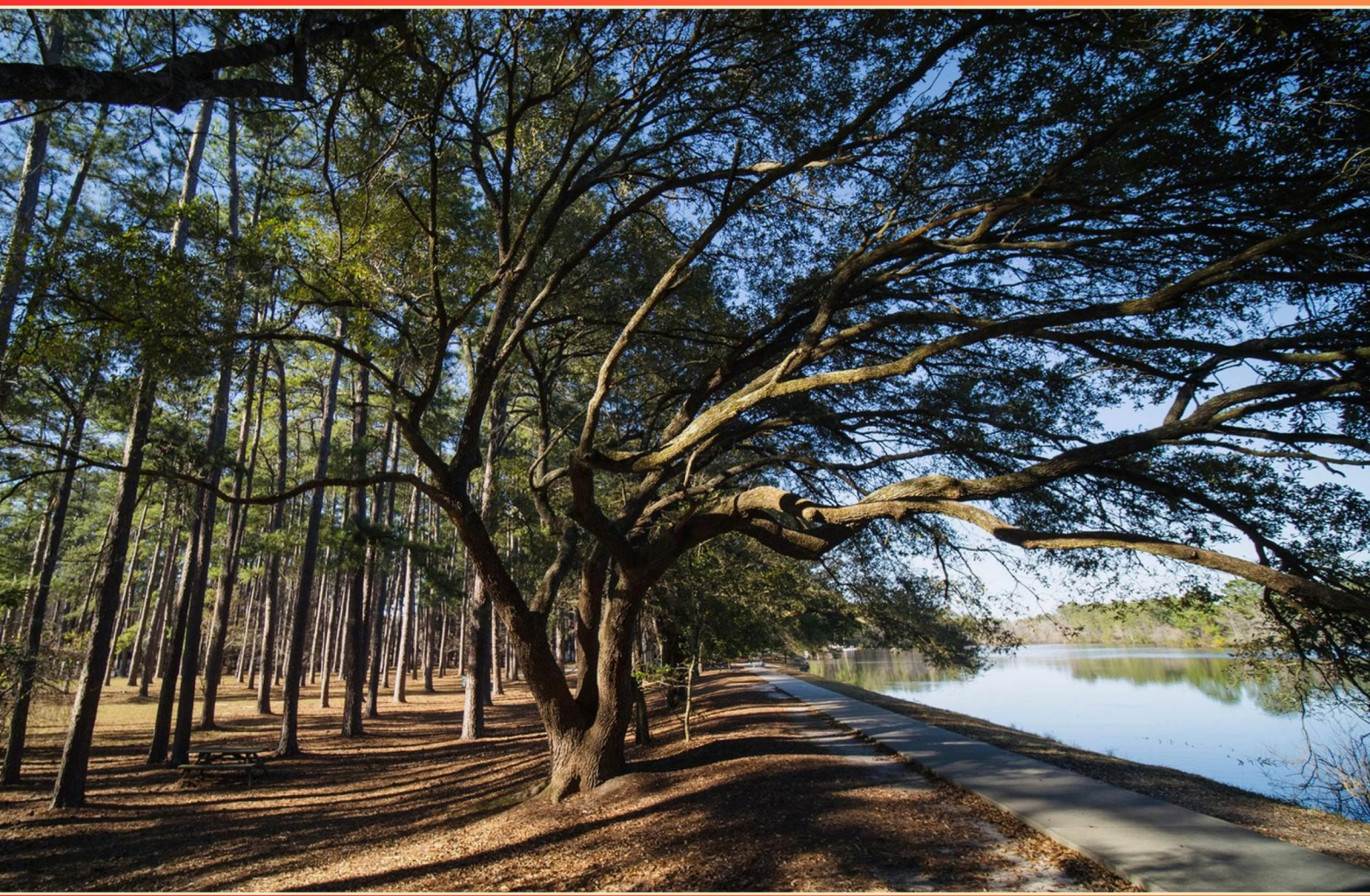
# NORTH CAROLINA SURFACE WATER PRACTICE EXAM (SAMPLE)

## STUDY GUIDE



## SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

**VISIT US ONLINE FOR THE FULL VERSION STUDY GUIDE**

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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. Which factor can affect the flow rate of a centrifugal pump?**

A. Pump speed

B. Water temperature

C. Type of fluid

D. All of the above

**2. What defines a "competent person" at an excavation site?**

A. Must be a professional engineer

B. Is responsible for accidents at the work site

C. Is capable of identifying hazards and has authority

D. Must fill out a written inspection prior to entry

**3. What maintenance activity can prevent excessive wear on pump bearings?**

A. Regular monitoring of pressure

B. Ensuring proper lubrication

C. Checking for leaks

D. Cleaning the pump casing

**4. What process allows suspended matter to settle in water treatment?**

A. Coagulation

B. Filtration

C. Flocculation

D. Sedimentation

**5. What is a potential result of underfeeding fluoride?**

A. coagulation of the fluoride stock solution

B. mottling of teeth

C. reduction of protective benefits of fluoridation

D. increased visits to the dentist

**6. What is a single sample taken without considering the time of day or rate of flow called?**

A. Composite

B. Extraneous

C. Grab

D. Periodic

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**7. What is a common method to assess the potable quality of public water supplies?**

A. Continuous disinfecting

B. Water sampling and testing

C. Visual inspection

D. Temperature measurement

**8. The Total Coliform Rule is based on...**

A. Presence or absences of coliforms in a sample

B. Density of coliform in a sample

C. Type of coliforms in a sample

D. Presence of fecal coliforms in a sample

**9. The purpose of performing a jar test is to...**

A. Estimate the minimum or ideal coagulant dose

B. Determine the settling time for floc

C. Calculate the amount of caustic to add to the water

D. Estimate the maximum amount of chlorine for disinfection

**10. What is the Secondary MCL for pH?**

A. 6.9 - 7.2

B. 6.5 - 8.5

C. 7.0 - 8.0

D. 6.6 - 7.7

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# Answers

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

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# Explanations

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## 1. Which factor can affect the flow rate of a centrifugal pump?

A. Pump speed

B. Water temperature

C. Type of fluid

D. All of the above

*When considering the flow rate of a centrifugal pump, all the factors mentioned play a significant role. The pump speed is a direct influencing factor; as the speed of the pump increases, the flow rate typically increases as well due to the generated centrifugal force. Water temperature can affect the viscosity of the fluid, which in turn impacts flow rate; for example, warmer water is less viscous and can flow more easily than colder water. Additionally, the type of fluid being pumped is crucial because different fluids have varying densities and viscosities, affecting how they behave within the pump system. Therefore, each of these factors, whether related to the operational speed, the properties of the fluid, or environmental conditions, collectively influence the flow rate of a centrifugal pump, making the comprehensive consideration of all these aspects crucial for accurate assessments and operations.*

## 2. What defines a "competent person" at an excavation site?

A. Must be a professional engineer

B. Is responsible for accidents at the work site

C. Is capable of identifying hazards and has authority

D. Must fill out a written inspection prior to entry

*A "competent person" at an excavation site is defined as someone who is capable of identifying existing and predictable hazards in the surrounding or working environment. This individual must also possess the authority to take corrective measures to eliminate those hazards. This definition emphasizes not just the ability to recognize risks, such as unsafe conditions or practices, but also the empowerment to act on that knowledge to ensure safety at the site. This role is critical in maintaining a safe work environment, especially in dynamic conditions like those found in excavation work, where hazards can rapidly evolve. The competent person helps to promote a culture of safety and compliance with regulations, ensuring that team members are protected from potential accidents or injuries associated with excavation activities. The other options do not encompass the complete and specific responsibilities associated with a competent person. For example, requiring a professional engineer may not be relevant in every situation, and being responsible for accidents does not highlight the proactive role of preventing them. Likewise, filling out a written inspection may be part of safety protocols but does not define the competencies or authority necessary for someone designated as a competent person on-site.*

## 3. What maintenance activity can prevent excessive wear on pump bearings?

A. Regular monitoring of pressure

B. Ensuring proper lubrication

C. Checking for leaks

D. Cleaning the pump casing

*Ensuring proper lubrication is essential for preventing excessive wear on pump bearings. Bearings rely on lubricant to reduce friction between moving parts. Regular lubrication creates a protective film which minimizes direct contact between metal surfaces, reducing heat generation and wear. When bearings are not properly lubricated, they can overheat, which may lead to increased wear, failure, or even catastrophic breakdown of the pump system. Additionally, appropriate lubrication helps to prevent contamination from dirt and debris, which can further compromise the integrity of the bearings. By maintaining the correct lubrication schedule and using the right type of lubricant, the lifespan of pump bearings can be significantly enhanced, ensuring smooth and efficient operation of the pump system.*

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## 4. What process allows suspended matter to settle in water treatment?

A. Coagulation

B. Filtration

C. Flocculation

D. Sedimentation

*The process that allows suspended matter to settle in water treatment is sedimentation. This occurs when water containing suspended particles is left undisturbed in a large basin or tank, allowing the heavier particles to fall to the bottom due to gravity. Over time, this results in the formation of a layer of sediment, effectively removing these particles from the water column. Sedimentation is critical in water treatment because it provides an efficient method for reducing turbidity and improving water clarity before further treatment steps, such as filtration and disinfection, are undertaken. It operates on the principle that denser and larger particles will settle quicker than smaller or less dense ones, making it an essential first step in the treatment process. While processes like coagulation and flocculation also play significant roles in treating water, they are primarily responsible for aggregating smaller particles into larger clumps that can improve sedimentation. Filtration is a subsequent step that removes remaining particles post-sedimentation. Understanding sedimentation's role highlights its importance in achieving clean and safe water.*

## 5. What is a potential result of underfeeding fluoride?

A. coagulation of the fluoride stock solution

B. mottling of teeth

C. reduction of protective benefits of fluoridation

D. increased visits to the dentist

*Underfeeding fluoride refers to the inadequate administration of fluoride in water treatment processes. When fluoride is underfed, one significant potential result is a reduction of its protective benefits. Fluoride plays a crucial role in dental health by helping to remineralize tooth enamel and prevent cavities. When the levels of fluoride in the drinking water are insufficient, individuals do not receive the optimal amount necessary to achieve these protective effects. This can lead to an increase in dental caries and other oral health issues, undermining the primary objective of water fluoridation, which is to improve community dental health. While mottling of teeth, often associated with excessive fluoride, and increased dental visits due to potential dental issues are considerations, the essential point regarding underfeeding fluoride is its impact on reducing the intended protective benefits. The correct focus on the protective aspect highlights the importance of achieving an appropriate fluoride level in public health measures.*

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## 6. What is a single sample taken without considering the time of day or rate of flow called?

A. Composite

B. Extraneous

C. Grab

D. Periodic

*A single sample taken without considering the time of day or rate of flow is referred to as a "grab" sample. This method involves collecting a single sample at one specific moment in time, which means it captures the characteristics of the water at that particular instant. Grab samples are commonly used in various environmental assessments because they can provide immediate insight into the water quality at that moment, although they may not represent fluctuations over time or the overall quality of the water source. In contrast, composite samples involve aggregating multiple grab samples taken over a period of time or under various conditions to create a more representative analysis. This approach accounts for variations in water quality that may occur due to changes in flow, temperature, or other factors. Understanding this distinction is essential for interpreting water quality data accurately, as grab sampling provides a snapshot while composite sampling offers a broader picture over time.*

## 7. What is a common method to assess the potable quality of public water supplies?

A. Continuous disinfecting

B. Water sampling and testing

C. Visual inspection

D. Temperature measurement

*Water sampling and testing is a crucial method used to assess the potable quality of public water supplies. This process involves collecting water samples from various points within the distribution system and testing them for a range of contaminants and parameters, such as bacteria, chemicals, heavy metals, and pH levels. This systematic approach allows for comprehensive monitoring of the water quality over time and ensures that it meets safety standards set by regulatory agencies. The importance of sampling and testing lies in its ability to provide empirical data about the water quality, which can be used to make informed decisions regarding public health. It enables water utilities to identify potential issues early and take necessary corrective actions to ensure that the water remains safe for consumption. In contrast, continuous disinfecting is a maintenance practice aimed at preventing microbial contamination but does not directly measure or assess water quality. Visual inspection may help identify obvious physical issues but lacks the scientific rigor needed to evaluate water quality comprehensively. Temperature measurement, while it can provide some information related to potential bacterial growth, does not alone determine the overall safety or quality of the water supply. Hence, water sampling and testing is the most reliable and thorough method for assessing potable water quality.*

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## 8. The Total Coliform Rule is based on...

A. Presence or absences of coliforms in a sample

B. Density of coliform in a sample

C. Type of coliforms in a sample

D. Presence of fecal coliforms in a sample

*The Total Coliform Rule is indeed based on the presence or absence of coliforms in a water sample. This regulation was established to ensure public health by monitoring water quality and determining whether water is safe for consumption. Coliforms are a group of bacteria commonly found in the environment, and their presence indicates that there may be contamination by fecal material. The rule primarily focuses on identifying whether coliform bacteria are detected in drinking water samples, regardless of the specific concentration. If coliform bacteria are present in a sample, this prompts further investigation since it may suggest that pathogens are also present, potentially leading to health risks. The significance of this approach lies in its simplicity and effectiveness in indicating possible water quality issues without the need for extensive quantification at the first point of testing. In contrast, assessing the density of coliforms or distinguishing between types of coliforms involves more detailed microbial analysis that is not a primary focus of the Total Coliform Rule. The presence of fecal coliforms specifically pertains to a subset of coliforms and is often monitored separately in other regulations, highlighting the broader scope of the Total Coliform Rule.*

## 9. The purpose of performing a jar test is to...

A. Estimate the minimum or ideal coagulant dose

B. Determine the settling time for floc

C. Calculate the amount of caustic to add to the water

D. Estimate the maximum amount of chlorine for disinfection

*Performing a jar test is a critical laboratory procedure used primarily to evaluate the optimal coagulant dosage needed for effective water treatment. The jar test simulates the coagulation process by mixing water samples with various coagulant doses, allowing for the observation of how well the coagulants facilitate floc formation and settling. This process enables operators to identify the minimum or ideal dose of coagulant required to achieve the desired clarification and removal of suspended particles. The jar test is essential in optimizing water treatment processes because it allows for precise adjustments tailored to the specific characteristics of the source water, which can vary widely based on factors such as turbidity, pH, and organic content. By determining the appropriate coagulant dosage, water treatment facilities can enhance efficiency, reduce chemical costs, and improve overall water quality. The other options, while related to water treatment processes, do not accurately capture the primary objective of the jar test. For example, while it does involve observing settling behavior, the main aim is not solely to determine settling time; rather, it focuses on dosage optimization for coagulation. Similarly, calculating caustic amounts or chlorine for disinfection are distinct processes that do not fall within the scope of the jar test.*

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## 10. What is the Secondary MCL for pH?

A. 6.9 - 7.2

B. 6.5 - 8.5

C. 7.0 - 8.0

D. 6.6 - 7.7

*The Secondary Maximum Contaminant Level (MCL) for pH in drinking water is established to help manage aesthetic qualities such as taste, color, and corrosion of plumbing systems. The range of 6.5 to 8.5 is significant as it encompasses the pH levels that are typically suitable for drinking water and helps prevent problems associated with water that is too acidic or too basic. Water with a pH lower than 6.5 can lead to increased corrosion of plumbing, which can result in leaching of metals into the water supply, whereas water with a pH higher than 8.5 may have a soapy taste and can cause scaling in plumbing systems. Thus, the chosen range is designed to protect public health and maintain water quality. Other options are incorrect because they do not fall within the established range of 6.5 to 8.5, which is the range of values recommended to prevent aesthetic and corrosion-related problems in drinking water systems.*

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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://ncsurfacewater.examzify.com

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

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