University College Dublin
An Coláiste Ollscoile, Baile Átha Cliath

## Java Technologies (COMP 41490) Exam, 17 October 2011

*Prof. John Murphy and Prof. Liam Murphy*

NAME: _____

EMAIL ADDRESS: _____

*Instructions:*

Answer ALL 25 questions. Clearly mark your choice(s) for each question on this exam paper. If you want to change your answer, please ensure that your final choice(s) is/are clearly marked.

Do NOT detach pages from this exam, and do NOT add anything - only your indicated choices will be marked, there is no need to provide any explanation.

This is a closed-book exam. You may bring some blank sheets into the exam (for rough work) but you should NOT submit them with your exam answers.

Time allowed: 1 hour.

**1. Select the correct *setter* and *getter* method for the property `temperatureExceeded` according to the JavaBeans convention (choose all correct answers):**

```
public class TemperatureCheck {
     private boolean temperatureExceeded;
}
```

A. `public void setTemperatureExceeded (boolean temperatureExceeded)`
`{ this.temperatureExceeded = temperatureExceeded; }`

B. `public boolean setTemperatureExceeded (boolean temperatureExceeded)`
`{ return this.temperatureExceeded; }`

C. `public void getTemperatureExceeded (boolean temperatureExceeded)`
`{ this.temperatureExceeded = temperatureExceeded; }`

D. `public boolean isTemperatureExceeded ()`
`{ return this.temperatureExceeded; }`

E. `public boolean setTemperatureExceeded ()`
`{ return this.temperatureExceeded; }`

**2. With which of the following values can a `byte` primitive be initialized? (choose all correct answers)**

A. `true`

B. `false`

C. 130

D. 0

E. -1

**3. A subclass is usually more specific than its superclass.**
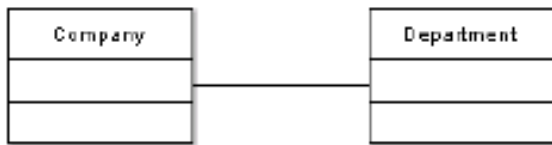
Select the correct answer:

   A. The statement is true
   B. The statement is false

**4. An association navigation between class A and class B exists if class A extends class B.**

Select the correct answer:

A. The statement is true

B. The statement is false

**5. Which *one* of the following statements is true about this UML diagram?**



Select the correct answer:

A. Association is represented

B. Inheritance is represented

C. Implementation is represented

D. Composition is represented

**6. Which identifier marks *public* instance variables and methods in a UML class diagram?**

A. **+**

B. **\***

C. **–**

D. **#**

**7. What is the association multiplicity indicator for "zero or more" in UML notation?**

Select the correct answer:

A. 0->*

B. *..0

C. 0..*

D. 0->more

**8. Which of these code fragments will compile without errors? (choose all correct answers)**

A.   `float f=6.5f;`

B.   `int i=10;`

C.   `char c = "t";`

**9. Which of the following statements are true in Java?**

Select all correct answers:

A. An abstract class cannot be instantiated

B. A concrete class cannot be instantiated

C. An interface cannot be instantiated

**10. The following Java code compiles without errors:**

```
interface IFace1 {
      public int calcOne();
}
interface IFace2 extends IFace1 {
      public int calcTwo();
}
```

A.     The statement is true

B.     The statement is false

**11. Which of the following statements about the `MyClass` class are true? (choose all correct answers)**

```
public class MyClass {
      private int number;
      private float floatingNumber;
      MyClass(int number) {
            this.number = number;
            this.floatingNumber=10.5f;
      }
}
```

A. The `MyClass` class has an instance variable called `number`

B. The `MyClass` class has a default constructor

C. The `MyClass` class must be declared `abstract` in order to compile without errors

D. The `MyClass` class can be instantiated with:

    MyClass c = new MyClass();

E. The `MyClass` class can be instantiated with:

    MyClass c = new MyClass ("name");

F. The `MyClass` class can be instantiated with:

    MyClass c = new MyClass(10);

**12. What is the result of compiling and running the following code? (choose the correct answer)**

```java
class SuperClass {
        public void invokeMethod() {
                System.out.println("SuperClass");
        }
}
class SubClass extends SuperClass {
        public void invokeMethod() {
                System.out.println("SubClass");
        }
}
public class TestClass {
        public static void main(String args[]) {
                SuperClass clazz = new SubClass();
                clazz.invokeMethod();
                clazz = new SuperClass();
                clazz.invokeMethod();
        }
}
```

A.    SuperClass

     SuperClass

B.    SubClass

C.    SubClass

     SuperClass

D.    Compilation fails

**13. Which of the following statements about the `Town` and `CommunityCenter` classes are true? (choose all correct answers)**

```java
class CommunityCenter {}
class Town {
        private CommunityCenter myCommunityCenter;
}
```

A. A `Town` is associated with one `CommunityCenter`

B. A `Town` is associated with many `CommunityCenters`

C. The `Town` class implements multiplicity using an array

D. The `Town` class is in a "*has-a*" relationship with `CommunityCenter`

**14. What is the result of compiling and running the following code? (choose the correct answer)**

```java
public class LoopCheck1 {
    public static void main(String args[]) {
        int i = 0;
        int x = 10;
        while ( x > 6 ) {
            System.out.print(--x + " ");
        }
    }
}
```

A. 1 2 3 4 5

B. 9 8 7 6

C. 10 9 8 7

D. 0 1 2 3

**15. Which of the following statements about the ScopeCheck2 class are true? (choose all correct answers)**

```java
public class ScopeCheck2 {
    private String name;
    private int age;
    public String call(String s) {
        String text;
        return text;
    }
}
```

A. The variables name and age are instance variables

B. The variable text is a method parameter variable

C. The variable text is a local variable

D. Compilation fails because variable text is not initialized

**16. An instance variable of type java.lang.String which is not explicitly assigned a value at declaration is automatically initialized to `null`.**

Select the correct answer:

A. The statement is true

B. The statement is false


**17. What will be the result of compiling and running the following code?**

```
public class Operators {

public static void main(String args[]) {

     System.out.print(!(true && false || true) + " ");
     System.out.print(!(true || false && true) + " ");
     System.out.print(!(true && true || false) + " ");
     System.out.print(!(true && true || true) + " ");
     System.out.print(!(true || true && true) + " ");

     }
}
```

Select the correct answer:

A. true true true true true

B. false false false false false

C. true true false true false

D. false false true true false

E. Compilation fails


**18. All classes of the java.lang package are available to a Java program by default and need no special import statements.**

Select the correct answer:

A. The statement is true

B. The statement is false

**19. Which *one* of the following statements is true about method overloading?**

A. Multiple methods exist with a different name but same argument list

B. Multiple methods exist with the same name and same argument list

C. Multiple methods exist with the same name but a different argument list


**20. Which of the following statements are true?**

Select all correct answers:

A. RMI stands for Remote Method Interaction

B. JNDI stands for Java Naming and Directory Interface

C. JMS stands for Java Message Servlet


**21. Which Java edition provides a runtime environment for mobile devices?**

Select the correct answer:

A. J2SE

B. J2EE

C. J2ME


**22. Which of the following components are developed within the J2ME?**

Select all correct answers:

A. Servlets

B. EJBs

C. MIDlets

**23. Which of the following components are developed within the J2EE?**

Select all correct answers:

A. Applets

B. Servlets

C. EJBs

D. MIDlets


**24. Which type of EJB is mainly used to persist an object's state?**

Select the correct answer:

A. entity bean

B. message driven bean

C. stateful session bean

D. stateless session bean


**25. Web Services can only be used to exchange data between Java applications.**

Select the correct answer:

A. The statement is true

B. The statement is false