PROGRAMMING IN JAVA

Assignment 4

TYPE OF QUESTION: MCQ

Number of questions: 10   **Total mark: 10× 1 = 10**

QUESTION 1:

Which of the following is/are NOT correct regarding packages in Java?

   a. Java supports both pre-defined and user-defined packages.
   b. Packages are used to organize a set of related classes and interfaces.
   c. Pre-defined packages help to develop programs easily by providing thousands of classes.
   d. Packages are used to organize only a set of related classes and not interfaces.

Correct Answer: d

Detailed Solution:

A package is a namespace that organizes a set of related classes and interfaces. It is just like a folder in your computer, where, you might keep HTML pages in one folder, images in another, and scripts or applications in yet another. Since, Java programs can be composed of hundreds or thousands of individual classes, it makes sense to keep things organized by placing related classes and interfaces into packages.

QUESTION 2:

Which of the following access specifier(s) should you choose if you need access restricted to only subclass in the same package or different package?

   a. `default`
   b. `public`
   c. `protected`
   d. `private`

Correct Answer: c

Detailed Solution:

In Java, same package subclass is accessible with default, protected and public access specifiers. And, subclass of different package is accessible by protected and public access specifiers. So, in this case we should choose protected only, as with public access specifier even non-subclass of different package will also get access, which is not acceptable.

QUESTION 3:

What is the significance of the '*' in the following line, where "package" denotes a name of a package?

```
import package.*;
```

Select the correct statement in the following.

  a. Only the classes of this package will be imported.
  b. Only the interfaces of this package will be imported.
  c. All the classes and interfaces of this package will be imported.
  d. All the classes, interfaces and sub-packages of this package will be imported.

Correct Answer: c

Detailed Solution:

The significance of '*' in an import statement in Java is that all the classes and interfaces of this package will be imported but not the sub-packages.

QUESTION 4:

Which of the following statement(s) is (are) CORRECT regarding an interface in Java?

  a. An interface can contain only abstract methods and standard methods but no static methods are allowed.
  b. Method bodies in an interface doesn't exist for default methods and abstract methods.
  c. An interfaces cannot be instantiated but can be implemented by classes.
  d. An interfaces cannot be instantiated but can be extended by other interfaces.

Correct Answer: c, d

Detailed Solution:

In the Java programming language, an interface is a reference type, similar to a class, which can contain only constants, method signatures, default methods, static methods, and nested types. Method bodies exist only for default methods and static methods. Interfaces cannot be instantiated—they can only be implemented by classes or extended by other interfaces.

QUESTION 5:

How Java Runtime Environment (JRE) knows where to look for a package that you create?

    a. It searches in the current directory.
    b. It searches in the location set in the CLASSPATH environment variable.
    c. A user can set the path during runtime using the `-classpath` option.
    d. Using the `-path` option, a user can set the path.

Correct Answer: a, b, c

Detailed Solution:
- First, by default, the Java run-time system uses the current working directory as its starting point. Thus, if your package is in a sub-directory of the current directory, it will be found.

- Second, you can specify a directory path or paths by setting the CLASSPATH environmental variable.

- Third, you can use the -classpath option with **java** and **javac** to specify the path to your classes.

QUESTION 6:

Multiple inheritance in Java is achieved by

    a. Encapsulation
    b. Interface
    c. Packages
    d. Multithreading

Correct Answer: b

Detailed Solution:
Java does not support multiple inheritance as C++ supports but Java supports an alternative approach to this OOP feature known as interface.

QUESTION 7:

A platform is the hardware or software environment in which a program runs. Which of the following is/are Java platform component(s)?

a. HTML
b. Java Virtual Machine
c. Java Application Programming Interface (API)
d. HotJava

Correct Answer: b, c

Detailed Solution:

A platform is the hardware or software environment in which a program runs. Some of the most popular platforms are Microsoft Windows, Linux, Solaris OS, and Mac OS. Most platforms can be described as a combination of the operating system and underlying hardware. The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms.

The Java platform has two components:

a. The Java Virtual Machine
b. The Java Application Programming Interface (API)

QUESTION 8:

Consider the program given below.

```java
package com.nptel.iitkgp.course;
package com.nptel.online.java;

public class Test {
    public static void main(String[] args) {
        if(1) {
            System.out.println("NPTEL");
        }
        else {
            System.out.println("Welcome");
        }
    }
}
```

What will be the output if the above program is executed?

a. It will give compile-time error

b. It will give run-time error
c. It will produce output
        NPTEL
d. It will produce output
        Welcome

Correct Answer: a

Detailed Solution:
In if statement, as a condition, it will take only boolean expression or boolean value.

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QUESTION 9:

Which of the following statement(s) is/are NOT true?

a. The default package in the Java language is java.lang.
b. String is a final class and it is present in java.lang package.
c. FileWriter is a class present in java.util package.
d. Thread is a class present in java.lang package.

Correct Answer: c

Detailed Solution:

FileWriter is defined in java.io package.

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QUESTION 10:

Which of the following interfaces is/are NOT a member of `java.io` package?

a. DataInput
b. ObjectInput
c. Runnable
d. FileFilter

Correct Answer: c

Detailed Solution:
Runnable is defined in java.lang package, and the other interfaces are defined in java.io package.

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