

AMERICAN WATER WORKS WATER TREATMENT PLANT OPERATOR (WTPO) PRACTICE TEST (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.

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. The study of living things is called**
 - A. Ecology
 - B. Physics
 - C. Biology
 - D. Chemistry
- 2. In the context of chlorination byproducts, which term describes chlorine reacting with ammonia to form a byproduct?**
 - A. Nitrogen trichloride
 - B. Chlorine gas
 - C. Chloramines
 - D. Nitrogen dioxide
- 3. What are the two general categories of pumps?**
 - A. Positive displacement and Centrifugal (dynamic) pumps
 - B. Submersible and Jet pumps
 - C. Diaphragm and Peristaltic pumps
 - D. Gear and Screw pumps
- 4. 1 cubic foot of water weighs approximately how many pounds?**
 - A. 8.34 pounds
 - B. 16 pounds
 - C. 62.5 pounds
 - D. 100 pounds
- 5. No water supplier can undertake new construction without what from the state?**
 - A. Permit
 - B. Approval
 - C. Funding
 - D. Variance

- 6. Which set of factors is listed as most important for the self-purification of a stream?**
- A. Temp, Chemical biological carbonates, sunlight, flow erosion
 - B. Temp only
 - C. Sunlight only
 - D. Dissolved oxygen only
- 7. What term describes subterranean, porous, water-holding rocks that provide wells with steady flow of water?**
- A. Basins
 - B. Aquifers
 - C. Rivers
 - D. Clathrates
- 8. Crenothrix is best described as which of the following?**
- A. A bacterium that oxidizes iron
 - B. A virus
 - C. A chemical compound
 - D. A fungus
- 9. What is the scientific study of how living organisms are classified into subgroups based on distinctive characteristics of form, metabolism or reproduction?**
- A. Ecology
 - B. Taxonomy
 - C. Anatomy
 - D. Genetics
- 10. In a Venturi meter, which physical quantity is used to determine flow rate?**
- A. Differential pressure
 - B. Temperature
 - C. Humidity
 - D. Volume

Answers

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

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Explanations

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1. The study of living things is called

- A. Ecology
- B. Physics
- C. Biology**
- D. Chemistry

Biology is the study of living things—how they grow, reproduce, carry out life processes, and interact with one another. It covers everything from cells and metabolism to genetics and development, which is why it's the correct choice. Ecology, while related, focuses on relationships and interactions within ecosystems. Physics deals with matter, energy, and the forces that govern them, and chemistry looks at the composition and reactions of substances. In water treatment, understanding biology helps explain how microbes and other organisms behave and respond to treatment, but the fundamental study of living things is biology.

2. In the context of chlorination byproducts, which term describes chlorine reacting with ammonia to form a byproduct?

- A. Nitrogen trichloride**
- B. Chlorine gas
- C. Chloramines
- D. Nitrogen dioxide

Chloramines are formed when chlorine reacts with ammonia in water, creating a family of disinfection byproducts. When chlorine is added to water containing ammonia, the ammonia combines with the oxidizing chlorine species to produce monochloramine first, and under certain conditions can progress to dichloramine and even trichloramine. This group of compounds—chloramines—describes the byproducts formed specifically from that reaction. Nitrogen trichloride is a specific chemical that can arise in some chlorination scenarios, but it's not the general term for the byproducts produced when chlorine reacts with ammonia. Chlorine gas is the elemental form of chlorine, not a chloramination byproduct. Nitrogen dioxide is a different pollutant unrelated to the chloramination process.

3. What are the two general categories of pumps?

- A. Positive displacement and Centrifugal (dynamic) pumps**
- B. Submersible and Jet pumps
- C. Diaphragm and Peristaltic pumps
- D. Gear and Screw pumps

Pumps are grouped into two broad categories: positive displacement pumps and dynamic (centrifugal) pumps. A positive displacement pump traps a specific amount of fluid and then moves it through the system, so the output is essentially fixed per cycle. This makes them ideal when you need precise dosing or to push fluids at higher pressures, even if the system resistance changes. Dynamic or centrifugal pumps use an impeller to fling fluid outward, creating flow by converting speed into head. Their output depends on the system back pressure: they deliver large volumes at lower pressures, and the flow decreases as back pressure rises. They're commonly used for moving large quantities of water with moderate pressure. The other options describe specific pump types or installation methods, not the fundamental categories.

4. 1 cubic foot of water weighs approximately how many pounds?

- A. 8.34 pounds
- B. 16 pounds
- C. 62.5 pounds
- D. 100 pounds**

A cubic foot of water has a fairly precise weight because water's density is well known. One cubic foot holds about 7.48 gallons, and each gallon of water weighs roughly 8.34 pounds. Multiplying 7.48 by 8.34 gives about 62 pounds, typically cited as 62.4 pounds per cubic foot at standard conditions. So the weight of a cubic foot of water is around 62 pounds, not 16, 8.34, or 100. The 8.34 pounds figure is the weight of one gallon, while 62.5 pounds is the closest practical match for a cubic foot.

5. No water supplier can undertake new construction without what from the state?

- A. Permit
- B. Approval**
- C. Funding
- D. Variance

Before you can start new construction, the state must give formal approval for the project. This approval acts as the official authorization that the proposed design, safety measures, and environmental considerations meet all applicable laws and standards. Without this state approval, moving forward would not be allowed, even if funding is available or a separate permit is obtained later. A permit is often part of the process, but the essential authorization to begin is the state's approval. A variance would only apply if you're seeking an exception to a standard, not the general authorization to proceed with new construction.

6. Which set of factors is listed as most important for the self-purification of a stream?

- A. Temp, Chemical biological carbonates, sunlight, flow erosion**
- B. Temp only
- C. Sunlight only
- D. Dissolved oxygen only

Self-purification in a stream comes from processes that dilute pollutants, transfer and maintain oxygen, and biologically break down contaminants, all shaped by several interacting factors. Temperature changes how fast microbes and chemical reactions proceed, so warmer water can speed degradation but may lower dissolved oxygen availability. Sunlight drives photosynthesis by aquatic plants and algae, boosting oxygen production during the day and supporting greater biological activity. The buffering capacity of the water, provided by carbonates, helps keep pH in a range that supports microbial communities essential for pollutant breakdown and nitrification. Flow conditions promote mixing and dilution with cleaner water and enhance oxygen transfer from the atmosphere, which aids both aerobic decomposition and overall water quality. When these elements—temperature, alkalinity (carbonates), sunlight, and flow-driven mixing—are all considered, they best explain the stream's capacity to purify itself. Relying on dissolved oxygen alone misses how temperature, buffering, light-driven production of oxygen, and hydraulic mixing collectively influence purification rates.

7. What term describes subterranean, porous, water-holding rocks that provide wells with steady flow of water?

- A. Basins
- B. Aquifers**
- C. Rivers
- D. Clathrates

Groundwater storage and movement occur in underground rock formations that are porous and can hold and transmit water. The term for these underground, water-bearing rocks is an aquifer. An aquifer stores water in its pore spaces and fractures and allows it to move, so wells tapping into it can produce a steady flow, depending on recharge and pressure—especially in confined aquifers where impermeable layers trap water and create pressure. Basins are surface depressions that collect water, rivers are surface channels of flowing water, and clathrates are methane hydrates in sediments.

8. Crenothrix is best described as which of the following?

- A. A bacterium that oxidizes iron**
- B. A virus
- C. A chemical compound
- D. A fungus

Crenothrix is a bacterium that oxidizes iron. It's a filamentous, iron-oxidizing bacterium that can form iron-rich sheaths in water systems, gaining energy by converting ferrous iron (Fe^{2+}) to ferric iron (Fe^{3+}). This places it squarely in the microbial world as a living, single-celled organism. It isn't a virus, which would lack cellular structure and its own metabolism; it isn't a chemical compound; and it isn't a fungus, which would be a different, eukaryotic type of organism.

9. What is the scientific study of how living organisms are classified into subgroups based on distinctive characteristics of form, metabolism or reproduction?

- A. Ecology
- B. Taxonomy**
- C. Anatomy
- D. Genetics

Taxonomy is the scientific study of how living organisms are grouped into categories based on shared features of form, metabolism, and reproduction. It involves naming organisms and arranging them in a hierarchical system (domain, kingdom, phylum, class, order, family, genus, species) so we can clearly communicate about life and study its diversity and relationships. In practice, taxonomy uses observable traits like body structure, metabolic processes, and reproductive strategies, and increasingly genetic information, to decide which organisms belong together. Other fields such as ecology (how organisms interact with their environment), anatomy (body structure), and genetics (heredity and variation) study different aspects of living beings, not their classification.

10. In a Venturi meter, which physical quantity is used to determine flow rate?

A. Differential pressure

B. Temperature

C. Humidity

D. Volume

Venturi meters infer flow rate from the pressure difference created by the constriction. As the fluid speeds up through the narrow throat, its static pressure drops. Measuring that differential pressure with a sensor and applying the appropriate equation (which uses the pipe areas and fluid density) yields the flow rate. Temperature, humidity, or volume aren't the direct measurements used to determine flow in this device—the primary signal is the differential pressure.

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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://americanwaterworkswtppo.examzify.com>

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

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