - (b)  $x[n] = 1$  for  $0 \leq n \leq 2$
  - (c)  $x[n] = n$ , for  $n$  odd
3. Calculate 8-point DFT of following sequences and thereby IDFT:
  - (a)  $x[n] = 1$  for  $0 \leq n \leq N/2$
  - (b)  $x[n] = n$  for  $0 \leq n \leq 5$
  - (c)  $x[n] = u[n] - u[n-5]$
4. Calculate 16-point DFT of following sequences and thereby IDFT:
  - (a)  $x[n] = 1$  for  $0 \leq n \leq 10$
  - (b)  $x[n] = \delta[n-1] - 4\delta[n-4] + 2\delta[n-6] - 3\delta[n-7] + 5\delta[n-9] + 6\delta[n-12]$
  - (c)  $x[n] = u[n-2] - u[n-10]$