

NORTH CAROLINA ELECTRICITIES INTERMEDIATE LINEWORKER PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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THE FULL VERSION STUDY GUIDE**

<https://ncintermediatelineworker.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. Where are donut-shaped current transformers typically located?**
 - A. around the bushings of circuit breakers and power transformers
 - B. in the control room
 - C. in the substation yard away from equipment
 - D. near the cooling fans
- 2. Which component is primarily responsible for the voltage change from primary to secondary in a distribution transformer?**
 - A. Primary winding
 - B. Core
 - C. Secondary winding
 - D. Terminal blocks
- 3. What constitutes hot work in line maintenance and what controls are typically required?**
 - A. Work that generates sparks or flames; requires a hot-work permit, fire watch, and appropriate PPE and tools.
 - B. Any work performed on energized lines with gloves only.
 - C. Work that occurs outdoors during daylight hours.
 - D. Work that uses only non-metallic tools.
- 4. MAD is used to determine safe clearance from energized equipment based on which factors?**
 - A. Voltage level and task
 - B. Weather conditions
 - C. Time of day
 - D. Equipment color
- 5. What is the maximum safe stress load that a structure is built to withstand called?**
 - A. Working stress limit
 - B. Yield strength
 - C. Ultimate tensile strength
 - D. Modulus of elasticity

- 6. Elasticity is defined as the ability of a solid to resist which of the following?**
- A. Stress
 - B. Temperature
 - C. Color change
 - D. Electromagnetic interference
- 7. In a switchyard, the common conductors to which circuits are connected are called?**
- A. Neutrals
 - B. Buses
 - C. Transformers
 - D. Regulators
- 8. Tensile stress is produced by which kind of force?**
- A. Compressive
 - B. Shear
 - C. Torsional
 - D. Tensile
- 9. Line traps in substations are used to filter and prevent incoming communication signals from passing through the substation. True or False?**
- A. True
 - B. False
 - C. They amplify signals
 - D. They convert signals to DC
- 10. Which safety instruction is correct before working on a capacitor?**
- A. Shut down the main breaker
 - B. Discharge the capacitor first
 - C. Follow procedures for discharging the capacitor
 - D. Power can remain on while working on capacitor

Answers

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

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Explanations

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1. Where are donut-shaped current transformers typically located?

- A. around the bushings of circuit breakers and power transformers
- B. in the control room
- C. in the substation yard away from equipment
- D. near the cooling fans

Donut-shaped current transformers are placed around the actual conductors feeding high voltage equipment, typically at the bushings of circuit breakers and power transformers. Placing the toroidal core around the conductor lets the transformer sense the true line current as it enters or leaves that equipment, providing accurate measurement for protection relays and metering while keeping the sensing circuitry safely isolated from high voltage. Installing them in the control room or away from equipment wouldn't capture the real current flow or allow proper protection, and placing them near cooling fans wouldn't serve the sensing needs.

2. Which component is primarily responsible for the voltage change from primary to secondary in a distribution transformer?

- A. Primary winding
- B. Core
- C. Secondary winding
- D. Terminal blocks

Voltage change in a distribution transformer comes from electromagnetic induction between windings through a shared magnetic path. When the primary is energized, it creates magnetic flux in the core that links both windings. The voltage on the secondary is determined by the turns ratio—the number of turns in the secondary compared to the primary. More turns on the secondary produce a larger induced voltage (or a proportionally different voltage for step-down). The secondary winding is the part where that induced voltage appears and is delivered to the load, so it primarily sets the transformed voltage. The primary winding supplies the magnetic field, the core provides a low-reluctance path for the flux, and terminal blocks are just connection points.

3. What constitutes hot work in line maintenance and what controls are typically required?

- A. Work that generates sparks or flames; requires a hot-work permit, fire watch, and appropriate PPE and tools.
- B. Any work performed on energized lines with gloves only.
- C. Work that occurs outdoors during daylight hours.
- D. Work that uses only non-metallic tools.

Hot work is any task that can ignite a fire by producing heat, sparks, or open flames during line maintenance. Because such operations can involve energized equipment, flammable materials, or insulating coatings, strong controls are essential. The best answer states that hot work requires a hot-work permit, a fire watch, and appropriate PPE and tools. A hot-work permit process ensures hazards are identified and mitigated before work starts; it covers isolating energy sources, removing or protecting combustibles, and outlining the specific controls needed for the task. A fire watch is assigned to stay on duty during the activity and for a period afterward to detect and suppress any fires that start, reducing the risk of a small spark turning into a larger incident. PPE and tools must be suitable for the task—flame-resistant clothing, eye and face protection, gloves, a hard hat, and tools that minimize ignition risks (or are rated for hot-work use) so that workers aren't exposed to unnecessary hazards. The other statements don't capture what constitutes hot work or omit essential controls. Merely working on energized lines with gloves, doing outdoor work simply because it's daylight, or using only non-metallic tools does not define hot work or ensure the required safeguards are in place to prevent ignition and protect workers.

4. MAD is used to determine safe clearance from energized equipment based on which factors?

- A. Voltage level and task**
- B. Weather conditions
- C. Time of day
- D. Equipment color

Minimum Approach Distance is the closest you can safely approach energized equipment without risking shock or arc flash. The two factors that set this distance are the voltage level of the system and the task you're performing. Higher voltages create a greater potential for electrical arcing, so more clearance is needed. The specific task matters because some actions (like connecting, testing, or manipulating equipment) have a higher chance of causing arcing or unwanted contact than simple observation, so they require larger clearances. Weather, time of day, and equipment color don't determine MAD, though weather can affect other safety aspects.

5. What is the maximum safe stress load that a structure is built to withstand called?

- A. Working stress limit**
- B. Yield strength
- C. Ultimate tensile strength
- D. Modulus of elasticity

Think about how structures are kept safe under real-world loads. The maximum safe stress a structure is designed to carry is the allowable or working stress—the stress level permitted in service after applying a safety margin. This isn't the material's raw strength itself, but a design limit that accounts for uncertainties and ensures reliability. Yield strength is the stress where permanent deformation begins, so it's not used as the operating limit. Ultimate tensile strength is the breaking point, which is far beyond safe operation. Modulus of elasticity measures stiffness, not how much load the structure can safely bear. So the best term for the maximum safe stress load used in design is the working stress limit.

6. Elasticity is defined as the ability of a solid to resist which of the following?

- A. Stress**
- B. Temperature
- C. Color change
- D. Electromagnetic interference

Elasticity is about how a material behaves when a force tries to change its shape. It describes resisting the stress that causes deformation and then returning to the original shape when the force is removed. That's why elasticity is about withstanding those internal forces that try to deform the material. The other listed properties aren't about resisting deformation under load: temperature-related changes are about expansion or contraction, color change is a visual property, and electromagnetic interference is about electronic noise.

7. In a switchyard, the common conductors to which circuits are connected are called?

- A. Neutrals
- B. Buses**
- C. Transformers
- D. Regulators

The common conductor in a switchyard is called a bus (busbar). A bus provides a shared connection point for multiple circuits, feeders, breakers, and transformers, allowing power to be routed and distributed to many paths from one central, high-capacity conductor. It's designed to carry large currents and to be a stable point for protection devices to locate and coordinate with. Neutrals are individual return paths for circuits, not the main shared conductor in a switchyard. Transformers connect to the bus to receive or deliver power, but they are devices, not the common conductor themselves. Regulators control voltage levels, not the common distribution path. So the term that best fits the description is bus.

8. Tensile stress is produced by which kind of force?

- A. Compressive
- B. Shear
- C. Torsional
- D. Tensile**

Tensile stress comes from pulling forces along the length of a material, trying to stretch it. When equal and opposite forces act along the axis, away from the center, the material experiences tension and elongation, with stress equal to the force divided by the cross-sectional area. This is different from compressive force, which pushes inward to shorten the member; shear, which acts parallel to a surface to cause sliding between layers; and torsional force, which twists the member. A cable under a load or a line under wind load illustrates tensile stress because the forces pull the material apart along its length.

9. Line traps in substations are used to filter and prevent incoming communication signals from passing through the substation. True or False?

- A. True**
- B. False
- C. They amplify signals
- D. They convert signals to DC

Line traps are tuned devices used with power-line carrier communications. They are installed at the boundary of a substation on lines that carry PLC signals and are designed to present a high impedance to the high-frequency carrier, while allowing the 50/60 Hz power to pass. This arrangement keeps the communication signal on the line and prevents it from entering the substation's relays and control equipment, protecting the substation from RF interference and unintended actions. They do not amplify signals or convert them to DC; their purpose is selective isolation at the carrier frequency. So the statement is true.

10. Which safety instruction is correct before working on a capacitor?

- A. Shut down the main breaker
- B. Discharge the capacitor first
- C. Follow procedures for discharging the capacitor**
- D. Power can remain on while working on capacitor

Capacitors can store dangerous energy even after power is removed, so you must follow the established procedures for discharging the capacitor before any work. Merely shutting down the main breaker isn't enough because the capacitor may still be charged or charged through other paths. Using the documented discharging procedures ensures you use the correct tools, discharge path, and safety steps, plus verify that the capacitor is truly de-energized with the right test instrument. Powering the circuit while you work is unsafe, and you should isolate the circuit and apply lockout/tagout as part of the process.

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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://ncintermediatelineworker.examzify.com>

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

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