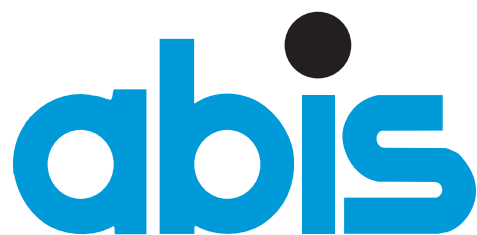


Self-test Java Programming

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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 21 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?

- (a) `Person[] p = new Person[5];`
- (b) `Person p[5];`
- (c) `Person[] p [];`
- (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?

- (a) `0 6 1 7 2 8 3 8`
- (b) `0 6 1 7 2 8 3 9`
- (c) `0 5 1 5 2 5 3 5`
- (d) compilation fails

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

- [a] `boolean b = TRUE;`
- [b] `byte b = 255;`
- [c] `String s = "null";`
- [d] `int i = new Integer("56");`

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

- (a) This method is only accessible from inside the class itself and from inside all subclasses.
- (b) In a class, you can not declare methods with a lower visibility than the visibility of the class in which it is defined.
- (c) From within protected methods you do not have access to public methods.
- (d) This method is accessible from within the class itself and from within all classes defined

in the same package as the class itself.

5. Given the following piece of code:

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

which of the following statements is true?

- (a) The keywords `public` and `abstract` can not be used together.
- (b) The method `calculateSalaries()` in class `Company` must have a body
- (c) You must add a return statement in method `calculateSalaries()`.
- (d) Class `Company` must be defined `abstract`.

6. Given the following piece of code:

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

abstract public class Dog implements Guard{
```

which of the following statements is correct?

- (a) This code will not compile, because method `doYourJob()` in interface `Guard` must be defined `abstract`.
- (b) This code will not compile, because class `Dog` must implement method `doYourJob()` from interface `Guard`.
- (c) This code will not compile, because in the declaration of class `Dog` we must use the keyword `extends` instead of `implements`.
- (d) This code will compile without any errors.

7. 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();
    }
}
```

- (a) I am a Person
- (b) I am a Student
- (c) I am a Person I am a Student
- (d) I am a Student I am a Person

8. 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`.

9. 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

10. 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?

- (a) 0 8
- (b) 5 0
- (c) 0 0
- (d) 5 8

11. 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()`.

12. 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.

13. 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?

- (a) If you run this program, the outcome is:
There is a NullPointerException. Everything went fine.
- (b) If you run this program, the outcome is:
There is a NullPointerException.
- (c) If you run this program, the outcome is:
There is a NullPointerException. There is an Exception.
- (d) This code will not compile, because in Java there are no pointers.

14. 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.

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

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

16. Which of the following statements about GUI components is wrong?
- (a) Swing exists since version 1.2 of the jdk.
 - (b) AWT stands for Abstract Window Toolkit
 - (c) You can not place AWT components on Swing containers.
 - (d) The AWT classes are deprecated.
17. Which of the following statements about events are correct? (2 answers)
- [a] Event objects are placed on a Queue, where they are fetched by subscribers (objects of classes which implement the interface Subscriber).
 - [b] The listener of an event must implement the method `public void listen(EventObject obj)`.
 - [c] Each event object must be an object of a subclass of `EventObject`.
 - [d] Each event listener can investigate about the source of an event by calling the method `getSource()` on the event object.
18. How can you serialize an object?
- (a) You have to make the class of the object implement the interface `Serializable`.
 - (b) You must call the method `serializeObject()` (which is inherited from class `Object`) on the object.
 - (c) You should call the static method `serialize(Object obj)` from class `Serializer`, with as argument the object to be serialized.
 - (d) You don't have to do anything, because all objects are serializable by default.
19. 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`.
20. Given the following piece of code:
- ```
public class MyThread extends Thread{
 public String text;
 public void run(){
 System.out.print(text);
 }
}

public class Test{
 public static void main(String args[]){
```



```
 MyThread t1 = new MyThread(); t1.text = "one ";
 MyThread t2 = new MyThread(); t2.text = "two ";
 t1.start();
 t2.start();
 System.out.print("three ");
 }
}
```

Which of the following statements is true?

- (a) If you execute this program, the result is always one two three
- (b) If you execute this program, the result is always three one two
- (c) The result of this program is undetermined.
- (d) Compilation will fail.

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

- (a) (a, b) -> a.getName()
- (b) a, b -> a.startsWith("hello")
- (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. d
5. d
6. d
7. b
8. a d
9. a c
10. a
11. c d
12. b d
13. a
14. b d
15. c
16. d
17. c d
18. a
19. a b
20. c
21. 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.