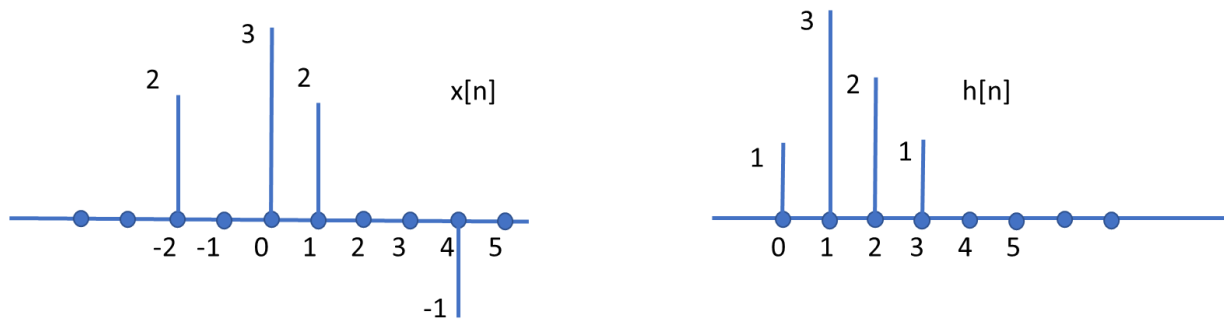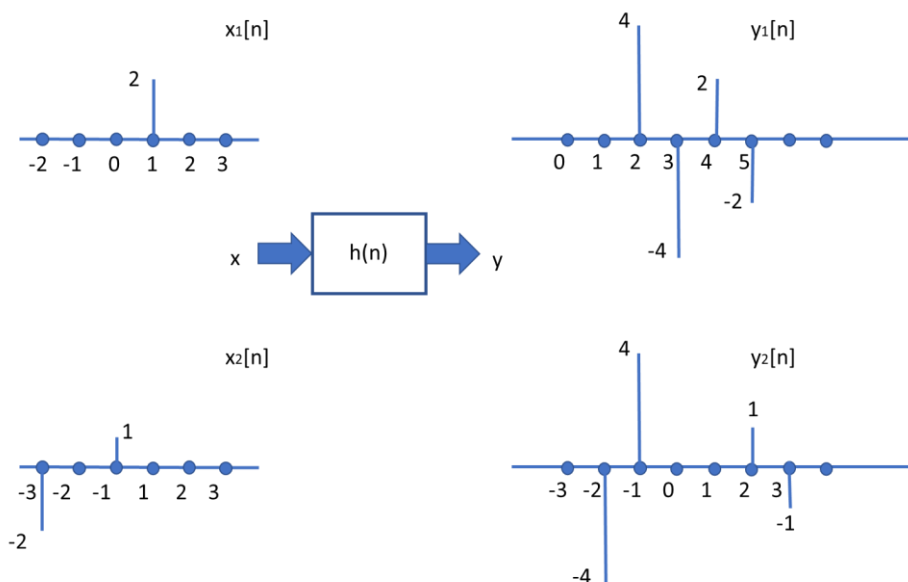# Discrete time systems and z-transform

Exercises module 2

1. Calculate (and sketch) the outcome of the linear time invariant system with the impulse response h[n], given the input x[n] (both displayed below)
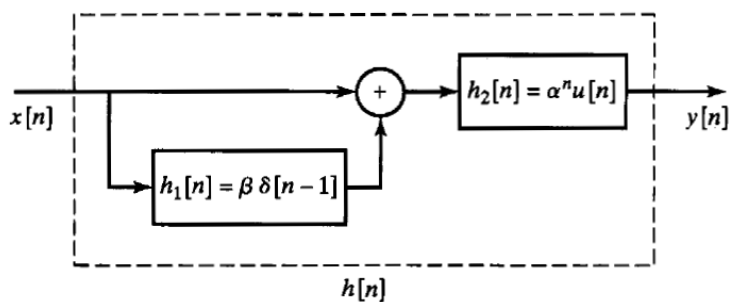

2. For a system having response h(n), the following relationship exists between two input and output signals:

Can h be a linear time invariant system? Is h causal?

3. Consider the system in the figure below:

Find the impulse response of the system. Calculate the Fourier Transform of the system, and express the condition for its existence.

Is the system causal?