Decision Models, Homework

The Gorman Manufacturing Company must decide whether to manufacture a part at its Milan, Michigan plant or purchase the component part from a supplier. The resulting profit is dependent upon the demand of product. The following payoff table shows the projected profit (in thousands of dollars):

	Low Demand (S1)	Medium Demand (S2)	High Demand (S3)
Manufacture (d1)	-20	40	100
Purchase (d2)	10	45	70

The state-of-nature probabilities are P(S1) = 0.35, P(S2) = 0.35, and P(S3) = 0.30.

a) Use a decision tree to recommend a decision.
b) Interpret EVPI.
c) A test market study of the potential demand for the product is expected to report either a favorable (F) or unfavorable (UF) condition. The relevant conditional probabilities are:

P(F/S1) = 0.10 P(U/S1) = 0.90

P(F/S2) = 0.40 P(U/S2) = 0.60

P(F/S3) = 0.60 P(U/S1) = 0.40

What is the probability that the market research report will be favorable?

d) What is Gorman's optimal strategy?
e) What is EVSI?
f) What is the efficiency of the information? Explain.