A company produces personal computers and has two programs, program A and program B, to check if they work. The quality control center decides to operate as follows:

1) if the computer fails Test A (the test done using program A) then it is discarded.
2) if the computer passes Test A it is checked with Test B (the test done using program B). If it fails Test B it is discarded.
3) the computers that pass Test B are shipped to be sold.

It is observed that 95% of the computer tested with Test A pass it and 99 of those tested with Test B pass it.

After a large quality review it is found that

1) 0.1% of the shipped computer were defective.
2) 0.2% of the computer discarded because they failed Test B were working.
3) 0.2% of the computer discarded because they failed Test A were working.

Find:

a) the percentage of shipped computer on the total produced?
b) given that a computer is working what is the probability that it is discarded?
c) the probability that a shipped computer is not working?

A costumer buys computer from our company. He need 5 working computer for a critical job. He decides to buy N computers with $N > 5$ because he want that the probability that at least 5 among the N he bought are working to be higher than $1 - 10^{-4}$. How large should N be?

Another costumer buys 3 computer every day. What is the probability that he will find the first non working computer after exactly 10 days. **Bonus** write an expression for the expected number of days he will wait before buying the first non working computer and try to evaluate it.

The company discovers that in a group of 1000 computer ready to be shipped there are exactly 10 defective ones. Being pressed by deadlines it decides to ship the group as it is. Ten computers from this group go to one costumer. What is the probability that all five computer he bought by this custumer are working? What is the probability that four out of the five computer he bought are working?