

GROUNDING AND BONDING LEVEL 1 PRACTICE TEST (SAMPLE)

STUDY GUIDE



**SAMPLE STUDY GUIDE
WITH LIMITED QUESTIONS**

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

<https://groundingbondinglvl1.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 type of fittings are permitted to isolate an equipment enclosure from a metal raceway?**
 - A. Plastic raceway fittings
 - B. Listed nonmetallic raceway fittings
 - C. Metallic raceway connectors
 - D. Threaded metal fittings
- 2. When installing fittings for electrical metallic tubing, how should they be positioned?**
 - A. In a haphazard manner without specific guidelines
 - B. Installed tightly using loose tools
 - C. Installed in a neat and workmanlike manner, listed
 - D. Any positioning is acceptable if fittings are available
- 3. What type of protection is required for a 6 AWG or larger copper grounding electrode conductor exposed to physical damage?**
 - A. Reinforced thermosetting resin conduit
 - B. Non-metallic flexible conduit
 - C. Metallic conduit
 - D. Rigid PVC conduit
- 4. Which conductor is purposefully connected to the ground in a grounded electrical system?**
 - A. Ungrounded conductor
 - B. Equipment grounding conductor
 - C. Grounded conductor
 - D. Phase conductor
- 5. What is the minimum size for equipment grounding conductors required in most installations?**
 - A. 14 AWG
 - B. 8 AWG
 - C. 6 AWG
 - D. 10 AWG

- 6. Which of the following terms is used to describe a size of a grounding electrode conductor?**
- A. KCMIL
 - B. AWG
 - C. VAM
 - D. OCPD
- 7. What is the acceptable maximum resistance a grounding electrode should have?**
- A. 10 Ohms
 - B. 25 Ohms
 - C. 50 Ohms
 - D. 100 Ohms
- 8. The grounding electrode network for a lightning protection system can be used for the electrical service supplying a building only when:**
- A. There are other electrodes present
 - B. No other electrodes are available
 - C. The system is outdated
 - D. Local codes permit it
- 9. Can rebar extensions that exit from concrete as a concrete-encased electrode be exposed to the earth without corrosion protection?**
- A. True
 - B. False
 - C. It depends on the environment
 - D. Only if coated with a special paint
- 10. For bonding jumpers, which type of connection is usually required?**
- A. Loose connection
 - B. Welded connection
 - C. Secure and permanent connection
 - D. Temporary connection

Answers

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

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Explanations

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1. What type of fittings are permitted to isolate an equipment enclosure from a metal raceway?

- A. Plastic raceway fittings
- B. Listed nonmetallic raceway fittings**
- C. Metallic raceway connectors
- D. Threaded metal fittings

The correct answer, listed nonmetallic raceway fittings, is permitted to isolate an equipment enclosure from a metal raceway due to their nonconductive properties. This isolation is crucial for ensuring electrical safety, as it prevents the possibility of unintended electrical paths that could lead to ground faults or electric shock. Nonmetallic fittings effectively separate the equipment from the conductive metal raceway, allowing for safer installation in environments where electrical interference or hazards may be a concern. In contrast, plastic raceway fittings may not have the same degree of functionality or certification as listed nonmetallic fittings, potentially leading to non-compliance with safety standards. Metallic raceway connectors and threaded metal fittings do not provide isolation, as they are conductive and could facilitate a direct electrical path between the enclosure and the raceway, thereby increasing the risk of electrical issues. Therefore, the use of listed nonmetallic raceway fittings is the appropriate choice for isolating equipment in a safe and effective manner.

2. When installing fittings for electrical metallic tubing, how should they be positioned?

- A. In a haphazard manner without specific guidelines
- B. Installed tightly using loose tools
- C. Installed in a neat and workmanlike manner, listed**
- D. Any positioning is acceptable if fittings are available

When installing fittings for electrical metallic tubing (EMT), the fittings should be installed in a neat and workmanlike manner, and they must comply with applicable standards and listings. This practice is crucial for several reasons. First, a neat installation contributes to both safety and aesthetics in electrical work. Ensuring that fittings are aligned properly and secured tightly prevents potential hazards such as accidental disconnections or shorts. A tidy installation makes it easier to troubleshoot or modify the system in the future. Second, adhering to the "listed" part of the criteria means that the fittings used have been tested and approved for specific applications by a recognized testing laboratory. This certification ensures that the materials and installation methods meet safety requirements and performance standards. Lastly, following these guidelines demonstrates professionalism and compliance with local codes and regulations, which often require installations to be performed in accordance with the manufacturer's specifications and industry standards. This not only fosters safety but also enhances the longevity and reliability of the electrical system.

3. What type of protection is required for a 6 AWG or larger copper grounding electrode conductor exposed to physical damage?

A. Reinforced thermosetting resin conduit

B. Non-metallic flexible conduit

C. Metallic conduit

D. Rigid PVC conduit

The requirement for a 6 AWG or larger copper grounding electrode conductor that is exposed to physical damage is to utilize reinforced thermosetting resin conduit. This specific type of conduit offers a high level of protection against physical impact and environmental conditions, which is crucial for grounding systems that are subject to potential damage. Reinforced thermosetting resin conduit's strength and durability make it suitable for safeguarding electrical conductors, especially in settings where abrasion, crushing, or other forms of mechanical impact may occur. It ensures that the grounding conductor remains intact and effective at fulfilling its purpose – providing a safe path to ground in case of a fault condition. While other options like metallic conduit or rigid PVC conduit could provide certain levels of protection, reinforced thermosetting resin conduit stands out due to its resistance to corrosion and ability to withstand a variety of factors that could lead to damage. Non-metallic flexible conduit, while flexible, may not offer the same robustness when it comes to applications where physical impact is a concern. Hence, reinforced thermosetting resin conduit is mandated in such situations to maintain compliance with safety codes and ensure effective grounding practices.

4. Which conductor is purposefully connected to the ground in a grounded electrical system?

A. Ungrounded conductor

B. Equipment grounding conductor

C. Grounded conductor

D. Phase conductor

In a grounded electrical system, the conductor that is purposefully connected to the ground is referred to as the grounded conductor. This type of conductor is crucial because it serves to provide a direct electrical connection to the earth, which helps in stabilizing voltage levels during normal operation and provides a path for fault currents to safely dissipate into the ground. The main role of the grounded conductor is to ensure safety by facilitating overcurrent protection mechanisms, thus preventing potential hazards such as electrical shocks or fires. This conductor is typically the neutral conductor in most systems and is essential for the effective function of grounding and bonding as it allows for the proper operation of circuit protection devices. Understanding this concept is vital for anyone working with electrical systems, as proper grounding helps improve safety and efficiency by allowing fault currents to be performed as intended, ultimately protecting both equipment and individuals.

5. What is the minimum size for equipment grounding conductors required in most installations?

- A. 14 AWG
- B. 8 AWG
- C. 6 AWG**
- D. 10 AWG

The minimum size for equipment grounding conductors is essential for ensuring safety and compliance with electrical codes. In most installations, the minimum size is determined by the National Electrical Code (NEC), which specifies that the equipment grounding conductor must be adequately sized to safely carry fault current and ensure proper operation of overcurrent devices. For most installations, a 6 AWG copper or a larger aluminum wire is often required, particularly for feeders and services. This size is designed to provide a sufficient path for ground fault currents to minimize the risk of electric shock and equipment damage. Choosing a conductor size larger than the minimum is sometimes necessary based on the total load and the length of the run, but the baseline is typically set at 6 AWG in many applications. This ensures that in case of a fault, the grounding system will perform correctly to mitigate hazards. Thus, the specification of 6 AWG for equipment grounding conductors in most installations reflects a balance between safety, code requirements, and effective electrical performance in grounding and bonding practices.

6. Which of the following terms is used to describe a size of a grounding electrode conductor?

- A. KCMIL**
- B. AWG
- C. VAM
- D. OCPD

The correct term used to describe the size of a grounding electrode conductor is KCMIL, which stands for 'thousands of circular mils.' This unit is utilized specifically in electrical applications to indicate the cross-sectional area of a conductor. KCMIL is relevant in specifying conductors because it helps in understanding their capacity to carry current safely and effectively, ensuring adherence to electrical codes and standards related to grounding systems. While AWG, or American Wire Gauge, also refers to the size of conductors, KCMIL is more commonly used for larger conductors, especially in grounding and bonding applications. The other options - VAM (Volts Amps), which is a measure of power, and OCPD (Overcurrent Protective Device), which refers to devices designed to protect against overloads and short circuits - do not relate directly to the sizing of grounding electrode conductors. Therefore, KCMIL is the most appropriate term in this context.

7. What is the acceptable maximum resistance a grounding electrode should have?

- A. 10 Ohms
- B. 25 Ohms**
- C. 50 Ohms
- D. 100 Ohms

The maximum resistance a grounding electrode should have is ideally 25 Ohms. This value is significant because it ensures that the grounding system can effectively facilitate fault currents to the ground, minimizing the risk of electric shock, equipment damage, and fire hazards. A grounding resistance of 25 Ohms is typically accepted as a standard in many electrical codes, ensuring adequate performance in most scenarios, especially in areas prone to electricity hazards. Maintaining a resistance level at or below this threshold allows for proper grounding of electrical systems, ensuring that they operate safely and effectively under normal and fault conditions. Values higher than this can lead to insufficient grounding, reducing the safety and functionality of electrical systems. Thus, adhering to this maximum resistance level of 25 Ohms is crucial for both safety and compliance with regulations.

8. The grounding electrode network for a lightning protection system can be used for the electrical service supplying a building only when:

- A. There are other electrodes present
- B. No other electrodes are available**
- C. The system is outdated
- D. Local codes permit it

The grounding electrode network for a lightning protection system can be used for the electrical service supplying a building when no other electrodes are available. This situation allows the lightning protection system's grounding electrodes to also fulfill the purpose of grounding for the electrical service, providing a necessary path to ground for fault currents and other electrical surges. In environments where additional grounding electrodes are not present, this dual use ensures compliance with safety and code requirements, while also maintaining the needed level of protection against electrical hazards. The use of a lightning protection system's ground can be a practical solution in such cases, effectively serving the function of grounding for the electrical system in the absence of other suitable grounding methods. The other options present conditions that do not specifically enable this use. Having other electrodes present, local code restrictions, or concerns about the currency of the system are not conditions that allow for the acceptable use of the lightning protection grounding system for electrical service.

9. Can rebar extensions that exit from concrete as a concrete-encased electrode be exposed to the earth without corrosion protection?

- A. True
- B. False**
- C. It depends on the environment
- D. Only if coated with a special paint

Concrete-encased electrodes, such as rebar extensions, must not be exposed to direct contact with the earth without corrosion protection. This is primarily due to the potential for corrosion when metal components are in contact with moisture, salts, or other corrosive agents found in soil. When rebar is embedded in concrete, it is largely protected from the environment due to the alkalinity of the concrete, which creates a passivating layer around the rebar. However, once rebar extends outside of the concrete and is exposed to the elements, it loses this protective environment, making it susceptible to rust and degradation over time. Thus, to ensure the longevity and functional integrity of the bonding system, any exposed rebar needs to be adequately protected from corrosion, as unprotected rebar could lead to failure in the grounding system. Therefore, the correct answer is that it is false that these extensions can be exposed to earth without corrosion protection.

10. For bonding jumpers, which type of connection is usually required?

- A. Loose connection
- B. Welded connection
- C. Secure and permanent connection**
- D. Temporary connection

The requirement for a secure and permanent connection for bonding jumpers is essential because these connections are critical for electrical safety and system integrity. Bonding jumpers are used to ensure that different conductive parts are electrically connected, allowing fault currents to flow safely back to the source, thereby minimizing the risk of electric shock or fire. A secure and permanent connection helps maintain a continuous electrical path, reducing the likelihood of interruptions or failures that could compromise safety. In grounding and bonding practices, temporary connections or loose connections would not provide the necessary stability and reliability required for effective bonding. Welded connections, while strong, are not typically the standard for bonding jumpers as they can be impractical for maintenance and modifications. Therefore, the secure and permanent connection is the preferred method to ensure that the bonding system is effective and compliant with safety standards.

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:

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

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