

# Alberta Welding AIT First Year Practice Exam (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. Overexposure to which harmful light ray may cause permanent eye damage in the form of cataracts?**
  - A. Ultraviolet**
  - B. Laser**
  - C. Infrared**
  - D. X-ray**
  
- 2. Which of the following is not a component of an air-cooled GMAW welding gun?**
  - A. Gas diffuser**
  - B. Contact tip**
  - C. Electrode**
  - D. Insulator**
  
- 3. How much electrode stickout is recommended when using gas shielded FCAW with 1.2 mm (0.045") wire?**
  - A. 5 mm to 10 mm**
  - B. 10 mm to 19 mm**
  - C. 20 mm to 30 mm**
  - D. 30 mm to 40 mm**
  
- 4. What is one advantage of Gas Metal Arc Welding (GMAW)?**
  - A. It produces stronger welds**
  - B. It allows for faster welding speeds**
  - C. It requires less training**
  - D. It uses less filler material**
  
- 5. What role does preheating serve before welding?**
  - A. To enhance the mechanical properties of the weld**
  - B. To reduce the amount of filler required**
  - C. To prevent distortion in thin materials**
  - D. To increase the cooling rate**

**6. What is a common safety precaution when using welding equipment?**

- A. Wearing loose clothing**
- B. Using hand reflectors**
- C. Not wearing gloves**
- D. Wearing protective eyewear**

**7. What are the first aid requirements for high hazard work at a close work site with 5 to 9 workers per shift?**

- A. 1 Emergency First Aider, 1 Standard First Aider, No. 2 First Aid Kit**
- B. 1 Emergency First Aider, 2 Standard First Aiders, No. 2 First Aid Kit**
- C. 2 Emergency First Aiders, 1 Standard First Aider, No. 1 First Aid Kit**
- D. 1 Emergency First Aider, 1 Advanced First Aider, No. 2 First Aid Kit**

**8. Which practice leads to better arc stability in welding?**

- A. Using a larger electrode than necessary**
- B. Maintaining a consistent travel speed**
- C. Choosing a low-amperage setting**
- D. Welding in high wind conditions**

**9. When using Direct Current Electrode Positive (DCEP), where is 2/3 of the arc energy concentrated?**

- A. Base metal**
- B. Electrode tip**
- C. Surrounding atmosphere**
- D. Weld pool**

**10. Which Part and Section of the OHS Code covers protective footwear requirements?**

- A. Part 18, Section 233**
- B. Part 29, Section 397**
- C. Part 5, Section 123**
- D. Part 14, Section 200**

## **Answers**

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

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## **Explanations**

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**1. Overexposure to which harmful light ray may cause permanent eye damage in the form of cataracts?**

- A. Ultraviolet**
- B. Laser**
- C. Infrared**
- D. X-ray**

The correct response centers around ultraviolet (UV) light as the primary concern for human eye health, particularly in relation to cataract formation. Ultraviolet rays are part of the electromagnetic spectrum emitted by the sun and are known for their ability to cause biological damage, particularly in the eyes. Prolonged or intense exposure to UV rays can lead to changes in the lens of the eye, resulting in cataracts, which cloud the lens and impair vision. Cataracts develop when the proteins in the lens of the eye start to break down due to UV exposure, leading to an increased opacity of the lens. This process can continue over time and potentially lead to significant vision impairment if left untreated. Protective measures, such as wearing UV-blocking sunglasses or helmets with face shields, are important for individuals working in environments where they might be exposed to intense UV light. The other forms of light mentioned, such as laser, infrared, and X-ray, do have their own risks and health concerns. However, they do not commonly cause cataracts in the same way UV rays do. Laser light can cause damage to the retina and other parts of the eye, while infrared radiation primarily generates heat and may contribute to discomfort rather than cataract formation. X-rays, on

**2. Which of the following is not a component of an air-cooled GMAW welding gun?**

- A. Gas diffuser**
- B. Contact tip**
- C. Electrode**
- D. Insulator**

In the context of air-cooled Gas Metal Arc Welding (GMAW) welding guns, the components play specific roles in the welding process. The gas diffuser is critical as it directs the shielding gas around the weld area, which protects the molten weld pool from contamination. The contact tip is essential for conducting electrical current to the welding wire, allowing it to melt and fuse with the workpiece. The insulator serves to protect the components and the welder from electrical shock by preventing contact between live parts and the operator. The electrode, in this case, is not a physical component of the air-cooled GMAW welding gun itself. Rather, it refers to the consumable filler metal (often in the form of welding wire) that is fed through the gun and melts to become part of the weld. While the electrode is a crucial element in the GMAW process, it does not belong as a component of the welding gun assembly. This distinction clarifies why the electrode is considered the correct answer for the component that is not part of an air-cooled GMAW welding gun.

**3. How much electrode stickout is recommended when using gas shielded FCAW with 1.2 mm (0.045") wire?**

- A. 5 mm to 10 mm**
- B. 10 mm to 19 mm**
- C. 20 mm to 30 mm**
- D. 30 mm to 40 mm**

When using gas shielded flux-cored arc welding (FCAW) with 1.2 mm (0.045") wire, a recommended electrode stickout of 10 mm to 19 mm allows for optimal arc stability and heat input during welding. This range helps maintain the proper balance between the amount of shielding gas that protects the weld pool and the heat required for melting the wire and base material. A stickout that is too short may not provide sufficient shielding gas coverage, which can lead to issues like porosity and inadequate protection from contaminants. Conversely, excessive stickout can cause instability in the arc and can lead to increased spatter and a less controlled weld pool. Choosing the right stickout is crucial for achieving good penetration, bead appearance, and overall weld quality. Therefore, sticking to the recommended range ensures better control and results in the welding process. This understanding of electrode stickout impacts the quality and integrity of the weld, which is vital in any welding application.

**4. What is one advantage of Gas Metal Arc Welding (GMAW)?**

- A. It produces stronger welds**
- B. It allows for faster welding speeds**
- C. It requires less training**
- D. It uses less filler material**

One significant advantage of Gas Metal Arc Welding (GMAW) is that it allows for faster welding speeds. This is largely due to the continuous feeding of the filler wire combined with the use of shielding gas, which helps maintain a stable arc and reduces the need for pauses in work. The process is generally more efficient than many other welding methods, allowing for higher productivity and the ability to complete welds in a shorter amount of time. This speed can be particularly beneficial in production environments where time and efficiency are critical factors.

## 5. What role does preheating serve before welding?

- A. To enhance the mechanical properties of the weld**
- B. To reduce the amount of filler required**
- C. To prevent distortion in thin materials**
- D. To increase the cooling rate**

Preheating serves a crucial function in the welding process, specifically to enhance the mechanical properties of the weld. When materials are welded, the rapid heating and cooling can lead to several issues, such as hardening and cracking in the heat-affected zone (HAZ). Preheating the base metal increases its temperature before welding, which helps to relieve internal stresses and allows for a more gradual cooling process. This gradual cooling can significantly improve the properties of the weld, such as toughness and ductility, reducing the likelihood of brittle failure. Moreover, preheating can enhance the fusion between the base metal and the filler material, leading to a stronger joint overall. This is particularly important when welding high-strength steels or materials that are susceptible to hydrogen-induced cracking. The improvement in mechanical properties ensures that the weld will perform better under operational stresses and conditions, extending the life of the welded structure. In contrast, the other options do not accurately reflect the primary purpose of preheating. While reducing distortion in thin materials is a benefit associated with preheating, it is not its main role. Similarly, preheating wouldn't specifically reduce the amount of filler metal required or increase the cooling rate, as these are influenced more by the welding technique and settings rather

## 6. What is a common safety precaution when using welding equipment?

- A. Wearing loose clothing**
- B. Using hand reflectors**
- C. Not wearing gloves**
- D. Wearing protective eyewear**

Wearing protective eyewear is essential when using welding equipment because it guards against harmful radiation, flying sparks, and debris that can cause serious eye injuries. Welding produces intense ultraviolet and infrared light, which can lead to conditions such as flash burns or permanent damage to the retina. Proper protective eyewear, such as welding goggles or helmets with appropriate filters, helps ensure that the welder's eyes are shielded from these dangers. In a welding environment, it is crucial to prioritize eye safety, as the eyes are particularly vulnerable to both immediate injuries from flying particles and long-term damage from exposure to harmful light. This precaution is a fundamental aspect of safety protocols in welding practices to maintain the health and well-being of workers.

**7. What are the first aid requirements for high hazard work at a close work site with 5 to 9 workers per shift?**

- A. 1 Emergency First Aider, 1 Standard First Aider, No. 2 First Aid Kit**
- B. 1 Emergency First Aider, 2 Standard First Aiders, No. 2 First Aid Kit**
- C. 2 Emergency First Aiders, 1 Standard First Aider, No. 1 First Aid Kit**
- D. 1 Emergency First Aider, 1 Advanced First Aider, No. 2 First Aid Kit**

The first aid requirements for high hazard work environments are structured to ensure that there is sufficient medical assistance available in case of an emergency. In a close work site with 5 to 9 workers per shift, having 1 Emergency First Aider and 1 Standard First Aider provides a good balance of initial response capabilities. The Emergency First Aider is equipped to handle immediate life-threatening situations and can provide critical first aid until more advanced medical help arrives, while the Standard First Aider can manage other, less severe injuries and support the Emergency First Aider. The specification of a No. 2 First Aid Kit indicates that it must have comprehensible supplies suitable for a more hazardous environment, aligning with the needs of the workers present. This combination of first aid personnel ensures that there is backup available for various emergency situations, prioritizing worker safety in high hazard conditions. This configuration aligns with industry standards, which require a mix of training levels in first aid to cater to the different potential emergencies that could arise, ensuring that the response is adequate for the number of workers on-site.

**8. Which practice leads to better arc stability in welding?**

- A. Using a larger electrode than necessary**
- B. Maintaining a consistent travel speed**
- C. Choosing a low-amperage setting**
- D. Welding in high wind conditions**

Maintaining a consistent travel speed is crucial for achieving better arc stability in welding. When the travel speed is uniform, it allows for a more controlled welding process. This consistency helps to maintain the proper heat input, ensures a uniform bead appearance, and minimizes the likelihood of defects such as spatter or undercutting. In essence, a steady speed contributes to a more stable arc by allowing the welder to effectively manage the heat and filler material being applied. The other practices mentioned can introduce variability and may compromise arc stability. For instance, using a larger electrode than necessary can lead to excessive heat input and potential difficulties in controlling the weld pool. A low-amperage setting might not provide sufficient heat for penetration, leading to an erratic arc. Additionally, welding in high wind conditions can disrupt the shielding gas coverage, causing instability in the arc and increasing the likelihood of contamination in the weld. Thus, opting for a consistent travel speed remains the most effective method for enhancing arc stability.

**9. When using Direct Current Electrode Positive (DCEP), where is 2/3 of the arc energy concentrated?**

- A. Base metal**
- B. Electrode tip**
- C. Surrounding atmosphere**
- D. Weld pool**

In the context of welding using Direct Current Electrode Positive (DCEP), 2/3 of the arc energy is concentrated at the base metal. This is a fundamental principle in welding that highlights how DCEP operates. When using DCEP, the polarity causes the majority of the welding current to flow from the electrode to the workpiece, which is the base metal. This results in a high concentration of heat being transferred to the base metal, enabling better penetration and fusion during the welding process. The intense heat at the base metal facilitates the melting of both the electrode and the workpiece, which is essential for creating a strong weld. Understanding this concept is crucial for welders, as it emphasizes the importance of selecting the correct polarity depending on the desired weld characteristics. With DCEP, the focus on heating the base metal enhances the overall efficiency of the welding operation and contributes to achieving quality welds with strong bonding.

**10. Which Part and Section of the OHS Code covers protective footwear requirements?**

- A. Part 18, Section 233**
- B. Part 29, Section 397**
- C. Part 5, Section 123**
- D. Part 14, Section 200**

The correct choice regarding protective footwear requirements can be found in Part 18, Section 233 of the Occupational Health and Safety (OHS) Code. This section specifically addresses the criteria and standards for protective footwear, which is essential for ensuring worker safety in environments where there are risks of foot injuries from heavy objects, sharp items, or exposure to hazardous materials. Protective footwear must adhere to specific design and performance standards to effectively mitigate these risks and is a crucial component of personal protective equipment (PPE) on job sites. Understanding and being able to reference this section allows workers and employers to comply with safety regulations, thereby promoting a safe working environment. The other parts and sections mentioned do not pertain to protective footwear. Each of those sections addresses different safety regulations or standards that are not specifically focused on footwear, highlighting the need for clear and specific guidance within the OHS Code.

# 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](mailto:hello@examzify.com).**

**Or visit your dedicated course page for more study tools and resources:**

**<https://abweldingait1styr.examzify.com>**

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

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