Signals & Systems Assignment 2 (Spring 2022) – 4Th Semester (CLO2)

Question 1. For input signal x[n] and system's impulse response h[n] given bellow, compute and plot the given convolutions.

$$x[n] = 2\delta[n+1] - 3\delta[n-3] + 3\delta[n-4]$$

$$h[n] = -2\delta[n+1] + 3\delta[n-2] + 2\delta[n-3]$$

a) $y_1[n] = x[n] * h[n]$
b) $y_2[n] = x[-n] * h[-n]$
c) $y_3[n] = x[n-1] * h[n-2]$

Compare the results obtained in parts (b) and (c) with those obtained in part (a) and explain the pattern.

Question 2. Compute and plot output y[n] for h[n] and x[n] given bellow using convolution sum.

$$x[n] = (\frac{1}{2})^{n-1}u[n-1]$$

$$h[n] = 2u[n+1]$$

Question 3. Find the output y(t) for the pairs of x(t) and h(t) given bellow.

$$x(t) = u(t-2) - u(t-4)$$

$$h(t) = e^{-2t}(t-1)$$

Due date for this assignment 2 is Friday, 10th June 2022. Related quiz will be on Friday, 10th June 2022.