NPTEL Online Certification Courses

Indian Institute of Technology Kharagpur

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 the correct statement for creating a package?

a. <*package name*> package;
b. package <*package name*>;
c. package;
d. <*package name*>;

Correct Answer: b

Detailed Solution:

To define a package, every source file needs to start with the statement 'package' followed by the *package name*.

QUESTION 2:

Which of the following source files cannot be included in a package?

a. classes
b. interfaces
c. enumerations
d. data

Correct Answer: d

Detailed Solution:

To be in a package, the source files, like the classes, interfaces, enumerations, and annotation types must start with a 'package' statement with the *package name* at the top of every source file. But data is not a valid source files in the options, so it cannot be included in a package.

QUESTION 3:

Which of the following is/are used to access a *public* package?

a. Refer to the member by its fully qualified name
b. Import the package member
c. Import the member's entire package
d. Import is not mandatory

Correct Answer: a, b, c

Detailed Solution:
You can use a package member's simple name if the code you are writing is in the same package as that member or if that member has been imported. To import a specific member into the current file, put an import statement at the beginning of the file before any type definitions but after the package statement, if there is one. To import all the types contained in a particular package, use the import statement with the asterisk (*) wildcard character.

QUESTION 4:

Which of the following statement(s) is/are false?

a. Java packages are hierarchical.
b. `System.out.println()` is a predefined java function.
c. Java can have a nested class structure.
d. The Java *static* keyword is a non-access modifier.

Correct Answer: a

Detailed Solution:
At first, packages appear to be hierarchical, but they are not. For example, the Java API includes a java.awt package, a java.awt.color package, a java.awt.font package, and many others that begin with java.awt. However, the java.awt.color package, the java.awt.font package, and other java.awt.xxxx packages are not included in the java.awt package. The prefix java.awt (the Java Abstract Window Toolkit) is used for a number of related packages to make the relationship evident, but not to show inclusion. All the other options are correct.

QUESTION 5:

Consider the program given below.

```
public class Main{
      public static void main(String args[]){
            System.out.println(cos(2*PI));
      }
}
```

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. 1.0
d. 3.14

Correct Answer: a

Detailed Solution:
The program gives a compile time error as the *Math* class is missing. The static import statement needs to be used to import the static members (e.g., PI) of java.lang.Math.

```
import static java.lang.Math.*;
```

QUESTION 6:

Which of the following is the minimum requirement for executing a Java program?

a. JDK
b. JRE
c. JDK without JRE
d. JRE without JDK

Correct Answer: b, d

Detailed Solution:

JRE (Java Runtime Environment) is required for the execution of the Java programs. JDK contains JRE by default. Therefore, if we talk about minimum requirement, then both **b** and **d** options are correct.

QUESTION 7:

Which of the following is required for developing a Java program?

a. JDK
b. JRE
c. JDK without JRE
d. JRE without JDK

Correct Answer: a

Detailed Solution:

JDK (Java Development Kit) is required for developing the Java programs. Since, JDK already comes packed with JRE and there is no option to select JDK without JRE, option **a** is the only valid option**.**

QUESTION 8:

Which of the following statement(s) is/are correct?

a. Java byte code is machine dependent.
b. Java byte code is generated by the compiler.
c. Java byte code is generated by the interpreter.
d. Java byte code is machine independent.

Correct Answer: b, d

Detailed Solution:
Java follows the following pipeline:
Source Code → **Java Compiler** → Java Bytecode → **Java Interpreter** (JVM) → Machine Code → Output

Therefore, bytecode is generated by compiler. Option **b** is correct.

Java byte code is platform-independent as the java compiler for different environment compiles the file in the JVM readable format. Option **d** is also correct.

QUESTION 9:

Which of the following is an advantage of methods?

a. Code re-usability
b. Platform independence.
c. Fast execution of codes.
d. Removes compilation error.

Correct Answer: a

Detailed Solution:

The benefits of methods in java are:

- It allows code reusability (define once and use multiple times)
- You can break a complex program into smaller chunks of code
- It increases code readability.

Therefore, option **a** is correct.

QUESTION 10:

Consider the following programs:

```
public class Main1{
    public static void main(String args[]){
        int number = 10;
        System.out.println(number++ + ++number);
    }
}
```

```
public class Main2{
    public static void main(String args[]){
        int number = 10;
        System.out.println(++number + number++);
    }
}
```

Choose correct statement about the output of this code segment.

a. Both pre-increment and post-increment operators becomes pre-increment during print.
b. Both pre-increment and post-increment operators becomes post-increment during print.
c. Both *Main1* and *Main2* classes give the same output.
d. Pre-increment and post-increment operators don't work during print.

Correct Answer: c

Detailed Solution:

The output of both the program are 22. Therefore, option **c** is correct and we can eliminate option **d** that the operators don't work. Further, the operators are doing exactly what they are supposed to do i.e. pre-increment first increases the values and post-increment increases the value during the next operation. The print statement is the next operation; hence it received the post incremented value as well making option **a** and **b** invalid.

**********END**********