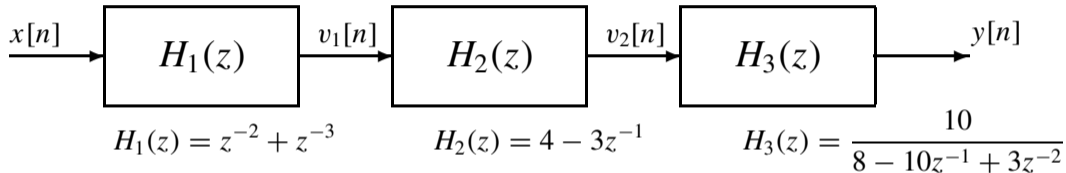


PROBLEM:

In the following cascade of systems, all of the individual transfer functions are known.



- (a) Determine $H(z)$ the z -transform of the cascaded system. Simplify $H(z)$ by cancelling common factors in the numerator and denominator.
- (b) Consider the impulse response of the cascaded system, i.e., the response $y[n]$ when the input is $x[n] = \delta[n]$. Prove that the impulse response has the form $h[n] = G \alpha^n$ for $n \geq 3$. Find values for α and G .