

## EE 381 Homework 1 Part 2

Name, I.D. #, and Date: \_\_\_\_\_

Instructions: Instructions: Attempt each exercise and show your work. You can attach pages to your submission. Submit this part of homework 1 with the additional parts of homework 1 on Wednesday February 5. You may want to make copies of your work.

Two assembly lines Alpha and Beta make the same electronic component. When the components are completed, they are grouped together in the same inventory without distinction as to which assembly they came from. Assembly line Alpha is faster; so at any time, 60% of the components come from Alpha. Both Alpha and Beta have quality control issues. Past reviews of the assembly lines have determined that 3% of Alpha's components are defective while 1% of Beta's are defective. If a random component is defective what is the probability it came from Beta?

A rare disease is present in 0.01% of the population. A test for the disease is 92% accurate but suffers from a 10% false positive rate. If a random person test positive for the disease, what is the true probability they have the disease?