Multiple Choice

1. A error does not prevent the program from running, but causes it to produce incorrect results.

a. syntax b. hardware c. logic d. fatal

2. A is a single function that the program must perform in order to satisfy the customer.

a. task b. software requirement c. prerequisite d. predicate

3. A(n) is a set of well-defined logical steps that must be taken to perform a task.

a. logarithm b. plan of action c. logic schedule d. algorithm

4. An informal language that has no syntax rules and is not meant to be compiled or executed is called .

a. faux code b. pseudocode c. Python d. a flowchart

5. A is a diagram that graphically depicts the steps that take place in a program.

a. flowchart b. step chart c. code graph d. program graph

6. A is a sequence of characters.

a. char sequence b. character collection c. string d. text block

7. A is a name that references a value in the computer's memory.

a. variable b. register c. RAM slot d. byte

8. A is any hypothetical person using a program and providing input for it.

a. designer b. user c. guinea pig d. test subject

9. A string literal in Python must be enclosed in .

a. parentheses. b. single-quotes. c. double-quotes. d. either single-quotes or double-quotes

10. Short notes placed in different parts of a program explaining how those parts of the program work are called .

a. comments b. reference manuals c. tutorials d. external documentation

11. A(n) makes a variable reference a value in the computer's memory.

a. variable declaration b. assignment statement c. math expression d. string literal

12. This symbol marks the beginning of a comment in Python.

a. & b. * c. ** d. #

13. Which of the following statements will cause an error?

a. x = 17 b. 17 = x c. x = 99999 d. x = '17'

14. In the expression 12 + 7, the values on the right and left of the + symbol are called .

a. operands b. operators c. arguments d. math expressions

15. This operator performs integer division.

a. // b. % c. ** d. /

16. This is an operator that raises a number to a power.

a. % b. * c. ** d. /

17. This operator performs division, but instead of returning the quotient it returns the remainder.

a. % b. * c. ** d. /

18. Suppose the following statement is in a program: price = 99.0. After this statement executes, the price variable will reference a value of which data type?

a. int b. float c. currency d. str

19. Which built-in function can be used to read input that has been typed on the keyboard?

a. input() b. get_input() c. read_input() d. keyboard()

20. Which built-in function can be used to convert an int value to a float?

a. int_to_float() b. float() c. convert() d. int()

21. A magic number is .

a. a number that is mathematically undefined b. an unexplained value that appears in a program's code c. a number that cannot be divided by 1 d. a number that causes computers to crash

22. A is a name that represents a value that does not change during the program's execution.

a. named literal b. named constant c. variable signature d. key term

True or False

1. Programmers must be careful not to make syntax errors when writing pseudocode programs.

False

2. In a math expression, multiplication and division take place before addition and subtraction.

True

3. Variable names can have spaces in them.

False

4. In Python, the first character of a variable name cannot be a number.

True

5. If you print a variable that has not been assigned a value, the number 0 will be displayed.

False

Short Answer

1. What does a professional programmer usually do first to gain an understanding of a problem?

A professional programmer typically starts by analyzing the requirements and specifications of the problem to understand what needs to be solved.

2. How does pseudocode differ from actual code written in a programming language?

Pseudocode is a high-level description of an algorithm that uses plain language to outline the steps. It does not follow the syntax of any specific programming language.

3. Computer programs typically perform what three steps?

Computer programs typically perform input, processing, and output.

4. What rules and considerations should influence the names given to variables in a program?

Variable names should be descriptive, meaningful, and follow the naming conventions of the programming language. They should not contain spaces, start with a number, or use reserved keywords.

5. What is the difference between floating-point division and integer division?

Floating-point division (using /) returns a decimal or fractional result, whereas integer division (using //) returns the quotient without the remainder.

6. What is a magic number? Why are magic numbers problematic?

A magic number is an unexplained numeric value that appears in a program's code. They are problematic because they make the code harder to understand and maintain. Using named constants instead of magic numbers improves code readability and maintainability.

7. Assume a program uses the named constant PI to represent the value 3.14159. The program uses the named constant in several statements. What is the advantage of using

the named constant instead of the actual value 3.14159 in each statement?

Using the named constant PI instead of the actual value 3.14159 improves code readability, maintainability, consistency, and ease of modification by allowing changes to the value in one location rather than multiple places throughout the code.