Self-test Java Programming

Document: e0883test.fm

4 July 2025

ABIS Training & Consulting
Diestsevest 32 / 4b
B−3000 Leuven
Belgium

TRAINING & CONSULTING

INTRODUCTION TO THE SELF-TEST JAVA PROGRAMMING

This test consists of multiple-choice questions. With some questions, multiple correct answers are possible. Write down your answer(s) and compare with the given solutions.

This test contains 20 questions. Note: if multiple answers are possible, this is explicitly indicated. A question is answered correctly if and only if all correct answers are given.

There are no catch-questions (not intended), but it is advised to read all questions and answers attentively. Count about 30 minutes to complete the test.

The correct answers and the guidelines for the evaluation are at the back of this document.

Questions Self-test Java Programming

1. Which of the following statements about arrays is syntactically wrong?

O (a) Person[] p = new Person[5];

O (b) Person p[5];

O (c) Person[] p [];

O (d) Person p[][] = new Person[2][];

2. Given the following piece of code:

```
public class Test {
   public static void main(String args[]) {
      int i = 0, j = 5 ;
      for( ; (i < 3) && (j++ < 10) ; i++ ) {
         System.out.print(" " + i + " " + j );
      }
      System.out.print(" " + i + " " + j );
   }
}
```

what will be the result?

O (a) 0 6 1 7 2 8 3 8

O (b) 0 6 1 7 2 8 3 9

O (c) 0 5 1 5 2 5 3 5

O (d) compilation fails

3. Which of the following declarations are correct? (2 answers):

[_] [a] boolean b = TRUE;

[_] [b] byte b = 255;

[_] [c] String s = "null";

[_] [d] int i = new Integer("56");

4. What is the result of executing the following code snippet?

```
final var GOOD = 100;
var score = 10;
switch (score) {
   default:
   case 1 : System.out.print("1-");
   case -1 : System.out.print("2-"); break;
   case 4 : System.out.print("3-");
   case GOOD : System.out.print("4-");
   case 9 : System.out.print("5-");
}
```

O (a) nothing is printed

O (b) 1-

O (c) 1-2-

O (d) 2-

O (e) 3-

O (f) 4-

O (g) compilation fails

5. Suppose a class has public visibility. In this class we define a protected method. Which of the following statements is correct?

O (a) This method is only accessible from inside the class itself and from inside all subclasses.

O (b) In a class, you can not declare methods with a lower visibility than the visibility of the class in which it is defined.

O (c) From within protected methods you do not have access to public methods.

O (d) This method is accessible from within the class itself and from within all classes defined in the same package as the class itself.

6. Given the following piece of code:

```
public class Company{
   public abstract double calculateSalaries();
}
```

which of the following statements is true?

O (a) The keywords `public` and `abstract` can not be used together.

O (b) The method `calculateSalaries()` in class `Company` must have a body

O (c) You must add a return statement in method `calculateSalaries()`.

O (d) Class `Company` must be defined `abstract`.

7. Given the following piece of code:

```
public interface Guard{
   void doYourJob();
}

abstract public class Dog implements Guard{}
```

which of the following statements is correct?

O (a) This code will not compile, because method `doYourJob()` in interface `Guard` must be defined `abstract`.

O (b) This code will not compile, because class `Dog` must implement method `doYourJob()` from interface `Guard`.

O (c) This code will not compile, because in the declaration of class `Dog` we must use the keyword `extends` instead of `implements`.

O (d) This code will compile without any errors.

8. Given these classes:

```
public class Person{
   public void talk(){   System.out.print("I am a Person ");   }
}
public class Student extends Person {
   public void talk(){   System.out.print("I am a Student ");   }
}
```

what is the result of this piece of code:

```
public class Test{
   public static void main(String args[]){
      Person p = new Student();
      p.talk();
   }
}
```

O (a) `I am a Person`

O (b) `I am a Student`

O (c) `I am a Person I am a Student`

O (d) `I am a Student I am a Person`

9. Given the following piece of code:

```
public class Person{
   private String firstName;
   public Person(String fn){ firstName = fn; }
}

public class Student extends Person{
   private String studentNumber;
   public Student(String number) { studentNumber = number; }
}
```

Which of the following statements is true? (2 answers)

[_] [a] This code will compile if we define in class `Person` a no-argument constructor.

[_] [b] This code will compile if we define in class `Student` a no-argument constructor.

[_] [c] This code will compile if we add in the constructor of `Student` the following line of code as first statement:
`super();`

[_] [d] This code will compile if we call the constructor of `Person` from within the constructor of `Student`.

10. Specify the correct characteristics of an enumeration type (2 answers)

[_] [a] `enum` can define static fields and methods

[_] [b] `enum` can contain a public constructor

[_] [c] `enum` can implement interfaces

[_] [d] `enum` is a reference to a variable set of constants

11. Given the following piece of code:

```
class Person { public int number; }

public class Test{
   public void doIt(int i , Person p){
      i = 5;
      p.number = 8;
   }

   public static void main(String args[]){
      int x = 0;
      Person p = new Person();
      new Test().doIt(x, p);
      System.out.println(x + " " + p.number);
   }
}
```

What is the result?

O (a) 0 8

O (b) 5 0

O (c) 0 0

O (d) 5 8

12. Given the following piece of code:

```
class SalaryCalculationException extends Exception{}

class Person{
   public void calculateSalary() throws SalaryCalculationException {
      //...
          throw new SalaryCalculationException();
      //...
   }
}

class Company{
   public void paySalaries(){
         new Person().calculateSalary();
   }
}
```

Which of the following statements is correct? (2 answers)

[_] [a] This code will compile without any problems.

[_] [b] This code will compile if in method `paySalaries()` we return a `boolean` in stead of `void`.

[_] [c] This code will compile if we add a `try-catch` block in `paySalaries()`

[_] [d] This code will compile if we add *`throws SalaryCalculationException`* in the signature of method `paySalaries()`.

13. Which of the following statements regarding static methods are correct? (2 answers)

[_] [a] static methods are difficult to maintain, because you can not change their implementation.

[_] [b] static methods can be called using an object reference to an object of the class in which this method is defined.

[_] [c] static methods are always public, because they are defined at class-level.

[_] [d] static methods do not have direct access to non-static methods which are defined inside the same class.

14. Given the following piece of code:

```
class Person{ public void talk(){} }

public class Test{
   public static void main(String args[]){
      Person p = null;
      try{
         p.talk();
      } catch(NullPointerException e){
         System.out.print("There is a NullPointerException. ");
      } catch(Exception e){
         System.out.print("There is an Exception. ");
      }
      System.out.print("Everything went fine. ");
   }
}
```

what will be the result?

O (a) If you run this program, the outcome is:
`There is a NullPointerException. Everything went fine.`

O (b) If you run this program, the outcome is:
`There is a NullPointerException.`

O (c) If you run this program, the outcome is:
`There is a NullPointerException. There is an Exception.`

O (d) This code will not compile, because in Java there are no pointers.

15. Which of the following statement about **Generics** are correct? (2 answers)

[_] [a] Generics are typed subclasses of the classes from the Collections framework

[_] [b] Generics are used to parameterize the collections in order to allow for static type checking at compile tIme of the objects in the collection.

[_] [c] Generics can be used to perform type checking of the objects in a collection at runtime.

[_] [d] Generics can be used to iterate over a complete collection in an easy way, using the ‘enhanced for’ loop.

16. Which collection class associates values with keys, and orders the keys according to their natural order?

- O (a) java.util.HashSet
- O (b) java.util.LinkedList
- O (c) java.util.TreeMap
- O (d) java.util.SortedSet

17. Given the following code:

```
import java.util.*;
public class TestLaptop {
   public static void main (String args[]) {
     ArrayList<Laptop> list = new ArrayList<>();
     list.add (new Laptop("ToshibaA10", 4560.99));
     list.add (new Laptop("DellNU6", 8213.99));
     list.add (new Laptop("IBM", 1298.99));
     Collections.sort(list);
     System.out.println(list);
  }
}
```

Which line of code, when replacing the line '// INSERT CODE HERE' , will enable the class TestLaptop to print out the sorted collection of class 'Laptop'.

```
// INSERT CODE HERE
  String model;
  double price;
  Laptop(String model, double price) {
    this.model = model;
    this.price = price;
  }
  public String getModel() {
    return model;
  }
  public int compareTo(Laptop otherLaptop) {
    double otherLaptopPrice = otherLaptop.getPrice();
    if (price < otherLaptopPrice) return -1;
    else if (price > otherLaptopPrice) return 1;
    else return 0;
  }
  public double getPrice() {return price;}
  public String toString() {
    return "\n" + model + " " + price;
  }
}
```

- O (a) class Laptop implements Comparable<Laptop> {
- O (b) class Laptop implements Comparable {
- O (c) class Laptop implements Comparator {
- O (d) class Laptop implements Comparator<Laptop>{
- O (e) none of the above

18. Which statements about IO are correct (2 answers)?

[_] [a] `OutputStream` is the abstract superclass of all classes that represent an outputstream of bytes.

[_] [b] Subclasses of the class `Reader` are used to read character streams.

[_] [c] To write characters to an outputstream, you have to make use of the class `CharacterOutputStream`.

[_] [d] To write an object to a file, you use the class `ObjectFileWriter`.

19. Given:

```
try (Writer w = new FileWriter("file.txt")) {
  w.write('1');
} catch(IOException e) { /** ... */ }
```

Which of the following is the result of executing the above lines if the file already exists?

O (a) it appends 1 to the file

O (b) it overwrites the file

O (c) nothing happens since the file already exists

O (d) an IOException is thrown

20. Which of the following Lambda expressions is syntactically correct?

O (a) (a, b) -> a.getName()

O (b) a, b -> a.startsWith("hello")

O (c) (int y, z) -> {int x=1; return y+5; }

EVALUATION.

Here are the correct answers to all questions:

1. b
2. a
3. c d
4. c
5. d
6. d
7. d
8. b
9. a d
10. a c
11. a
12. c d
13. b d
14. a
15. b d
16. c
17. a
18. a b
19. b
20. a

Give 1 point per correct answer. For questions with multiple correct answers, all correct answers must be given before 1 point is earned. No half points are given.

If your score is more than 80%, you do not have to follow the course Java programming.

When you have a score between 50% and 80%, following the course Java programming can improve your knowledge.

When your score is less than 50%, we strongly suggest you to follow this Java programming course.