

Canadian Welding Bureau (CWB) Level II 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. Which toxic gas is produced when welding on surfaces with chlorinated hydrocarbon solvents?**
 - A. Phosgene gas**
 - B. Chlorine gas**
 - C. Carbon Dioxide**
 - D. Formaldehyde**

- 2. At what angle of a T-joint is fillet weld now considered a partial joint penetration groove?**
 - A. 60°**
 - B. 45°**
 - C. 90°**
 - D. 30°**

- 3. What common application is stainless steel often used for due to its corrosion resistance?**
 - A. Welding rods**
 - B. Cooking utensils**
 - C. Electrical wiring**
 - D. Automobile frames**

- 4. In an X-ray setup, increasing the voltage _____ the wavelength.**
 - A. Increases**
 - B. Decreases**
 - C. Stabilizes**
 - D. Has no effect on**

- 5. Does low-carbon steel undergo any major changes to its microstructure when given a stress-relief treatment at 625° Celsius?**
 - A. Yes, it will change significantly**
 - B. No, it requires a higher temperature**
 - C. Yes, minor changes only**
 - D. No, it remains unchanged**

- 6. According to CSA W47.1, a Class V Welder is permitted to weld:**
- A. vertical position only**
 - B. all positions**
 - C. flat, horizontal and vertical positions**
 - D. vertical and flat positions only**
- 7. Which type of welding has a maximum arc efficiency of approximately 90%?**
- A. GTAW**
 - B. SMAW**
 - C. SAW**
 - D. FCAW**
- 8. What is the major load used in the Rockwell C Scale?**
- A. 100kg**
 - B. 150kg**
 - C. 200kg**
 - D. 300kg**
- 9. What is the term used to describe the loss of corrosion resistance due to the formation of carbides at grain boundaries in certain stainless steels?**
- A. Oxidization**
 - B. Increased toughness**
 - C. Solution heat treatment**
 - D. Sensitization**
- 10. What type of electrode is recommended for welding austenitic stainless steel?**
- A. An electrode similar to the base metal**
 - B. A standard carbon steel electrode**
 - C. A high-strength filler metal**
 - D. Any available electrode**

Answers

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

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Explanations

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1. Which toxic gas is produced when welding on surfaces with chlorinated hydrocarbon solvents?

- A. Phosgene gas**
- B. Chlorine gas**
- C. Carbon Dioxide**
- D. Formaldehyde**

When welding on surfaces that have been treated with chlorinated hydrocarbon solvents, phosgene gas is produced as a toxic byproduct. This occurs due to the thermal decomposition of these solvents under the high temperatures generated during the welding process. Phosgene is particularly dangerous; it is colorless, has a musty or hay-like odor, and can cause severe respiratory issues and other health problems upon exposure. The formation of phosgene makes it critical for welders to ensure adequate ventilation and employ appropriate personal protective equipment (PPE) when working in such environments to minimize the risk of inhalation. Understanding the chemical reactions that occur during welding operations is essential for maintaining safety and preventing toxic gas exposure.

2. At what angle of a T-joint is fillet weld now considered a partial joint penetration groove?

- A. 60°**
- B. 45°**
- C. 90°**
- D. 30°**

In the context of welding, particularly with T-joints, the angle at which the two pieces of material meet can significantly influence the type of weld considered appropriate or effective. When the angle between the two members approaches 60 degrees, the weld's profile can no longer be adequately filled with a standard fillet weld, as the geometry of the joint becomes more complex. At approximately 60 degrees, the T-joint starts to resemble a configuration where the weld must penetrate both pieces more deeply to ensure strong adhesion and structural integrity. This structural requirement leads to the consideration of it as a partial joint penetration groove weld. It necessitates different welding techniques or approaches, such as deeper grooves or specific welding positions, to ensure that the joint is effectively penetrated and joined correctly. Understanding the transition from a simple fillet weld to a partial joint penetration groove weld at this angle is key for weld integrity. Proper identification of when to adopt this more complex welding method is crucial for achieving the desired strength and durability in welded joints.

3. What common application is stainless steel often used for due to its corrosion resistance?

A. Welding rods

B. Cooking utensils

C. Electrical wiring

D. Automobile frames

Stainless steel is commonly used for cooking utensils primarily due to its excellent corrosion resistance and resistance to staining, which is a critical factor in kitchen environments where contact with moisture and acidic foods is frequent. The alloy contains chromium, which forms a passive layer of chromium oxide on the surface, protecting the underlying metal from oxidation and corrosion. This quality makes stainless steel an ideal material for pots, pans, cutlery, and other cooking utensils that require durability, sanitation, and resistance to rust and corrosion over time. Cooking utensils made from stainless steel are also easy to clean and maintain, ensuring hygiene, which is particularly important in food preparation. Unlike other materials that may corrode or leach harmful substances into food, stainless steel provides a safe and long-lasting option for culinary applications.

4. In an X-ray setup, increasing the voltage _____ the wavelength.

A. Increases

B. Decreases

C. Stabilizes

D. Has no effect on

In an X-ray setup, increasing the voltage decreases the wavelength of the emitted X-rays. This relationship is fundamentally based on the physics of X-ray production. When electrons are accelerated through a higher voltage, they gain more kinetic energy. Upon colliding with the target material in the X-ray tube, this energy is converted to electromagnetic radiation in the form of X-rays. According to the principles of wave-particle duality in physics, the energy of the emitted X-ray photons is inversely related to their wavelength. The higher the energy (which increases with higher voltage), the shorter the wavelength of the X-rays produced. This occurs because the energy of a photon can be described by the equation $E = h * f$, where E is energy, h is Planck's constant, and f is frequency. Since frequency and wavelength are inversely related (as expressed in the equation $c = \lambda * f$, where c is the speed of light and λ is wavelength), an increase in frequency (resulting from the increase in energy) directly leads to a decrease in wavelength. Therefore, when voltage is increased in an X-ray setup, the wavelength of the emitted X-rays decreases, making this the correct answer.

5. Does low-carbon steel undergo any major changes to its microstructure when given a stress-relief treatment at 625° Celsius?

A. Yes, it will change significantly

B. No, it requires a higher temperature

C. Yes, minor changes only

D. No, it remains unchanged

Low-carbon steel typically requires higher temperatures for significant microstructural changes to occur during stress-relief treatment. When subjected to stress-relief treatment, the goal is to alleviate internal stresses that have developed during processes like welding, machining, or shaping. This is often accomplished through heating the steel to a temperature range that allows for the relaxation of these stresses without significantly altering the microstructure. For low-carbon steel, temperatures that are generally effective for stress relief are typically in the range of 600 to 700°C. However, if the temperature is too low, such as at 625°C, the treatment may not be sufficient to cause substantial effects. While heating to this temperature may help reduce some residual stress, it is not high enough to induce important changes in the microstructure, such as recrystallization or phase transformation. Significant changes generally require temperatures above 650°C, making it crucial for achieving more notable alterations in the grain structure and properties of the steel. This understanding of stress-relief treatment highlights the importance of temperature in achieving desired outcomes in materials processing, particularly for low-carbon steels where microstructural stability is a key consideration.

6. According to CSA W47.1, a Class V Welder is permitted to weld:

A. vertical position only

B. all positions

C. flat, horizontal and vertical positions

D. vertical and flat positions only

A Class V Welder, as defined by CSA W47.1, is qualified to weld in all positions. This classification indicates that the welder possesses the skills and knowledge necessary to perform welding tasks not just in a restrictive manner but across various orientations including flat, horizontal, vertical, and overhead. Welding in all positions is particularly significant in industry as it denotes flexibility and capability to handle diverse welding scenarios, which could be encountered on different job sites. Given that Class V credentials cover a broader range of welding positions, it reflects a higher level of proficiency and adaptability compared to lower classifications that might limit the welder to specific orientations only. Thus, the selection that states a welder is permitted to work in flat, horizontal, and vertical positions captures the essence of a Class V Welder's qualifications, affirming their competency in a variety of welding challenges presented in real-world applications.

7. Which type of welding has a maximum arc efficiency of approximately 90%?

- A. GTAW**
- B. SMAW**
- C. SAW**
- D. FCAW**

The correct answer is based on the characteristics of Submerged Arc Welding (SAW), which is known for having a high arc efficiency, typically around 90%. Arc efficiency refers to the percentage of electrical energy that is converted into useful heat by the welding arc in the welding process. In the case of SAW, the arc is submerged beneath a layer of granular flux, which not only protects the weld from contamination but also helps in maximizing heat utilization during the welding process. This results in a minimal loss of heat to the surrounding environment, thereby allowing for a higher input to the weld compared to other welding processes. The high efficiency also contributes to the production of high-quality welds at faster deposition rates, making SAW particularly beneficial for thick materials and larger fabrication tasks. In comparison, other welding processes like GTAW (Gas Tungsten Arc Welding), SMAW (Shielded Metal Arc Welding), and FCAW (Flux-Cored Arc Welding) generally exhibit lower arc efficiencies due to factors like increased heat loss and lower heat utilization during the welding process. This distinction emphasizes why SAW is uniquely identified for its high performance in terms of arc efficiency.

8. What is the major load used in the Rockwell C Scale?

- A. 100kg**
- B. 150kg**
- C. 200kg**
- D. 300kg**

In the Rockwell C Scale, the major load used is 150 kg. The Rockwell hardness test is a common method of measuring the hardness of materials, particularly metals. This scale utilizes a diamond indenter to penetrate the surface of the material under a specified load. The major load of 150 kg is crucial because it produces sufficient pressure to measure hardness in harder materials without causing excessive deformation. The depth of indentation left by the indenter is then measured, and the Rockwell hardness number is determined based on that depth. Understanding the specific load used in different Rockwell scales is essential for accurate hardness testing and comparison between materials. Other loads, like 100 kg or 200 kg, are used in other Rockwell scales (like B or E), which are suitable for softer materials or varying types of testing. However, for the specific application of the Rockwell C Scale targeting harder materials, the use of 150 kg is the established standard.

9. What is the term used to describe the loss of corrosion resistance due to the formation of carbides at grain boundaries in certain stainless steels?

- A. Oxidization**
- B. Increased toughness**
- C. Solution heat treatment**
- D. Sensitization**

The term that describes the loss of corrosion resistance due to the formation of carbides at grain boundaries in certain stainless steels is sensitization. This phenomenon typically occurs in austenitic stainless steels when they are exposed to temperatures between about 800°F (427°C) and 1500°F (816°C). In this temperature range, chromium carbide can form at the grain boundaries, which depletes the surrounding areas of chromium, a key element that contributes to corrosion resistance. As a result, the affected areas become more susceptible to corrosion and localized attack, such as intergranular corrosion. Understanding sensitization is crucial for welders and metallurgists working with stainless steels, as it impacts the material's performance and lifespan in corrosive environments. Proper heat treatment and control during welding processes can help mitigate sensitization, ensuring the integrity of the stainless steel material is maintained.

10. What type of electrode is recommended for welding austenitic stainless steel?

- A. An electrode similar to the base metal**
- B. A standard carbon steel electrode**
- C. A high-strength filler metal**
- D. Any available electrode**

The recommended practice for welding austenitic stainless steel is to use an electrode that is similar to the base metal. This approach ensures compatibility between the filler material and the base metal, which is crucial for maintaining the desired properties of the weld joint. Austenitic stainless steels, such as those in the 300 series (e.g., 304 or 316), have specific chemical compositions and mechanical properties that must be preserved during the welding process. Using a filler material with a similar composition helps in achieving a weld that maintains corrosion resistance, strength, and ductility. In contrast, other options do not support the integrity of the weld. A standard carbon steel electrode would introduce carbon into the stainless steel, which could lead to issues such as carbide precipitation and reduced corrosion resistance. High-strength filler metals may not align with the properties of austenitic stainless steel, potentially resulting in undesirable stress and performance outcomes. Selecting "any available electrode" would also lead to uncontrolled variables in the weld quality, which is not advisable in professional welding practices. Therefore, using an electrode similar to the base metal is the best approach to achieve optimal results when welding austenitic stainless steel.

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://cwblevel2.examzify.com>

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

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