



University College Dublin
An Coláiste Ollscoile, Baile Átha Cliath

Java Technologies (COMP 41490) Exam, 16 October 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 `accBalanceOK` according to the JavaBeans convention (choose all correct answers):

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

- A. `public boolean getAccBalanceOK() {return this.accBalanceOK;}`
- B. `public boolean isAccBalanceOK() {return this.accBalanceOK;}`
- C. `public void setAccBalanceOK(boolean accBalanceOK) {this.accBalanceOK=accBalanceOK;}`
- D. `public void setAccBalanceOK(boolean accBalanceOK) {accBalanceOK=this.accBalanceOK;}`

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

- A. 1
- B. 0
- C. true
- D. False

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

Select the correct answer:

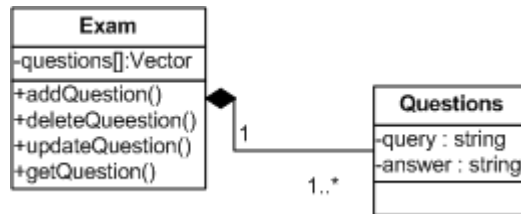
- A. The statement is true
- B. The statement is false

4. Composition is a special kind of Association.

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?



- A. Aggregation is represented
- B. Inheritance is represented
- C. None of the above

6. What is the UML representation of the multiplicity indicator “zero or more”?

- A. `[*]`
- B. `0..*`
- C. `[0..]`

7. In which compartment of a class can *operations* be named in a UML class diagram?

- A. The top section
- B. The middle section
- C. The bottom section

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

- A. `char myChar = "c";`
- B. `char myChar = 'c';`
- C. `char Char = 'c';`
- D. `char anotherChar = 66;`

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

- A. All methods declared in an interface are implicitly **public** and **abstract**
- B. A class can implement more than one interface
- C. An interface cannot be extended
- D. An interface can define one or more **public static final** variables

10. Which of the following statements about classes A and B are true? (choose all correct answers)

```
abstract class A {  
    abstract long aMethod();  
}  
  
public class B extends A {  
    long aMethod() { return 1L; }  
}
```

- A. Compilation succeeds
- B. Compilation fails because the method **aMethod()** in class A has no method body
- C. Compilation fails because the method **aMethod()** in class B is not **public**
- D. None of the above: compilation fails for some other reason

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** only needs to implement the methods **getName()** and **getAge()** if it needs to use them as part of its defined behaviour
- B. A concrete class implementing **IFace** need only implement the public method **getName()**
- C. A concrete class implementing **IFace** must implement both of the methods **getName()** and **getAge()**

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

```
public class MyClass {  
    private int number;  
    private double doubleNumber;  
    MyClass(int num) {  
        this.doubleNumber = num;  
    }  
}
```

- A. The `MyClass` class has an instance variable called `num`
- B. The `MyClass` class does not have a default (no-args) constructor
- C. The `MyClass` class can be declared `abstract`
- 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 SubClass();
        clazz.invokeMethod();
        clazz = new SuperClass();
        clazz.invokeMethod();
    }
}
```

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

14. Which of the following code fragments compile without errors? (choose all correct answers)

- A. `int i,j,k; i=j=k=2;`
- B. `int i, int j; int k=2;`
- C. `int i; int j=2, int k=2;`
- D. `int i=2; int j=2; int k=2;`

15. 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 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 `age` is an instance variable
- B. The method `call` is a class method because it is declared `public`
- C. The variable `s` is a method parameter variable
- D. Compilation fails because variable `text` is not initialized

17. Which of the following are valid Java *operators*? (choose all correct answers)

- A. !<
- B. !=
- C. %=
- D. &&

18. 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

19. What is the output of the following code fragment:

```
String myString = "AAAAAAA";  
System.out.println(myString.replace("AAA", "BBB"));
```

- A. AAAAAAA
- B. BBBAAAA
- C. BBBBBBA

20. True or False: only variables declared *inside* a class declaration, but *outside* of any method, can be declared `static`

- A. True
- B. False

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

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

22. A JSP is compiled back to which *one* of the following components before being run?

- A. Applet
- B. Servlet
- C. EJB

23. Which of the following statements about Java Servlets are true? (choose all correct answers)

- A. The communication between a web client and a Servlet is asynchronous
- B. Servlets are a client side technology
- C. A Servlet is a Java component deployed on a J2EE server
- D. A Servlet can handle GET and POST requests

24. Which of the following packages provide classes for creating graphical user interfaces? (choose all correct answers)

- A. `java.util`
- B. `java.net`
- C. `java.awt`
- D. `java.swing`

25. Which *one* of these EJB types is used to mark information that may be processed after a delay?

- A. entity bean
- B. message driven bean
- C. stateful session bean
- D. stateless session bean