Operators and Loops

Assignment Questions

1. What are the conditional Operators in Java?

Ans1. In Java, conditional operators are used to evaluate a Boolean expression and return a result based on whether the expression is true or false. The three conditional operators are:

(i) **Ternary operators?:**, which is a shorthand for an if-then-else statement.

(ii) **The logical AND operator &&**, which returns true if both operands are true, and false otherwise.

(iii) **The logical OR operator||**, which returns true if either operand is true, and false otherwise

2. What are the types of operators based on the number of operands?

Ans2. In programming languages, operators are symbols or keywords used to perform various operations on values or variables. Based on the number of operands, operators can be categorized into three types:

(i) **Unary Operators** :These operators take only one operand. Some common examples of unary operators are ++(increment), –(decrement),! (logical NOT), and - (negation).

(ii) **Binary Operators** : These operators take two operands. Some common examples of binary operators are +(addition), -(subtraction), *(multiplication), / (division), %(modulus), ==(equality), and !=(inequality).

(iii) **Ternary Operators** : These operators take three operands. The only ternary operator in most programming languages is the conditional operator ?:, which is used to assign a value based on a condition. For example, a=(x>y)?x:y; means that if x is greater than y, then a will be assigned the value of x, otherwise it will be assigned the value of y.

3. What is the use of Switch case in Java programming?

Ans3. The switch case statement in Java programming is used to execute one of several code blocks depending on the value of a given expression. It provides an alternative to using multiple if-else statements and makes code more concise and easier to read. The expression inside the switch statement is compared to the cases listed, and if a match is found, the corresponding code block is executed. If no match is found, the default block is executed(if it is provided). The switch case statement is commonly used in menu-driven programs and in situations where there are multiple options to choose from.

4. What are the priority levels of arithmetic operation in Java?

Ans4. In Java, the priority levels of arithmetic operations follow the PEMDAS rule. PEMDAS stands for parentheses, exponents, multiplication and division (from left to right), and addition and subtraction (from left to right). This means that operations within parentheses are performed first, followed by any exponentiation, then multiplication and division, and finally addition and subtraction. If multiple operations have the same priority level, they are performed from left to right.

5. What are the Conditional statements and use of conditional statements in Java?

Ans5. Conditional statements in Java are used to execute a particular block of code based on whether a given condition is true or false. The three types of conditional statements in Java are: **if statement**, **switch statement**, and **ternary operator**.

The **if statement** allows you to execute a block of code if a particular condition is true. The switch statement is used to execute different code blocks based on the value of a variable. The ternary operator is a shorthand way of writing an if-else statement.

Conditional statements are an essential feature of any programming language, and they allow developers to write programs that can make decisions based on user input,data values, or other factors.

6. What is the syntax of if else statement?

Ans6. if else Syntax:

```
if (condition) {

        // code to executed if the condition is true

}
else {
```

```
                // code to be executed if the condition is false

            }
```

7. What are the 3 types of iterative statements in Java?

Ans7. In Java, the three types of iterative statements are:

(i) **for loop** - executes a block of code repeatedly for a fixed number of times.

(ii) **while loop** - executes a block of code repeatedly as long as the specified condition is true.

(iii) **do-while loop** - executes a block of code at least once and then repeatedly as long as the specified condition is true.

8. Write the difference between for loop and do-while loop?

Ans8. A **for loop** and a **do-while loop** are both used for iteration control flow in programming languages.

A for loop is used when we know in advance the number of times we need to repeat a certain block of code. The loop is controlled by a counter variables, which is initialized,incremented and tested at each iteration. The loop continues until the counter variable reaches a certain value or condition.

for loop Syntax:

```
        for (initialization; condition; increment/decrement) {

            // code to be executed

        }
```

On the other hand, a do-while loop is used when we need to execute the block of code at least once, regardless of the condition being true or false. The loop tests the condition at the end of each iteration and continues executing the block of code as long as the condition is true.

Do-while loop Syntax:

```
        do {

            // code to be executed

        } while (condition);
```

9. Write a program to print numbers from 1 to10.

Ans9.   public class PrintNumbers {

        public static void main(String[ ] args) {

         for (int i = 1; i <= 10; i++) {

             System.out.println(i);

          }

        }

     }

This program uses a for loop to iterate from 1 to 10 and print each number using the 'System.out.println( )' method. When you run this program, it will output the numbers 1 to 10 in the console.