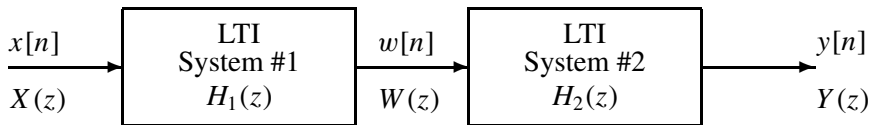## PROBLEM:

Consider the following cascade system:

Suppose that

$$H_1(z) = (1 - jz^{-1})(1 + jz^{-1})(1 + 0.81z^{-2})$$

(a) Determine the poles and zeros of $H_1(z)$ and plot them in the complex z-plane.

(b) Determine the difference equation that relates $w[n]$ to $x[n]$ for the given system $H_1(z)$.

(c) Determine a system function $H_2(z)$ so that if $x[n] = 10$ for $-\infty < n < \infty$, then $y[n] = 0$ for $-\infty < n < \infty$.