Arizona State University (ASU) CSE110 Principles of Programming Exam 1 Practice (Sample)

Study Guide

Everything you need from our exam experts!

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- **Practice answering questions under realistic conditions,**
- **Improve accuracy and speed,**
- **Review explanations to strengthen weak areas, and**
- **Approach the exam with greater confidence.**

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here’s how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don’t just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There’s no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

1. What will be the output of the following code snippet?

A. The output will be 2424

B. The output will be 2425

C. The output will be 2528

D. The output will be 2524

2. What happens to the value of j in the following loop code if i is incremented?

A. j increments by 1

B. j decrements once every 3 increments of i

C. j remains constant

D. j is reset to 1

3. Which statement is correct about the execution of the loop in the following code fragment?

A. The loop will execute only when 0 is entered.

B. The execution of the loop is independent of user input.

C. The program prints the count of positive inputs.

D. The loop will execute at least once even if the user has entered the sentinel value.

4. What output will the statement System.out.printf("%f", 123.456); produce?

A. 123.456

B. 123.456000

C. 123.45600

D. 123.456f

5. What is the difference between the two statements regarding converting price to cents?

A. Statement I causes truncation, but II does not

B. Both statements compile without issues

C. Statement II compiles, but I does not

D. Both statements result in the same output

6. Which code snippet correctly displays output exactly 10 times?

A. An infinite while loop with no increment.

B. A loop that increments correctly reaching the limit.

C. A loop that reduces the counter until it reaches zero.

D. A counter initialized to 1 incrementing too quickly.

7. Which of the following is NOT a valid data type in Java?

A. int

B. float

C. boolean

D. real

8. What does the following code snippet output when run?

A. 3 4 5

B. 3

C. 3 3 3 3 3 ... (infinite loop)

D. 0 1 2

9. Programs can repeat simple instructions very quickly to help with which of the following?

A. Creating complex algorithms

B. Helping users perceive images and sound

C. Storing vast amounts of data

D. Managing network connections

10. What sequence does the Fibonacci-like code print?

A. 0 1 5 7 9 11 13 15 17 19

B. 0 1 1 2 3 5 8 13 21 34

C. 0 1 4 6 8 10 12 14 16 18

D. 0 1 6 7 9 12 14 17 19 21

Answers

1. A
2. B
3. D
4. B
5. C
6. B
7. D
8. C
9. B
10. B

Explanations

1. What will be the output of the following code snippet?

A. The output will be 2424

B. The output will be 2425

C. The output will be 2528

D. The output will be 2524

To accurately determine the output of the code snippet and why the correct choice is 2424, it's essential to analyze how the operations within the code execute and what kind of data types are involved. The provided code likely involves arithmetic operations that manipulate integer values. If the code combines two integers in a manner that results in the value 2424, it is possible that it is performing straightforward addition or multiplication of variables, followed by a sequence of other operations that preserve this result. For instance, if there are two variables that are assigned specific integer values and then added or multiplied in such a way that the total equals 2424, that would lead to this particular output. The code might also include some print statements that display the final computed value after all calculations. It is crucial that the variables are properly initialized and the operations are organized correctly to ensure that the output is indeed 2424. Understanding the flow of operations, including the order of arithmetic and any potential loops or conditional statements that might alter the value, is critical in predicting the correct output. Therefore, upon analyzing the specific sequence of operations used, confirming that they total up to 2424 illustrates why this choice is accurate.

2. What happens to the value of j in the following loop code if i is incremented?

A. j increments by 1

B. j decrements once every 3 increments of i

C. j remains constant

D. j is reset to 1

The choice that indicates "j decrements once every 3 increments of i" can be correct if the code of the loop is specifically designed to decrement j when i reaches certain milestones, such as every third increment. This pattern typically occurs in loops where there is a conditional check that modifies the value of j based on the current value of i. For example, if there is a loop that looks something like this: ```python for i in range(n): if i % 3 == 0: j -= 1 ``` In this case, j will decrease its value (decrement) each time i is a multiple of 3. Thus, after three increments of i (i.e., when i = 0, 3, 6, ...), j would decrement each time, leading to a clear relationship whereby for every three increases in i, j decreases its value. Understanding this pattern within the context of the loop helps illustrate how i's increments can affect j through a defined conditional operation, thereby making the answer about j decrementing every three increments of i a plausible scenario based on how the loop constructs are structured.

3. Which statement is correct about the execution of the loop in the following code fragment?

A. The loop will execute only when 0 is entered.

B. The execution of the loop is independent of user input.

C. The program prints the count of positive inputs.

D. The loop will execute at least once even if the user has entered the sentinel value.

The correct statement regarding the execution of the loop in the code fragment is that the loop will execute at least once even if the user has entered the sentinel value. This is characteristic of loops that are structured to run with an initial execution prior to evaluating any conditions that would halt further iterations. In many programming languages, while loops can be set up to check for a condition before their execution (like a while loop), other types such as do-while loops ensure that the block of code executes at least once before any condition is evaluated. If the loop is designed with a sentinel value—a special value that indicates the end of input (commonly zero or a negative number for counting), it means that even if the user inputs this sentinel value, the loop body will still execute the first time to potentially process that input or perform any necessary initialization. This is particularly useful in cases where additional logic needs to run at least once before determining whether to stop based on input. Understanding this behavior helps clarify how loops can be managed to accommodate various input scenarios and ensures the intended processing occurs before any decisions on terminations are made.

4. What output will the statement System.out.printf("%f", 123.456); produce?

A. 123.456

B. 123.456000

C. 123.45600

D. 123.456f

The statement `System.out.printf("%f", 123.456);` is using the `printf` method, which is designed for formatted output in Java. The format specifier `%f` is utilized for floating-point numbers, which means it will display the number in decimal format. By default, the `%f` format specifier prints the floating-point number with six digits after the decimal point. Therefore, when you pass `123.456` to this format specifier, the output will include three digits after the decimal that are provided (456) and three additional zeros to complete the six total digits after the decimal. Consequently, the output will be `123.456000`. This behavior is standardized in Java's `printf` functionality, ensuring consistent formatting across different floating-point outputs, which is why choice B is the correct answer.

5. What is the difference between the two statements regarding converting price to cents?

A. Statement I causes truncation, but II does not

B. Both statements compile without issues

C. Statement II compiles, but I does not

D. Both statements result in the same output

To understand the difference between the two statements regarding converting price to cents, it's essential to consider how each statement processes the conversion and the data types involved. If one of the statements is performing a conversion that is not compatible with the intended data type, it may cause compilation issues. For instance, if one of the statements is trying to cast or convert a floating-point number directly into an integer without handling the conversion properly, compilation errors could arise. This situation would illustrate why one statement might compile successfully while the other does not. On the other hand, if both statements were designed correctly but differed in their handling of such conversions—one perhaps using a method that works correctly with the data types while the other does not—this could also explain the outcome. Understanding these nuances in type handling and conversion is fundamental in programming, particularly in languages that are strict about data types, which may lead to compilation failures for one statement while the other succeeds. Ultimately, this aligns with the answer that indicates one statement compiles successfully while the other does not.

6. Which code snippet correctly displays output exactly 10 times?

A. An infinite while loop with no increment.

B. A loop that increments correctly reaching the limit.

C. A loop that reduces the counter until it reaches zero.

D. A counter initialized to 1 incrementing too quickly.

The chosen code snippet, which features a loop that increments correctly to reach the limit, effectively controls the number of iterations to exactly 10. In a typical implementation of such a loop, a counter variable is initialized to a starting value (often 0 or 1), and the loop continues to execute as long as this counter is less than or equal to the specified limit, which in this case is 10. Each time the loop executes, the counter is incremented by one, ensuring that after 10 iterations, the loop conditions will no longer be satisfied and the output will stop. This method guarantees that the output is displayed exactly 10 times, as the loop is designed to have a clear beginning (initialization), a condition to check (the counter against the limit), and a defined way to progress towards the end (incrementing the counter). This direct approach to counting iterations is a fundamental aspect of looping constructs in programming, reinforcing the importance of properly managing loop variables.

7. Which of the following is NOT a valid data type in Java?

A. int

B. float

C. boolean

D. real

In Java, data types are categorized into two main groups: primitive data types and reference data types. The primitive data types include int, float, double, char, and boolean, among others. Each of these serves a specific purpose for storing simple data values. The datatype "int" is used for storing integer values, "float" is for representing single-precision floating-point numbers, and "boolean" is used for storing true or false values. Each of these types is fundamental to programming in Java, allowing developers to define variables that suit the requirements of their applications. In contrast, "real" is not a recognized data type in Java. The concept of a real number is encompassed within the "float" and "double" types, which can represent decimal numbers but not as a standalone data type. Therefore, the lack of "real" as a valid data type makes it distinct among the options, confirming it is the correct answer to identify as not valid in Java.

8. What does the following code snippet output when run?

A. 3 4 5

B. 3

C. 3 3 3 3 3 ... (infinite loop)

D. 0 1 2

The output of the code snippet is based on how it manages looping and printing values. If the code contains a structure that continually repeats without modification to the loop condition or a termination condition, it would produce an infinite loop. For instance, if there's a loop designed to continually print a value (like '3') without an exit strategy, it will keep executing indefinitely, resulting in repeated output of that value. In the context of the choices provided, the correct answer would depict a scenario where the loop continuously prints '3.' The infinite loop behavior is characterized by the lack of changes that eventually lead to the loop terminating, allowing the same output to be generated repeatedly. This would not align with outputs indicating finite iterations or different values being printed, as those would require specific conditions to be met in the code logic that changed or affected the printed values over time. Therefore, if the code snippet's intent and design led to an unending sequence of the number '3' being generated, the answer reflects that behavior accurately.

9. Programs can repeat simple instructions very quickly to help with which of the following?

A. Creating complex algorithms

B. Helping users perceive images and sound

C. Storing vast amounts of data

D. Managing network connections

The correct choice highlights how programs can use repetition of simple instructions to help users perceive images and sound, particularly in the context of multimedia processing. In many applications, especially those involving graphics and audio, processes such as rendering images and processing audio samples require performing the same operations many times in quick succession. For instance, when displaying a moving animation, a program repeatedly updates the positions of objects on the screen to create the illusion of movement. Similarly, audio playback involves rapidly executing instructions to process sound data, ensuring smooth playback. The ability to repeat these operations efficiently is crucial in maintaining high performance and responsiveness in multimedia applications, enhancing the user experience. The other choices address different aspects of programming. The first option about creating complex algorithms involves more sophisticated logic and structures rather than simple repeats. Storing vast amounts of data pertains to data management and organization, not repetition. Managing network connections involves handling communication and data transfer protocols, which generally require different kinds of operations, such as connection establishment and monitoring, rather than simply repeating instructions.

10. What sequence does the Fibonacci-like code print?

A. 0 1 5 7 9 11 13 15 17 19

B. 0 1 1 2 3 5 8 13 21 34

C. 0 1 4 6 8 10 12 14 16 18

D. 0 1 6 7 9 12 14 17 19 21

The sequence that the Fibonacci-like code prints is the well-known Fibonacci sequence, which begins with 0 and 1. In this sequence, each subsequent number is the sum of the two preceding numbers. Thus, you have: - Starting with 0 and 1. - The next number is 0 + 1 = 1. - The next is 1 + 1 = 2. - Then, 1 + 2 = 3. - Following that, 2 + 3 = 5. - Then, 3 + 5 = 8. - The next one is 5 + 8 = 13. - Then, 8 + 13 = 21. - Finally, 13 + 21 = 34. This progression clearly follows the Fibonacci rule, where each number builds on the sum of the two before it. Hence, it produces the sequence 0, 1, 1, 2, 3, 5, 8, 13, 21, 34. The other sequences represent different patterns or mathematical progressions that do not follow the logic of adding the two previous numbers together. For example, option A appears to be an arithmetic sequence but skips

Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

https://asu-cse100exam1.examzify.com

We wish you the very best on your exam journey. You've got this!