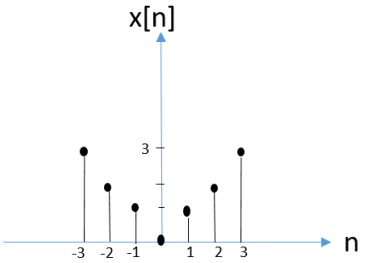
BME3161 BIOSIGNAL PROCESSING

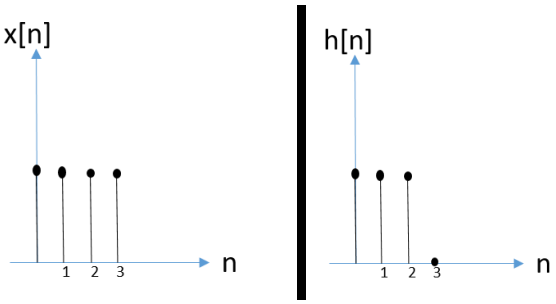
HW-1

1. Sketch the signals given below.
   a) $h[n] = \mu[n-1] - \mu[n-5]$
   b) $2x[n-2]$
   c) $x[n]\mu[1-n]$
   d) $x[n]\delta[n-1]$



2. Examine the y[n] signal ($y[n] = x[n] + nx[n+1]$) with respect to the properties below. Explain your reasons.
   a) Linear or nonlinear
   b) Time invariant or time varying
   c) Causal or noncausal
   d) Stabil or unstable

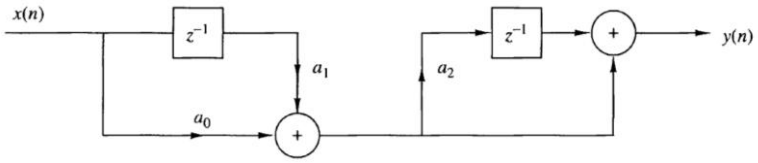
3.



$y[n] = x[n] * h[n]$

Find the y[n] using **convolution interpretation 1** method.

4.
   a) Write the equation showing the relationship between the x[n] and y[n] signals using block diagram below.
   b) Find the unit impulse response (h[n]) of the system.



5. Consider the below system.

a) Derive the difference equation for below system.
b) If input signal is unit sample sequence, determine the impulse response of the LCCDE.