

# 2nd Year Lineman Apprentice Practice Exam (Sample)

## Study Guide



**Everything you need from our exam experts!**

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# Table of Contents

<b>Copyright</b> .....	<b>1</b>
<b>Table of Contents</b> .....	<b>2</b>
<b>Introduction</b> .....	<b>3</b>
<b>How to Use This Guide</b> .....	<b>4</b>
<b>Questions</b> .....	<b>5</b>
<b>Answers</b> .....	<b>8</b>
<b>Explanations</b> .....	<b>10</b>
<b>Next Steps</b> .....	<b>16</b>

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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 is the most common wire gauge used in electrical work?**
  - A. AWG**
  - B. SWG**
  - C. BWG**
  - D. CSA**
  
- 2. What is the controlling factor that determines the height of a luminaire?**
  - A. Light output in lumens**
  - B. Type of lamp used**
  - C. Mounting height**
  - D. Environmental conditions**
  
- 3. Which class of fire is a petroleum fire classified as?**
  - A. Class A**
  - B. Class B**
  - C. Class C**
  - D. Class D**
  
- 4. Which two variables affect the magnetomotive force of a coil?**
  - A. Voltage and resistance**
  - B. Current and number of turns**
  - C. Magnetic field strength and distance**
  - D. Material type and temperature**
  
- 5. What is the name of the hot stick placed on a handline to increase insulation value?**
  - A. Guard structure**
  - B. Link stick**
  - C. Articulated running board**
  - D. Kellum grip**

**6. Which type of rope is the most popular among power line personnel?**

- A. Hemp rope**
- B. Polyester rope**
- C. Polypropylene rope**
- D. Nylo rope**

**7. What percentage of the current capacity is generally recommended for safe loading of conductors?**

- A. 60%**
- B. 50%**
- C. 75%**
- D. 80%**

**8. What will be the voltage drop across a 10-ohm resistor in a series circuit if a 5 amp fuse blows?**

- A. 50 volts**
- B. Zero volts**
- C. 10 volts**
- D. 100 volts**

**9. An atom with an unequal number of electrons and protons is known as what?**

- A. Molecule**
- B. Neutral atom**
- C. Ion**
- D. Cation**

**10. Is it true that magnetic flux lines cutting a conductor will generate a voltage?**

- A. True**
- B. False**
- C. Depends on the conductor**
- D. Only in AC**

## **Answers**

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

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## **Explanations**

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## 1. What is the most common wire gauge used in electrical work?

- A. AWG**
- B. SWG**
- C. BWG**
- D. CSA**

The most common wire gauge used in electrical work is the American Wire Gauge (AWG). AWG is a standardized wire gauge system used primarily in North America to specify the diameter of round, solid, nonferrous, electrically conducting wire. The use of AWG is widespread among electricians and in the electrical industry due to its clear and consistent sizing system, which makes it easy to identify appropriate wire sizes for various applications including residential, commercial, and industrial wiring. The AWG system enables electricians to choose the right wire based on current-carrying capacity, resistance, and physical dimensions. Each gauge number corresponds to a specific diameter, with larger gauge numbers representing thinner wire. This system is crucial for ensuring safety and efficiency in electrical installations, as it helps prevent overheating and potential hazards due to improper wire sizing. In contrast, SWG (Standard Wire Gauge), BWG (Birmingham Wire Gauge), and CSA (Canadian Standards Association) offer different standards that may be used in various regions or specific applications but are not as universally recognized or utilized as AWG in North America for general electrical work. The choices of SWG, BWG, and CSA may apply to certain industries or types of materials but do not hold the same level of prevalence in everyday electrical

## 2. What is the controlling factor that determines the height of a luminaire?

- A. Light output in lumens**
- B. Type of lamp used**
- C. Mounting height**
- D. Environmental conditions**

The controlling factor that determines the height of a luminaire is primarily linked to light output in lumens. This aspect is crucial because it impacts how far and effectively light is distributed over a given area. Essentially, the greater the lumen output of the luminaire, the higher it can be mounted while still achieving an adequate and uniform level of illumination on the surface or area intended to be lit. When positioning luminaires, it's important to balance light output with factors such as the type of lamps used, mounting height, and environmental conditions; however, these factors play more supportive roles in ensuring adequate lighting rather than directly determining the height itself. For instance, while the type of lamp can influence efficiency and light quality, the overall brightness measured in lumens will guide how high the luminaire must be to effectively light a space. Therefore, light output in lumens serves as the key consideration in establishing optimum mounting height for effective illumination.

### 3. Which class of fire is a petroleum fire classified as?

- A. Class A
- B. Class B**
- C. Class C
- D. Class D

A petroleum fire is classified as Class B because Class B fires involve flammable liquids and gases. These types of fires are typically fueled by substances that can ignite and burn rapidly, such as gasoline, oils, and other hydrocarbons derived from petroleum. In firefighting, Class B extinguishers are designed to combat these specific types of fires, often utilizing foam, dry chemicals, or carbon dioxide to smother the flames or disrupt the combustion process. The focus on preventing the spread of the fire and cooling the fuel source with the appropriate extinguishing agents is crucial in managing Class B fires effectively. Other classes of fire include Class A, which pertains to ordinary combustibles like wood and paper, Class C, which involves energized electrical equipment, and Class D, which is related to combustible metals. Each class addresses different ignition sources and requires specific extinguishing techniques and agents, which is why identifying the correct classification is vital for effective fire response and safety measures.

### 4. Which two variables affect the magnetomotive force of a coil?

- A. Voltage and resistance**
- B. Current and number of turns**
- C. Magnetic field strength and distance
- D. Material type and temperature

The magnetomotive force (MMF) of a coil is primarily influenced by the current flowing through the coil and the number of turns (or windings) in the coil. This relationship is defined by the formula:  $MMF = N * I$  where MMF is the magnetomotive force, N is the number of turns of the coil, and I is the current passing through the coil. When the current increases, it boosts the magnetomotive force directly, thereby enhancing the magnetic field generated by the coil. Similarly, increasing the number of turns adds to the total magnetomotive force. Each additional winding contributes to the overall intensity of the magnetic field created around the coil. This foundational principle is crucial in applications involving electromagnets, transformers, and inductors, where controlling the magnetic field strength is essential for their operation. Understanding how current and turns interact is vital for any lineman apprentice working with electrical systems.

**5. What is the name of the hot stick placed on a handline to increase insulation value?**

- A. Guard structure**
- B. Link stick**
- C. Articulated running board**
- D. Kellum grip**

The term for the hot stick that is placed on a handline to enhance insulation value is known as the link stick. This device serves a critical role in adding an additional layer of insulation when linemen are working near live electrical lines. Essentially, it is designed to facilitate safe handling and positioning of tools or conductors without compromising the insulation characteristics needed to protect workers from electrical hazards. The link stick's purpose is to help maintain a safe distance and provide insulation when working around energized equipment, thereby minimizing the risk of electrical shock. It is specifically engineered to maintain heightened insulation properties, which is essential when working in high-voltage environments. Understanding the function and applications of the link stick is crucial for lineman apprentices, as safety is a top priority in electrical work. This device represents a pivotal element in safe utility practices, further emphasizing the importance of proper equipment use and adherence to safety standards.

**6. Which type of rope is the most popular among power line personnel?**

- A. Hemp rope**
- B. Polyester rope**
- C. Polypropylene rope**
- D. Nylo rope**

Polypropylene rope is favored among power line personnel primarily due to its unique properties that cater to the demands of the electrical utility industry. This type of rope is lightweight, which simplifies handling during tasks at height, a common scenario for linemen. Furthermore, polypropylene is resistant to water and moisture, making it less likely to absorb water compared to natural fibers like hemp, which can weaken when wet. This characteristic enhances durability and ensures that the rope maintains its strength and performance in various weather conditions. In addition, polypropylene rope has good resistance to ultraviolet (UV) light, which is crucial for outdoor applications where exposure to sun can degrade the material over time. The flexibility of polypropylene also allows for easy knotting and untangling, which is essential for quick and efficient work, especially in emergency situations. These functional benefits make polypropylene the preferred choice for linemen, as it effectively meets the specific needs and safety standards required in their work environment.

**7. What percentage of the current capacity is generally recommended for safe loading of conductors?**

- A. 60%
- B. 50%**
- C. 75%
- D. 80%

The generally accepted recommendation for the safe loading of conductors is around 50% of their current capacity. This conservative approach ensures that there is a significant safety margin to account for various factors that may affect conductor performance, such as ambient temperature, insulation type, and the thermal limitations of the materials used. By operating at this lower percentage, there is a reduced risk of overheating, which can lead to insulation failure, reduced lifespan of the conductor, or even catastrophic failure. Choosing a loading percentage higher than this, such as 60%, 75%, or 80%, can compromise safety and lead to issues like decreased efficiency or increased maintenance demands. Each of these higher percentages may not adequately consider unexpected conditions like higher temperatures or additional loads that can arise during operation. Thus, maintaining a conservative approach by utilizing about 50% helps ensure both the integrity of the electrical system and the safety of the personnel working with or around that system.

**8. What will be the voltage drop across a 10-ohm resistor in a series circuit if a 5 amp fuse blows?**

- A. 50 volts
- B. Zero volts**
- C. 10 volts
- D. 100 volts

In a series circuit, the current through all components is the same and is equal to the current flowing from the power source. The voltage drop across a resistor can be determined using Ohm's Law, which states that the voltage (V) is equal to the current (I) multiplied by the resistance (R), or  $V = I \times R$ . In this scenario, if a 5 amp fuse blows, it indicates there is an overcurrent condition in the circuit. This typically means that the circuit is open, and no current is flowing through it anymore. Therefore, despite the presence of the 10-ohm resistor, since the circuit is open and there is no current, the voltage drop across the resistor would be zero volts. So, the correct answer reflects the fact that with no current flowing due to the blown fuse, there cannot be any voltage drop across the resistor. This understanding of how series circuits function and the implications of a fuse blowing are key concepts in electrical work.

**9. An atom with an unequal number of electrons and protons is known as what?**

- A. Molecule**
- B. Neutral atom**
- C. Ion**
- D. Cation**

An atom with an unequal number of electrons and protons is classified as an ion. In essence, ions are charged particles that arise when an atom either gains or loses electrons. If an atom has more electrons than protons, it becomes a negatively charged ion known as an anion. Conversely, if it has more protons than electrons, it becomes a positively charged ion known as a cation. The distinction of ions comes from their charge status, which contrasts with neutral atoms that have an equal number of protons and electrons, rendering them electrically neutral. Molecules, on the other hand, are formed when two or more atoms bond together, and they are not necessarily charged. Thus, whenever there's a difference in counting the fundamental subatomic particles of an atom—specifically electrons and protons—the result is an ion, which is why the correct answer is ion.

**10. Is it true that magnetic flux lines cutting a conductor will generate a voltage?**

- A. True**
- B. False**
- C. Depends on the conductor**
- D. Only in AC**

The statement that magnetic flux lines cutting a conductor will generate a voltage is true due to Faraday's Law of Electromagnetic Induction. This law states that a change in magnetic flux through a conductor induces an electromotive force (EMF) or voltage in that conductor. This phenomenon occurs whenever there is relative motion between the magnetic field and the conductor, which can happen in various scenarios, including rotating generators or any situation where magnetic fields change over time. When the magnetic flux lines cut across the conductive material, it creates a flow of electric charge, resulting in voltage across the conductor. This principle is foundational in electrical engineering and is the basis for many applications such as electric generators, transformers, and inductors. The other options imply conditions or scenarios that do not accurately explain the relationship between magnetic fields and voltage generation. For instance, suggesting it depends on the conductor might overlook that any conductor will experience induced voltage when subjected to changing magnetic flux, regardless of material properties like resistivity. Additionally, stating that this only occurs in AC does not take into account that the motion of a conductor within a static magnetic field can also induce voltage.

# 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://2ndyearlinemanappr.examzify.com>**

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

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