Part I. Multiple Choice Questions (3 points each):

1. Which of the following characteristics of an object-oriented programming language restricts behavior so that an object can only perform actions that are defined for its class?
   (a) Dynamic Binding
   (b) Polymorphism
   (c) Inheritance
   (d) Encapsulation ******

2. What is the value of the String $S$ after the following line?

   ```java
   String S = (new String("arach")).substring(0,2) +
               (new String("nophobia")).substring(3);
   ```

   (a) "arachobia"
   (b) "arnophobia"
   (c) "arhobia" ******
   (d) "rachobia"

3. When would you use a private constructor?
   (a) When you get bored with public
   (b) If you want to disallow instantiation of that class from outside that class ******
   (c) If you want to protect your class’s members from outside modification
   (d) Never, it’s not allowed

4. Which of the following is true about RuntimeException and its subclasses?
   (a) If a method throws a RuntimeException, the use of the try/catch block is optional. ******
   (b) The FileIOException class is a subclass of RuntimeException.
   (c) In general, handling of RuntimeException should be done at compile time.
   (d) In general, RuntimeException must be caught with a try/catch block.

5. Which of the following types cannot be used as the parameter for a switch statement?
   (a) char
   (b) boolean ******
   (c) byte
   (d) int
6. What is the output when you try to compile and run the following code?

```java
public class Switch {
    public static void main(String[] args) {
        int i = 1;
        switch (i) {
            case 0:
                int j = 0;
                System.out.print(j);
            case 1:
                int j = 1;
                System.out.print(j);
            case 2:
                int j = 2;
                System.out.print(j);
            default:
                int j = -1;
                System.out.print(j);
        }
    }
}
```

(a) 12-1
(b) 1
(c) 12
(d) The code does not compile

7. What is the most specific result of the following code?

```java
Integer[] someInts = new Integer[100];
int sum = 0;
for (Integer i : someInts) {
    sum += i;
}
System.out.println(sum / someInts.length);
```

(a) 0
(b) the sum of 100 integers
(c) NullPointerException
(d) the code will not compile
8. What is the output of the following code segment?

```java
char x = 'A';
while(x != 'D'){
    switch(x){
        case 'A':
            System.out.println(x);
            x = 'D';
        case 'B':
            System.out.println(x);
            x = 'C';
            break;
        case 'C':
            System.out.println(x);
            x = 'D';
        default:
            continue;
    }
}
```

(a) A ****
(b) D
(c) C
(d) A

9. What are valid arguments to the instanceof operator?

(a) a class object and a class type ****
(b) any primitive type
(c) boolean type only
(d) class types only

10. A class which implements the ActionListener interface must implement which method?

(a) void handle( ActionEvent e )
(b) void actionPerformed( ActionEvent e ) ****
(c) void eventDispatched( AWTEvent e )
(d) String getActionCommand( ActionEvent e )