Washington State Water Distribution Manager (WDM) 1 Certification Practice Exam (Sample)

Study Guide

Everything you need from our exam experts!

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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

1. **The Total Coliform Rule requires _____ sampling at each distribution sampling point.**

   A. Weekly

   B. Quarterly

   C. Monthly

   D. Routinely, as per public health dpt.

2. **What type of measuring level system has to compensate for the air temperature because the speed of sound in air varies with temperature?**

   A. Float gauge

   B. Ultrasonic system

   C. Radar level sensor

   D. Pressure transducer

3. **In a new pipe installation leak test, what is the preferred method for measuring makeup water volume?**

   A. a flow meter

   B. a gauge

   C. calibrated makeup reservoir

   D. a bucket with measurement

4. **In general, The rate of chlorine application for disinfecting a newly installed pipe should result in a uniform free chlorine concentration of _____ at the end of the section being treated.**

   A. 5 mg/L

   B. 25 mg/L

   C. 50 mg/L

   D. 15 mg/L

5. **A distribution pipe is 1.93 mi long. What is the volume of water in gallons if the pipe is 2.00 ft in diameter for a length of 1.46 mi and 18.0 in for the remainder?**

   A. 150,000 gal

   B. 400,000 gal

   C. 213,840 gal

   D. 300,000 gal

6. Pesticides that enter the distribution system via a cross connection can cause which of the following health effects?

A. Skin rash and itching

B. Headache and dizziness only

C. Nervous system damage, flu-like symptoms, vomiting and nausea

D. Respiratory failure

7. During an extended water outage, which pipeline materials are approved for temporary connections?

A. Fire Hoses or Rubber Hoses

B. PVC or Polyethylene

C. Steel or Fire Hose

D. Polyethylene or Rubber Hoses

8. If 18 lb soda ash are mixed with 75 gal water, what is the slurry concentration when the water volume is increased to 150 gal while keeping 18 lb?

A. 1.4%

B. 2.8%

C. 3.6%

D. 5.6%

9. In reinforced concrete piping installations, what condition necessitates extra protection?

A. High sulfates soils

B. Dry climate

C. Low wind

D. High-chloride soils

10. The _____ thread has a _____ diameter and steeper taper, which gives it greater strength than the _____ thread.

A. Mueller, larger, iron-pipe

B. National thread has a larger diameter than iron-pipe

C. Whitworth thread has a larger diameter and steeper taper

D. American thread has a larger diameter

Answers

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

Explanations

1. The Total Coliform Rule requires _____ sampling at each distribution sampling point.

A. Weekly

B. Quarterly

C. Monthly

D. Routinely, as per public health dpt.

Monthly sampling is required for each distribution sampling point under the Total Coliform Rule. This fixed cadence keeps a steady check on the distribution system for indicators of contamination, allowing timely follow-up if coliforms are detected. Weekly or quarterly sampling isn't what the rule specifies, and saying it's done "as per public health department" is not as precise as the mandated monthly schedule. If total coliforms are found, further actions, such as follow-up testing for E. coli, are triggered.

2. What type of measuring level system has to compensate for the air temperature because the speed of sound in air varies with temperature?

A. Float gauge

B. Ultrasonic system

C. Radar level sensor

D. Pressure transducer

Ultrasonic level measurement relies on the travel time of sound waves through air. Since the speed of sound in air changes with temperature, the system must adjust the conversion from time to distance using the current air temperature. When air is warmer, sound travels faster, so the measured time corresponds to a shorter distance unless compensated. Conversely, cooler air slows sound down, making the same time correspond to a longer distance. By incorporating temperature compensation, the ultrasonic sensor accurately determines the liquid level. Other methods don't depend on the speed of sound in air in the same way: a float gauge is purely mechanical, radar uses electromagnetic waves whose speed in air is effectively constant for typical conditions, and a pressure transducer measures hydrostatic pressure to infer level.

3. In a new pipe installation leak test, what is the preferred method for measuring makeup water volume?

A. a flow meter

B. a gauge

C. calibrated makeup reservoir

D. a bucket with measurement

Measuring makeup water volume accurately is essential for determining the leak rate during a new pipe installation leak test. A calibrated makeup reservoir provides a known, read-ready volume of water added to the system, giving a precise and traceable measurement of makeup water. This approach stays reliable regardless of how quickly water is introduced or how the test progresses, and it minimizes errors from estimating in a bucket or from flow-rate readings that don't directly translate to total volume. A gauge measures pressure, not how much water was added, so it doesn't help determine makeup volume. A bucket with measurement is easy to spill, misread, or miss some water, leading to inaccuracies. In short, the calibrated makeup reservoir offers a direct, accurate, and recordable way to quantify makeup water during the test.

4. In general, The rate of chlorine application for disinfecting a newly installed pipe should result in a uniform free chlorine concentration of _____ at the end of the section being treated.

A. 5 mg/L

B. 25 mg/L

C. 50 mg/L

D. 15 mg/L

Disinfecting a newly installed pipe is about delivering enough chlorine so that, after the pipe's chlorine demand and any losses during contact, the far end still has a protective residual. Targeting a uniform 25 mg/L free chlorine at the end of the treated section ensures the entire length receives an effective disinfectant dose for the required contact time, while avoiding excessively high residuals that could cause taste, odor, or corrosion concerns once the section is flushed into the system. In practice, a higher concentration is introduced upstream so that, after reacting with the pipe interior, the end of the section reaches about 25 mg/L. After the contact time, flushing and testing confirm proper residuals throughout the system. Other end concentrations listed would be either too low to guarantee disinfection at the far end or unnecessarily high for this purpose, so 25 mg/L at the end is the appropriate target.

5. A distribution pipe is 1.93 mi long. What is the volume of water in gallons if the pipe is 2.00 ft in diameter for a length of 1.46 mi and 18.0 in for the remainder?

A. 150,000 gal

B. 400,000 gal

C. 213,840 gal

D. 300,000 gal

When a pipe changes diameter along its length, treat the total volume as the sum of two cylinders: one for each diameter-length portion, using V = πr^2L. Convert lengths and diameters to consistent units. The first segment is 1.46 miles with a diameter of 2.00 ft, and the remainder is 0.47 miles with a diameter of 18.0 inches (1.50 ft). Convert miles to feet: 1 mile = 5,280 ft, so L1 = 1.46 × 5,280 = 7,708.8 ft and L2 = 0.47 × 5,280 = 2,481.6 ft. Radii: r1 = 1.00 ft (D = 2.00 ft) and r2 = 0.75 ft (D = 1.50 ft). Compute volumes: V1 = π × (1.00)^2 × 7,708.8 ≈ 24,218 ft^3. V2 = π × (0.75)^2 × 2,481.6 = π × 0.5625 × 2,481.6 ≈ 4,385 ft^3. Total volume ≈ 24,218 + 4,385 = 28,603 ft^3. Convert to gallons using 1 ft^3 ≈ 7.48052 gal: 28,603 × 7.48052 ≈ 213,840 gallons. So the volume is about 213,840 gallons.

6. Pesticides that enter the distribution system via a cross connection can cause which of the following health effects?

A. Skin rash and itching

B. Headache and dizziness only

C. Nervous system damage, flu-like symptoms, vomiting and nausea

D. Respiratory failure

Pesticide intrusion through a cross-connection means people could ingest contaminated water, and many pesticides are toxic to the nervous system. Exposure can cause neurological effects along with gastrointestinal upset, leading to symptoms like dizziness, headache, vomiting, nausea, and flu-like feelings. This combination best reflects the health impacts from drinking water contaminated by pesticides. Respiratory failure is not a typical early symptom of this scenario, and skin irritation would be less likely from ingestion alone.

7. During an extended water outage, which pipeline materials are approved for temporary connections?

A. Fire Hoses or Rubber Hoses

B. PVC or Polyethylene

C. Steel or Fire Hose

D. Polyethylene or Rubber Hoses

When you're setting up a temporary bypass during an extended water outage, you must use pipe materials that are approved for potable water and suitable for temporary connections. PVC and polyethylene fit this requirement because they are specifically designed and rated for drinking-water systems, they resist corrosion, can handle the typical pressures, and can be disinfected easily. They also come with readily available fittings for quick, temporary installations, which is essential when time is critical. Fire hoses or rubber hoses aren't intended for potable water distribution as permanent or semi-permanent connections; they lack reliable, long-term pressure ratings and secure fittings, and they pose contamination and leakage risks. Steel, while strong, is heavier and less flexible for rapid temporary deployments and requires more involved connections and disinfection. Rubber-based options aren't designed for potable-water service either and don't offer the same predictability in compatibility and sanitation as approved plastics.

8. If 18 lb soda ash are mixed with 75 gal water, what is the slurry concentration when the water volume is increased to 150 gal while keeping 18 lb?

A. 1.4%

B. 2.8%

C. 3.6%

D. 5.6%

Slurry concentration by weight is the mass of solids divided by the total slurry mass (solids plus liquid), expressed as a percentage. First, find the weight of the water at 150 gallons: 150 gal × 8.34 lb/gal ≈ 1251 lb. Add the solids: 1251 lb + 18 lb = 1269 lb total slurry. The solids fraction is 18 lb / 1269 lb ≈ 0.01417, which is about 1.4%. Doubling the water while keeping the same solids lowers the concentration roughly by half, from about 2.8% (with 75 gallons) to about 1.4% (with 150 gallons). Thus, the appropriate slurry concentration is approximately 1.4%.

9. In reinforced concrete piping installations, what condition necessitates extra protection?

A. High sulfates soils

B. Dry climate

C. Low wind

D. High-chloride soils

Chloride ions in soil can reach the reinforcing steel inside concrete and destroy the protective oxide film on the steel, accelerating corrosion. In reinforced concrete piping, if the surrounding soil has high chloride content, extra protection is needed to keep chlorides from reaching the steel—such as adequate concrete cover, corrosion-resistant reinforcement, or protective coatings or barriers. The other factors don't pose the same direct risk to the reinforcing steel: a dry climate doesn't create chloride-induced corrosion, and high-sulfate soils mainly attack the concrete matrix rather than the steel, while wind isn't a factor for buried pipes.

10. The _____ thread has a _____ diameter and steeper taper, which gives it greater strength than the _____ thread.

A. Mueller, larger, iron-pipe

B. National thread has a larger diameter than iron-pipe

C. Whitworth thread has a larger diameter and steeper taper

D. American thread has a larger diameter

The main idea is that threaded strength depends on the geometry of the threads: a larger major diameter and a steeper taper mean more material engaged in the thread and a deeper bite into the nut or fitting, which strengthens the connection and helps resist leakage and pull-out under pressure. Mueller thread is described as having a larger diameter and a steeper taper than the iron-pipe thread, so it provides greater engagement and strength. That combination—larger diameter plus a steeper taper—gives a more robust threaded connection in practice, which is why this option is the correct one. The other choices don't fit both parts of the description. They either mention only diameter or only taper, or compare threads in a way that doesn't pair Mueller with a weaker iron-pipe thread in the same way.

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://washingtonwdm1.examzify.com

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