

# GEORGIA DRINKING WATER LABORATORY ANALYST PRACTICE TEST (SAMPLE)

## STUDY GUIDE



## SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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<https://gadrinkingwaterlabanalyst.examzify.com>



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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

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- 1. Conductivity should be measured at what temperature for accuracy?**
  - A. 20 degrees Celsius
  - B. 22 degrees Celsius
  - C. 25 degrees Celsius
  - D. 28 degrees Celsius
- 2. What is the appropriate hold time for chlorine samples before analysis?**
  - A. 30 minutes
  - B. 1 hour
  - C. 15 minutes
  - D. 5 minutes
- 3. Where should one refer to for federally approved sample holding times and preservation techniques?**
  - A. EPA Guidelines
  - B. 40 CFR 136, 141, 143
  - C. Water Treatment Manual
  - D. State regulations only
- 4. Fluoride levels in drinking water are monitored primarily for what reason?**
  - A. To enhance taste
  - B. To prevent dental caries
  - C. To ensure color consistency
  - D. To reduce acidity
- 5. A solution with a pH below 6.5 is classified as?**
  - A. Basic
  - B. Neutral
  - C. Acidic
  - D. Alkaline
- 6. What tests are first draw samples primarily used for?**
  - A. Lead and Copper
  - B. Pathogens and Bacteria
  - C. pH and Temperature
  - D. Chlorine and Fluoride

7. To properly neutralize 10N NaOH, how much 2.5N Sulfuric Acid will you need?
- A. 500mls
  - B. 750mls
  - C. 2,000mls
  - D. 2,500mls
8. What is the primary use of AMCO-AEPA-1 in water testing?
- A. Standard for pH
  - B. Standard for turbidity
  - C. Standard for bacteria
  - D. Standard for conductivity
9. What is the significance of breakpoint chlorination in water treatment?
- A. It reduces chlorine levels
  - B. It establishes a free chlorine residual
  - C. It purifies water without chlorine
  - D. It increases turbidity
10. What role does chlorine serve as a strong oxidizer in water treatment?
- A. Removing pathogens
  - B. Neutralizing acids
  - C. Oxidizing iron, manganese, and organic molecules
  - D. Enhancing color

## **Answers**

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

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## **Explanations**

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## 1. Conductivity should be measured at what temperature for accuracy?

- A. 20 degrees Celsius
- B. 22 degrees Celsius
- C. 25 degrees Celsius**
- D. 28 degrees Celsius

Conductivity is a measure of the ability of water to conduct an electric current, which is influenced by the concentration of ions in the water. The relationship between conductivity and temperature is significant because as temperature increases, conductivity typically rises due to increased ion mobility. The standard reference temperature for measuring the electrical conductivity of water is 25 degrees Celsius. This standardization allows for consistency and comparability of conductivity measurements across different studies, laboratories, and applications. Measurements taken at this temperature can be adjusted to reflect the conductivity at other temperatures using established correction factors, making it an accepted practice in both scientific research and water quality assessment. Using 25 degrees Celsius as the measurement point ensures that results can be accurately interpreted and compared, which is essential for regulatory compliance and monitoring water quality effectively.

## 2. What is the appropriate hold time for chlorine samples before analysis?

- A. 30 minutes
- B. 1 hour
- C. 15 minutes**
- D. 5 minutes

For chlorine samples, the appropriate hold time before analysis is 15 minutes. This short timeframe is crucial due to the volatile nature of chlorine; it can dissipate from water samples if not analyzed quickly. If the sample is held for too long, the results may underrepresent the actual chlorine concentration present in the water, leading to inaccurate assessments of water quality. Therefore, adhering to the 15-minute hold time ensures that measurements reflect the true levels of chlorine at the time of sampling, which is vital for maintaining safe drinking water standards. Accurate analysis within this timeframe is essential for effective monitoring and regulation of water treatment processes.

## 3. Where should one refer to for federally approved sample holding times and preservation techniques?

- A. EPA Guidelines
- B. 40 CFR 136, 141, 143**
- C. Water Treatment Manual
- D. State regulations only

The reference to federally approved sample holding times and preservation techniques is found in the Code of Federal Regulations, specifically in 40 CFR (Code of Federal Regulations) Part 136, 141, and 143. These sections provide the necessary guidelines and standards set by the Environmental Protection Agency (EPA) for water quality testing, including requirements for sample handling and storage to ensure accurate analysis results. 40 CFR 136 outlines the guidelines for the methods for the detection and measurement of pollutants. Meanwhile, Parts 141 and 143 specifically cover the regulations regarding drinking water standards and the control of contaminants, including specifications for sampling, preservation, and holding times necessary for compliance with the Safe Drinking Water Act. This information is crucial for laboratory analysts to ensure that water quality samples remain viable and provide accurate data for monitoring drinking water safety. Other resources, such as EPA Guidelines or state regulations, may provide additional instructions, but the most authoritative and comprehensive source for nationally recognized requirements is found within the relevant sections of the Code of Federal Regulations.

#### 4. Fluoride levels in drinking water are monitored primarily for what reason?

- A. To enhance taste
- B. To prevent dental caries**
- C. To ensure color consistency
- D. To reduce acidity

Fluoride levels in drinking water are monitored primarily to prevent dental caries, or cavities. This is based on extensive research indicating that fluoride has significant dental health benefits. When fluoride is present in optimal concentrations in drinking water, it helps to remineralize tooth enamel and makes teeth more resistant to the acid attacks that cause decay. This public health measure aims to reduce the incidence of dental caries, particularly among children, who are at higher risk for tooth decay. While enhancing taste, ensuring color consistency, and reducing acidity may be relevant to water quality and consumer acceptance, these factors are not the primary reasons for monitoring fluoride levels. The focus on dental health ensures that fluoride serves its role as a preventive agent against cavities, which is a well-established benefit recognized by health organizations worldwide.

#### 5. A solution with a pH below 6.5 is classified as?

- A. Basic
- B. Neutral
- C. Acidic**
- D. Alkaline

A solution with a pH below 6.5 is classified as acidic because pH values are a measure of the hydrogen ion concentration in a solution. The pH scale ranges from 0 to 14, with lower values indicating higher acidity. A pH of 7 is considered neutral, typically found in pure water. Solutions with a pH less than 7 exhibit properties of acids, such as tasting sour and turning blue litmus paper red. As the pH decreases below the neutral point, the acidity increases, thus confirming that a pH lower than 6.5 indeed classifies the solution as acidic.

#### 6. What tests are first draw samples primarily used for?

- A. Lead and Copper**
- B. Pathogens and Bacteria
- C. pH and Temperature
- D. Chlorine and Fluoride

First draw samples are primarily used to test for lead and copper levels in drinking water systems. These samples are collected in a way that captures the water that has been sitting in the pipes for a period of time, typically overnight. This methodology is crucial because lead and copper can leach into the water from plumbing materials and fixtures, especially in older infrastructure. The concentration of these metals is generally highest in water that has been stagnant, making first draw samples essential for accurately assessing potential risks to public health. Results from these tests inform whether corrective actions are needed to reduce levels of these contaminants and ensure that water quality standards are met. In contrast, other types of tests for pathogens, bacteria, pH, temperature, chlorine, and fluoride generally require different sampling techniques and timelines, as they are not specifically aimed at detecting the accumulative contaminants like lead and copper.

7. To properly neutralize 10N NaOH, how much 2.5N Sulfuric Acid will you need?

- A. 500mls
- B. 750mls
- C. 2,000mls**
- D. 2,500mls

To determine how much 2.5N sulfuric acid is needed to neutralize 10N sodium hydroxide, we use the concept of equivalent weight and the neutralization reaction ratio. In a neutralization reaction, one equivalent of an acid neutralizes one equivalent of a base. Sodium hydroxide is a strong base, and sulfuric acid is a strong acid. The reaction between sulfuric acid ( $\text{H}_2\text{SO}_4$ ) and sodium hydroxide ( $\text{NaOH}$ ) is represented as follows:  $\text{H}_2\text{SO}_4 + 2\text{NaOH} \rightarrow \text{Na}_2\text{SO}_4 + 2\text{H}_2\text{O}$ . From this equation, we see that one mole of sulfuric acid neutralizes two moles of sodium hydroxide, which indicates that the reaction ratio of  $\text{H}_2\text{SO}_4$  to  $\text{NaOH}$  is 1:2. Given that you have 10N NaOH, you need to find out how many equivalents of NaOH you have in a given volume. If you're working with 1 liter (1,000 mL) of 10N NaOH, it would contain 10 equivalents of NaOH. Since the neutralization ratio is 2:1, you would need: 2 equivalents of

8. What is the primary use of AMCO-AEPA-1 in water testing?

- A. Standard for pH
- B. Standard for turbidity**
- C. Standard for bacteria
- D. Standard for conductivity

AMCO-AEPA-1 is primarily recognized as a standard for turbidity in water testing. Turbidity refers to the cloudiness or haziness of a fluid caused by large numbers of individual particles that are generally invisible to the naked eye. These particles can include sediment, algae, and other microorganisms. Using AMCO-AEPA-1 allows laboratories to assess the turbidity levels in water samples accurately. Reliable turbidity measurement is crucial for ensuring water quality, as high turbidity can indicate the presence of pathogens, pollutants, or other substances that may affect health and safety. Standards for pH, bacteria, and conductivity serve different purposes within water quality testing. pH standards help determine the acidity or alkalinity of water, bacteria standards typically involve culturing organisms to identify potential pathogens, and conductivity standards measure the ability of water to conduct electrical current, indicating the presence of ions. However, the specific application of AMCO-AEPA-1 aligns with turbidity measurement.

## 9. What is the significance of breakpoint chlorination in water treatment?

- A. It reduces chlorine levels
- B. It establishes a free chlorine residual**
- C. It purifies water without chlorine
- D. It increases turbidity

Breakpoint chlorination is a critical process in water treatment that focuses on effectively controlling and managing chlorine levels to ensure safe drinking water. It specifically refers to the point at which the amount of chlorine added to the water is sufficient to react with all the available contaminants, such as ammonia and organic matter, resulting in the formation of chloramines. Once all the ammonia is oxidized and reacted, any additional chlorine added will result in the formation of free chlorine, which is the desired state for disinfecting water. Establishing a free chlorine residual is significant because it provides a measure of the active disinfectant present in the water after treatment. This free chlorine residual is essential for maintaining water quality as it helps prevent the regrowth of pathogens during distribution. By achieving breakpoint chlorination, water treatment facilities not only ensure that the water is disinfected but also that it carries a sufficient level of free chlorine that can provide continuous protection against recontamination. Therefore, the significance of breakpoint chlorination is underscored by its ability to establish a free chlorine residual, which is vital for the safety and quality of drinking water.

## 10. What role does chlorine serve as a strong oxidizer in water treatment?

- A. Removing pathogens
- B. Neutralizing acids
- C. Oxidizing iron, manganese, and organic molecules**
- D. Enhancing color

Chlorine serves as a strong oxidizer in water treatment primarily through its ability to oxidize various contaminants, including iron, manganese, and organic molecules. This is a crucial step in the treatment process, as oxidation helps to convert these substances into forms that can be easily removed from the water. For instance, iron and manganese can cause staining and other issues in water systems, and when oxidized by chlorine, they are typically transformed into insoluble forms that can be filtered out effectively. In addition to its role in dealing with metal contaminants, chlorine also helps to break down organic compounds, which can be the source of taste and odor problems in drinking water. By oxidizing these materials, chlorine improves the overall quality of the water, making it safer and more pleasant for consumption. This multifaceted role of chlorine underscores its importance in ensuring that drinking water meets safety and aesthetic standards.

## 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](mailto:hello@examzify.com).

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

<https://gadrikingwaterlabanalyst.examzify.com>

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

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