BIRZEIT UNIVERSITY

Department of Electrical and Computer Engineering
Summer Semester, 2023/2024
Digital Signal Processing - ENCS4310
MATLAB Assignment
Deadline 29-8-2024.

The assignment weight is 5 marks

Question#1: For the following Signal x[n] Calculate and plot the Spectrum:

$$\boldsymbol{x}[n] = \begin{Bmatrix} 1, n = 1 \ldots .10 \\ 0, Otherwise \end{Bmatrix}$$

Question 2: Consider the following signals:

x[n] = [0, 0.3, 0.6, 0.8, 1] and *h[n]* = [0.5, 1, 0.5]

Calculate the product of their DFTs and then come back to the time domain by inverse DFT. Compare the obtained result to the convolution product of the two signals and conclude.

Question 3: Consider the following impulse response of a digital filter $h[n] = \{1, 1.5, 1\}$

a) Plot the Pole zero diagram

b) Plot function *H*(*z*) for $z = e^{jw}$