Experiment No: 1 - Familiarization of elementary functions and simple manipulations on the signals

1. Create a user-defined function *mystepfun(n)* to generate discrete –time step function $u(n)$ for $-5 \leq n \leq 5$ and plot the following signals
   a. $u(n)$
   b. $u(n-2)$
   c. $u(n+3)$
   d. $u(-n-2)$
   e. $u(-n+3)$

2. Find the even and odd component of the signal given by $e^{-0.01n}\sin(0.02\pi n); -100 \leq n \leq 100$.

3. Perform linear convolution for two sequences given as:

$$x_1(n) = 1; 0 \leq n \leq 3$$

$$x_2(n) = n; 0 \leq n \leq 4$$

   Calculate the length of the resulting function. You can use the in-built function *conv(.)*.

4. Load the data "*Track001.wav*" from Experiment No 1. Load the data from the text file "*ConvFile1.txt*" and then convolve the two data streams. Store the result into a wav file and listen. What do you observe? Repeat the same for "*ConvFile2.txt*".