STATISTICAL ANALYSIS SYSTEM (SAS) PROGRAMMING CERTIFICATION PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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.

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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!

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Questions

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1. **What should you check for when SAS reports a warning message in the log?**

   A. Check for syntax errors only.

   B. Check for missing or invalid data, along with potential logical errors in your code.

   C. Check for execution speed issues.

   D. Check for formatting issues in the output.

2. **What is the value of the automatic variable _ERROR_ after processing an observation with an error?**

   A. 0

   B. 1

   C. 2

   D. 3

3. **What must BY variables be in order to process BY-group analysis?**

   A. indexed or sorted

   B. sorted only

   C. indexed only

   D. not required to be sorted or indexed

4. **What is a SAS library?**

   A. a collection of SAS files, such as SAS data sets and catalogs

   B. in some operating environments, a physical collection of SAS files

   C. a group of SAS files in the same folder or directory

   D. all of the above

5. **Which function is used to extract a substring from a specific position in a character variable?**

   A. SCAN

   B. SUBSTR

   C. INPUT

   D. PUT

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6. How can you extract the sex identifier from the variable IDCode, where the fourth character indicates sex?

A. Sex=scan(idcode,4);

B. Sex=scan(idcode,4,1);

C. Sex=substr(idcode,4);

D. Sex=substr(idcode,4,1);

7. Which procedure is typically used for generating frequency distributions in SAS?

A. PROC SUMMARY

B. PROC CONTENTS

C. PROC FREQ

D. PROC TRANSPOSE

8. What is the purpose of PROC FREQUENCY in SAS?

A. To produce statistical models for predicting outcomes

B. To generate frequency counts for categorical variables

C. To create graphical presentations of data

D. To summarize numeric data into categories

9. Which statement limits a PROC MEANS analysis to specific variables?

A. by boarded transfer deplane;

B. class boarded transfer deplane;

C. output boarded transfer deplane;

D. var boarded transfer deplane;

10. What does PROC PRINT do in SAS?

A. It modifies the data in a data set

B. It displays the contents of a data set

C. It exports data to Excel format

D. It creates summaries of data sets

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Answers

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

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Explanations

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1. What should you check for when SAS reports a warning message in the log?

A. Check for syntax errors only.

B. Check for missing or invalid data, along with potential logical errors in your code.

C. Check for execution speed issues.

D. Check for formatting issues in the output.

When SAS reports a warning message in the log, it is essential to check for missing or invalid data, as well as potential logical errors in your code. Warnings from the log indicate that while the SAS program may have run without crashing, there are issues that could affect the integrity of the output or the analysis being conducted. Missing data can often lead to unexpected results or interpretations, and identifying such instances early is crucial to ensure that the analysis is valid. Additionally, warnings may signal logical errors in the code, such as incorrect calculations or flawed data manipulation. These types of errors can have significant implications for the analysis results, potentially leading to misleading conclusions if not addressed. Although syntax errors are critical to check, they would typically yield an error message rather than a warning, meaning that the program may not execute at all. Execution speed issues or formatting problems in the output, while important in their own right, are less likely to cause immediate concerns about the correctness or validity of the data analysis being performed, which is why focusing on data integrity and logical consistency in the code is key.

2. What is the value of the automatic variable _ERROR_ after processing an observation with an error?

A. 0

B. 1

C. 2

D. 3

The automatic variable _ERROR_ in SAS is designed to indicate whether an error occurred during the processing of an observation. When SAS processes a data step, it automatically sets _ERROR_ to a value that reflects the status of that observation. If no errors are encountered during the processing of an observation, _ERROR_ is set to 0. However, when an error occurs—such as an invalid value, a missing value where one is not allowed, or an arithmetic operation that leads to an undefined result—SAS will set _ERROR_ to 1. This signaling allows programmers to quickly diagnose issues within their data processing routine. Given that the question specifies that an observation is being processed with an error, the correct answer, which reflects this condition, is that _ERROR_ would be set to 1 after processing that particular observation. This automatic feedback mechanism is crucial for debugging and ensuring data integrity in SAS programming tasks.

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3. What must BY variables be in order to process BY-group analysis?

A. indexed or sorted

B. sorted only

C. indexed only

D. not required to be sorted or indexed

For a BY-group analysis in SAS, the BY variables must be either indexed or sorted. This requirement ensures that the data is organized in a way that facilitates the efficient processing of separate analyses for each group defined by the BY statement. When data is sorted, SAS processes each group sequentially, following the order of the BY variables. If the data is indexed, SAS can quickly locate and access the records for each group without scanning the entire dataset, enhancing performance, especially with larger datasets. This dual requirement allows flexibility in how the data can be prepared for analysis. Sorting the data beforehand is a common practice, while indexing can be particularly useful when you have to conduct multiple analyses on the same dataset. Therefore, having the option of either sorting or indexing helps in maintaining efficiency and improving the speed of operations during BY-group processing.

4. What is a SAS library?

A. a collection of SAS files, such as SAS data sets and catalogs

B. in some operating environments, a physical collection of SAS files

C. a group of SAS files in the same folder or directory

D. all of the above

A SAS library is fundamentally a collection of SAS files that facilitate organization and access to data and catalog files used in SAS programming. It serves as a structured environment where data sets, catalogs, and other associated files can be easily managed. The option indicating a collection of SAS files, such as SAS data sets and catalogs, accurately defines a library's primary purpose in organizing those files. Additionally, in various operating environments, a SAS library can represent a physical collection of these files, which further emphasizes its utility in managing structured data. Furthermore, the option regarding a group of SAS files in the same folder or directory contextually adds to the understanding that SAS libraries can be defined by the organization of files within the operational file system. In essence, a SAS library can be established based on the physical layout of files, the logical organization of data, or the type of files involved, solidifying the multifaceted nature of what constitutes a SAS library. All of these aspects illustrate how a SAS library functions as a versatile repository for managing SAS files, making the overall description encompassing each point presented in the choices accurate and holistic.

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5. Which function is used to extract a substring from a specific position in a character variable?

A. SCAN

B. SUBSTR

C. INPUT

D. PUT

The function used to extract a substring from a specific position in a character variable is SUBSTR. This function allows you to specify the starting position and the length of the substring you want to retrieve. For example, if you have a character variable containing the string "SAS Programming" and you wish to extract "Programming," you can use SUBSTR with a starting position of 5 and a length of 11, which effectively isolates that part of the string. It is particularly useful for string manipulation and data processing tasks where you need to work with specific segments of character data. In contrast, SCAN is used to extract words from a string based on a delimiter, while INPUT converts character strings to numeric values or SAS date values, and PUT converts numeric values to character strings. These functions serve different purposes and do not provide the same kind of substring extraction that SUBSTR does.

6. How can you extract the sex identifier from the variable IDCode, where the fourth character indicates sex?

A. Sex=scan(idcode,4);

B. Sex=scan(idcode,4,1);

C. Sex=substr(idcode,4);

D. Sex=substr(idcode,4,1);

The correct choice effectively extracts only the specific character that indicates sex from the IDCode variable, which is positioned at the fourth character. The function used is `substr`, which is designed to return a substring from a given string. In this instance, the `substr(idcode, 4, 1)` function call specifies two important parameters: the starting position of the substring (which is 4, referring to the fourth character in the string) and the length of the substring (which is 1, meaning only one character is being extracted). This ensures that only the sex identifier, located at the fourth position in the IDCode, is returned and stored in the variable named Sex. The other choices do not correctly achieve the goal of isolating the sex identifier for several reasons. For instance, using `scan` may not appropriately extract individual characters based on their position within a string in this context, while `substr(idcode,4)` lacks the length specification required to limit the output to a single character. Thus, choice D is the most precise and appropriate method for retrieving the desired information from the IDCode variable.

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7. Which procedure is typically used for generating frequency distributions in SAS?

A. PROC SUMMARY

B. PROC CONTENTS

C. PROC FREQ

D. PROC TRANSPOSE

The procedure that is typically used for generating frequency distributions in SAS is PROC FREQ. This procedure is specifically designed to count the occurrences of each distinct value in a specified variable, making it ideal for generating frequency distributions. When using PROC FREQ, you can obtain valuable insights into the distribution of categorical data, as it provides not only the counts of each category but also the corresponding cumulative frequencies and percentages. This functionality is particularly useful in data analysis and reporting, where understanding the distribution of data points is key to interpreting results. The other procedures listed serve different purposes. PROC SUMMARY, for instance, is utilized for creating summary statistics such as means, standard deviations, and counts, but it does not provide the detailed breakdown that PROC FREQ does. PROC CONTENTS is focused on providing information about the data set structure, such as variable names and types, rather than analyzing frequency distributions. PROC TRANSPOSE is used to convert data from a wide format to a long format or vice versa, and is not designed for frequency analysis. Therefore, PROC FREQ stands out as the appropriate choice for generating frequency distributions in SAS.

8. What is the purpose of PROC FREQUENCY in SAS?

A. To produce statistical models for predicting outcomes

B. To generate frequency counts for categorical variables

C. To create graphical presentations of data

D. To summarize numeric data into categories

PROC FREQUENCY in SAS is specifically designed to generate frequency counts for categorical variables. This procedure provides a simple yet powerful way to summarize and understand the distribution of categorical data by creating tables that display the counts of each category or level of the variable. It allows users to easily identify the most common values, observe the structure of the data, and uncover patterns within the dataset. In addition to just counting occurrences, PROC FREQUENCY can also calculate percentages, cumulative frequencies, and other useful statistics depending on the requirements of the analysis. The procedure can produce one-way frequency tables for single variables or multi-way tables when analyzing the relationship between two or more categorical variables. Utilizing PROC FREQUENCY is essential in exploratory data analysis, particularly when working with factors or nominal attributes, as it equips users with the foundational insights needed for further statistical modeling or inferential analysis.

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9. Which statement limits a PROC MEANS analysis to specific variables?

A. by boarded transfer deplane;

B. class boarded transfer deplane;

C. output boarded transfer deplane;

D. var boarded transfer deplane;

In SAS programming, the PROC MEANS procedure is used to calculate descriptive statistics for specified variables within a dataset. To focus the analysis on particular variables, the VAR statement is utilized. The VAR statement explicitly lists the variables you wish to analyze, allowing you to control which aspects of the data you want to investigate. When you use the VAR statement followed by one or more variable names, such as "boarded," "transfer," and "deplane," PROC MEANS will compute statistics only for these specified variables. This capability is crucial for targeted analysis, enabling you to derive specific insights without clutter from unrelated data. The other statements have different functions: - The BY statement group the data for analysis before calculations are performed but does not limit specific variables for statistical calculations. - The CLASS statement categorizes data into groups for statistics but again does not restrict the analysis to specific variables. - The OUTPUT statement is used to create a new dataset containing the results of the analysis, but it does not itself limit the variables used for computation. Thus, the use of the VAR statement effectively narrows down the analysis in PROC MEANS to only those variables listed, making it the correct choice.

10. What does PROC PRINT do in SAS?

A. It modifies the data in a data set

B. It displays the contents of a data set

C. It exports data to Excel format

D. It creates summaries of data sets

PROC PRINT is a procedure in SAS specifically designed to display the contents of a data set. It provides a straightforward way to review the data, showing the observations and variables in a tabular format. By using PROC PRINT, users can output the entire dataset or a subset of it, which is essential for data validation and exploration. This procedure allows for various options to customize the output, such as selecting specific variables to display, adding titles, or controlling the number of observations shown. Overall, PROC PRINT serves as a fundamental tool in SAS for inspecting and understanding the structure and values contained within data sets.

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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://sas-programming.examzify.com

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

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