Tune-Up Tuesday for October 17, 2017

The MATLAB command `freqz(h)` plots the magnitude and phase of the frequency response for an LTI system with impulse response **h** = `[ h[0] h[1] … h[M] ]`.

The magnitude response will be in deciBels: $A_{\text{dB}} = 20 \log_{10} A$.

Use `freqz(h)` to determine the

1. frequency selectivity (lowpass, highpass, or allpass)
2. phase response (linear or non-linear)

(a) Ideal delay by 3 samples.

(b) Five-point averaging filter

(c) First-order difference filter $h[n] = \delta[n] - \delta[n\text{-}1]$ where δ[n] is the unit impulse.

(d) $h[n] = \delta[n] + 2\,\delta[n\text{-}1] + \delta[n\text{-}2]$ where δ[n] is the unit impulse. (Homework 5.1)

Give the MATLAB code used for each part. Using MATLAB comments, give answers to each part above. You do not have to submit any plots.