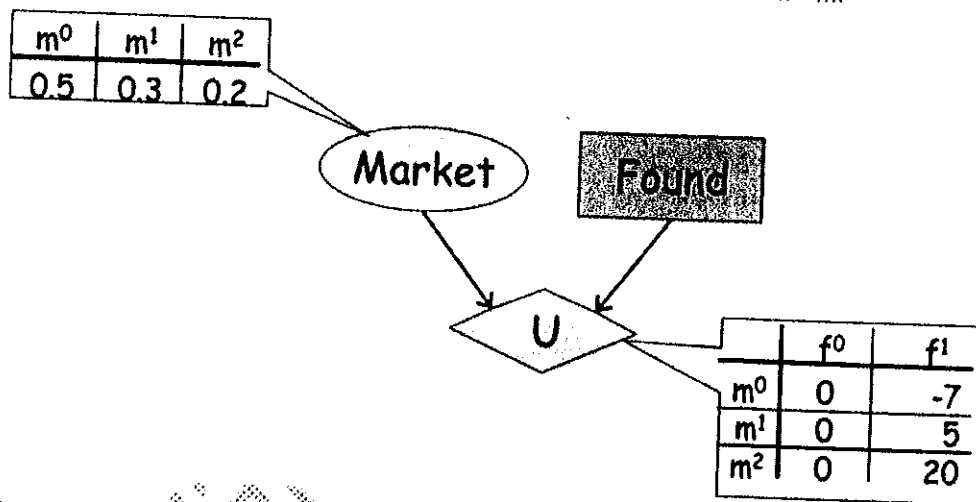


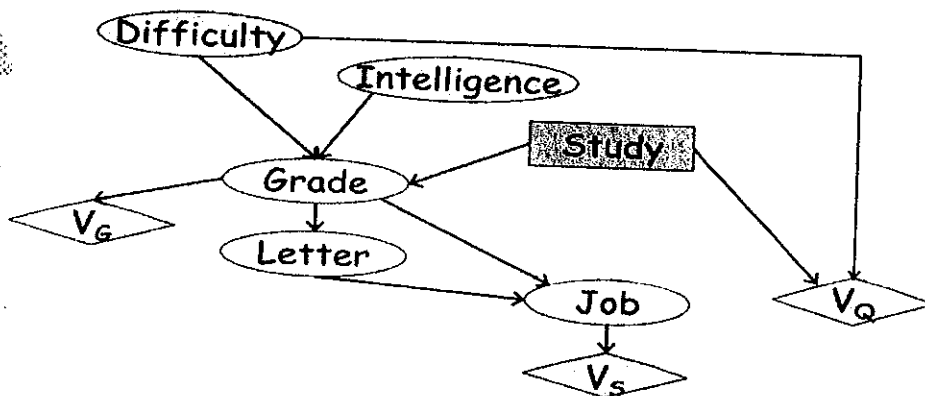
Note: All questions are compulsory. All questions carries equal marks.

- Q1. (a) What are the utility functions and their presences? Draw the utility curve for a fair coin tossed repeatedly until it comes up with heads, say on the n^{th} toss payoff = $\$2^n$
 (b) Explain the typical utility curve with Multi-Attributes Utilities.

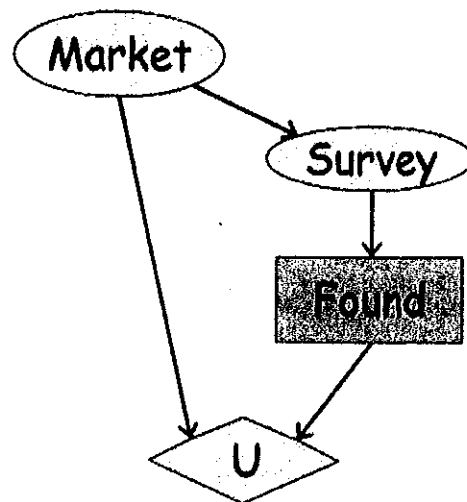
- Q2 . (a) What is the Expected Utility for following simple influence diagram?



- (b) What is the Expected Utility for following more complex influence diagram?



Q3 How will you find the Maximum Expected Utility decision rule for following scenario?



Q4 (a) Explain and list the attributes for Conditional Random Fields

(b) What is the difference between Conditional Random Fields and Logistic Model?

Q5 (a) What is the difference between Markov network and Bayesian network?

(b) Consider a fully connected pairwise Markov network over X_1, \dots, X_n where each X_i has d values. How many parameters does the network have?

(c) Explain the induced Markov network for:

$$\phi_1(A, B, C), \phi_2(B, C, D)$$