

Name: _____ Date: _____

Answer Key: Code Concepts: Creative Coding Construction and 10th Grade Logic

Logic gates, iteration, and data types provide the structural framework for digital problem-solving in this comprehensive logic evaluation.

1. In a web application tracking a user's location, which data type is most appropriate for storing a precise GPS coordinate like 34.0522?

Answer: B) Float

Float (floating-point) variables are used for numbers that require decimal precision, which is necessary for GPS coordinates.

2. A 'while' loop is guaranteed to execute the code block at least once, even if the initial condition is false.

Answer: B) False

A while loop checks its condition before running; if the condition is false at the start, the code block never executes.

3. When a programmer creates a block of code to handle a specific task like 'calculateTax' so it can be used multiple times, they are using a _____.

Answer: B) Function

Functions are reusable modules of code that perform specific actions and can be called throughout a program.

4. Which programming construct would a developer use to display a 'Low Battery' warning only when the power level drops below 15%?

Answer: C) A condition (if-statement)

Conditional statements (if-statements) allow a program to make decisions and execute specific code based on whether a criteria is met.

5. If a variable named 'is_logged_in' can only be either True or False, what specific data type is it using?

Answer: D) Boolean

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Boolean data types represent binary logic—specifically the values 'True' and 'False'.

6. To process every single item in a grocery list array of 50 items without writing the code 50 times, a programmer should use a _____.

Answer: A) Loop

Loops allow for iteration, meaning the same set of instructions can be repeated for every item in a collection automatically.

7. A variable's value can be changed throughout the execution of a program.

Answer: A) True

Variables are named storage locations; as the name implies, the data they hold can vary or be updated as the program runs.

8. What is the primary benefit of using 'parameters' (inputs) within a function?

Answer: B) They allow the function to be flexible and process different data

Parameters allow a single function to behave differently depending on the specific information passed into it, increasing reusability.

9. In the statement 'if temperature > 90', the symbol '>' is known as a _____ operator.

Answer: C) Comparison

Comparison operators (like >, <, and ==) are used to evaluate the relationship between two values in a conditional statement.

10. An 'else' statement can exist by itself without an 'if' statement preceding it.

Answer: B) False

An 'else' statement provides an alternative path for logic, so it must be attached to an 'if' (or 'else if') trigger.