Quiz 2

Please be careful, as I am unlikely to give partial credit. The True/False questions require no justification. I will give negative points for these, but it will still be your interest, statistically, to guess.

1. Imagine converting the regular expression $\alpha = (00 \cup 001)^*$ into a DFA M using the constructions given in class and in your text. How many states will M have?

2. Draw the smallest (=fewest states) DFA that accepts $(00 \cup 001)^*$.

3. Define what it means for a CFL language L to be *inherently ambiguous.*

4. Define what it means for a CFG $G = (V, \Sigma, R, S)$ to be in *Chomsky Normal Form* (CNF).

5. If L^* is regular, then L is regular. $\boxed{\textbf{True}}$ $\boxed{\textbf{False}}$

6. If L^* is context free, then L is regular. $\boxed{\textbf{True}}$ $\boxed{\textbf{False}}$

7. $L = \{a^i b^j c^k : i \neq j \text{ or } j \neq k\}$ is context free. $\boxed{\textbf{True}}$ $\boxed{\textbf{False}}$

8. $L = \{a^i b^j c^k : i = j = k\}$ is context free. $\boxed{\textbf{True}}$ $\boxed{\textbf{False}}$

9. There is known an efficient (polynomial-time) algorithm for answering the following question: given a CFG G, is $\varepsilon \in L(G)$? $\boxed{\textbf{True}}$ $\boxed{\textbf{False}}$

10. For any CFG G, there is known an efficient (polynomial-time) algorithm for answering the following question: given x, is $x \in L(G)$? $\boxed{\textbf{True}}$ $\boxed{\textbf{False}}$

11. If L is CF then $L \circ L$ is accepted by a PDA.

12. If L is CF and L' is CF then $L \cap L'$ is CF. $\boxed{\textbf{True}}$ $\boxed{\textbf{False}}$