

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

1. (5 pts) The frequency response of an LTI system is

$$H_d(\omega) = (\omega^2 + 2 \cos(2\omega))e^{j\omega \cos(4\omega)}, \quad \frac{\pi}{8} \leq |\omega| \leq \frac{6\pi}{7}$$

- (a) Is the system real?
(b) Determine the output $y[n]$ for input $x[n] = 1 + \cos(\frac{\pi n}{4}) + \cos(\frac{\pi}{5}) \sin(\frac{9\pi n}{10})$.

2. (5 pts) Consider the discrete-time signal $x[n] = 2 \tan(\frac{\pi}{5}) \cos(\frac{10\pi n}{13})$. Find two continuous-time signals $x_c(t)$ that will produce $x[n]$ when sampled at a rate of 260 samples per second.