OOADP

Java Exercises

Here are 10 Java-related questions taken from the 2009 OOADP examination. The time you have to answer the question in the exam is given for each question. In order to pass the examination, you must get 50% and you need to get 90% to get a 12. The maximum number of marks per question is equal to the number of minutes you should spend on it.

Question 1. (3 minutes)

Correct the following program so that it prints out "Hello world!".

```java
public class HelloWorld {
    public void main(String args) {
        System.out.println("Hello world!);
    }
```

Question 2. (3 minutes)

Write down the output of the following program:

```java
public class Question6 {
    public static void main(String[] args) {
        int d = -5;
        System.out.println("a" + d + d);
        System.out.println(d + d + "a");
    }
}
```

Question 3. (3 minutes)

Correct the following code fragment so that it prints out the contents of the array, *a*, in reverse order.

```java
int[] a = {1,2,3,4};
for (int i = a.length; i >= 0; i--)
    System.out.println(a[i]);
```

Question 4. (3 minutes)

Study the following code.

```java
public class Question13 {
    private int x;
    public Question13(int x) {
        XXXXXXX
    }
}
```

Write down the code that should replace XXXXXXX if we want this code to set the value of the instance variable called x to the value of the constructor argument called x.

Question 5. (4 minutes)

What is the output of the following program?

```java
public class Question16 {
    public static int i = 0;
    public Question16() {i++;}
    public static void main(String[] args) {
        for (int j = 3; j >= 0; j--) {
            new Question16();
            System.out.println(i);
        }
    }
}
```

Question 6. (4 minutes)

Study the following code.

```java
interface A {
    //The following method should always return 0.
    int a();
}

public class Question17 implements A {
    ZZZZZZZ
    public static void main(String[] args) {
        new Question17();
    }
}
```

Write down the code that is needed to replace ZZZZZZZ in order to make this program compile.

Question 7. (6 minutes)

The following code is the contents of a file called Question12.java. It will not compile. Something has to be inserted in order to make it compile. Write down the code that has to be inserted and state where it has to be inserted. The number at the beginning of each line indicates the line number and is not part of the code.

```
1   package dk.aau.imi.med4.ooadp2009.exam;
2
3   class Point {
4      public int x, y;
5      public Point(int x, int y) {
6           this.x = x;
7           this.y = y;
8      }
9   }
10
11  public class Question12 {
12     public static void main(String[] args) {
13          Point p = new Point();
14          System.out.println(p.x);
15     }
16  }
```

Question 8. (6 minutes)

What is the output of the following program?

```
public class Question20 {
    static class WibbleException extends Exception {
        private static final long serialVersionUID = 1L;
        public WibbleException() {super();}
        public WibbleException(String s) {super(s);}
    }
    static void splurge(int i) throws WibbleException {
        throw new WibbleException("Oops! ("+i+")");
    }
    public static void main(String[] args) {
        try { splurge(5);
        } catch (WibbleException e) {
            System.out.println("Wibble exception: "
                        +e.getMessage());
        }
    }
}
```

Question 9. (6 minutes)

The following Java code fragment should use insertion sort to sort the double values in the array, ar, into non-decreasing order. Write down the three tokens that are needed to replace XXX, YYY and ZZZ.

```java
for(int j = 1; j < ar.length; j++) {
      double k = ar[j];
      int i = j - 1;
      while (i XXX 0 && ar[i] YYY k) {
            ar[i+1] = ar[i];
            ZZZ;
      }
      ar[i+1] = k;
}
```

Question 10. (20 minutes)

Study the following program.

```java
public class Question25 {
      public static void main(String[] args) {
            Circle c = new Circle();
            System.out.println(c);
            Circle d = new Circle(2,3,4);
            System.out.println(d);
            Circle e = new Circle(2,3,3);
            Circle f = new Circle(2,4,4);
            Circle g = new Circle(3,3,4);
            Circle h = new Circle(2,3,4);
            System.out.println(d.compareTo(e));
            System.out.println(d.compareTo(f));
            System.out.println(d.compareTo(g));
            System.out.println(d.compareTo(h));
      }
}
```

Now write a Circle class so that when the above program is run, it produces the following output:

```
Centre is (1.0,2.0), diameter is 3.0
Centre is (2.0,3.0), diameter is 4.0
1
-1
-1
0
```