Answers: Introduction to Java Programming

Total Time: 60 minutes
Total Marks: 100

Section 1: Multiple Choice Questions (40 marks)

Choose the correct answer for each of the following questions. Each question is worth 4 marks.

1. b) `float number = 2.5;`
2. c) `double a = 10, b = 3, c = 5;`
3. a) `calculateSum(5, 10);`
4. b) 16
5. d) 12
6. a) `for(int i = 0; i < 10; i++) {}`
7. d) `double answer = (double)(13/5);`
8. c) `Value is: 2`

Section 2: Short Answer Questions (10 marks)

Answer the following questions briefly. Each question is worth 8 marks.

1. Answer:
   The `else` statement in an `if-else` construct provides an alternative block of code to execute when the condition in the `if` statement evaluates to `false`. It ensures that if the `if` condition fails, a different set of actions will be performed.
2. Answer:

   while loop: A while loop is used when the number of iterations is not known beforehand. The loop continues as long as the specified condition evaluates to true.

   for loop: A for loop is used when the number of iterations is known beforehand, typically when iterating over a range or a collection.

Section 3: Coding Questions (40 marks)

Write the code for the following tasks. Each question is worth 20 marks.

1. Answer:

```java
public class MultiplicationTable {
    public static void printTable(int n) {
        for (int i = 1; i <= 10; i++) {
            System.out.println(n + " x " + i + " = " + (n * i));
        }
    }

    public static void main(String[] args) {
        printTable(3);
    }
}
```

2. Answer:

```java
public class SumNumbers {
    public static int sumOfNumbers(int n) {
        int sum = 0;
        for (int i = 1; i <= n; i++) {
            sum += i;
        }
        return sum;
    }

    public static void main(String[] args) {
        System.out.println(sumOfNumbers(4));  // Output: 10
    }
}
```

Section 4: Debugging (20 marks)

Below is a code snippet that contains some errors. Debug the code and write the corrected version. Each error is worth 4 marks.

Answer:

- Missing void in the method signature (`public static void main`).
- Logical error in the condition `x < y`, which was incorrect.
- Incorrect for loop syntax that didn't declare the loop variable type.
- Missing brackets in `if (x < y)`.
- Missing brackets in `for (int i = 0; i < 10; i++)`.

```java
// Findings
public class DebuggingExample {
    public static main(String[] args) { // 'void' added and 'main' fixed
        int x = 10;
        int y = 5;

        if x < y {  // should be ">" or ">=", missing brackets
            System.out.println("x is greater");
        } else {
            System.out.println("y is greater");
        }
```

```
        for i = 0; i < 10; i++ {  // Declare type for 'i' and fix loop syntax
            System.out.println(i);
        }
    }
}
```

End of Exam