



University College Dublin  
An Coláiste Ollscoile, Baile Átha Cliath

**Java Technologies (COMP 41490) Exam, 28 November 2011**

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***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* methods for the property *balance* according to the JavaBeans convention (choose all correct answers):

```
public class Account {  
    private int balance;  
}
```

- A. `public int setBalance(int balance) {this.balance = balance;}`
- B. `public void setBalance(int balance) {this.balance = balance;}`
- C. `public int isBalance() {return this.balance;}`
- D. `public int getBalance() {return this.balance;}`

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

- A. 0
- B. 0.0
- C. -130
- D. 0x2a

3. **Multiple inheritance** is one of the key concepts of the Java programming language.

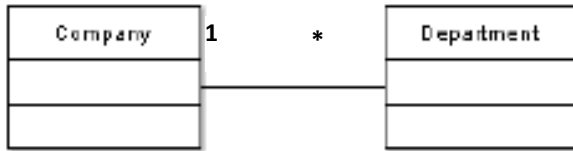
Select the correct answer:

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

4. Which *one* of these concepts best captures the relationship between a book and its pages?

- A. Inheritance
- B. Composition
- C. Association

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



- A. Association is represented
- B. Composition is represented
- C. Inheritance is represented

6. What is the UML representation of a multiplicity indicator for a range from 1 to 5?

- A. 1-5
- B. \*-5
- C. 1:5
- D. 1..5

7. Which *one* of the following statements about a class in a UML class diagram is true?

- A. The name of the class is in the top section
- B. The name of the class is in the middle section
- C. The name of the class is in the bottom section

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

- A. `char const = "c";`
- B. `char const = 'c';`
- C. `int do = 10;`
- D. `int I = 10;`

9. Which of the following statements about *abstract classes* in Java are true? (choose all correct answers)

- A. A class must be declared `abstract` if one or more methods are `abstract`
- B. A class can be declared `abstract` if one or more methods are `abstract`
- C. A class can be declared `abstract` if it has no `abstract` methods
- D. An `abstract` class cannot be extended

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 *one* of the following statements about the interface `IFace` is true?

```
public interface IFace {  
    public String getName();  
    int getAge();  
}
```

- A. A concrete class implementing `IFace` must only implement the method `getName`
- B. A concrete class implementing `IFace` must implement the methods `getName` and `getAge`
- C. A concrete class implementing `IFace` does not need to implement either of the methods
- D. None of the above

12. 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 does not have 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 ("scja");
```

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

```
MyClass c = new MyClass(1);
```

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

```
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 SubClass();
        clazz.invokeMethod();
    }
}
```

- A. SuperClass  
SuperClass
- B. SubClass  
SubClass
- C. Compilation fails

14. Which of the following statements about the School and Student classes are true? (choose all correct answers)

```
class Student {}
class School {
    private Student student[];
}
```

- A. A School is associated with one Student
- B. A School is associated with many Students
- C. The School class implements multiplicity using an array
- D. student[] is navigable through the School class

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

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

- A. 10 9 8 7 6
- B. 9 8 7
- C. 10 9 8 7
- D. 9 8 7 6

16. Which of the following statements about the `ScopeCheck` class are true? (choose all correct answers)

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

- A. The variable `name` is an instance variable
- B. The variable `s` is a method parameter variable
- C. The variable `text` is a local variable
- D. Compilation fails because variable `text` is not initialized

**17. A local 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

**18. All classes in 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 of the following statements represent correct `import` statements at the beginning of a Java source file? (choose all correct answers)**

- A. `import java.util.*;`
- B. `import java.io;`
- C. `import java.util.Enumeration`

**20. Which *one* of the following options will compile the source file `Destination.java` and place the generated class files in `c:\devel\dist`?**

- A. `javac -Dc:\devel\dist Destination.java`
- B. `javac -D=c:\devel\dist Destination.java`
- C. `javac -d c:\devel\dist Destination.java`

**21. Select the appropriate *Java edition* for the following application: “the application is an applet which is nested inside a HTML page”.**

- 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 protocols are used for accessing JSPs and Servlets?**

Select all correct answers:

- A. RMI
- B. RMI over IIOP
- C. HTTP
- D. HTTPs

**24. Which *one* of the following statements about Swing components is true?**

- A. Swing components rely on the underlying operating system to render windows for a Java application
- B. Swing components are heavyweight compared to AWT
- C. Swing components are lightweight compared to AWT

**25. Information about the history of viewed items for an online shop user should be kept for the whole time the user spends on the shop site. Which object is an appropriate way to store this data?**

Select the correct answer:

- A. HttpSession
- B. HttpServletRequest
- C. HttpServletResponse