

Homework Set 7**EECS 206****Due: Wed., Oct. 31, 2001**

Relevant reading materials: Chapter 6, all.

Relevant lectures: 10/19, 10/22, 10/24, 10/26

1. 6.4, p. 196
2. 6.5, p. 196
3. 6.7, p. 196
4. 6.12, p. 198. In part (a), Determine the frequency response of the equivalent system that is ..."
5. 6.14, p. 199
6. 6.18, p. 200
7. 6.19, p. 200
8. Find the coefficients of two first-order FIR filters such that when cascaded, the overall frequency response is

$$\hat{H}(\omega) = 2 + 3e^{-j\omega} - 2e^{-j2\omega}.$$

Hint: Try factoring.

9. The signal $x[n]$ is the input to an FIR filter with frequency response

$$\hat{H}(\omega) = 2 + e^{-j\omega}.$$

The signal $x[n]$ is periodic with period 8. Its 8 point DFT is

$$X[0] = 0, X[1] = 3, X[2] = 1, X[3] = 0, X[4] = 0, X[5] = 0, X[6] = -1, X[7] = 3.$$

Find the output signal $y[n]$ **Homework submission policies:**

Write neatly and legibly. The graders will not grade papers that are illegible or difficult to read.
Submit the problems in the assigned order.
Clearly write your name, lecture session number, and lab session number at the top of your paper.
Staple your paper in the upper left corner.
Hand in your homework just before or just after the lecture, or place it in the box outside Room 4230D EECS before 5 PM.

See the collaboration policy described on the first day handout and on the website.