Digital Signal Processing (EE-503)

Programming Assignment-01

Note: Use of in-built MATLAB functions is not allowed!!

Date: September 16, 2018 Marks:20

Instructor: Dr. Anil Sao Submission Date: September 29, 2018

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1. Write a Program to do following operation on any discrete time signal.
   (a) Shift by an amount given by the user.
   (b) Fold sequence.
2. Write a program to perform linear convolution of two discrete sequences x_1 and x_2.
   Note: The Program must handle any arbitrary Sequences.
3. Lets consider a signal $x_a(t) = cos(2000\pi t)$
   (a) Determine the Fourier transform of $x_a(t)$ and plot it along the signal.
   (b) Sample $x_a(t)$ with sampling period $T_{s1} = 1/2500$ to obtain $x_1(n)$ and $T_{s2} = 1/3500$ to obtain $x_2(n)$.Determine and plot $X_1(j\omega)$ and $X_2(j\omega)$ along with $x_1(n)$ and $x_2(n)$.
   (c) Reconstruct $x_t(n)$ from $x_1(n)$ and $x_2(n)$.