

## Java Practice Questions (Prerequisite Level)

### A. Data Types, Variables, and Type Conversion (8 Questions)

1. Accept two integers and print their sum, difference, product, and quotient.

```
class SimpleMath {  
    public static void main(String[] args) {  
        int a = 10;  
        int b = 5;  
        System.out.println("Sum: " + (a + b));  
        System.out.println("Difference: " + (a - b));  
        System.out.println("Product: " + (a * b));  
        System.out.println("Quotient: " + (a / b));  
    }  
}
```

1. Accept a float value and display its integer and decimal part separately.
2. Accept a 3-digit number and print the sum of its digits.
3. Convert temperature from Celsius to Fahrenheit.
4. Accept a character and display its ASCII/Unicode value.
5. Accept two different data types (int and double) and add them using type casting.
6. Accept a number and check which data types (byte, short, int, long) it can fit into.
7. Accept a double value and print its binary equivalent without using built-in functions.

### B. Operators (Arithmetic, Logical, Bitwise, Ternary) (7 Questions)

1. Accept two integers and perform all arithmetic operations.

```
class ArithmeticOperations {  
    public static void main(String[] args) {  
        int x = 8;  
        int y = 3;  
        System.out.println("Addition: " + (x + y));  
        System.out.println("Subtraction: " + (x - y));  
        System.out.println("Multiplication: " + (x * y));  
        System.out.println("Division: " + (x / y));  
        System.out.println("Modulus: " + (x % y));  
    }  
}
```

1. Use ternary operator to check whether a number is positive, negative, or zero.
2. Accept a number and check whether it is even or odd using bitwise AND.
3. Accept three numbers and find the greatest using ternary operator only.
4. Accept two booleans and perform all logical operations (AND, OR, NOT).

5. Accept an integer and toggle its bits using bitwise XOR.
6. Check if a number is a power of 2 using bitwise logic.

#### C. Keywords and Basic Java Concepts (5 Questions)

1. Demonstrate use of constant by declaring PI and calculating area of a circle.

```
class FinalExample {  
    public static void main(String[] args) {  
        double PI = 3.14159;  
        double radius = 5;  
        double area = PI * radius * radius;  
        System.out.println("Area: " + area);  
    }  
}
```

1. Create a program with both static and non-static variables and explain how they behave.
2. Use break and continue in a loop to skip printing multiples of 5.
3. Use switch to simulate a simple calculator.
4. Write a menu-driven program using switch-case for different math operations.

#### D. Control Statements: if-else, switch-case (8 Questions)

1. Accept a number and check whether it's divisible by both 3 and 5.

```
class DivisibilityCheck {  
    public static void main(String[] args) {  
        int num = 15;  
        if (num % 3 == 0 && num % 5 == 0) {  
            System.out.println("Divisible by both 3 and 5");  
        } else {  
            System.out.println("Not divisible by both");  
        }  
    }  
}
```

1. Accept a year and check whether it's a leap year.
2. Accept 3 numbers and find the maximum using nested if-else.
3. Accept an integer and print whether it is odd or even using if-else.
4. Accept marks and print grade (A, B, C, Fail) using if-else ladder.
5. Accept three sides and check whether triangle is valid and its type.
6. Create a login system where a user has 3 chances to enter correct password.
7. Accept a number and classify it as perfect, abundant, or deficient.

#### E. Loops: for, while, do-while (10 Questions)

1. Accept a number and print its multiplication table.

```

class MultiplicationTable {
    public static void main(String[] args) {
        int n = 7;
        for (int i = 1; i <= 10; i++) {
            System.out.println(n + " x " + i + " = " + (n * i));
        }
    }
}

```

1. Accept a number and print its factorial.
2. Accept a number and print its reverse.
3. Accept a number and check whether it is a palindrome.
4. Print Fibonacci series up to N terms.
5. Accept a number and check whether it is a strong number.
6. Accept a number and print the sum of even digits only.
7. Accept a number and count the total digits.
8. Print all prime numbers between 1 to 100.
9. Accept two numbers and find their GCD and LCM.

#### F. Pattern Printing (Nested Loops) (7 Questions)

1. Print the following star pattern:

```

class Pattern1 {
    public static void main(String[] args) {
        for (int i = 1; i <= 4; i++) {
            for (int j = 1; j <= i; j++) {
                System.out.print("*");
            }
            System.out.println();
        }
    }
}

```

1. Print number pattern:
2. Print reverse star pattern:
3. Print Floyd's Triangle:
4. Print binary pattern:
5. Print pyramid pattern of stars:
6. Print Pascal's Triangle up to N rows.

#### G. Logical / Math Based Questions (10 Questions)

1. Accept a number and check whether it's prime.

```

class PrimeCheck {
    public static void main(String[] args) {
        int n = 29;
        boolean isPrime = true;
        for (int i = 2; i <= n / 2; i++) {
            if (n % i == 0) {
                isPrime = false;
                break;
            }
        }
        System.out.println(isPrime ? "Prime" : "Not Prime");
    }
}

```

1. Accept a number and print all its factors.
2. Accept a number and check whether it is an Armstrong number.
3. Accept a number and convert it to binary (without inbuilt functions).
4. Accept a number and print it in words (e.g., 123 → One Two Three).