ECE310: Quiz#9 (10am Section G) Fall 2018

1. (5 pts) Draw the Direct Form I filter structure for a system with the following transfer function:

$$\frac{1 + 0.5z^{-1}}{1 + 0.5z^{-1} + 0.4z^{-2}}$$

2. (5 pts) Design a length-5 GLP FIR low-pass filter with cutoff frequency $\omega_c = \frac{\pi}{4}$ radians. Use the window design method with a Hann window ($w[n] = 0.5 - 0.5\cos(2\pi n/M)$ for $n = 0, ..., M$). Give your answer in terms of a closed-form expression for the filter coefficients $\{h_n\}_{n=0}^{4}$.