Quiz 8

1. The instantaneous description (x, y, z) of a PDA indicates what (in the order specified)?

   (a) (current state, unread input, stack content)

   (b) (unread input, stack content, current state)

   (c) (current state, stack content, unread input)

   (d) (unread input, current state, stack content)

   (e) A decomposition of the input string $w = xyz$.

2. Which of the following languages can be accepted by a DPDA?

   (a) The set of odd length palindromes over the alphabet $\{a, b\}$

   (b) The set of even length palindromes over $\Sigma = \{a, b\}$

   (c) The language $\{a^n b^n c^n : n \geq 335\}$

   (d) None of the above

3. The transition $(q_2, AB) \in \delta(q_1, a, A)$ in a PDA M indicates that in state q_1, on seeing a on the input and A on top of stack, M can go to state q_2 and do which of the following?

   (a) push AB onto the stack

   (b) push BA onto the stack

   (c) push B onto the stack

   (d) pop A and push AB onto the stack

   (e) pop A and push B onto the stack

4. Any context-free language L can be accepted by some PDA with at most 3 states.

   (a) True

   (b) True only if L is deterministic

   (c) True only if L is non-deterministic

   (d) False

   (e) Not enough information to conclude

5. Suppose R is a regular language and C is a CFL over the same alphabet Σ such that $C \subseteq R$. Which of the following languages is necessarily regular?

   (a) $R - C$

   (b) $R \cap C$

   (c) $\Sigma^* - C$

   (d) None of the above