4) If an analog sinusoidal signal is input to a digital spectrum analyzer, which samples the analog signal and performs a DFT of the sampled sequence to display its frequency content, what do you expect to see at the display of the spectrum analyzer?

5) If an analog signal $x(t)$ has been sampled according to the Nyquist criterion to generate $x(n)$ where the samples are taken at $t = nT$, can you use a digital filter to generate $y(n)$ from $x(n)$, y(n) being the sequence as if it had been generated by sampling $x(t)$ at $t = nT+ 0.67T$?