



University College Dublin
An Coláiste Ollscoile, Baile Átha Cliath

Java Technologies (COMP 41490) Exam, 02 September 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* method for the property `balance` according to the JavaBeans convention (choose all correct answers):

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

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

2. Which of the following are *signed* datatypes? (choose all correct answers)

- A. `float`
- B. `char`
- C. `short`
- D. `boolean`
- E. `int`

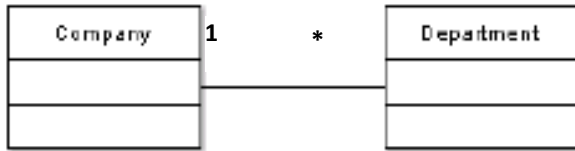
3. "A superclass's constructor is not inherited in any of the subclasses".
Select the correct answer:

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

6. Which identifier marks *private* instance variables in a UML class diagram?

- A. +
- B. *
- C. -
- D. #

7. Which of the following statements about UML multiplicity indicators are true?
Select all correct answers:

- A. The multiplicity indicator **1..*** stands for “one or more”
- B. The multiplicity indicator **1** stands for “at most one”
- C. The multiplicity indicator **0..2** stands for “zero or two”
- D. none of the above

8. Which of the given 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 are true?

Select all correct answers:

- A. An abstract class cannot be instantiated
- B. A concrete class cannot be instantiated
- C. An interface cannot be implemented
- D. An interface can extend another interface

10. Which of the given code fragments will compile without errors? (choose all correct answers)

- A. `int i,j,k; i=j=k=10;`
- B. `int i; int j; int k=10;`
- C. `int i; int j=10, int k=10;`
- D. `int i=10; int j=10; int k=10;`

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 does not have any instance methods
- D. The `MyClass` class can be instantiated with:

```
MyClass c = new MyClass(10);
```

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

```
MyClass c = new MyClass(2.5);
```

12. 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 SuperClass();
        clazz.invokeMethod();
    }
}
```

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

13. "A subclass is usually more specific than its superclass".

Select the correct answer:

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

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

```
public class LoopTest {  
    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

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

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

- A. The variables `name` and `text` are local variables
- B. The variable `s` is a method parameter variable
- C. The method `call` is not a class method
- D. Compilation fails because variable `name` is not initialized

16. 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

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) + " ");  
  
    }  
}
```

Select the correct answer:

- A. false false false false
- B. true true true true
- C. true true false false
- D. Compilation fails

18. Which *one* of the following statements is true about *method overriding*?

- 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

19. Which of the following statements are true?

Select all correct answers:

- A. J2SE applications can invoke J2EE components such as EJBs
- B. J2ME applications can invoke J2EE components such as EJBs
- C. J2EE applications can invoke J2EE components such as EJBs

20. Which of the following statements are true?

Select all correct answers:

- A. SQL stands for Super Query Language
- B. JNDI stands for Java Naming and Directory Interface
- C. RMI stands for Remote Method Implementation

21. Select the appropriate *Java edition* for the following application: “the application needs transactions and consists of JSPs, Servlets and EJBs”.

Select the correct answer:

- A. J2SE
- B. J2EE
- C. J2ME

22. What kind of components are deployed on mobile devices like handhelds or mobile phones?

Select all correct answers:

- A. Applets
- B. MIDlets
- C. Portlets
- D. Servlets

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

Select all correct answers:

- A. EJBs
- B. Servlets
- C. Applets
- D. MIDlets

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. "A JSP is often invoked by a Servlet to create a response to a HTTP request".

Select the correct answer:

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