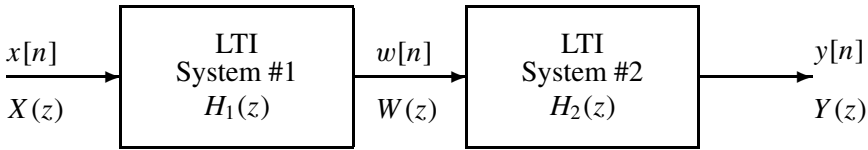
PROBLEM:

Consider the following cascade system:



The system functions for the two systems are

$$H_1(z) = 1 - z^{-1} + z^{-2}$$

and

$$H_2(z) = 1 + 2z^{-1} + 3z^{-2} + 2z^{-3} + z^{-4}$$

(a) Determine the system function $H(z)$ of the overall system from the input $x[n]$ to the output $y[n]$.

(b) Determine the corresponding impulse response of the overall system.