

WATER, AIR, ENERGY, AND WASTE MANAGEMENT FOR ENVIRONMENTAL SUSTAINABILITY 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. What is the difference between point source and non-point source pollutants? Give examples.**
- A. Non-point pollutants originate from identifiable discharges (e.g., a factory outfall); point pollutants come from diffuse sources (e.g., agricultural runoff, urban stormwater).
 - B. Point sources originate from identifiable discharges (e.g., a factory outfall); non-point pollutants come from diffuse sources (e.g., agricultural runoff, urban stormwater).
 - C. Point sources come from diffuse areas (e.g., farmland); non-point come from a single pipe.
 - D. Point sources are natural; Non-point sources are anthropogenic.
- 2. Which of the following is an example of BMP practices for stormwater?**
- A. Green roofs, bio-retention, rain gardens, and retention/detention basins.
 - B. Pervious pavement and structural embankments.
 - C. Chlorination of water and chemical dosing.
 - D. Dams and hydroelectric reservoirs.
- 3. What is the primary purpose of coagulation/flocculation in water treatment?**
- A. Remove dissolved salts.
 - B. Remove suspended colloids by destabilizing them and forming larger flocs that settle.
 - C. Sterilize water by high heat.
 - D. Remove pathogens exclusively by filtration.
- 4. Water visible in rivers, streams, lakes, and wetlands is best described as which term?**
- A. Surface water
 - B. Groundwater
 - C. Residence time
 - D. Eutrophication

- 5. A vehicle powered by an electric motor using a magnetic field to generate motion is known as a**
- A. Hybrid vehicle
 - B. Electric vehicle (EV)
 - C. Gasoline-powered car
 - D. Solar car
- 6. Which set correctly lists the primary stages of conventional drinking water treatment and their general purpose?**
- A. Aeration; sedimentation; chemical softening; desalination.
 - B. Coagulation/flocculation to remove suspended colloids; sedimentation to settle flocs; filtration to remove remaining particles; disinfection to kill pathogens.
 - C. Coagulation only; Sedimentation; Chlorination only; Filtration.
 - D. Filtration; Disinfection; desalination; Storage.
- 7. Which of the following items are included as contaminants of emerging concern (CECs)?**
- A. Pharmaceuticals, personal care products, hormones
 - B. Heavy metals and pesticides
 - C. Microplastics and microbeads
 - D. Nutrients like nitrogen and phosphorus
- 8. Which of the following is a common pollutant found in urban stormwater?**
- A. Dissolved oxygen
 - B. pH
 - C. Sediments/particulates
 - D. Temperature
- 9. Which term describes a pollutant that is harmful in its directly emitted form?**
- A. Primary Pollutant
 - B. Secondary Pollutant
 - C. Ozone
 - D. Particulate Matter

10. What is leachate?

- A. Geologic disposal
- B. Leachate
- C. Isolation
- D. E-waste

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Answers

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

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Explanations

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1. What is the difference between point source and non-point source pollutants? Give examples.

A. Non-point pollutants originate from identifiable discharges (e.g., a factory outfall); point pollutants come from diffuse sources (e.g., agricultural runoff, urban stormwater).

B. Point sources originate from identifiable discharges (e.g., a factory outfall); non-point pollutants come from diffuse sources (e.g., agricultural runoff, urban stormwater).

C. Point sources come from diffuse areas (e.g., farmland); non-point come from a single pipe.

D. Point sources are natural; Non-point sources are anthropogenic.

The key idea is whether the pollutant source is identifiable and located at a single point versus dispersed over a large area. Point sources are identifiable discharges from a specific site, like a factory outfall or a wastewater treatment plant outlet. Non-point sources come from diffuse, widespread areas where pollution enters water bodies from many locations, such as agricultural runoff or urban stormwater washing over streets and yards. This description fits the example given: pollutants from a known discharge point are point sources, while pollutants from runoff over large areas are non-point sources. The other options mix up the definitions or rely on natural vs. human origins, which isn't how the standard distinction is made.

2. Which of the following is an example of BMP practices for stormwater?

A. Green roofs, bio-retention, rain gardens, and retention/detention basins.

B. Pervious pavement and structural embankments.

C. Chlorination of water and chemical dosing.

D. Dams and hydroelectric reservoirs.

Stormwater Best Management Practices are about keeping rainfall on the landscape where it falls, slowing it down, and removing pollutants as it moves through the system. Green roofs intercept rainfall on rooftops and create a shallow, vegetated layer that stores water, increases evaporation, and reduces how much runoff leaves the building. Bio-retention areas and rain gardens use engineered soils and plants to infiltrate water and filter nutrients and sediments as runoff passes through. Retention and detention basins provide temporary storage, spreading out the release of runoff so peaks are dampened and pollutants have more time to settle or be treated. Together, these practices actively manage runoff at the source and improve water quality, which is the essence of BMPs for stormwater. The other options describe activities more related to drinking-water treatment or large-scale infrastructure rather than on-site stormwater management.

3. What is the primary purpose of coagulation/flocculation in water treatment?

- A. Remove dissolved salts.
- B. Remove suspended colloids by destabilizing them and forming larger flocs that settle.**
- C. Sterilize water by high heat.
- D. Remove pathogens exclusively by filtration.

Coagulation and flocculation focus on removing particles that are too small to settle on their own by first neutralizing their surface charges and then growing them into larger aggregates. A coagulant neutralizes the negative charges on colloids, allowing them to come together instead of repelling each other. Gentle mixing then promotes collisions and growth into larger flocs that can settle in a clarifier or be removed by downstream filtration. This step improves water clarity, lowers turbidity, and reduces the load on filters and disinfection downstream. Removing dissolved salts requires processes like ion exchange or desalination, sterilizing by high heat is a disinfection method, and pathogens are not removed exclusively by filtration—coagulation targets suspended solids and colloids, enabling their removal.

4. Water visible in rivers, streams, lakes, and wetlands is best described as which term?

- A. Surface water**
- B. Groundwater
- C. Residence time
- D. Eutrophication

Where water is found at the surface of the land defines the term. Water visible in rivers, streams, lakes, and wetlands is surface water—water that exists on or above the ground and is directly exposed to the atmosphere. This contrasts with groundwater, which is stored underground in soils and rock and is not usually visible. Residence time refers to how long water stays in a system, which is about timing, not location. Eutrophication describes nutrient enrichment and its ecological effects, not where the water sits. So the water you can see in those bodies is surface water.

5. A vehicle powered by an electric motor using a magnetic field to generate motion is known as a

- A. Hybrid vehicle
- B. Electric vehicle (EV)**
- C. Gasoline-powered car
- D. Solar car

Electric motors convert electrical energy into motion by using magnetic fields to create torque, which turns the wheels. When a vehicle is driven by an electric motor powered by electricity stored in batteries or supplied from a power source, it is an electric vehicle. This distinguishes it from hybrids (which use both electric and gasoline propulsion), gasoline-powered cars (which run on internal combustion engines), and solar cars (which rely on solar energy to power the drive, though the propulsion is still electric).

6. Which set correctly lists the primary stages of conventional drinking water treatment and their general purpose?

- A. Aeration; sedimentation; chemical softening; desalination.
- B. Coagulation/flocculation to remove suspended colloids; sedimentation to settle flocs; filtration to remove remaining particles; disinfection to kill pathogens.
- C. Coagulation only; Sedimentation; Chlorination only; Filtration.**
- D. Filtration; Disinfection; desalination; Storage.

In conventional drinking water treatment, the main idea is to progressively remove particles and then inactivate microbes before distribution. The best sequence starts with coagulation and flocculation, where coagulants are added to destabilize tiny suspended particles and gentle mixing forms larger flocs. This sets up sedimentation, where gravity lets the heavier flocs settle out and clarifies the water. Next comes filtration, which passes the water through media to remove remaining fine particles and some microorganisms. The final step is disinfection, which uses a disinfectant like chlorine to inactivate pathogens and protect the water through the distribution system. Other options mix in processes not typically part of the core treatment sequence—for example, desalination or chemical softening, which are used in different contexts (such as highly saline water or hardness removal) rather than as standard steps in conventional potable water treatment. Some options also omit essential steps like disinfection or misstate the role of coagulation. The sequence with coagulation/flocculation, sedimentation, filtration, and disinfection best reflects how conventional drinking water treatment is designed to work.

7. Which of the following items are included as contaminants of emerging concern (CECs)?

- A. Pharmaceuticals, personal care products, hormones
- B. Heavy metals and pesticides
- C. Microplastics and microbeads**
- D. Nutrients like nitrogen and phosphorus

Contaminants of emerging concern are substances not routinely regulated or monitored yet but suspected to cause harm at low levels or through prolonged exposure. Microplastics and microbeads fit this idea because they are tiny, persistent particles that pervade air, water, and sediments, can be ingested by wildlife, and may carry other contaminants. Their presence challenges traditional treatment and monitoring approaches, and their ecological and health effects are still being clarified, which is exactly what makes them a focus of emerging concerns. In contrast, nutrients like nitrogen and phosphorus are classic pollutants tied to eutrophication with well-established control strategies, and heavy metals or pesticides have long-standing regulations. The emphasis on microplastics and microbeads reflects the newer, evolving area of environmental risk posed by plastic pollution.

8. Which of the following is a common pollutant found in urban stormwater?

- A. Dissolved oxygen
- B. pH
- C. Sediments/particulates**
- D. Temperature

Urban stormwater picks up solid material from roads, sidewalks, construction sites, and bare soils as rainwater runs across them. Those solids become sediments or particulates, which are regularly found in higher loads in urban runoff. They clog waterways, reduce light penetration, and settle with attached pollutants like metals and nutrients, harming aquatic habitats. Dissolved oxygen, pH, and temperature describe the water's current condition rather than representing particles or debris carried by runoff, so they aren't the typical pollutant load in urban stormwater. That combination of being a direct, common contaminant carried by runoff makes sediments/particulates the best answer.

9. Which term describes a pollutant that is harmful in its directly emitted form?

- A. Primary Pollutant**
- B. Secondary Pollutant
- C. Ozone
- D. Particulate Matter

Primary pollutants are pollutants that cause harm in the form they are emitted. They come directly from sources like vehicles, power plants, and combustion processes, so their toxic effects are present right at the moment of release. In contrast, secondary pollutants aren't harmful in their emitted form; they form later in the atmosphere when primary pollutants react with sunlight and other chemicals. Ground-level ozone is a classic example of a secondary pollutant, created from reactions involving nitrogen oxides and volatile organic compounds. Particulate matter can be both primary (emitted as particles) and secondary (formed from atmospheric reactions), but the key idea here is harm that exists at emission, which defines a primary pollutant.

10. What is leachate?

- A. Geologic disposal
- B. Leachate**
- C. Isolation
- D. E-waste

Leachate is the liquid that forms when water or other liquids move through waste and dissolve or suspend substances from that waste. As precipitation or other fluids percolate through trash, they pick up organic matter, salts, metals, and other contaminants, creating a contaminated liquid. This leachate can migrate through soil and threaten groundwater if not collected and treated, which is why landfills use liners and leachate collection and treatment systems. The other terms don't describe the liquid itself: geologic disposal is a way to place waste, isolation is a general idea of keeping hazards separate, and e-waste is electronic waste.

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:

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

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