OOADP Lecture 5 Exercises: Intermediate topics in Java

From 2009 Exam

Question 15. (4 minutes)

What is the output of the following program?

```
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 16. (4 minutes)

Study the following code.

```
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 19. (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 20. (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 26. (20 minutes)

Study the following program.

```
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
```

From 2009 Re-examination

Question 19

Write down the output of the following program.

```
public class Boop {
     private static int nextId = 0;
     private int id = 0;
     public Boop() { id = ++nextId; }
     public int getId() { return id; }
     public static void main(String[] args) {
          for(int i = 5; i >= 0; i--)
               System.out.println(new Boop().getId());
     }
}
```

Question 20

Write down the output of the following program.

```
package dk.aau.imi.med4.ooadp2009.reexam;

public class Exceptions {

	static class JumpException extends Exception {
		private static final long serialVersionUID = 1L;
		public String getMessage() {
			return "JumpException thrown!";
		}
	}

	private static void countDown() throws JumpException {
		for(int i = 5; true; i--) {
			if (i > 0)
				System.out.println(i);
			else
				throw new JumpException();
		}
	}

	public static void main(String[] args) {
		try {
			try {
				countDown();
			} catch(JumpException e) {
				System.out.println(e.getMessage());
				countDown();
			}
		} catch(JumpException e) {
			System.out.println(e.getMessage());
		}
	}
}
```