NGA 85: METER ASSEMBLY AND ABNORMAL OPERATING CONDITIONS (AOCS) 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.

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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!

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Questions

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1. Which statement BEST describes an AOC?

A. An AOC is a deviation from normal operating conditions

B. An AOC is a routine maintenance issue

C. An AOC is a condition that does not affect safety

D. An AOC is unrelated to life safety

2. Which statement about meter orientation is correct?

A. Orientation is not important

B. Follow manufacturer instructions; typically orientation is to minimize stress on connections and ensure readable display, with arrow indicating flow direction.

C. Place valve side first

D. Display should face away from operator

3. How is a leak test performed after installation or maintenance?

A. Apply a leak-detection method (soap solution or approved detector) to joints and connections and check for bubbles or readings; re-test until no leaks are detected.

B. Only perform a visual check for leaks without any test solution.

C. Apply a soap solution but do not re-test.

D. Test by turning up gas flow and listening.

4. What color is the flame when there is good combustion?

A. Yellow

B. Green

C. Red

D. Blue

5. What compound makes up 90%-97% of natural gas?

A. Ethane

B. Mercaptan

C. Methane

D. Carbon Monoxide

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6. The chemical the gas company uses to make natural gas detectable to our senses.

A. Mercaptan

B. Gas or Liquid

C. Heat, Oxygen, Fuel

D. Least Resistance

7. What are three things needed for combustion?

A. Gas or Liquid

B. Heat, Oxygen, Fuel

C. Least Resistance

D. Clean, Dry, and Clear of Debris

8. How does a regulator in a gas meter assembly function?

A. It vents gas to atmosphere

B. It provides electrical grounding for the system

C. It reduces the high line pressure to a lower, controlled downstream pressure by adjusting an orifice in response to downstream demand.

D. It filters particulates from the gas

9. Which of the following statements regarding AOC definitions is true?

A. AOC may involve a condition exceeding design limits

B. AOC is a deviation from normal operating conditions only

C. AOC only relates to temperature

D. AOC is unrelated to monitoring

10. A gas with a specific gravity of 0.6 relative to air is lighter than air.

A. Heavier than air

B. Lighter than air

C. Equal to air

D. Cannot be determined

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Answers

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

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Explanations

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1. Which statement BEST describes an AOC?

A. An AOC is a deviation from normal operating conditions

B. An AOC is a routine maintenance issue

C. An AOC is a condition that does not affect safety

D. An AOC is unrelated to life safety

An abnormal operating condition is any departure from normal operation that could impact safety or system performance and requires action to restore normal conditions. That's why the statement describing an AOC as a deviation from normal operating conditions is the best fit: it captures that an AOC is not just routine, but an unexpected change that needs attention to keep the system safe. It isn't simply a routine maintenance issue, which is planned work that doesn't constitute an abnormal condition. It also isn't something that inherently doesn't affect safety or that's unrelated to life safety—AOCs are considered because they have the potential to impact safe operation and require corrective action. For example, readings outside normal ranges on a meter assembly signal an AOC and trigger steps to assess and restore safe conditions.

2. Which statement about meter orientation is correct?

A. Orientation is not important

B. Follow manufacturer instructions; typically orientation is to minimize stress on connections and ensure readable display, with arrow indicating flow direction.

C. Place valve side first

D. Display should face away from operator

Orientation matters because meters are sensitive to how they're installed. Following the manufacturer's instructions ensures the device is placed so the connections aren't stressed, which helps prevent leaks, fatigue, or damage over time. It also makes sure the display is readable and that the flow direction is unambiguous, typically marked with an arrow. When the meter is oriented as intended, the internal components and sensors function correctly and the readings are reliable. The other ideas don't fit common practice. Simply placing the valve side first isn't a universal rule and can create improper fit or stress if it doesn't align with the manufacturer's guidance. Display visibility matters, but placing the display away from the operator makes readings harder to verify, which undermines safe operation. And saying orientation isn't important contradicts standard installation procedures that protect integrity and accuracy.

3. How is a leak test performed after installation or maintenance?

A. Apply a leak-detection method (soap solution or approved detector) to joints and connections and check for bubbles or readings; re-test until no leaks are detected.

B. Only perform a visual check for leaks without any test solution.

C. Apply a soap solution but do not re-test.

D. Test by turning up gas flow and listening.

After installation or maintenance, you must verify the system for leaks using a detectable method. Apply a leak-detection solution—soap solution or an approved detector—to all joints and connections, and look for bubbles or readouts from the detector. If any indication of a leak appears, tighten or repair the joint and repeat the test. Continue re-testing until there are no leaks detected. This approach is the safest and most reliable way to confirm the system is solid before putting it into service. Relying on a visual check alone can miss small leaks, and simply turning up gas flow and listening is not a dependable method and can create dangerous conditions. Using a proper leak-detection method and re-testing ensures the integrity of every joint and connection under operating conditions.

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4. What color is the flame when there is good combustion?

A. Yellow

B. Green

C. Red

D. Blue

When combustion is running properly, the flame appears blue because the fuel is burning with enough oxygen to oxidize completely, producing a hot, efficient flame. The blue color comes from the emission of light by hot, oxidized gas molecules and radicals in the flame, indicating a high temperature and minimal soot. Yellow flames show incomplete combustion, where fuel isn't fully burned and glowing soot particles create the yellow glow, signaling a less efficient, cooler burn and potential buildup of CO. Green and red flames aren't typical for clean hydrocarbon flames; green can indicate contaminants or metal compounds in the flame, while red often means a cooler, less energetic flame with poor mixing. So a blue flame best indicates good combustion.

5. What compound makes up 90%-97% of natural gas?

A. Ethane

B. Mercaptan

C. Methane

D. Carbon Monoxide

Natural gas is mostly methane, the simplest hydrocarbon, which normally makes up about 90% to 97% of the gas. The remaining portion includes smaller amounts of other hydrocarbons like ethane, plus trace gases such as carbon dioxide and nitrogen, and odorants such as mercaptans are added for leak detection. Methane is the dominant constituent, while mercaptans are added later, and carbon monoxide is not a typical component of the gas as delivered.

6. The chemical the gas company uses to make natural gas detectable to our senses.

A. Mercaptan

B. Gas or Liquid

C. Heat, Oxygen, Fuel

D. Least Resistance

Natural gas is odorless, so a distinct odorant is added to help people notice leaks quickly. The chemical used for this purpose is mercaptan, a sulfur-containing compound with a strong, rotten-egg-like smell that is detectable at very low concentrations. This makes leaks easy to detect by smell before they become dangerous. The other options don't fit the idea of an odorant. A description like "gas or liquid" isn't a chemical, and the trio "heat, oxygen, fuel" relates to combustion rather than detection. "Least resistance" is an electrical term and irrelevant to gas odorization.

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7. What are three things needed for combustion?

A. Gas or Liquid

B. Heat, Oxygen, Fuel

C. Least Resistance

D. Clean, Dry, and Clear of Debris

Combustion needs three ingredients: heat, oxygen, and fuel. Heat provides the energy to reach the fuel's ignition temperature, enabling the chemical reaction to start. Oxygen from the surrounding air acts as the oxidizer that combines with the fuel, allowing the flame to continue. Fuel is the material that burns. If any one of these is missing, combustion cannot sustain itself: no heat means ignition won't occur, no oxygen stops the oxidation, and no fuel leaves nothing to burn. The other options don't fit because a form like gas or liquid is just a type of fuel, not the three ingredients; least resistance isn't part of what drives combustion; and being clean, dry, and clear of debris relates to safety but not to the fundamental requirements for burning.

8. How does a regulator in a gas meter assembly function?

A. It vents gas to atmosphere

B. It provides electrical grounding for the system

C. It reduces the high line pressure to a lower, controlled downstream pressure by adjusting an orifice in response to downstream demand.

D. It filters particulates from the gas

Regulators in a gas meter assembly act as pressure-reducing devices. They take the high pressure from the supply line and maintain a steady, lower downstream pressure by adjusting the flow through a restricted opening based on downstream demand. Inside the regulator, a sensing element such as a diaphragm works against a spring to set the desired downstream pressure. When downstream pressure falls below the setpoint, the diaphragm moves to open the valve, increasing the flow through the orifice. When downstream pressure rises toward the setpoint, the valve closes more, reducing flow. This feedback keeps the downstream pressure fairly constant despite changes in upstream pressure or downstream usage. It's not about venting gas to atmosphere, electrical grounding, or filtering particulates.

9. Which of the following statements regarding AOC definitions is true?

A. AOC may involve a condition exceeding design limits

B. AOC is a deviation from normal operating conditions only

C. AOC only relates to temperature

D. AOC is unrelated to monitoring

Abnormal Operating Conditions cover events where plant parameters move outside the normal operating envelope, including situations that exceed design limits. That makes the statement true, because an AOC can involve conditions that push beyond what the design allows and require protective actions or mitigations. AOC is not limited to deviations within normal ranges; it explicitly includes excursions that test or surpass design margins. It isn't restricted to temperature alone—many parameters can contribute to an AOC—and monitoring is essential to detect and classify these off-normal conditions.

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10. A gas with a specific gravity of 0.6 relative to air is lighter than air.

A. Heavier than air

B. Lighter than air

C. Equal to air

D. Cannot be determined

The main idea is that specific gravity relative to air compares how dense a gas is to air under the same conditions. If that ratio is less than 1, the gas is lighter than air; if it's greater than 1, it's heavier; if it's exactly 1, it has the same density as air. A value of 0.6 means the gas is only 60% as dense as air at the same temperature and pressure, so it is lighter than air. Such a gas would tend to rise or float in air. If the ratio were 1, it would be equal in density to air; if it were greater than 1, it would be heavier.

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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://nga85.examzify.com

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

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