Java Programming Mid-Level Exam

Topics: Flowcharts, Variables, Operators, Conditionals, Loops, Patterns, Functions

Time: 1 Hour   Max Marks: 50   Language: Java (Mandatory)

Section A - MCQs / Short Output Questions (1 mark x 10 = 10 Marks)

1. What is the output of the following code?

```
int a = 5;
int b = 2;
System.out.println(a % b);
```

2. Identify the correct Java data type to store decimal numbers:

   a) int   b) double   c) char   d) boolean

3. What is the output of this loop?

```
for(int i=1; i<=3; i++) {
    System.out.print(i + " ");
}
```

4. Which keyword is used to define a method in Java?

5. Predict the output:

```
int x = 4;
if (x > 3) {
    System.out.println("Greater");
}
```

6. What does the following pseudocode do?

```
Set count = 1
Repeat while count <= 3
    Display count
    count = count + 1
```

7. Choose the correct syntax to declare a function in Java:

   a) function myFunc() b) void myFunc() c) def myFunc() d) method myFunc()

8. What is the role of `break` in a loop?

9. What will this code print?

```
int a = 10;

System.out.println(++a);
```

10. Which operator is used for logical AND in Java?

  a) & b) && c) and d) ||

Section B - Short Answer Coding (5 marks x 2 = 10 Marks)

11. Write a Java program to check whether a number is even or odd using `if-else`.

   Input: An integer from the user

   Output: "Even" or "Odd"

12. Write a Java method `calculateSum(int a, int b)` that returns the sum of two numbers.

   Also, call this method from `main()` and display the result.

Section C - Long Answer Coding (10 marks x 3 = 30 Marks)

13. Write a Java program to input a number and print whether it is positive, negative, or zero using an `if-else-if` ladder.

   Input: A number

   Output: Corresponding message

14. Write a Java program to print the following square number pattern.

   Input: n = 5

   Output:

   1 2 3 4 5

   1 2 3 4 5

   1 2 3 4 5

   1 2 3 4 5

   1 2 3 4 5

   Hint: Use nested loops (`for`) for rows and columns.

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15. Write a Java program to implement a basic calculator.

   Requirements:

   - Accept two numbers from the user

   - Ask for the operation (`+`, `-`, `*`, `/`)

   - Use `switch-case` to perform the operation

   - Print the final result