

TEXAS WASTEWATER CLASS B PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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.

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. In the activated sludge system, what does "Hydraulic Wash Out" refer to?**
 - A. Unstable flow of effluent
 - B. Movement of water exceeding settling velocity
 - C. Filtration of solids from water
 - D. Absorption of oxygen by sewage

- 2. If a municipal wastewater effluent has a high nitrate level and low ammonia level, what does this indicate?**
 - A. The effluent is contaminated
 - B. It has received a low degree of aerobic treatment
 - C. It has received a high degree of aerobic treatment
 - D. It is ready for discharge

- 3. When chlorine is added to water, what acids are formed?**
 - A. Hydrochlorous and Sulfuric
 - B. Hydrochlorous and Acetic
 - C. Hydrochlorous and Hydrochloric
 - D. Hydrochloric and Lactic

- 4. What common treatment device is used to separate and remove large solids from raw wastewater?**
 - A. A Grit chamber
 - B. A Mechanically raked bar screen
 - C. An Aeration tank
 - D. A Settling tank

- 5. What could indicate that the sludge is being wasted excessively in an activated sludge process?**
 - A. High levels of dissolved oxygen
 - B. Decrease in effluent quality
 - C. Thick foam in the aeration tank
 - D. Decrease in temperature of the tank

- 6. What is formed when ammonia reacts with chlorine in wastewater?**
- A. Chlorine gas
 - B. Chloramines
 - C. Ammonium chloride
 - D. Hydrochloric acid
- 7. What happens when a centrifuge pump loses prime?**
- A. The pump starts moving air
 - B. The pump stops moving liquid
 - C. The pump increases pressure
 - D. The pump continues to operate normally
- 8. Which microorganisms are considered the most numerous and important in activated sludge?**
- A. Viruses
 - B. Protozoa
 - C. Bacteria
 - D. Fungi
- 9. What can be a result of insufficient dissolved oxygen in an activated sludge system?**
- A. Increased organic removal
 - B. Enhanced flocculation
 - C. Shift of bacteria types
 - D. Improved settling rates
- 10. What percentage of the total solids in wastewater does organic matter typically comprise?**
- A. 50%
 - B. 65%
 - C. 75%
 - D. 85%

Answers

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

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Explanations

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1. In the activated sludge system, what does "Hydraulic Wash Out" refer to?

- A. Unstable flow of effluent
- B. Movement of water exceeding settling velocity**
- C. Filtration of solids from water
- D. Absorption of oxygen by sewage

Hydraulic washout refers to the scenario where excess water flow through an activated sludge system can lead to the movement of mixed liquor, which includes organisms and solids, at a rate that exceeds the settling velocity of those solids. This situation results in the unwanted removal of treated biological mass from the system, potentially compromising the treatment process and reducing the efficiency of nutrient removal. While unstable flow of effluent, filtration of solids from water, and absorption of oxygen by sewage are related concepts in wastewater treatment, they do not accurately define hydraulic washout. Unstable flow deals more with the consistency and reliability of exfiltration rates rather than the effects of hydraulic overload on solids. Filtration of solids is a different process that focuses on removing particulates from water rather than dealing with conditions within the activated sludge system itself. Absorption of oxygen is a normal metabolic function of the microorganisms but not relevant to the concept of hydraulic washout.

2. If a municipal wastewater effluent has a high nitrate level and low ammonia level, what does this indicate?

- A. The effluent is contaminated
- B. It has received a low degree of aerobic treatment
- C. It has received a high degree of aerobic treatment**
- D. It is ready for discharge

The correct answer indicates that the effluent has undergone a high degree of aerobic treatment. In wastewater treatment, nitrification is an aerobic process where ammonia is converted into nitrate by specific bacteria. If a municipal wastewater effluent shows high nitrate levels accompanied by low ammonia levels, it suggests that the ammonia has been effectively oxidized to nitrate through aerobic processes. This transformation indicates that the treatment system is functioning well, facilitating sufficient oxygen for the aerobic bacteria to thrive and complete the nitrification process. The presence of high nitrate levels is a common outcome of efficient aerobic treatment, while low ammonia levels confirm that the ammonia has been almost entirely processed. In contrast, high ammonia levels or low nitrate levels would suggest either poor treatment or that the wastewater has not been adequately aerated. Therefore, the observation of high nitrates and low ammonia is a sign of efficient aerobic decomposition of nitrogen compounds.

3. When chlorine is added to water, what acids are formed?

- A. Hydrochlorous and Sulfuric
- B. Hydrochlorous and Acetic
- C. Hydrochlorous and Hydrochloric**
- D. Hydrochloric and Lactic

When chlorine is added to water, it reacts to form hydrochlorous acid and hydrochloric acid. The key reaction involves chlorine dissolving in water, leading to the dissociation of hypochlorous acid (which is formed) into hydrochlorous acid. Hydrochloric acid is also generated in this process. Hydrochlorous acid, although it may not be directly identified in the answer choices, is essentially the active form that contributes to the disinfection properties in water treatment. The context of the other choices indicates that they include acids not typically formed directly from the reaction of chlorine with water. For instance, sulfuric acid and lactic acid are formed through different chemical processes and not as a direct result of chlorine addition to water. Acetic acid is also not a product of chlorine addition and is mainly associated with the fermentation of carbohydrates. Thus, the presence of hydrochloric acid and hydrochlorous acid makes the correct choice an accurate representation of what occurs when chlorine is added to water.

4. What common treatment device is used to separate and remove large solids from raw wastewater?

- A. A Grit chamber
- B. A Mechanically raked bar screen**
- C. An Aeration tank
- D. A Settling tank

The correct choice, a mechanically raked bar screen, is commonly used in wastewater treatment processes to separate and remove large solids from raw wastewater. This device consists of a series of bars that allow water to pass through while catching and holding back larger materials, such as sticks, leaves, plastics, and other debris that can disrupt the treatment process. The mechanical raking action then helps to continuously remove the collected solids, ensuring that the water entering subsequent treatment stages is free of these larger contaminants. Grit chambers serve a different purpose by allowing heavier particles, like sand and gravel, to settle out of the wastewater; they are not specifically designed for large solid removal. An aeration tank is used primarily for biological treatment, where microorganisms degrade organic matter, not for the initial separation of large solids. Settling tanks are used for sedimentation processes, typically for removing smaller suspended solids after they have been treated, rather than for the initial screening of large debris from raw wastewater.

5. What could indicate that the sludge is being wasted excessively in an activated sludge process?

- A. High levels of dissolved oxygen
- B. Decrease in effluent quality**
- C. Thick foam in the aeration tank
- D. Decrease in temperature of the tank

A decrease in effluent quality is a key indicator that excessive sludge wasting is occurring in an activated sludge process. When sludge is wasted in excess, there is typically not enough biomass remaining in the system to effectively metabolize pollutants in the incoming wastewater. This can lead to insufficient treatment and consequently results in a decline in the quality of the effluent. Indicators of poor effluent quality may include elevated levels of biochemical oxygen demand (BOD), total suspended solids (TSS), or other contaminants that have not been adequately removed. In contrast, high levels of dissolved oxygen are usually a sign that the aeration process is working effectively, as the microorganisms require oxygen to break down organic matter. Thick foam in the aeration tank can suggest other issues, such as filamentous bacteria growth, rather than excessive sludge wasting. A decrease in temperature might indicate environmental changes but does not directly correlate with sludge wasting.

6. What is formed when ammonia reacts with chlorine in wastewater?

- A. Chlorine gas
- B. Chloramines**
- C. Ammonium chloride
- D. Hydrochloric acid

When ammonia reacts with chlorine in wastewater, chloramines are formed as a result of the reaction. Chloramines are a group of compounds that are created when ammonia (NH_3) comes into contact with free chlorine (Cl_2). This is a key process in wastewater treatment because chloramines can serve as secondary disinfectants, offering a longer-lasting form of chlorination compared to free chlorine alone, which tends to dissipate quickly in water. Chloramines have lower toxicity than free chlorine and can be useful in controlling the formation of harmful disinfection by-products. They also help in maintaining residual disinfection in the water system, ensuring that any microbial contaminants are effectively managed. In contrast, chlorine gas itself would not be a product of the reaction with ammonia, and neither would ammonium chloride or hydrochloric acid be formed directly from this interaction. Ammonium chloride can form under different conditions but is not the primary product when chlorine acts on ammonia in this specific context. Hydrochloric acid might arise from the reaction of chlorine with water, but it does not relate directly to the interaction between ammonia and chlorine.

7. What happens when a centrifuge pump loses prime?

- A. The pump starts moving air
- B. The pump stops moving liquid**
- C. The pump increases pressure
- D. The pump continues to operate normally

When a centrifuge pump loses prime, it primarily affects its ability to move liquid effectively. Losing prime means that the pump is no longer filled with liquid; instead, it may begin to move air or vapor, which can lead to various operational issues. In this situation, since the pump relies on the presence of liquid to create pressure and generate flow, it will stop moving liquid. Maintaining prime is essential for a centrifuge pump to function properly, as it creates the necessary suction to draw in fluid. Without this, the pump cannot perform its intended function, which is to continuously move wastewater through the system. The correct understanding of this behavior is critical for effective operation and management of pump systems in wastewater treatment facilities.

8. Which microorganisms are considered the most numerous and important in activated sludge?

- A. Viruses
- B. Protozoa
- C. Bacteria**
- D. Fungi

Bacteria are considered the most numerous and important microorganisms in activated sludge systems. They play a crucial role in the biological treatment of wastewater by degrading organic matter. In the activated sludge process, bacteria form flocs that help in the aggregation of solids and the removal of contaminants. Their metabolic activities lead to the breakdown of pollutants, which is essential for maintaining water quality and treating wastewater effectively. While viruses can be abundant in various environments, they do not have a direct role in the breakdown of wastewater pollutants like bacteria do. Protozoa are beneficial as they feed on bacteria and help maintain the microbial balance within the system, but they are significantly less numerous than bacteria. Fungi contribute to the decomposition of organic matter but are not as central to the activated sludge process as bacteria. Therefore, the prominence of bacteria in both number and function makes them the key microorganisms in this context.

9. What can be a result of insufficient dissolved oxygen in an activated sludge system?

- A. Increased organic removal
- B. Enhanced flocculation
- C. Shift of bacteria types**
- D. Improved settling rates

Insufficient dissolved oxygen in an activated sludge system can lead to a shift in the types of bacteria present. This occurs because different types of bacteria have varying oxygen requirements. In conditions where oxygen levels are low, aerobic bacteria, which thrive in oxygen-rich environments, may be outcompeted or inhibited, allowing more anaerobic or facultative bacteria to proliferate. This shift can negatively affect the biological treatment process, compromising the system's efficiency in breaking down organic material. The other options focus on processes that are generally enhanced or improved with sufficient dissolved oxygen. For instance, organic removal is typically more effective when there is adequate oxygen available for aerobic digestion. Enhanced flocculation also relies on optimal oxygen levels to support the growth and activity of floc-forming bacteria, which helps improve the aggregation of particulates. Similarly, improved settling rates are associated with a healthy population of aerobic bacteria, contributing to well-formed flocs that settle efficiently. Thus, the presence of adequate dissolved oxygen is crucial for optimal performance in an activated sludge system.

10. What percentage of the total solids in wastewater does organic matter typically comprise?

- A. 50%
- B. 65%**
- C. 75%
- D. 85%

The typical composition of total solids in wastewater consists largely of organic matter, which often accounts for a significant portion of the total solids present. In various studies and practical applications, it is commonly determined that organic matter makes up around 65% of the total solids in wastewater. This percentage reflects the predominance of biodegradable materials, such as organic waste from food processing, human waste, and other biological substances. Organic matter plays a crucial role in the treatment processes, as its breakdown is essential for effective wastewater treatment, especially in processes such as anaerobic digestion.

Understanding the composition of total solids is vital for operators to manage treatment processes effectively, ensure compliance with environmental regulations, and optimize the reuse of byproducts. While other percentages may seem plausible, they do not represent the commonly established proportions found in wastewater analysis. This context helps in comprehending the importance of organic matter in wastewater management and treatment processes.

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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://texaswastewaterclassb.examzify.com>

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

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