CS171 Quiz 1: Inheritance, Stacks

Name _________________

1. Every class in Java extends the ____________ class either directly or indirectly.

2. The ____________ keyword is used to call a method of the super class.

3. Which of the following is used in Java to implement polymorphism? ______________
   A) late binding
   B) early binding
   C) the book’s binding
   D) compile-time binding

4. Suppose class CheckingAccount extends, in other words is a subclass of, class BankAccount. Given the code fragment below, determine the first line that would generate an error (either compile-time or run-time). ______________

   BankAccount b = new BankAccount();
   CheckingAccount c = new CheckingAccount();
   b = c;
   c = b;

   A) line 1
   B) line 2
   C) line 3
   D) line 4
   E) None: this is a trick question

5. Suppose class SavingsAccount extends class BankAccount. Given the following declaration:

   SavingsAccount s = new SavingsAccount(0.1); // an interest rate of 10%

   Which of the following Java statements are correct and evaluate to true? ______________

   i.  s instanceof SavingsAccount
   ii. SavingsAccount instanceof s
   iii. s instanceof BankAccount
   iv. CheckingAccount instanceof s

   A) i.
   B) i. & iii.
   C) ii. & iv.
   D) i.-iv.
6. Suppose that an intermixed sequence of stack push and pop operations are performed. The pushes push the integers 0 through 9 in order; the pops print out the return value. Which of the following sequence could not occur? ________________

A) 4 3 2 1 0 9 8 7 6 5  
B) 4 6 8 7 5 3 2 9 0 1  
C) 2 5 6 7 4 8 9 3 1 0  
D) 4 3 2 1 0 5 6 7 8 9

7. If we implement a stack using resizing array, when and how is the array resized?

8. What does the following code fragment print when n is 50? In general, what does it do when presented with a positive integer n?

```java
Stack<Integer> s = new Stack<Integer>();
    while (n > 0) {
        s.push(n % 2);
        n = n / 2;
    }
    while (!s.isEmpty())
        System.out.print(s.pop());
```

9. Do you have any feedback, comments, or suggestions on the class so far? Thanks.