

ECE 310: Quiz #4 (6pm Section CCS) Fall 2018

UIN: _____

Name: _____

Score: _____

1. (6 pts) A causal linear time invariant system has transfer function $H(z) = \frac{1 + z^{-1}}{(1 + 3z^{-1})(1 - z^{-1})}$.

- (a) Determine a difference equation relating the input $x[n]$ to the output $y[n]$ for this system.
- (b) Find the impulse response of this system.

2. (4 pts) Determine in each case whether or not the system is BIBO stable. Justify your answer.

- (a) A causal system described by the difference equation $y[n] + jy[n - 17] = 17x[n] + x[n - 1]$.
- (b) A system described by the equation $y[n] = h[n] * x[n]$, with $h[n] = \cos(\pi n/3)u[n]$.