COSC 370 Exam Review #2
Spring 2013

1.) Without relying on pseudocode, describe how backtracking search works for constraint satisfaction problems.

2.) Describe a strategy for choosing a variable to assign in a constraint satisfaction problem solution. Describe a strategy for choosing a value, given a variable, in a constraint satisfaction problem solution.

3.) In the classic Wumpus World, the agent moves north, feels a breeze, moves south, moves east and smells something. What do I know about space (2, 2) assuming that the agent started in (1,1) (bottom left corner)?

4.) Give an instance in the classic Wumpus World problem where the agent would have to take a chance of dying in order to move.

5.) In the classic Wumpus World, our agent starts in (1,1) not perceive anything, and moves north and smells something. Consider all possible models for the snapshot of Wumpus World that includes (1,1), (1,2), (1,3), (2, 1) and (2,2). Circle the models that would be valid for the Wumpus World KB.

6.) Describe forward chaining and backward chaining noting why we would typically use BC over FC.

7.) Convert the following sentence into CNF:

$$((a \vee \neg b) \wedge (\neg c \vee d)) \Rightarrow (e \wedge \neg f)$$

8.) Given the following entries in our KB, show, via resolution, that we can entail $\neg P_{1,2}$.

$KB = (B_{1,1} \Leftrightarrow (P_{1,2} \vee P_{2,1})) \wedge \neg B_{1,1}$

9.) Draw the McCulloch-Pitts neural unit and describe each of the parts of that model. Give a simple example of a neural net using this unit, being sure to describe how the network functions.

10.) Describe a feed-forward network.

11.) In Squirrel, give the simple “Hello, World!” function.