

NEBRASKA GTAW FFA TIG WELDING PRACTICE EXAM (SAMPLE)

STUDY GUIDE



**SAMPLE STUDY GUIDE
WITH LIMITED QUESTIONS**

**VISIT US ONLINE FOR
THE FULL VERSION STUDY GUIDE**

<https://nebraskagtawffatigwelding.examzify.com>



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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 does GTAW stand for?

- A. Gas Tungsten Arc Welding
- B. Gas Tungsten Argon Welding
- C. Gas Tungsten Alloy Welding
- D. Gas Tungsten Anode Welding

2. Which item is NOT listed among the essential PPE for TIG welding?

- A. Earplugs
- B. Shaded helmet
- C. Gloves
- D. Safety glasses

3. What is the purpose of ensuring a proper root opening and tight fit-up in a butt weld?

- A. To ensure sound penetration and minimize lack of fusion at the root.
- B. To increase filler metal usage
- C. To decrease heat input
- D. To complicate setup

4. What color is tungsten when it is lanthanated?

- A. Blue or gold
- B. Green or brown
- C. Red or purple
- D. White or gray

5. Which protocol helps prevent tungsten overheating?

- A. Use proper amperage and maintain correct arc length
- B. Use excessive amperage and very long arc length
- C. Use very short travel speed regardless
- D. Use low shielding gas flow

6. Why should shielding gas begin flowing before arc strike in TIG welding?

- A. To establish a protective gas environment and prevent oxidation on the root.
- B. To vent excess gas before welding.
- C. To help arc initiation by cooling the tungsten.
- D. To verify gas purity after striking.

- 7. What is the purpose of pre-flow and post-flow gas in TIG welding?**
- A. Pre-flow protects the weld area before arc strike; post-flow protects the root and heat-affected zone after welding.
 - B. Pre-flow cools the torch; post-flow heats the weld.
 - C. Pre-flow cleans the filler metal; post-flow cleans the base metal.
 - D. Pre-flow adjusts the current; post-flow sets voltage.
- 8. Parts of the TIG torch that must be kept clean?**
- A. Cup (nozzle) and collet
 - B. Tungsten tip and tip guard
 - C. Gas hose and power lead
 - D. Cable and switch
- 9. Effect of DCEP in TIG welding?**
- A. Deep penetration but wide arc
 - B. Cleaning action with deep penetration
 - C. Cleaning action but shallow penetration
 - D. No effect on weld characteristics
- 10. What is a common technique to strike an arc in TIG welding without touching the metal?**
- A. Touch the tungsten to the workpiece with a firm tap.
 - B. Strike by tapping the electrode on a piece of copper.
 - C. Use a controlled arc start with a slight touch or lift-off and a short arc, often using a pre-flow and clean tungsten.
 - D. Strike by dipping the tungsten into molten pool.

Answers

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

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Explanations

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1. What does GTAW stand for?

- A. Gas Tungsten Arc Welding**
- B. Gas Tungsten Argon Welding
- C. Gas Tungsten Alloy Welding
- D. Gas Tungsten Anode Welding

Gas Tungsten Arc Welding describes a welding process that uses a non-consumable tungsten electrode to create an arc, with the weld zone protected by an inert shielding gas. Each word signals a fundamental part of the method: Gas refers to the shielding gas, Tungsten to the electrode material, Arc to the arc welding action, and Welding to the overall process. This combination precisely defines GTAW, which is also known as TIG welding. The other phrasings misrepresent either the electrode, the shielding gas, or the nature of the process (for example, naming only a gas or swapping in alloy/anode).

2. Which item is NOT listed among the essential PPE for TIG welding?

- A. Earplugs**
- B. Shaded helmet
- C. Gloves
- D. Safety glasses

Protecting eyes, face, and hands is essential when TIG welding because the arc emits intense light and UV radiation, plus heat and potential spatter. A shaded helmet is needed to view the weld safely while blocking the bright arc. Safety glasses provide eye protection when the helmet is lifted or for tasks that don't require the helmet. Gloves shield the hands from heat and electric shock and are a must. Ear protection like earplugs, while useful in a loud shop, isn't listed as essential PPE specific to TIG welding. Hearing protection depends on the noise level of the environment and isn't a hazard unique to the welding arc itself, so it isn't part of the core PPE set for TIG welding.

3. What is the purpose of ensuring a proper root opening and tight fit-up in a butt weld?

- A. To ensure sound penetration and minimize lack of fusion at the root.**
- B. To increase filler metal usage
- C. To decrease heat input
- D. To complicate setup

A proper root opening and tight fit-up ensure sound root fusion in a butt weld. When the joint faces are spaced correctly and held aligned, the GTAW arc can reach the root of the joint and fuse the base metals together across the entire thickness, producing full penetration at the root. This directly reduces the risk of lack of fusion, which is a weak point where the weld metal fails to fuse with the base metal at the root. A controlled root gap also helps maintain stable arc and shielding gas coverage at the root, which minimizes porosity and contamination. With good fit-up, the root bead fuses cleanly, often requiring less filler metal and rework. Poor fit-up—too large a gap or misalignment—increases the chance of incomplete root fusion, defects, and distortion, making the joint weaker.

4. What color is tungsten when it is lanthanated?

- A. Blue or gold
- B. Green or brown
- C. Red or purple
- D. White or gray

Color coding on tungsten electrodes identifies the dopant in the tip, which affects arc behavior. Lanthanated tungsten is doped with lanthanum oxide, and many manufacturers mark it with blue or gold on the electrode tip. This distinguishes it from pure tungsten (often green) and from thoriated tungsten (typically red). So, blue or gold is the sign that you're using lanthanated tungsten. The other color pairings correspond to different alloying or purity levels, not lanthanated.

5. Which protocol helps prevent tungsten overheating?

- A. Use proper amperage and maintain correct arc length
- B. Use excessive amperage and very long arc length
- C. Use very short travel speed regardless
- D. Use low shielding gas flow

Controlling heat input is how you prevent tungsten overheating in GTAW/TIG welding. The tungsten tip can overheat if you run too much current for its size or if the arc length is too long, which concentrates too much heat on the electrode. Using the proper amperage for the material and thickness and keeping the arc length short keeps the heat manageable at the tungsten, helps maintain a stable arc, and reduces the chance of tip balling or contamination. Excess amperage with a long arc dramatically increases heat in the electrode, leading to rapid overheating. Moving very slowly along the weld also raises heat input and can stress the tungsten and weld. Low shielding gas flow mainly risks contamination and porosity, not directly tungsten overheating, though it degrades overall weld quality.

6. Why should shielding gas begin flowing before arc strike in TIG welding?

- A. To establish a protective gas environment and prevent oxidation on the root.
- B. To vent excess gas before welding.
- C. To help arc initiation by cooling the tungsten.
- D. To verify gas purity after striking.

Starting shielding gas flow before the arc is struck is essential to create a protective blanket around the weld as soon as the arc begins. In TIG welding, the weld root and molten metal are highly reactive with air, so oxygen and nitrogen can quickly cause oxidation and porosity if they aren't shielded from the moment heat is applied. If gas is turned on only after striking the arc, that tiny initial moment leaves the metal unprotected, allowing oxidation to occur and compromising root quality. Keeping the gas flowing from the start ensures the tungsten and the weld pool are immediately shielded, improving root cleanliness, bead appearance, and overall weld integrity. The other options don't fit because shielding gas isn't used to vent, cool the tungsten, or verify gas purity after striking.

7. What is the purpose of pre-flow and post-flow gas in TIG welding?

- A. Pre-flow protects the weld area before arc strike; post-flow protects the root and heat-affected zone after welding.
- B. Pre-flow cools the torch; post-flow heats the weld.
- C. Pre-flow cleans the filler metal; post-flow cleans the base metal.**
- D. Pre-flow adjusts the current; post-flow sets voltage.

The main idea is that shielding gas protects the weld area from the atmosphere during the entire welding process. Running gas before striking the arc (pre-flow) purges air, moisture, and contaminants from the torch and around the joint so nothing oxidizes the weld as it starts. After the arc stops (post-flow), the gas continues to shield the weld pool and the heat-affected zone as they cool, preventing oxidation and porosity while the metal solidifies. This protection is what keeps the root and the weld bead clean and sound. The gas used is typically an inert one like argon (sometimes with helium for aluminum), and the flow is maintained at a moderate rate so the area stays shielded during and after welding.

8. Parts of the TIG torch that must be kept clean?

- A. Cup (nozzle) and collet**
- B. Tungsten tip and tip guard
- C. Gas hose and power lead
- D. Cable and switch

Keeping the cup (nozzle) and the collet clean is essential because these components directly affect shielding gas delivery and arc stability. The cup guides the shielding gas right to the weld area, so dirt or clogs can disrupt gas flow, cause turbulence, and allow air to reach the weld pool, leading to porosity and oxidation. The collet holds the tungsten electrode and also helps seal the gas path inside the torch; any debris here can prevent the tungsten from seating properly and can cause gas to leak or the arc to wander. Together, a clean cup and clean collet ensure a focused gas shield and a stable, clean arc, which are critical for a good TIG weld. The other parts mentioned are important for overall operation, but they don't influence the shielding gas path and arc in the same direct way.

9. Effect of DCEP in TIG welding?

- A. Deep penetration but wide arc
- B. Cleaning action with deep penetration
- C. Cleaning action but shallow penetration**
- D. No effect on weld characteristics

DCEP in TIG welding means the electrode is positive and the workpiece is negative. This polarity shifts heat toward the electrode, so less heat is delivered into the base metal, which tends to produce shallower penetration. At the same time, the positive polarity enhances the arc's ability to break up and remove surface oxides, giving a cleaning action on the weld surface. Metals with oxide films—like aluminum—benefit from this cleaning effect, helping achieve a cleaner weld interface. So the combination is a cleaning action with shallow penetration. If you need deeper fusion, you'd use a polarity that sends more heat into the workpiece (such as DCEN), but that reduces the cleaning action.

10. What is a common technique to strike an arc in TIG welding without touching the metal?

- A. Touch the tungsten to the workpiece with a firm tap.
- B. Strike by tapping the electrode on a piece of copper.
- C. Use a controlled arc start with a slight touch or lift-off and a short arc, often using a pre-flow and clean tungsten.
- D. Strike by dipping the tungsten into molten pool.

The main idea is to start the TIG arc cleanly without keeping the tungsten in hard contact with the workpiece. A common method is a controlled arc start using a slight touch or a quick lift-off, creating a short, stable arc while shielding gas is already flowing. This lift-off or light contact helps initiate the arc without dragging tungsten into the weld, and a pre-flow of shielding gas protects the weld area from the atmosphere right from the moment the arc starts. Keeping the tungsten clean and using a short initial arc minimizes contamination and tungsten inclusions, leading to a smoother start and better weld quality. Dipping the tungsten into the molten pool, tapping the tungsten on a copper piece, or tapping firmly on the workpiece can contaminate the electrode and cause defects, so they're not preferred methods.

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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://nebraskagawffatigwelding.examzify.com>

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

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