



PROGRAMMING IN JAVA

Assignment 1

TYPE OF QUESTION: MCQ

Number of questions: 10

Total marks: $10 \times 1 = 10$

QUESTION 1:

Which of the following is not a valid comment in Java?

- a. `/** comment */`
- b. `/* comment */`
- c. `/* comment /`
- d. `// comment`

Correct Answer:

- c. `/* comment /`

Detailed Solution:

Option c : `/* comment /`.

This is not valid comment statement



In simple terms:

QUESTION 2:

What is the output of the following code?

In Statement 1: "NPTEL" is treated as a text, so everything after it is combined as text, resulting in "NPTEL2024".
In Statement 2: 20 and 24 are added first (making 44), then combined with "java" as text, resulting in "44java".

```
public class Main {  
    public static void main(String[] args) {  
        String str1 = "NPTEL";  
        String str2 = "java";  
        int a = 20;  
        int b = 24;  
        System.out.println(str1 + a + b); // Statement 1  
  
        System.out.println(a + b + str2); // Statement 2  
    }  
}
```

- a. NPTEL2024
44java
- b. NPTEL44
44java
- c. NPTEL2024
2024java
- d. NPTEL44
2024java

Correct Answer:

- a. NPTEL2024
44java

Detailed Solution:

The + (plus) operator is overloaded in java. When the first operand is a string it performs a string concatenation and when the first operand is an numeric type (eg int, float) then it performs addition operation.



QUESTION 3:

Which of the following is used to find and fix bugs in the Java programs?

- a. JVM
- b. JRE
- c. JDK
- d. JDB

Correct Answer:

- d. JDB

Detailed Solution:

The Java Debugger (JDB or jdb) is a command-line java debugger that debugs the java class.



QUESTION 4:

What is the value returned by the method `f ()` defined below ?

```
public static int f(int x, int y){return (x>y) ? y : x;}
```

- a. The sum of x and y, that is, $x + y$.
- b. The difference of x and y, that is, $x - y$.
- c. The maximum of x and y, that is, the larger value of x and y.
- d. The minimum of x and y, that is, the smaller value of x and y.

Correct Answer:

- d. The minimum of x and y, that is, the smaller value of x and y.

Detailed Solution:

It will return the minimum of x and y.



QUESTION 5:

Consider the following program. What will be the output of the program if it is executed?

```
public class Question {  
    public static void main(String args[]) {  
        int f = 0, g = 1;  
        for (int i = 0; i <= 5; i++) {  
            System.out.println(f);  
            f = f + g;  
            g = f - g;  
        }  
    }  
}
```

- a. Print first six even numbers.
- b. Print first six odd numbers.
- c. Print first six prime numbers.
- d. Print first six Fibonacci numbers.

Correct Answer:

- d. Print first six **Fibonacci numbers.**

Detailed Solution:

It will print 0 1 1 2 3 5.



QUESTION 6:

Which program is used to compile Java source code into bytecode?

- a. javap
- b. javac
- c. java
- d. javad

Correct Answer:

- b. Javac

Detailed Solution:

The JDK includes a tool, 'javac' that compiles from Java source code to a target of Java bytecodes. The program 'java' is used to execute Java bytecode. Note that there is no program like 'javap' and 'javad'.



QUESTION 7:

Consider the following program.

```
public class Question {  
    public static void main(String[] args) {  
        int x = 5;  
        x *= (2 + 8);  
        System.out.println(x);  
    }  
}
```

- a. 50
- b. 10
- c. Compiler error
- d. 5

Correct Answer:

- a. **50**

Detailed Solution:

Here, $x * = 2 + 8$ is equivalent to $x * (2 + 8) = x * 10$. Therefore, $x = 50$.



QUESTION 8:

What is the incorrect statement about bytecode?

- a. Java when compiles the source code, it converts it to bytecode. **True!**
- b. JVM (Java Virtual Machine) is an interpreter of bytecode. **True!**
- c. Bytecode is not portable and it needs to be compiled separately for each platform. **False!!!!**
- d. JVM offers a protected environment which helps in enhanced safety for the system. **True!**

Correct Answer:

- is actually portable!!**
- c. Bytecode is not portable and it needs to be compiled separately for each platform.

Detailed Solution:

The program written to execute is saved as `.java` and this is called **source code**. This is compiled using command `javac` as `javac filename.java` which produces bytecode `(.class file)` which **is portable**. This bytecode is passed to **interpreter** for running using the command `java` as `java filename`. As this bytecode is portable, Java achieved **platform independence**. **JVM** is a part of **JRE** which runs the program (interpreter). JVM provides a safe runtime environment enabling **automated exception handling** also.



QUESTION 9:

In Java, what is the role of the `public static void main(String[] args)` method?

- a. Initialization method
- b. Execution entry point**
- c. Constructor
- d. Destructor

Correct Answer:

- b. Execution entry point**

Detailed Solution:

The `public static void main(String[] args)` method is the **entry point for the execution** of a Java program.



QUESTION 10:

What is the purpose of the `break` statement in Java?

- a. To terminate the program
- b. To exit a loop or switch statement
- c. To skip the next iteration of a loop
- d. To return a value from a method

Correct Answer:

- b. To exit a loop or switch statement

Detailed Solution:

The `break` statement is used to exit a loop or switch statement prematurely.
