Quiz 6 and 7 Chapter 7 & 8
Note the two versions A & B

Nov.18 2010
Exam A: 1. The sentence: $A \lor \neg B$ (A and B are propositions) is “valid”.

   a) True  b) False

Exam B: 1. The sentence $A \Rightarrow \neg A$ (A is a proposition) is unsatisfiable

   a) True,  b) False
Exam A: 2. \( \neg(A \land \neg B) \equiv \neg A \lor B \)
   a) True,  b) False

Exam B: 2. \((A \lor B) \land C) \equiv (A \lor C) \land (B \lor C) \)
   a) True,  b) False
Exam A: 3. The expression: \((A \lor B) \land C \land \neg D\) is in CNF form.

a) True,  b) False

Exam B: 3. The clauses in the expression: \((A \lor B) \land \neg C \land \neg D\) are all in Horn form.

a) True,  b) False
Exam A: 4. To prove “KB entails A” it is sufficient to show that there is no world for which $KB \land \neg A$ is TRUE.

   a) True,  b) False

Exam B: 4. To show entailment it is sufficient to show that in every world where A is TRUE, KB is also TRUE.

   a) True,  b) False
Exam A: 1. Consider: the expression in FOL: Grade(Brother(Jane)). In this case “Brother(.)” represents a:
   a) Function  b) Unary relation

Exam B: 1. Consider the following sentence in FOL: Real(X) (where X is a variable). Is the syntax of the expression correct in FOL?
   a) Yes,  b) No
Exam A: 2. Does the following sentence in FOL capture the English meaning:
“all bears have hair”: $\forall x, \ Bear(x) \Rightarrow Hair(x)$

a) True,  b) False

Exam B: 2. Does the following sentence in FOL capture the English meaning:
“there is a bear that has white hair”: $\exists x, \ Bear(x) \Rightarrow Hair(x)$

a) True,  b) False
Exam A: 2. Does the following sentence in FOL capture the English meaning:

“There is an anteater that eats bread”: $\exists x, \text{Anteater}(x) \Rightarrow \text{EatBread}(x)$

a) True,  b) False

Exam B: 2. Does the following sentence in FOL capture the English meaning:

“all anteaters eat ants”: $\forall x, \text{Anteaters}(x) \land \text{EatAnts}(x)$

a) True,  b) False
Exam A: 2.

\[
A \land \neg B \land C \\
B \land \neg D \\
\therefore A \land C \land \neg D
\]

a) True,    b) False

Exam B: 2. \((A \lor \neg B \lor \neg C) \equiv (B \land C \Rightarrow A)\)

a) True,    b) False