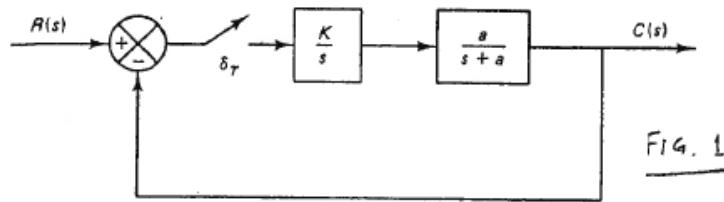# Practice Test

Midterm #2

ECE 452/552: Control Systems Design II

- Closed book and closed notes, except as described below.
- One only ($8\frac{1}{2}^{"} \times 11^{"}$) page of handwritten notes is permitted. (Written on both sides is OK).
- No calculators can be used.
- Scrap paper is not to be used. Show all work on the exam paper.

Student name: _____

Problem 1.

Consider the system shown in Fig. 1. Determine the stabilty range for K (where $K > 0$) by using the Jury stability criterion. The sampling period is assumed to be T seconds.

FIG. 1

Question 2.
Use the matched pole-zero mapping method to determine the equivalent discrete-time filter for the following:

$$G(s) = \frac{s + a}{s(s + b)}$$