NGA 85: Meter Assembly and Abnormal Operating Conditions (AOCs) Practice Test (Sample)

Study Guide

BY EXAMZIFY

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 specific gravity of propane is 3.5.

A. Not known

B. False

C. True

D. Only under specific conditions

2. Which term describes the maximum concentration of vapor in air that can ignite?

A. PEL

B. IDL

C. UEL

D. LEL

3. What can cause over-pressurization in a pipeline?

A. Heat, Oxygen, Fuel

B. Gas or Liquid

C. Cut or Damaged Regulator Control Lines, Flooding, Debris on Regulator Seats, Open Bypass Line, Turning Incorrect Valves, Blockage of Pressure Regulator Vent, Controller Vent Line, or Vault Atmosphere.

D. Clean, Dry, and Clear of Debris

4. When documenting maintenance, which element is essential to determine future service needs?

A. The weather at the site

B. The color of the tool used

C. The date, technician, location, readings, test results, valve/regulator status, leaks found, actions taken, and next service date.

D. The gas type used in the system

5. How can you detect an AOC in the field?

A. By monitoring downstream pressure, regulator behavior (noise, cycling, venting), gas odor or flame presence, unusual flow fluctuations, or alarms.

B. By monitoring only the downstream pressure.

C. By visual inspection of the vent pipe only.

D. By checking for odor only.

6. What is the ignition temperature for natural gas?

- **A. Over 9000 degrees**
- **B. Approximately 1500 degrees**
- **C. Between 1100 degrees and 1200 degrees**
- **D. Between 1700 degrees and 2000 degrees**

7. When natural gas is heated, it does what to its volume?

- **A. Contracts**
- **B. Explodes**
- **C. Expands**
- **D. Dissipates**

8. What is the primary purpose of valve position indicators during AOC handling?

- **A. They confirm valve status (open/closed) and help verify isolation and restoration steps.**
- **B. They measure flow rate for calibrating meters.**
- **C. They detect gas leaks in the system.**
- **D. They indicate the regulatory setpoint for downstream pressure.**

9. What is the purpose of test ports or pressure taps on meter assemblies?

- **A. To provide electrical grounding**
- **B. To filter particulates from gas**
- **C. For pressure measurement during testing, calibration, and leak detection, and to validate regulator setpoints.**
- **D. To hold the meter in place during installation**

10. What is the function of a pressure relief device on a meter regulator skid?

- **A. To measure pressure during testing**
- **B. To vent gas automatically if regulator output pressure exceeds design limits or if the regulator malfunctions, preventing overpressure.**
- **C. To bond the meter to the electrical ground**
- **D. To bypass the meter during maintenance**

Answers

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

Explanations

1. The specific gravity of propane is 3.5.

A. Not known

B. False

C. True

D. Only under specific conditions

Specific gravity is a comparison of a substance's density to a reference density. For gases like propane, the reference is air, so the specific gravity tells you how much heavier or lighter the gas is than air. Propane gas has a density about 1.5 times that of air, so its specific gravity is roughly 1.5. It is heavier than air, but not anywhere near 3.5. The number 3.5 would imply a density far greater than typical propane gas, which isn't correct under normal conditions. Even if you consider temperature or pressure changes, propane's gas specific gravity remains around 1.5, not 3.5. (For propane in liquid form, the specific gravity relative to water is about 0.5, not 3.5.) So the statement is false.

2. Which term describes the maximum concentration of vapor in air that can ignite?

A. PEL

B. IDL

C. UEL

D. LEL

Understanding flammable limits: a vapor in air will ignite only if its concentration lies between the lower and upper explosive limits. The lower limit is the minimum concentration needed to support combustion; below this, the mixture is too lean to ignite. The upper limit is the maximum concentration that can still ignite; above this, the mixture is too rich to burn. The question asks for the maximum concentration that can ignite, which is the upper explosive limit. So this term best describes the threshold above which ignition cannot occur. For example, if a gas has an LEL of 2% and an UEL of 12%, ignition can happen anywhere from 2% to 12% in air.

3. What can cause over-pressurization in a pipeline?

A. Heat, Oxygen, Fuel

B. Gas or Liquid

C. Cut or Damaged Regulator Control Lines, Flooding, Debris on Regulator Seats, Open Bypass Line, Turning Incorrect Valves, Blockage of Pressure Regulator Vent, Controller Vent Line, or Vault Atmosphere.

D. Clean, Dry, and Clear of Debris

Over-pressurization happens when the device that keeps pipeline pressure in check can't relieve or control it. The strongest way this occurs is when the regulator system is damaged, misconfigured, or blocked, so pressure keeps building instead of being vented or reduced. In this scenario, several failure modes can cause that failure to relieve pressure: cut or damaged regulator control lines prevent the regulator from receiving or sending the correct signals to operate; flooding can push past the regulator's diaphragms or seals, causing improper regulation; debris on regulator seats prevents a tight seal, allowing uncontrolled flow and pressure buildup; an open bypass line lets gas bypass the regulator entirely, raising pressure upstream; turning incorrect valves can bypass or disable the regulator and let pressure rise; blockage of the pressure regulator vent or the controller vent line traps the vented gas, preventing pressure from being released; and the vault atmosphere, if not properly vented, can add back pressure or interfere with venting, contributing to the rise in pressure. Other options don't describe mechanisms that directly stop regulation or venting. For example, clean, dry, and clear of debris is actually desirable and helps prevent over-pressurization, while generic terms like gas or liquid or basic heat/oxygen/fuel conditions don't specify how pressure is controlled or released in the system.

4. When documenting maintenance, which element is essential to determine future service needs?

A. The weather at the site

B. The color of the tool used

C. The date, technician, location, readings, test results, valve/regulator status, leaks found, actions taken, and next service date.

D. The gas type used in the system

The key idea is that a complete maintenance record lets you plan future service. The most useful entry includes the date, technician, location, readings and test results, valve/regulator status, any leaks found, actions taken, and the next service date. With all of this, you can track how the system behaves over time, verify that all required checks were done, and schedule the next inspection before problems arise. Weather, tool color, or gas type don't by themselves indicate when or what maintenance is due, so they aren't useful for determining future service needs.

5. How can you detect an AOC in the field?

A. By monitoring downstream pressure, regulator behavior (noise, cycling, venting), gas odor or flame presence, unusual flow fluctuations, or alarms.

B. By monitoring only the downstream pressure.

C. By visual inspection of the vent pipe only.

D. By checking for odor only.

Detecting an Abnormal Operating Condition in the field comes from watching several indicators together, not relying on a single sign. Downstream pressure helps verify that the regulator is delivering the intended pressure and not drifting. Observing regulator behavior—noise, rapid cycling, or venting—can reveal that the regulator is failing or operating outside its set point. Gas odor or flame presence flags a potential leak or improper combustion, but odors can be faint or masked and not all AOCs involve smell. Unusual flow fluctuations can indicate leaks, blockages, or regulator issues, and alarms from equipment provide direct, immediate alerts. Putting these cues together gives a reliable, timely sense of an AOC and guides safe, appropriate action. Relying on odor alone is insufficient because it may miss non-leaking AOCs, or odor can be inconsistent or undetectable in some conditions.

6. What is the ignition temperature for natural gas?

A. Over 9000 degrees

B. Approximately 1500 degrees

C. Between 1100 degrees and 1200 degrees

D. Between 1700 degrees and 2000 degrees

Ignition temperature here means the autoignition point: the temperature at which methane in air will ignite without an external flame. Methane, the main component of natural gas, has an autoignition temperature around 537°C, which is about 999°F. The range of 1100–1200 degrees Fahrenheit lands in roughly 593–649°C, aligning with that autoignition range for natural gas in typical air, making it the closest match. The other options are either far too high or low to represent natural gas's autoignition point. Remember, actual values can vary with pressure, mixture, and impurities, but 1100–1200°F is the best general estimate.

7. When natural gas is heated, it does what to its volume?

A. Contracts

B. Explodes

C. Expands

D. Dissipates

When natural gas is heated, its volume expands. Heating gives gas molecules more kinetic energy, so they move apart and take up more space. In a system where the gas can expand (not confined to a fixed volume), the volume increases with temperature, following Charles's Law (volume proportional to temperature at constant pressure). If the gas is in a rigid container, the volume wouldn't increase; instead, the pressure would rise. So the volume expands, not contracts, explodes, or dissipates.

8. What is the primary purpose of valve position indicators during AOC handling?

A. They confirm valve status (open/closed) and help verify isolation and restoration steps.

B. They measure flow rate for calibrating meters.

C. They detect gas leaks in the system.

D. They indicate the regulatory setpoint for downstream pressure.

Valve position indicators show whether a valve is open or closed, which is essential during AOC handling. They let you confirm that isolation boundaries are actually in place before you perform any containment or stoppage actions, and they help verify that each valve is returned to the correct position during restoration. This keeps gas from moving into or out of a section you're handling and ensures the sequence of steps is followed safely. Flow rate measurements come from flow meters, not valve indicators. Gas leaks are detected with dedicated detectors, not by valve position readouts. Downstream pressure setpoints are shown on pressure instruments and control systems, not on valve position indicators.

9. What is the purpose of test ports or pressure taps on meter assemblies?

A. To provide electrical grounding

B. To filter particulates from gas

C. For pressure measurement during testing, calibration, and leak detection, and to validate regulator setpoints.

D. To hold the meter in place during installation

Test ports or pressure taps provide access points to measure gas pressure at specific points in the meter assembly. They let technicians monitor pressure during testing to verify system performance, calibrate and confirm regulator setpoints, and perform leak detection by observing pressure changes or holds. They are not used for electrical grounding, filtering particulates, or physically holding the meter in place, which is why their main role is to enable accurate pressure measurement for testing, calibration, and leak checks.

10. What is the function of a pressure relief device on a meter regulator skid?

A. To measure pressure during testing

B. To vent gas automatically if regulator output pressure exceeds design limits or if the regulator malfunctions, preventing overpressure.

C. To bond the meter to the electrical ground

D. To bypass the meter during maintenance

A pressure relief device on a meter regulator skid is there to protect the downstream system by venting gas automatically when the regulator output pressure goes above its designed limit or when the regulator malfunctions. This prevents overpressure that could damage equipment, cause leaks, or create a safety hazard. It acts as a safety tap that opens to allow excess gas to escape through a safe vent path, keeping downstream pressure within safe, controlled levels. This device is not used for measuring pressure (that's what gauges do), not for electrical grounding, and not for bypassing the meter during maintenance. Those functions are served by separate instruments or valves.

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://nga85.examzify.com

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