CSci1302 Assignment 1

Due Wedn., September 15th in class

Problem 1 (20 points). Question 1 (11 points). For each of the statements below please indicate whether it is a **prime** proposition or a **compound** one. If it is compound, please write down the prime propositions which it consists of and the logical connectives (NOT, AND, OR, IF...THEN, and IF AND ONLY IF). For example, the sentence "Today it will rain or snow" is a compound proposition which rewrites to "Today it will rain OR today it will snow".

You may use symbols $\neg, \wedge, \vee, \Rightarrow, \Leftrightarrow$, etc. for connectives if you prefer, for example the same stentence as above can be written as $p \vee q$, where $p =$ "today it will rain", $q =$ "today it will snow".

1. I live and study in Morris.

2. I go to the library to read or to relax.

3. If it rains or snows, the party will be indoors.

4. The bookstore is not open today.

5. The bookstore is closed today.

6. The swimming team consists of Mary and Jane.

7. Mary and Jane are on the swimming team.

8. Neither Pete nor Joe is going to the party.

9. Some people like chocolate but other people don't.
   (Please explain your answer briefly)

10. If you don't leave now, you will be late for the party.

11. If there is room in the car, I will go with you.

Question 2 (9 points). For propositions 1, 2, and 10 in Part 1 please construct the truth table: show all possible combinations of values of the prime propositions and indicate when the entire compound proposition is true and when it is false.

Problem 2 (4 points). Exercise 3.2 on p. 27, part 1 (a)-(d),

Problem 3 (6 points). Exercise 3.3 on p. 30, parts 4,5,

Problem 4 (4 points). Exercise 3.4 on p. 30.

Problem 5 (4 points). Exercise 3.6 pp. 32-33 Parts 3,5. Please construct the truth tables for the formulas and indicate whther the formula is a tautology, a contradiction, or a contingent proposition.