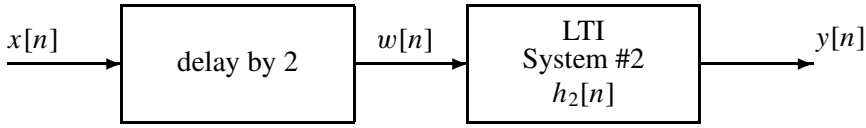
PROBLEM:

Consider the following cascade system:



(a) Find and plot the magnitude of the frequency response of the first filter $|\mathcal{H}_1(\hat{\omega})|$.

(b) If the overall impulse response of the cascade is

$$h_{eq}[n] = \delta[n-3] + \tfrac{1}{2}\delta[n-4]$$

determine the impulse response of the second filter $h_2[n]$.