

Homework 6
EECS 360

1. Are the following systems BIBO stable; yes or no:

a) $h(t) = u(t)e^t$

b) $h(t) = \text{rect}(t+5)e^{-10t}$

c) $h(t) = A\sin(100t)$

d) $h(n) = a^{-|n|}$

e) $h(n) = u(n)e^{-n/10} \cos(10n)$

2. Are the systems in problem 1 casual; yes or no.

3. The signal $x(t)$ is input to system 1 with an impulse response of $h_1(t)$. The output is this system input to a second system with an impulse response of $h_2(t)$. Find and plot the output of the second system if $h_1(t) = \text{Rect}[\frac{t-2}{4}]$, $h_2(t) = \text{Rect}[\frac{t-2}{4}]$ and $x(t) = \delta(t-5)$.

4. Find the unit step response for a system with an impulse response of $h(t) = 2u(t)e^{-2t}$.