

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Answer Key: Will Your Logic Hold? Senior CS Programming Concepts Quiz

Challenge your understanding of memory allocation and control flow beyond basic syntax by identifying how data types and iteration patterns impact system performance.

**1. When declaring a constant for a mathematical value like Pi in a high-level language, which keyword typically ensures the variable's value remains immutable throughout the program execution?**

**Answer:** B) const

The 'const' keyword (or 'final' in Java) is used to define constants that cannot be reassigned after their initial definition, ensuring data integrity.

**2. A 'while' loop is categorized as a pre-test loop because it evaluates the condition before executing the code block within the loop.**

**Answer:** A) True

Unlike 'do-while' loops, which are post-test, a 'while' loop checks the boolean condition first; if it is false initially, the code block never runs.

**3. In modular programming, the process of passing a copy of a variable's value to a function so that the original data remains unchanged is known as passing by \_\_\_\_.**

**Answer:** C) Value

Passing by value creates a local copy of the data within the function, protecting the original variable from being modified by the function's logic.

**4. Which programming structure is most efficient for selecting one of many execution paths based on the value of a single integer or character variable?**

**Answer:** C) Switch (or Case) statement

A switch statement provides a cleaner and often more optimized way to handle multi-way branching compared to long chains of if-else statements.

**5. An 'infinite loop' occurs when the \_\_\_\_\_ expression of a loop never evaluates to false.**

**Answer:** B) Termination

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The termination expression (or condition) must eventually become false for the loop to exit; otherwise, it repeats indefinitely, potentially crashing the program.

**6. Recursive functions are blocks of code that call themselves to solve smaller instances of the same problem.**

**Answer:** A) True

Recursion is a fundamental concept where a function solves a complex problem by breaking it down into sub-problems and calling itself until it reaches a base case.

**7. Which data type would be most appropriate for storing a user's response to a 'Yes/No' prompt on a digital application form?**

**Answer:** C) Boolean

Boolean data types are specifically designed to hold one of two values: true or false, making them ideal for binary choices like Yes/No.

**8. In most programming languages, the placeholder names defined in a function's header are called \_\_\_\_\_, while the actual values passed during the call are called arguments.**

**Answer:** A) Parameters

Parameters act as local variables within the function definition that receive the input values (arguments) when the function is executed.

**9. A 'global variable' is a variable that is accessible only within the specific function where it was declared.**

**Answer:** B) False

A variable restricted to a specific function is a 'local variable.' Global variables are declared outside of functions and can be accessed throughout the entire program.

**10. Which of the following describes the programming concept of 'dry' (Don't Repeat Yourself) most accurately through the use of functions?**

**Answer:** B) Reducing code duplication by creating reusable logic blocks

Functions allow developers to write logic once and call it multiple times, which aligns with the DRY principle of software development to improve maintainability.