EE305 Programming assignment 2

Due date 19/11/2018 (Evaluation) 5.30 pm onwards

1) Write a general program for performing the circular convolution of two finite length sequences x[n] and y[n]. Compare this with the linear convolution that you performed in an earlier assignment, with different sequence lengths (with and without zero padding), such that for some sequences, the CC should be equivalent to LC. Also comment on the number of aliased samples for which this is not the case. Note: The program will be tested by asking you to different sequences as input

2) Write general programs to compute the DFT and IDFT, by using their respective equations. Compare the DFT of an N-point sequence with an N-point DFT and an M-point DFT, for M < N and M > N. Carry out the circular convolution above using DFT and IDFT.

3) Use the program, written in 2, to perform the low-pass and high pass filtering of a audio file. Play the out file and explain the observations.