

GTAW WLD 150 Welding and Joining Practice Test (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

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- 1. The following statement is true or false: Most codes rely on ASME Section 1X and AWS D1.1 to describe the requirements for qualified welding procedures and welders.**
 - A. True**
 - B. Not Applicable**
 - C. Not Enough Information**
 - D. False**

- 2. Which steps are typical post-weld cleaning steps for stainless steel to avoid corrosion?**
 - A. Baked enamel coating after weld**
 - B. Only paint with rust-inhibiting paint**
 - C. Remove heat tint with solvent or pickling solution, rinse, and perform passivation to restore corrosion resistance; dry thoroughly.**
 - D. Quench in water to cool quickly.**

- 3. In hydrostatic testing, what medium fills and pressurizes the vessel?**
 - A. Air**
 - B. Oil**
 - C. Gas**
 - D. Water**

- 4. Tungsten inclusions are particles from a nonconsumable tungsten electrode that enter the weld.**
 - A. From a consumable electrode**
 - B. They originate from filler metal**
 - C. They are caused by porosity**
 - D. True**

- 5. Larger diameter filler metal is preferred to reduce heat input for reducing distortion.**
 - A. True**
 - B. False**
 - C. It depends on the alloy**
 - D. It has no effect**

- 6. Which process is useful when weld repair is too difficult or unsafe, such as in a storage tank with flammable vapors?**
- A. Blend grinding**
 - B. Plasma cutting**
 - C. Heavy welding**
 - D. Thermal spray**
- 7. Which action prevents insufficient penetration due to weld metal running ahead of the arc?**
- A. Lowering the current**
 - B. Increasing the current**
 - C. Slowing the travel speed**
 - D. Changing the electrode angle**
- 8. In a hydrostatic test, closed containers are filled with water and a predetermined test pressure is applied. What is the test medium?**
- A. Pneumatic**
 - B. Open vessels**
 - C. Cryogenic**
 - D. Water**
- 9. Which polarity provides deeper penetration and is typically used for most steel welding?**
- A. DCEN (electrode negative)**
 - B. DCEP**
 - C. AC**
 - D. DC balance**
- 10. The following statement is true or false: Failure analysis provides an accurate explanation of the cause of a failure or loss of performance.**
- A. Not Applicable**
 - B. Not Enough Information**
 - C. False**
 - D. True**

Answers

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

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Explanations

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1. The following statement is true or false: Most codes rely on ASME Section 1X and AWS D1.1 to describe the requirements for qualified welding procedures and welders.

- A. True**
- B. Not Applicable**
- C. Not Enough Information**
- D. False**

Welding procedure qualification and welder qualification are governed by well-established standards, with ASME Section IX providing the specific requirements for qualifying welding procedures and welders, and AWS D1.1 (the Structural Welding Code) offering detailed qualification criteria for structural welders and procedures. These two standards are widely adopted or referenced across many codes, so they form the common basis used to describe and verify qualification in a broad range of projects. That's why the statement is true.

2. Which steps are typical post-weld cleaning steps for stainless steel to avoid corrosion?

- A. Baked enamel coating after weld**
- B. Only paint with rust-inhibiting paint**
- C. Remove heat tint with solvent or pickling solution, rinse, and perform passivation to restore corrosion resistance; dry thoroughly.**
- D. Quench in water to cool quickly.**

Post-weld cleaning for stainless steel centers on restoring the corrosion-resistant passive film after welding. Welding creates heat tint, a colored oxide layer that signals oxidation of the surface. If this tint isn't removed, it can be porous and trap contaminants, compromising corrosion resistance. The best steps are to remove that heat tint with a solvent or a stainless-steel-specific pickling solution, rinse away residues, and then passivate to reform the chromium-rich oxide film that protects the surface. Drying thoroughly ensures moisture isn't left that could start corrosion. Other options don't rebuild the protective layer. Coatings like baked enamel or rust-inhibiting paint can interfere with weld integrity or adhesion and don't restore the native stainless surface. Quick cooling with water doesn't address the oxide layer and can introduce stresses or other issues without reestablishing corrosion resistance.

3. In hydrostatic testing, what medium fills and pressurizes the vessel?

- A. Air
- B. Oil
- C. Gas**
- D. Water

In hydrostatic testing, the vessel is filled with a liquid and then pressurized to check for leaks and structural strength. The usual medium is water because it is essentially incompressible, which means pressure readings reflect actual stress on the walls and leaks show up clearly as water escaping. Water is safe, inexpensive, and easy to drain and inspect after the test, making it practical for validating that the vessel can withstand the intended pressure without failure. Gas, on the other hand, is used for pneumatic testing, where the medium is air or another gas; compressibility and energy release in a gas test introduce different hazards and measurement considerations. So, the medium used to fill and pressurize the vessel in hydrostatic testing is water.

4. Tungsten inclusions are particles from a nonconsumable tungsten electrode that enter the weld.

- A. From a consumable electrode
- B. They originate from filler metal
- C. They are caused by porosity
- D. True**

In GTAW, you use a nonconsumable tungsten electrode to establish the arc while filler metal is added separately. Occasionally, tiny particles of tungsten can shed from the electrode and get carried into the molten weld pool, becoming trapped as the weld cools. These are solid inclusions, distinct from porosity (gas pockets) and from filler metal, which is added separately. So the statement is correct: tungsten inclusions are particles from a nonconsumable tungsten electrode that enter the weld. Preventive steps include keeping the electrode clean, avoiding contact with the work and using proper amperage and technique to minimize electrode wear.

5. Larger diameter filler metal is preferred to reduce heat input for reducing distortion.

- A. True
- B. False**
- C. It depends on the alloy
- D. It has no effect

Heat input is governed by voltage, current, travel speed, and process efficiency. The filler metal diameter does not directly determine heat input; in fact, a larger filler wire typically requires more current to melt and deposit properly, which can increase heat input and potentially raise distortion. Distortion is more effectively controlled by adjusting welding parameters to lower heat input per unit length and by technique (shorter beads, back-stepping, proper fixturing, or preheating when appropriate). The filler diameter mainly affects deposition rate and bead geometry, not the inherent heat input of the weld.

6. Which process is useful when weld repair is too difficult or unsafe, such as in a storage tank with flammable vapors?

- A. Blend grinding**
- B. Plasma cutting**
- C. Heavy welding**
- D. Thermal spray**

In environments with flammable vapors, the safest repair approach is to avoid heat and sparks and finish the surface mechanically. Blend grinding uses abrasive action to remove or smooth defects and blend the repaired area into the surrounding metal without melting or fusing material. This non-thermal method minimizes ignition risk and fumes compared to welding, cutting, or applying thermal coatings. The other options rely on heat or burning processes and would introduce heat input, sparks, or high-temperature deposition, which are unsafe in a storage-tank atmosphere.

7. Which action prevents insufficient penetration due to weld metal running ahead of the arc?

- A. Lowering the current**
- B. Increasing the current**
- C. Slowing the travel speed**
- D. Changing the electrode angle**

In GTAW, penetration comes from keeping the arc heating the weld root rather than letting the molten pool races ahead. When the weld metal runs ahead of the arc, the pool forms faster than the arc can heat the joint at its interface, so root fusion is insufficient. Lowering the current reduces heat input, which slows the rate at which the pool forms and advances. With less heat driving the molten metal forward, the arc can stay aligned with the advancing edge of the pool and continue heating the joint where penetration is needed. This helps achieve better root penetration because the arc and pool stay synchronized rather than the pool outrunning the arc. Increasing current would typically increase the pool size and could push the molten metal even farther ahead, worsening the issue. Slowing travel speed or changing the electrode angle can influence heat distribution and arc focus, but they don't address the fundamental problem of the pool outrunning the arc as directly as reducing current does in this scenario.

8. In a hydrostatic test, closed containers are filled with water and a predetermined test pressure is applied. What is the test medium?

- A. Pneumatic**
- B. Open vessels**
- C. Cryogenic**
- D. Water**

Liquids are used in hydrostatic testing because they are nearly incompressible, so applying pressure to a filled liquid transmits it uniformly through the entire container. This creates a stable, predictable pressure rise that reveals leaks or weaknesses without large volume changes. Water is the standard test medium: it is safe, inexpensive, readily available, and nonflammable. Using a pneumatic medium (gas) would be problematic because gases compress under pressure, making the pressure hard to control and potentially masking defects. Cryogenic conditions add unnecessary risk and complexity for routine testing. Therefore, the test medium in this hydrostatic setup is water.

9. Which polarity provides deeper penetration and is typically used for most steel welding?

- A. DCEN (electrode negative)**
- B. DCEP**
- C. AC**
- D. DC balance**

In TIG welding, where heat goes depends on polarity. When the electrode is negative (DCEN), electrons move from the electrode to the workpiece, so most of the arc heat is delivered into the workpiece. That concentration of heat into the steel produces deeper penetration, which is why this setting is typically used for most steel welds. Using the electrode positive (DCEP) shifts more heat into the electrode itself, resulting in shallower penetration and faster electrode wear, not ideal for common steel welds. AC is used mainly for nonferrous metals like aluminum and to help break up oxide layers, not for maximizing penetration on steel. DC balance is an adjustment within AC that changes how much time the arc spends negative versus positive, so it doesn't define penetration the way a straight polarity does. So, electrode negative (DCEN) provides the deeper penetration and is most common for welding steel.

10. The following statement is true or false: Failure analysis provides an accurate explanation of the cause of a failure or loss of performance.

- A. Not Applicable**
- B. Not Enough Information**
- C. False**
- D. True**

Failure analysis is about uncovering why a component failed by gathering evidence from the failed part, its service conditions, and processing history, then using metallurgical and mechanical testing to identify the exact failure mechanism. With proper data and methods, this approach connects what was observed in the fracture or flaw to a specific cause—such as overload, fatigue, brittle fracture, hydrogen-assisted cracking, corrosion, porosity or defects in the weld, or design or procedure issues—and explains how the failure progressed under service. The goal is an accurate, evidence-based explanation that not only identifies the root cause but also informs corrective actions to prevent recurrence and improve reliability. Of course, if information is lacking, conclusions may be limited, and analysts may note that not enough information exists to determine a cause. When the information is sufficient, the explanation is typically reliable and actionable.

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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://gtawwld150weldingjoining.examzify.com>

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

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