Last Name: _____ First Name: _____
Student ID: _____

EME172: Automatic Control of Engineering Systems

Summer Session 1, 2007

Homework 3

Due Monday, July 16, 2007

(155 points)

1. Read Chapter 4 (4.5-4.8), Chapter 5 (5.1-5.3), and Chapter 6 (6.1-6.4) in the textbook *Control Systems Engineering*.
2. (10 points) Plot the step response for Problem 4-2(a) using control toolkit. From your plot find the time constant, rise time, and settling time of the system.
3. (20 points) Problem 4-18 (for Problem 4-8 – b, d, e, f).
4. (20 points) Problem 4-20(a, b).
5. (20 points) Plot the step responses for Problem 4-20(a, b) using control toolkit. From your plots find Tp, Tr, Ts, and %OS.
6. (20 points) Problem 4-23.
7. (10 points) Use control toolkit to plot the step response of the system in Problem 4-40.
8. (20 points) For the problem 4-50,
   (1) 4-50(a).
   (2) Assume K = 100, use control toolkit to simulate the system and compare your results to (1).
9. (20 points) Problem 4-56.
10. (15 points) Problem 5-14.