WGU Scripting-and-Programming-Foundations D278 Practice Questions

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Question 1

Question Type: MultipleChoice

Which expression has a value equal to the rightmost digit of the integer q = 7777?

Options:

A- 10 % q
B- q % 10
C- q / 10000
D- q % 10000

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Answer:

B

Explanation:

Comprehensive and Detailed Explanation From Exact Extract:

To find the rightmost digit of an integer q = 7777, we need the units digit (i.e., 7). According to foundational programming principles, the modulo operator (%) with 10 isolates the rightmost digit of a number.

Option A: '10 % q.'

Compute: 10 % 7777 = 10 (since 10 7777 has a remainder of 10).

Result: 10 7. Incorrect.

Option B: 'q % 10.'

Compute: 7777 % 10 = 7 (remainder of 7777 10, isolating the units digit).

Result: 7 = rightmost digit. Correct.

Option C: 'q / 10000.'

Compute: 7777 / 10000 = 0.7777 (floating-point division).

Result: 0.7777 7. Incorrect.

Option D: 'q % 10000.'

Compute: 7777 % 10000 = 7777 (since 7777 < 10000).

Result: 7777 7. Incorrect.

Certiport Scripting and Programming Foundations Study Guide (Section on Modulo Operator).

C Programming Language Standard (ISO/IEC 9899:2011, Section on Multiplicative Operators).

W3Schools: ''Python Operators'' (https://www.w3schools.com/python/python_operators.asp).

Question 2

Question Type: MultipleChoice

What is the proper way to declare a student's grade point average throughout the term if this item is needed in several places in a program?

Options:

A- Variable float gpa
B- Constant float gpa
C- Variable int gpa
D- Constant int gpa

Answer:

A

Explanation:

Comprehensive and Detailed Explanation From Exact Extract:

A grade point average (GPA) is a numerical value that typically includes decimal places (e.g., 3.75). According to foundational programming principles, it should be declared as a variable if it may change (e.g., as grades are updated) and as a floating-point type to accommodate decimals.

Option A: 'Variable float gpa.' This is correct. GPA requires a floating-point type (float) to handle decimal values, and since it may change over the term, it should be a variable, not a constant. For example, in C: float gpa = 3.5;.

Option B: 'Constant float gpa.' This is incorrect. A constant (const in C) cannot be modified after initialization, but GPA may change as new grades are added.

Option C: 'Variable int gpa.' This is incorrect. An integer (int) cannot store decimal values, which are common in GPAs (e.g., 3.2).

Option D: 'Constant int gpa.' This is incorrect. GPA requires a float for decimals and a variable for mutability, making both const and int unsuitable.

Certiport Scripting and Programming Foundations Study Guide (Section on Variables and Data Types).

C Programming Language Standard (ISO/IEC 9899:2011, Section on Floating Types).

W3Schools: ''C Variables'' (https://www.w3schools.com/c/c_variables.php).

Question 3

Question Type: MultipleChoice

Which output results from the following pseudocode?

x = 5

do

x = x + 4

while x < 18

Put x to output

Options:

A- 9
B- 18
C- 21
D- 25

Answer:

C

Explanation:

Comprehensive and Detailed Explanation From Exact Extract:

The pseudocode uses a do-while loop, which executes the loop body at least once before checking the condition. The variable x is updated by adding 4 each iteration, and the loop continues as long as x < 18. The final value of x is output after the loop terminates. According to foundational programming principles, we trace the execution step-by-step.

Initial State: x = 5.

First Iteration:

x = x + 4 = 5 + 4 = 9.

Check: x < 18 (9 < 18, true). Continue.

Second Iteration:

x = x + 4 = 9 + 4 = 13.

Check: x < 18 (13 < 18, true). Continue.

Third Iteration:

x = x + 4 = 13 + 4 = 17.

Check: x < 18 (17 < 18, true). Continue.

Fourth Iteration:

x = x + 4 = 17 + 4 = 21.

Check: x < 18 (21 < 18, false). Exit loop.

Output: Put x to output outputs x = 21.

Option A: '9.' Incorrect. This is the value after the first iteration, but the loop continues.

Option B: '18.' Incorrect. The loop stops when x >= 18, so x = 18 is not output.

Option C: '21.' Correct. This is the final value of x after the loop terminates.

Option D: '25.' Incorrect. The loop stops before x reaches 25.

Certiport Scripting and Programming Foundations Study Guide (Section on Loops).

Python Documentation: ''While Statements'' (https://docs.python.org/3/reference/compound_stmts.html#while).

W3Schools: ''C Do While Loop'' (https://www.w3schools.com/c/c_do_while_loop.php).

Question 4

Question Type: MultipleChoice

Which operator is helpful in determining if an integer is a multiple of another integer?

Options:

A- /
B- $
C- | |
D- +

Answer:

A

Explanation:

The operator that is helpful in determining if an integer is a multiple of another integer is the modulus operator, represented by/in some programming languages and%in others. This operator returns the remainder of the division of one number by another. If the remainder is zero, it indicates that the first number is a multiple of the second. For example,6 % 3would return0, confirming that 6 is a multiple of 3.

Question 5

Question Type: MultipleChoice

What does a function definition consist of?

Options:

A- The function's argument values
B- An invocation of a function's name
C- A list of all other functions that call the function
D- The function's name, inputs, outputs, and statements

Answer:

D

Explanation:

A function definition is the blueprint for a block of code designed to perform a specific task. Here's what it includes:

Function Name:A unique name to identify and call the function (e.g.,calculate_area).

Inputs (Parameters/Arguments):Values or variables passed into the function when it's called (e.g.,width,height).

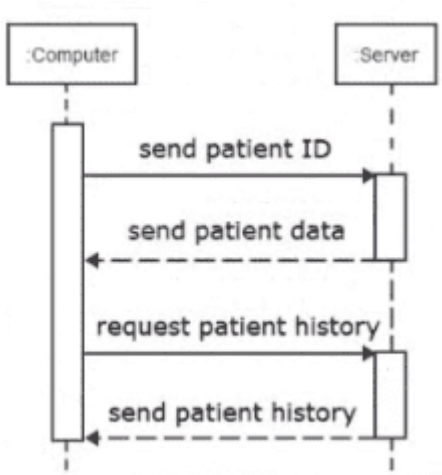
Outputs (Return Value):The result the function produces after processing (e.g., the calculated area). This value may or may not be explicitly returned.

Statements (Function Body):Contains the code that performs the actions and calculations within the function.

Question 6

Question Type: MultipleChoice

A sequence diagram is shown:



What is the purpose of a sequence diagram?

Options:

A- It depicts program operations, branches, and loops.
B- It outlines the needed computations.
C- It illustrates the communication steps for a particular software scenario.
D- It outlines the potential actions of a user

Answer:

C

Explanation:

A sequence diagram is a type of interaction diagram that details how operations are carried out within a system. It is used to model the interactions between objects or components in a sequence that reflects the order of operations, particularly focusing on the messages exchanged between these objects over time. The vertical axis of a sequence diagram represents time, and the horizontal axis represents the objects involved in the interaction.The purpose of a sequence diagram is to illustrate the sequence of messages or events that occur between these objects, typically in the context of a specific use case or scenario within the software system1234.

The information provided is based on standard practices in software engineering and UML (Unified Modeling Language) documentation.For further reading on sequence diagrams and their applications, you can refer to resources such as Visual Paradigm1, Creately2, IBM Developer3, and Lucidchart4.

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Question 7

Question Type: MultipleChoice

Which language has extensive support for object-oriented programming?

Options:

A- Markup
B- HTML
C- C
D- C++

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Answer:

D

Explanation:

C++ is a programming language that provides extensive support for object-oriented programming (OOP). OOP is a programming paradigm based on the concept of ''objects'', which can contain data in the form of fields, often known as attributes, and code, in the form of procedures, often known as methods. C++ offers features such as classes, inheritance, polymorphism, encapsulation, and abstraction which are fundamental to OOP. This makes C++ a powerful tool for developing complex software systems that require a modular and scalable approach.

The information provided is based on standard programming principles and the foundational knowledge of scripting and programming, which includes understanding the capabilities and applications of various programming languages1.

Question 8

Question Type: MultipleChoice

What is an example of an algorithm?

Options:

A- The list contains apples bananas, and oranges
B- A webpage uses an HTML file type
C- The sign of two integers determines the sign of the product
D- Unplug the device, wait 30 seconds, and restart the device.

Answer:

D

Explanation:

An algorithm is a set of instructions designed to perform a specific task or solve a problem. It is a sequence of steps that are followed to achieve a particular outcome. In the context of the given options, the correct example of an algorithm is option D. This option outlines a series of steps to troubleshoot a device, which is a common algorithmic procedure known as ''power cycling'' or ''resetting.'' It involves turning off a device, waiting for a short period, and then turning it back on. This process can resolve temporary issues by clearing the device's memory and resetting its state.

Option A is incorrect because it is simply a list of items, not a sequence of steps with a specific goal. Option B is also incorrect as it describes a file type used in web development, not a set of instructions. Option C is a statement about a mathematical property, not an algorithm.

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