

When Algorithms Decide: 6th Grade Logic & Program Flow Quiz

Synthesize complex logic by evaluating nested structures and modular design beyond basic syntax to solve real-world computational puzzles.

1. A smart thermostat is programmed to turn on the heater ONLY if the temperature is below 68°F AND the 'Eco-Mode' variable is set to False. If the temp is 65°F but Eco-Mode is True, what happens?

- A. The heater turns on because it is cold enough.
- B. The heater stays off because both conditions were not met.
- C. The program crashes due to a logical conflict.
- D. The thermostat switches to manual override automatically.

2. In a digital library system, you create a _____ to handle the task of calculating late fees so you can reuse that same logic for books, magazines, and DVDs without rewriting it.

- A. Variable
- B. Constant
- C. Function
- D. Loop

3. An infinite loop is a useful programming tool specifically designed to help a computer process large datasets faster by never stopping.

- A. True
- B. False

4. You are designing a drone's navigation system. Which structure is best suited for keeping the drone in the air as long as the battery level is above 10%?

- A. An If-Else statement
- B. A While loop
- C. A global variable
- D. A list of integers

5. If you are writing a script for a space rover and use the statement 'speed = 50', the word 'speed' is acting as a _____.

- A. Function call
- B. Boolean value
- C. Variable
- D. Iteration

6. Passing a 'parameter' into a function allows the function to use specific data provided by the user or another part of the program.

- A. True

Name: _____

Date: _____

B. False

7. Consider a 'For' loop that iterates through a list of 100 students. If you nest an 'If' statement inside that loop to check for 'Honor Roll' status, how many times will the conditional check run?

- A. Only once
- B. Zero times
- C. 100 times
- D. It depends on how many students are on the Honor Roll

8. A programmer writes specialized code for a vending machine. To handle different outcomes for 'Soda', 'Chips', and 'Candy', they should use _____ logic.

- A. Concatenation
- B. Conditional
- C. Numerical
- D. String

9. In programming, a variable named 'User_Age' can usually store a text string like 'Twelve' just as easily as the number 12, depending on the language's typing rules.

- A. True
- B. False

10. In a social media app's code, a 'counter' variable tracks 'Likes'. Every time a user clicks the heart, the code executes 'Likes = Likes + 1'. This is an example of:

- A. An incrementing variable update
- B. A function declaration
- C. A Boolean comparison
- D. A syntax error