Homework #11: ECE 461/661

Discrete-Time Compensator Design.   Due Monday, November 19, 2018

Assume

$$G(s) = \left(\frac{200}{(s+2)(s+5)(s+10)(s+15)} \right)$$

Problem 1: Assume a sampling rate of 100ms.

- Design a compensator, K(z), which results in
  - 20% overshoot for a step input.
  - No error for a step input, and
  - A 2% settling time of 2 seconds
- Write pseudo-code to implement K(z)
- Plot the step response of the closed-loop system using VisSim or Simulink (or similar program)

Problem 2: Assume a sampling rate of 250ms.

- Design a compensator, K(z), which results in
  - 20% overshoot for a step input.
  - No error for a step input, and
  - A 2% settling time of 2 seconds
- Write pseudo-code to implement K(z)
- Plot the step response of the closed-loop system using VisSim or Simulink (or similar program)