

NORTH CAROLINA PUBLIC UTILITIES LICENSE PRACTICE TEST (SAMPLE)

STUDY GUIDE



**SAMPLE STUDY GUIDE
WITH LIMITED QUESTIONS**

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

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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. Where should a distribution transformer be primarily installed?**
 - A. At the utility supply line
 - B. On a pole above ground
 - C. As near as possible to the center of the load area
 - D. In a remote location for safety
- 2. What is the recommended method for pulling poles?**
 - A. Using a hydraulic pole puller powered by the truck hydraulic system
 - B. Manually using a group of workers
 - C. With a regular pickup truck
 - D. By digging them out
- 3. What type of maintenance is essential for ensuring the proper functioning of shield wires?**
 - A. Monthly visual checks
 - B. Regular replacements every year
 - C. Annual inspections and testing
 - D. No maintenance required
- 4. What is a guy in the context of pole setting?**
 - A. A brace or cable fastened to a pole for support
 - B. A type of pole
 - C. A tool used for installation
 - D. A safety warning sign
- 5. What is the minimum size of the ground wire used?**
 - A. Number 8 AWG copper wire
 - B. Number 6 AWG copper wire
 - C. Number 4 AWG copper wire
 - D. Number 10 AWG copper wire

- 6. In high-voltage systems, what is a common voltage range needed for transferring electricity over long distances?**
- A. 1,000 to 5,000 volts
 - B. 13,000 to 25,000 volts
 - C. 138,000 to 765,000 volts
 - D. 10,000 to 50,000 volts
- 7. What is the approximate weight of the head of a hydraulically operated tool used for compression splicing?**
- A. 10 pounds
 - B. 15 pounds
 - C. 20 pounds
 - D. 25 pounds
- 8. What is the maximum use voltage for Class 2 gloves?**
- A. 12,000 volts
 - B. 17,000 volts
 - C. 20,000 volts
 - D. 30,000 volts
- 9. Conductors can be connected for parallel operation when what condition is met?**
- A. They are of the same type
 - B. There is zero voltage between them
 - C. They have similar resistance values
 - D. They are at the same temperature
- 10. The main purpose of adding capacitors to a circuit is to:**
- A. Increase energy demand
 - B. Stabilize the power factor
 - C. Reduce current flow
 - D. Enhance safety measures

Answers

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

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Explanations

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1. Where should a distribution transformer be primarily installed?

- A. At the utility supply line
- B. On a pole above ground
- C. As near as possible to the center of the load area**
- D. In a remote location for safety

The primary installation of a distribution transformer should be as near as possible to the center of the load area to effectively serve the electrical demands of the surrounding consumers. By placing the transformer close to the load, the distance that electricity has to travel is minimized, which reduces energy losses due to resistance in the wires. This also helps in maintaining voltage levels, ensuring that customers receive a stable and adequate supply of electricity. Additionally, a centralized location for the transformer can facilitate easier maintenance and quicker response times in case of outages or repairs. Locations such as utility supply lines or remote areas may not efficiently meet the immediate energy requirements of nearby users, and elevated installations, while sometimes necessary, can introduce complications in servicing and maintenance, which are minimized when the transformer is closer to the load.

2. What is the recommended method for pulling poles?

- A. Using a hydraulic pole puller powered by the truck hydraulic system**
- B. Manually using a group of workers
- C. With a regular pickup truck
- D. By digging them out

The recommended method for pulling poles is utilizing a hydraulic pole puller powered by the truck hydraulic system. This approach is preferred because hydraulic systems provide the necessary force to remove poles efficiently and safely. It minimizes the physical strain on workers and reduces the risk of injury that can occur when attempting to pull poles manually or using inadequate equipment. Using a hydraulic pole puller also ensures that the operation is conducted in a controlled manner, which is essential for maintaining safety standards while working with potentially heavy and stubborn poles. Additionally, this method can be quicker and more effective, particularly in challenging conditions where poles may be embedded deeply or secured with concrete.

3. What type of maintenance is essential for ensuring the proper functioning of shield wires?

- A. Monthly visual checks
- B. Regular replacements every year
- C. Annual inspections and testing**
- D. No maintenance required

Annual inspections and testing are essential for ensuring the proper functioning of shield wires, as they help to identify potential issues before they become serious problems. Shield wires are used primarily for lightning protection and communication purposes in overhead power lines. Over time, various factors such as environmental conditions, wear and tear, and physical damage can affect their operational integrity. Regular inspections allow for the evaluation of the shield wires' physical condition, checking for corrosion, insulation degradation, and any mechanical defects. Testing during these inspections often involves checking the continuity and grounding effectiveness of the shield wires, ensuring they can adequately perform their protective functions. While monthly visual checks or annual replacements may seem beneficial, they do not provide the comprehensive assessment that a full annual inspection and testing routine offers, which is vital for the proactive maintenance of these critical components in the utility infrastructure.

4. What is a guy in the context of pole setting?

A. A brace or cable fastened to a pole for support

B. A type of pole

C. A tool used for installation

D. A safety warning sign

In the context of pole setting, a guy refers to a brace or cable that is fastened to a pole to provide support and stability. When utility poles are installed, especially in areas susceptible to high winds or heavy loads, guys are employed to prevent the poles from leaning or toppling over. They help maintain the vertical position of the pole, ensuring it can support the weight of the lines and any attached equipment. The use of guys is crucial for the structural integrity of the pole, especially when dealing with taller poles or certain environmental conditions. Understanding the role of a guy in pole setting is essential for maintaining safety and functionality in utility operations.

5. What is the minimum size of the ground wire used?

A. Number 8 AWG copper wire

B. Number 6 AWG copper wire

C. Number 4 AWG copper wire

D. Number 10 AWG copper wire

The minimum size of the ground wire is determined by the National Electrical Code (NEC) and other relevant safety standards. In this context, a number 6 AWG copper wire is considered the minimum acceptable size for grounding conductors in many applications, particularly in residential settings. This sizing ensures sufficient capacity to carry fault current without exceeding temperature ratings, thus providing a reliable ground connection that can help protect both equipment and individuals from electrical shock hazards. Choosing an appropriate ground wire size is crucial for system safety. A number 6 AWG wire offers a balance of conductivity and physical robustness, making it effective in dissipating fault current and minimizing the risk of electrical fires. Utilizing a ground wire below this size may not provide adequate protection and can lead to a series of safety issues. For applications requiring grounding conductors serving specific loads or configurations, such as larger appliances or systems, it might necessitate a larger size. However, for general regulation adherence, number 6 AWG copper wire firmly establishes itself as the standard minimum size.

6. In high-voltage systems, what is a common voltage range needed for transferring electricity over long distances?

A. 1,000 to 5,000 volts

B. 13,000 to 25,000 volts

C. 138,000 to 765,000 volts

D. 10,000 to 50,000 volts

The voltage range of 138,000 to 765,000 volts is commonly utilized in high-voltage systems for the efficient transmission of electricity over long distances. This range is crucial because higher voltages significantly reduce energy losses due to resistance in the transmission lines. When electricity travels long distances, a higher voltage minimizes the current flowing through the conductors, which in turn decreases the I^2R losses (where I is current and R is resistance). Transmission systems operating within this range are often used by utility companies to transport power from generation plants to substations and ultimately to consumers. By utilizing high voltages, utilities can maintain efficient power flow, which is essential for meeting demand and ensuring a reliable supply of electricity. Lower voltage options, such as those listed in the other choices, are generally not suitable for long-distance transmission due to higher losses and decreased efficiency, making them more appropriate for local distribution networks rather than extensive transmission systems.

7. What is the approximate weight of the head of a hydraulically operated tool used for compression splicing?

- A. 10 pounds
- B. 15 pounds**
- C. 20 pounds
- D. 25 pounds

The approximate weight of the head of a hydraulically operated tool used for compression splicing is around 15 pounds. This weight is suitable to ensure that the tool can effectively perform its function without being overly cumbersome for the operator. Hydraulically operated tools are designed for specific tasks, such as compression splicing, and the weight is balanced to provide sufficient force while still allowing for maneuverability and ease of use. The weight consideration is crucial because a tool that is too light may not provide adequate force for compression, while one that is too heavy could lead to operator fatigue and decreased productivity. Therefore, a 15-pound head strikes a good balance, making it efficient for the application while allowing for comfortable handling during operation.

8. What is the maximum use voltage for Class 2 gloves?

- A. 12,000 volts
- B. 17,000 volts**
- C. 20,000 volts
- D. 30,000 volts

The maximum use voltage for Class 2 gloves is indeed 17,000 volts. These gloves are designed to provide insulation against electrical hazards, and they undergo rigorous testing to ensure they can safely handle this voltage without compromising the safety of the wearer. The testing process for rubber insulating gloves includes multiple inspections, including electrical tests that evaluate their ability to withstand various voltage levels. Class 2 gloves are particularly important for workers who may be exposed to high voltages while performing electrical tasks. Having gloves rated for up to 17,000 volts means that they can help protect against potential electric shock while working with or near live electrical equipment. Other classes of gloves exist with different voltage ratings, and understanding these classifications is essential for selecting the appropriate personal protective equipment (PPE). The options listed that exceed 17,000 volts represent classes of gloves designed for higher voltage protection and would not be suitable for the limits defined for Class 2 gloves. Hence, the choice of 17,000 volts accurately reflects the maximum use voltage for Class 2 gloves, making it the correct answer.

9. Conductors can be connected for parallel operation when what condition is met?

- A. They are of the same type
- B. There is zero voltage between them**
- C. They have similar resistance values
- D. They are at the same temperature

For conductors to be connected for parallel operation, the condition that needs to be met is primarily related to how they share loads effectively and safely. The correct answer indicates that there is zero voltage between them, which means that all connecting conductors must have the same electrical potential. This is crucial because if there is a voltage difference, it could lead to current flowing in unintended ways, potentially causing imbalances and unsafe conditions. In practical applications, the conductors being at the same potential helps ensure that they can distribute loads evenly. If any conductor is at a different potential, it will create paths for current that can overload some conductors while underloading others, leading to equipment damage or failure. Having zero voltage between the conductors means they are ready to share current equally without risking overheating or circuit failure due to imbalances. The other conditions, such as being of the same type, having similar resistance values, or being at the same temperature, while they may influence performance and efficiency, do not directly determine whether conductors can operate in parallel. These characteristics are beneficial, but they do not address the fundamental requirement of maintaining the same electrical potential to ensure safe and effective parallel operation.

10. The main purpose of adding capacitors to a circuit is to:

- A. Increase energy demand
- B. Stabilize the power factor**
- C. Reduce current flow
- D. Enhance safety measures

Adding capacitors to a circuit primarily serves to stabilize the power factor, which is a crucial aspect in electrical systems, especially in industrial and commercial settings. The power factor is a measure of how effectively electrical power is being converted into useful work output. A low power factor indicates poor efficiency, where more apparent power is required to achieve the same amount of real power. When capacitors are introduced, they provide reactive power (VARs) to the system, which compensates for the inductive loads that often contribute to a lagging power factor. By doing this, capacitors help improve the overall power factor, leading to reduced losses in the electrical system, potential cost savings on energy bills, and increased capacity for additional loads without requiring an upgrade to the electrical infrastructure. In contrast, increasing energy demand, reducing current flow, and enhancing safety measures do not directly relate to the primary function of capacitors in power systems. While capacitors may indirectly influence overall current flow by improving efficiency, their main role is to address power factor issues, making stabilization of the power factor the correct purpose associated with capacitor use in circuits.

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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