STA371G Homework Assignment 9

(50 Points. Group homework.) Please write down the NAME and EID of each group member. Each group consists of up to three members.

The following two problems are based on the Freemark Abbey Winery case. You may use the payoff table in Homework 8 to help answer the following questions.

Problem 1: Freemark Abbey Winery (II) (20 points)

In this problem, we will study the value of information for Jaeger.

(a) Find the expected value of perfect information (EVPI). This would be the maximum amount of money you would be willing to pay for perfect information.

(b) Suppose you could buy perfect information regarding whether or not the storm will hit. What is the most you would be willing to pay for this information?

(c) Suppose you could buy perfect information regarding whether or not the botrytis mold forms if the storm hits. What is the most you would be willing to pay for this information?

Problem 2: Freemark Abbey Winery (III) (30 points)

In this problem, we will apply the Bayes' theorem to find out the value of sample information. In problem #2, you computed the expected value of the mold expert's perfect information regarding whether or not the condition of the grapes is such that the botrytis mold will form if the storm hits. Now suppose the information is not perfect. In particular, suppose that if the condition of the grapes is such that the mold will form if the storm hits, the mold expert correctly indicates this 75% of the time; and if the condition of the grapes is such that mold will not form if the storm hits, the mold expert correctly indicates this 85% of the time.

(a) Fill the joint probability table shown below:

	Mold	No Mold	
Expert States Mold			
Expert States No Mold			

(b) If the mold expert states that the mold will form if the storm hits, find the optimal action and the expected payoff under that action.

(c) If the mold expert states that the mold will not form if the storm hits, find the optimal action and the expected payoff under that action.

(d) How much are you willing to pay for the mold expert's imperfect information?