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Daffodil International University

Department of computing and information Systems

Subject : Object-Oriented Programming Code:CIS-216

Quiz 1 – Fall 2026

Time Allowed: 20 Minutes
Total Marks: 15
Instructions: Read the questions carefully. Write clear and concise descriptive answers.

Question 1: Java Core Principles & Features (5 Marks)

Java's core principle is famously described as **"Write Once, Run Anywhere" (WORA)**.
(A) Explain what this principle means in the context of Java's platform independence and how it is achieved. *(2 Marks)*
(B) Apart from being platform-independent, list and briefly describe **three** other key features/characteristics of Java mentioned in the introductory text. *(3 Marks)*

Question 2: Data Types and Loops (5 Marks)

(A) Java categorizes data types into **Primitive** and **Non-Primitive**. Briefly explain what primitive data types define, and provide **two** examples of primitive types and **two** examples of non-primitive types. *(3 Marks)*

(B) Java provides several types of loops to handle repeated execution. Explain the primary execution difference between a **`while` loop** and a **`do-while` loop**. *(2 Marks)*

Question 3: Types of Methods (5 Marks)

(A) Methods in Java can be categorized broadly as **Predefined Methods** and **User-defined Methods**. Define both terms and provide one example for each based on the text. *(3 Marks)*

(B) When creating methods in a class, you can create an **Instance Method** or a **Static Method**. Explain the difference in how these two types of methods are called/accessed. *(2 Marks)*

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Question 1: Java Execution Architecture (5 Marks)

Java is highly regarded for its performance and platform independence. Describe the complete step-by-step execution process of a Java program (from saving the file to executing it). In your explanation, explicitly define the exact roles of the **Java Compiler (javac)**, the **Java Virtual Machine (JVM)**, and the **Just-In-Time (JIT)** compiler.

Question 2: Java Environments and Variables (5 Marks)

(A) The Java development environment consists of three main components: JVM, JRE, and JDK. Write the relationship/equations that define what the **JRE** and **JDK** consist of. *(2 Marks)*

(B) Variables are the basic unit of storage in a Java program. Explain the difference between an **Instance Variable** and a **Static Variable**. *(3 Marks)*

Question 3: Methods and the Call Stack (5 Marks)

(A) What is the **Call Stack** in Java, and what data structure principle does it operate on? Briefly describe what happens to the call stack when a method is called, and what happens when it finishes execution. *(3 Marks)*

(B) Define what a **Method Signature** is in Java. What specific components does it include, and what does it explicitly exclude? *(2 Marks)*

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Question 1: Java Syntax and Real-World Applications (5 Marks)

(A) In every basic Java program, the execution begins at a specific line of code: `public static void main(String[] args)`. Based on the text's explanation of the "Hello World" program, what does this line represent? *(2 Marks)*

(B) Comments are notes written inside the code that are ignored by the compiler. Identify the **three** types of comments in Java mentioned in the text and briefly explain the formatting/purpose of each. *(3 Marks)*

Question 2: Operators and Decision Making (5 Marks)

(A) Java provides various operators to manipulate data. Identify what the **Ternary Operator** is by providing its basic syntax/structure as shown in the text. *(2 Marks)*

(B) Decision-making statements allow a Java program to choose an execution path. Briefly explain the difference in how an **if-else-if ladder** and a **switch** statement evaluate conditions. *(3 Marks)*

Question 3: Method Benefits and Conventions (5 Marks)

(A) Breaking a program down into separate methods provides several advantages. State and briefly describe **three** key benefits of using methods in Java. *(3 Marks)*

(B) Standard conventions dictate how methods should be named in Java. What are the specific rules for naming a method (including format and grammar) as described in the text? *(2 Marks)*