Java Mid-Semester Examination

Course: Programming in Java  
Unit Covered: Unit 1 – Java Basics, Syntax, OOP Introduction  
Level: Medium  
Duration: 1 Hour  
Total Marks: 40

# SECTION A – Multiple Choice Questions (5 × 1 = 5 Marks)

Attempt all. Choose the best option.

1. 1. What is the output of the following code?  
    ```java  
    int a = 5;  
    System.out.println(a++ + ++a);  
    ```  
    A) 11  B) 12  C) 10  D) 13
2. 2. Java is considered platform-independent because:  
    A) It uses pointers  
    B) It uses JVM  
    C) It uses ASCII  
    D) It is open-source
3. 3. What is the default value of a local variable in Java?  
    A) 0  B) null  C) false  D) No default; must initialize
4. 4. Which loop is entry-controlled?  
    A) do-while  
    B) for  
    C) foreach  
    D) None
5. 5. final keyword in Java is used to:  
    A) Inherit classes  
    B) Declare constants  
    C) Override methods  
    D) Define interfaces

# SECTION B – Fill in the Blanks (5 × 1 = 5 Marks)

Fill in the blanks with correct words:

1. 1. The main() method in Java must be declared as \_\_\_\_\_\_\_.
2. 2. In Java, the code is compiled into \_\_\_\_\_\_\_ before execution.
3. 3. Java arrays are \_\_\_\_\_\_\_, meaning they contain similar data types.
4. 4. A variable declared inside a method is called a \_\_\_\_\_\_\_ variable.
5. 5. The top-level parent class of all Java classes is \_\_\_\_\_\_\_.

# SECTION C – Short Answer Questions (3 × 5 = 15 Marks)

Attempt any three questions. Each carries 5 marks.

1. 1. Differentiate between JVM, JDK, and JRE with examples.
2. 2. What are access modifiers in Java? Explain all four with examples.
3. 3. Explain method overloading with example.
4. 4. What is the difference between ++a and a++ in terms of evaluation order?
5. 5. Explain the different types of variables in Java (local, instance, static) with examples.

# SECTION D – Coding/Logic (1 × 15 = 15 Marks)

Attempt any one of the following:

Q1. Array Max-Min Program  
Write a Java program to:  
- Input 5 integers from the user  
- Find and print the maximum and minimum values  
- Calculate and print the average  
  
Expected Output Format:  
Enter 5 numbers:  
Maximum: 89  
Minimum: 12  
Average: 56.4

OR

Q2. Class and Object Program  
Write a class Student with the following:  
- Instance variables: name, rollNo, marks  
- Constructor to initialize the variables  
- Method to display the student details  
Create two objects and display their details using the main() method.