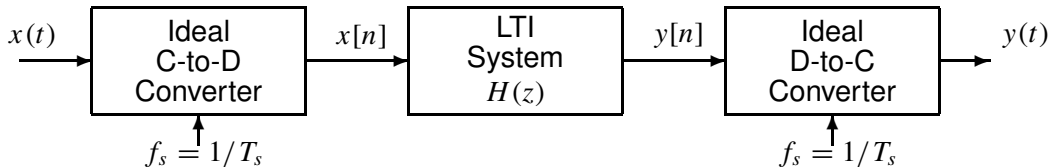## PROBLEM:

Consider the following system for sampling, filtering, and reconstruction of a continuous-time signal:

where $f_s = 1000$ samples/sec, the LTI system has the system function $H(z) = 3z^{-2}$, and the continuous-time input signal is

$$x(t) = 2\cos(750\pi t + \pi/4) + 3\cos(1600\pi t - 3\pi/5).$$

(a) Plot the complete frequency spectrum for $x[n]$ in the region $-\pi < \hat{\omega} \le \pi$.

(b) Determine an expression for the output $y(t)$ of this system for the input $x(t)$ indicated.