

# 4th Year Lineman Apprentice 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

- 1. How is the high side coil voltage represented in electrical engineering standards?**
  - A. 220 volts**
  - B. 480 volts**
  - C. 7200 volts**
  - D. 9000 volts**
- 2. What does a 3 wire configuration on the high side of the system indicate?**
  - A. Single-phase system**
  - B. Delta system**
  - C. Wye system**
  - D. Grounded system**
- 3. Which of the following factors is NOT a determinant of the rate of activity between two dissimilar metals?**
  - A. Chemical composition of the soil**
  - B. Soil moisture and resistance**
  - C. Color of the metals**
  - D. Ratio of the two dissimilar metals**
- 4. How many fuses are required for the specified bank?**
  - A. 2**
  - B. 3**
  - C. 4**
  - D. 5**
- 5. Which of the following is a measure of electrical resistance?**
  - A. Ohms**
  - B. Watts**
  - C. Volt-Amps**
  - D. Farads**

- 6. What method is used for alignment during the erection of steel on concrete pads?**
- A. Laser level**
  - B. Plumb bob and transit**
  - C. Digital level**
  - D. Water level**
- 7. At what Kvar rating does a capacitor bank require a vacuum or oil switch for sectionalizing?**
- A. 100 Kvar**
  - B. 150 Kvar**
  - C. 180 Kvar**
  - D. 200 Kvar**
- 8. Which unit measures metered energy?**
- A. Kilowatt**
  - B. Kilowatt-hour**
  - C. Kvar hour**
  - D. Volt**
- 9. If an overhead circuit has a total apparent power of 300 Kva and a real power load of 240 Kw, what is the percentage power factor?**
- A. 70%**
  - B. 75%**
  - C. 80%**
  - D. 85%**
- 10. What type of underground electric system has secondary mains supplied by multiple primary feeders?**
- A. Radial**
  - B. Secondary Network**
  - C. Looped**
  - D. Horizontal**



## **Answers**

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

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## **Explanations**

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**1. How is the high side coil voltage represented in electrical engineering standards?**

- A. 220 volts
- B. 480 volts
- C. 7200 volts**
- D. 9000 volts

In electrical engineering standards, the representation of high side coil voltage typically aligns with common voltages used in high-voltage distribution systems. The value of 7200 volts is commonly referenced as a standard for systems in North America, particularly for distribution transformers and overhead power lines. The 7200 volts designation is particularly important when discussing the primary side of a transformer or the higher voltage levels in three-phase systems. It fits within the range of high voltage standards that utility companies utilize to ensure effective transmission of electricity across long distances with minimal losses. By contrast, other values like 220 volts and 480 volts are more associated with lower voltage levels for residential and industrial applications, making them unsuitable for identifying high side coil voltages. The 9000 volts option exceeds typical standards for most utility applications and is less common in general discussions about high side systems. Therefore, the selection of 7200 volts accurately reflects the industry norms for high voltage coil representation.

**2. What does a 3 wire configuration on the high side of the system indicate?**

- A. Single-phase system
- B. Delta system**
- C. Wye system
- D. Grounded system

A 3 wire configuration on the high side of a system typically indicates a delta system. In a delta configuration, there are three phases interconnected in a triangular formation, which allows for the effective distribution of power across three phases. This setup does not require a neutral conductor and is commonly used in high-voltage applications to balance load and maintain system efficiency. In a delta system, each phase is connected to the others, providing distinct phase relationships and systematically facilitating the use of three-phase loads, which can significantly improve performance in industrial applications. This configuration is valuable for high-power circuits since it can support a higher current-carrying capacity compared to other configurations. While other choices may reference configurations that can also utilize three wires, they do not specifically denote high-side characteristics as the delta system does, which is known for its phase interconnections in three-phase electrical systems.

**3. Which of the following factors is NOT a determinant of the rate of activity between two dissimilar metals?**

- A. Chemical composition of the soil**
- B. Soil moisture and resistance**
- C. Color of the metals**
- D. Ratio of the two dissimilar metals**

The color of the metals does not influence the rate of electrochemical activity between two dissimilar metals. The key factors that affect this rate are more related to the chemical and physical properties of the metals and the environment in which they are situated, such as the chemical composition of the soil, soil moisture, and the resistance of the soil, as well as the specific ratio of the two dissimilar metals involved in the electrical interaction. The chemical composition of the soil can significantly impact galvanic corrosion rates, as different soil chemicals may promote or inhibit corrosion processes. Soil moisture and resistance also play critical roles since the presence of moisture facilitates the movement of ions, which is essential for an electrochemical reaction to occur. The specific ratio of metals affects the potential difference and the resulting corrosion rate between the two metals. Therefore, the color does not have an impact on the electrochemical reactions or corrosion rates and is unrelated to the underlying physics and chemistry at play in these interactions.

**4. How many fuses are required for the specified bank?**

- A. 2**
- B. 3**
- C. 4**
- D. 5**

The requirement for the number of fuses in a specified bank typically relates to the configuration and the size of the transformer or capacitor bank being used. If the setup consists of three-phase systems, it's generally standard to utilize one fuse per phase to provide protection against overcurrent. In this case, the answer indicates that three fuses are required. This is because the transformer or equipment being referenced likely operates under a three-phase system. By having three fuses, one can adequately guard each phase from overloads, ensuring that if one fuse blows, the remaining phases can continue to operate safely, preventing catastrophic failure of the entire bank system. Utilizing the correct number of fuses is critical to maintain the performance and reliability of electrical systems, as it provides a safeguard mechanism that allows for isolated failures while ensuring continuity in operation of the remaining phases.

**5. Which of the following is a measure of electrical resistance?**

**A. Ohms**

**B. Watts**

**C. Volt-Amps**

**D. Farads**

Ohms is the unit of measurement for electrical resistance, defined by Ohm's law, which states that resistance is equal to voltage divided by current. When you think of resistance in a circuit, it represents how much a material opposes the flow of electric current. The higher the resistance measured in ohms, the more difficult it is for current to flow through the material. Watts, on the other hand, is a measure of electrical power, which is the rate at which energy is consumed or produced in a circuit. Volt-amps also refer to a unit of power; specifically, it represents apparent power in an AC circuit but doesn't directly relate to resistance. Farads measure capacitance, which pertains to a component's ability to store an electrical charge rather than resist the flow of current. Understanding units like ohms is fundamental in electrical work as it impacts how circuits are designed and analyzed for efficiency and safety.

**6. What method is used for alignment during the erection of steel on concrete pads?**

**A. Laser level**

**B. Plumb bob and transit**

**C. Digital level**

**D. Water level**

During the erection of steel on concrete pads, the plumb bob and transit method is commonly employed for alignment due to its effectiveness in ensuring vertical accuracy and level alignment. The plumb bob is a simple yet precise tool that utilizes gravity to indicate a true vertical line. When used in conjunction with a transit, which is an optical instrument for measuring both horizontal and vertical angles, it allows workers to not only align the steel structures vertically but also to check horizontal placement during the erection process. This combination is particularly useful because it does not depend on technology and can be effectively used in varying site conditions, making it a reliable choice for lineman apprentices. Additionally, this method is traditional and widely understood in the construction industry, providing a solid foundational technique that is essential for accurate erecting of steel frameworks.

**7. At what Kvar rating does a capacitor bank require a vacuum or oil switch for sectionalizing?**

- A. 100 Kvar**
- B. 150 Kvar**
- C. 180 Kvar**
- D. 200 Kvar**

A capacitor bank typically requires a vacuum or oil switch for sectionalizing at a rating of 180 Kvar. This is primarily due to the electrical characteristics and safety considerations associated with operating these systems at higher voltages and reactive power levels. When the Kvar rating of a capacitor bank reaches around 180 Kvar, the operational currents become significant enough that the switching devices are subjected to wear and thermal stress. Vacuum or oil switches are preferred for this purpose because they can handle the high levels of current and provide better interrupting capacity than less robust designs like air-break switches. Additionally, these switches are designed to safely break the circuit without generating excessive arc energy, which is crucial for maintaining system integrity and protecting equipment from potential damage during switching operations. Lower ratings, such as 100 Kvar or 150 Kvar, typically do not require such robust switching mechanisms as the current levels are more manageable and do not pose the same risks during operations. Hence, the need for a more reliable switching mechanism arises at the higher threshold of 180 Kvar, ensuring enhanced safety and operational reliability in the electrical distribution system.

**8. Which unit measures metered energy?**

- A. Kilowatt**
- B. Kilowatt-hour**
- C. Kvar hour**
- D. Volt**

The measurement of metered energy is expressed in kilowatt-hours (kWh). This unit reflects the amount of energy consumed over time, specifically the electricity used at a rate of one kilowatt over an hour. When you see a utility bill, the usage is typically reported in kilowatt-hours, which indicates both the power consumption and the duration of that consumption. In contrast, kilowatts is a measure of power, representing the rate of energy transfer at a specific instant, not the total amount used over time. Kvar hours measure reactive power energy, which is relevant in alternating current systems but does not account for the real energy consumed. Volts measure electrical potential or voltage, not energy usage. Therefore, kilowatt-hours is the correct choice for measuring metered energy since it captures the total energy consumed in a time-sensitive manner.

**9. If an overhead circuit has a total apparent power of 300 Kva and a real power load of 240 Kw, what is the percentage power factor?**

- A. 70%
- B. 75%
- C. 80%**
- D. 85%

To determine the percentage power factor, one must first understand the relationship between apparent power, real power, and power factor. The power factor is a measure of how effectively electrical power is being converted into useful work output. It can be expressed as the ratio of the real power (measured in kilowatts or kW) to the apparent power (measured in kilovolt-amperes or kVA). In this case, the formula for calculating the power factor is as follows:  $\text{Power Factor (PF)} = \text{Real Power (kW)} / \text{Apparent Power (kVA)}$  Substituting the values given in the question:  $\text{PF} = 240 \text{ kW} / 300 \text{ kVA}$  Calculating this gives:  $\text{PF} = 0.8$  To convert this ratio into a percentage, you multiply by 100:  $\text{Percentage Power Factor} = \text{PF} \times 100 = 0.8 \times 100 = 80\%$  Thus, the correct answer is 80%. This indicates that 80% of the apparent power is being used effectively as actual power, while the remaining portion is reactive power, which does not perform useful work. The other options reflect lower power factors, which suggest a less efficient conversion of electrical power into useful work. Understanding

**10. What type of underground electric system has secondary mains supplied by multiple primary feeders?**

- A. Radial
- B. Secondary Network**
- C. Looped
- D. Horizontal

The type of underground electric system that has secondary mains supplied by multiple primary feeders is the secondary network system. This configuration is specifically designed to enhance reliability and capacity. In a secondary network, several primary feeders distribute electricity to multiple secondary mains, allowing the system to balance loads and provide power from different sources. This design offers advantages such as reduced outages and improved service continuity, as power can be rerouted in case of maintenance or failure in one of the feeders. Furthermore, the interconnected nature of the system helps in managing peak loads more effectively, as it can share demand across multiple supply points. The other types of systems, such as radial or looped configurations, do not typically combine multiple primary feeders serving the secondary network in the same way. Radial systems typically have a single source feeding several consumers, while looped systems involve redundancy but do not connect multiple primary feeders in the manner described. Horizontal systems generally refer to a different structural setup not directly related to the question about secondary mains.



## 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://4thyearlinemanappr.examzify.com>**

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