CS 511A (Intro to AI) Fall 2006, HW6

IMPORTANT: You must follow the collaboration policy (check the course webpage if you forgot)!

Due date: **Dec. 12 (Tuesday), before 12pm**

1. (10 pts) You are asked to apply decision tree method to learn a prediction (classification) model based on a set of training points. Assume that you have the following training samples: (2, 5, -), (1, 4, -), (3, 5, +), (4, 6, +), (0, 2, -), (1, 1, -), (4, 5, +), where the data points are in the form of (x, y, +/-), x and y are two features and + and - are the two class labels. Which feature should you use for the root node of the tree? Describe your decision with some computation? You have to work out all the calculation (e,g., information gain) you need
2. 13.6 (10 pts)
3. 18.3 (5 pts)
4. 18.10 (10 pts)
5. (15 pts) Consider the candy example we discussed in class and in book section 20.1 (so you use the same prior distributions for each types of bags). If the candies you have tasted are (lime, lime, cherry, lime, cherry, lime, lime). What would you expect the next candy X should be? Justify your conclusion by compute the probability you need.