CS200 **Quiz 3: Grammars & Stacks** (9/9/14)
[20 pts per question]

1. Given the grammar G=(V,T,S,P) where
   V={0,1,S,A}, T={0,1} and P is:
   $S \rightarrow 0A|11S|\lambda$
   $A \rightarrow \lambda|00S$
   Which describes the language?
   a. Strings of all 0s or all 1s
   b. Strings with an odd number of 0s and even
      number of 1s
   c. Strings with two 1s followed by 0s or 1s
   d. None of the above

2. Circle all that are true: In a grammar,
   a. "x" means "0 or more x's".*
   b. Non-terminals cannot appear in the left
      hand side of productions.
   c. Terminals are part of the vocabulary.
   d. S must be the starting non-terminal.

3. Circle all that are true:
   a. *A derivation shows how a string could be*
      produced from a grammar.

   b. A derivation tree is another representation
      of a grammar.
   c. All grammars can be expressed as regular
      expressions.
   d. Regular expressions are defined over sets.

4. Circle one: If these ints (6, 2, 5, 1, 9) are added
   to a stack in the order given, which will be the
   first to be removed:
   a. 6
   b. 2
   c. 1
   d. 9

5. Circle all that are true:
   a. Because a stack can be implemented using
      an ArrayList, all of the standard ArrayList
      methods are available to the user of the
      stack.
   b. *The item removed first from a stack is called*
      the "top".
   c. *Stacks are used to track recursion.*
   d. Stacks are always implemented using an
      ArrayList.