Assignment 4

1. Consider the following statements:
   1. It is certain that it will rain tomorrow.
   2. It is possible that it will rain tomorrow.
   3. It is impossible that it will rain tomorrow.
   4. It is not certain that it will rain tomorrow.
   5. It is certain that it will not rain tomorrow.

   a. What is the truth value of each statement?
   b. Which statement is the most likely to be true?
   c. Which statement is the least likely to be true?

2. Which of the following are valid arguments?
   a. If it is raining, then it is snowing.
   b. If it is not raining, then it is not snowing.
   c. If it is raining, then it is snowing.
   d. If it is not raining, then it is snowing.

3. Which argument is invalid?
   a. It is raining.
   b. If it is raining, then it is snowing.
   c. It is not snowing.
   d. Therefore, it is not raining.

4. Which argument is valid?
   a. If it is raining, then it is snowing.
   b. It is snowing.
   c. Therefore, it is raining.
   d. It is not raining.

5. Which argument is invalid?
   a. It is raining.
   b. If it is raining, then it is snowing.
   c. It is not snowing.
   d. Therefore, it is not raining.

6. Which statement is a tautology?
   a. If it is raining, then it is snowing.
   b. If it is not raining, then it is not snowing.
   c. If it is raining, then it is snowing.
   d. If it is not raining, then it is snowing.

7. Which statement is a contradiction?
   a. If it is raining, then it is snowing.
   b. If it is not raining, then it is not snowing.
   c. If it is raining, then it is snowing.
   d. If it is not raining, then it is snowing.

8. Which statement is a contingency?
   a. If it is raining, then it is snowing.
   b. If it is not raining, then it is not snowing.
   c. If it is raining, then it is snowing.
   d. If it is not raining, then it is snowing.