



University College Dublin
An Coláiste Ollscoile, Baile Átha Cliath

Java Technologies (COMP 41490) Exam, 9 January 2012

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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 `accOverdrawn` according to the JavaBeans convention (choose all correct answers):

```
public class Account {  
    private boolean accOverdrawn;  
}
```

- A. `public boolean isAccOverdrawn() {return this.accOverdrawn;}`
- B. `public boolean isAccOverdrawn(boolean accOverdrawn) {return this.accOverdrawn;}`
- C. `public void setAccOverdrawn(boolean accOverdrawn) {accOverdrawn=this.accOverdrawn;}`
- D. `public void setAccOverdrawn(boolean accOverdrawn) {this.accOverdrawn=accOverdrawn;}`

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

- A. -255
- B. -128
- C. -1
- D. 128

3. When a subclass extends a superclass, all methods that are contained in the superclass are accessible from the subclass.

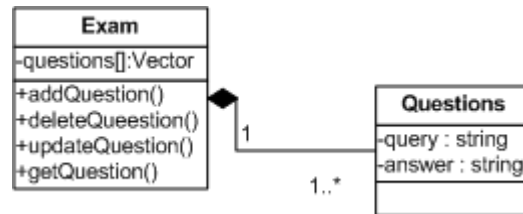
Select the correct answer:

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

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

- 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. Aggregation is represented

6. What is the UML representation of a multiplicity indicator for a range from 3 to 5?

- A. 3-5
- B. 3,4,5
- C. 3..5

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

- A. The name of the interface is italicized
- B. The name of the interface is underlined
- C. The name of the interface is preceded by <<interface>>

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

- A. `char package = "c";`
- B. `char package = 'c';`
- C. `char a_package = 'c';`
- D. `char a_package = 66;`

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 with no `abstract` method can still be declared `abstract`
- C. An `abstract` class cannot be extended
- D. A subclass of an `abstract` class cannot be declared `abstract`

10. The following Java code compiles without errors:

```
interface IFace1 {  
    public int methodOne();  
}  
interface IFace2 implements IFace1 {  
    public int methodTwo();  
}
```

- 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 implement the methods `getName` and `getAge`
- B. A concrete class implementing `IFace` need only implement the public method `getName`
- 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 a local variable called `floatingNumber`
- 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(1);
```

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

```
MyClass c = new MyClass(1.0);
```

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 SuperClass();
        clazz.invokeMethod();
        clazz = new SubClass();
        clazz.invokeMethod();
    }
}
```

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

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

```
class Car {private Garage garage;}
class Garage {private Car cars[];}
```

- A. A Garage is associated with many Cars
- B. A Car is associated with many Garages
- C. The Garage class implements multiplicity using an array
- D. The Car class is navigable through the Garage 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 i = 0;  
        int x = 10;  
        while ( x > 6 ) {  
            System.out.print(++i + " ");  
            x--;  
        }  
    }  
}
```

- A. 1 2 3 4 5
- B. 0 1 2 3 4
- C. 1 2 3 4
- D. 0 1 2 3

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

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

- A. The variable `name` is an instance variable
- B. The variable `age` is a class variable because it is declared public
- C. The variable `s` is a local variable
- D. Compilation fails because variable `s` is not initialized

17. An instance variable of type `boolean` which is not explicitly assigned a value at declaration is automatically initialized to *false*.

Select the correct answer:

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

18. Which of the following statements about imports and packages are true? (choose all correct answers)

- A. When a package statement exists, it is placed after all import statements.
- B. When a package statement exists, it is placed before all import statements.
- C. The first line in a Java source file must always be an import statement.
- D. To use classes in the `java.net` package, you must explicitly import them into your code.

19. Which of the following statements represent correct `import` statements in a Java source file? (choose all correct answers)

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

20. Which *one* of these statements is the correct way to create an array with three `int` elements?

- A. `int intArray = new int[3];`
- B. `int intArray[] = new int(3);`
- C. `int[] intArray = new int[3];`

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

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

22. J2ME applications are packaged as JAR files and deployed on mobile devices.

Select the correct answer:

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

23. Which J2SE component delivers dynamic content while running inside a web browser?

- A. applet
- B. servlet
- C. JSP

24. Handling an incoming HTTP request is the responsibility of which Java component?

- A. Enterprise Java Bean (EJB)
- B. JSP
- C. applet
- D. servlet

25. Which *one* of these EJB types would be the best choice when implementing a shopping cart component on a website?

- A. Message Driven Bean
- B. Stateful Session Bean
- C. Stateless Session Bean