

Answer the following questions, assume any missing data

Q1) Imagine that there are four things that you like to do in the evening: shopping, watching TV, going to a party, or studying. The choice is made according to, if you have an assignment due the next day, if you feel lazy, and if there isn't a party then you can't go to it. You are looking for a decision tree which will help you decide what to do each evening. Here is a list of everything you've done in the past 10 days. (10 points)

Deadline?	Is there a party?	Lazy?	Activity?
Urgent	yes	Yes	Party
Urgent	No	Yes	Study
Near	Yes	Yes	Party
None	Yes	No	Party
None	No	Yes	Shopping
None	Yes	No	Party
Near	No	No	Study
Near	No	Yes	TV
Near	Yes	Yes	Party
Urgent	No	No	Study

Q2) Suppose that a rare disease affects 2 out of every 1,000 people in a population. And suppose that there is a good, but not perfect, test for the disease. For a person who has the disease, the test comes back positive 98% of the time and if for a person who does not have the disease the test is negative 97% of the time.

- What is the sensitivity of the test?
 - What is the specificity of the test?
 - You have just tested positive; what are your chances of having the disease?
- (10 points)

Good luck

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