ECE310: Quiz#9 (6pm Section CSS) Fall 2018

1. (5 pts) Draw a cascade structure with first-order sections, each in Direct Form II structure, for a system with the following transfer function:

$$\frac{0.5 - z^{-1}}{(1 - 0.25z^{-1})(1 + 0.5z^{-1})}$$

2. (5 pts) Design a length-6 GLP FIR low-pass filter with cutoff frequency $\omega_c = \frac{\pi}{5}$ radians. Use the window design method with a Hamming window ($w[n] = 0.54 - 0.46\cos(2\pi n/M)$ for $n = 0, ..., M$). Give your answer in terms of a closed-form expression for the filter coefficients $\{h_n\}_{n=0}^{5}$.