North Carolina ElectriCities Intermediate Lineworker 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. Which statement about stress types in structures is true?

A. Only one type can be present at a time

B. Stress types cancel each other

C. Stress types are independent

D. More than one type of stress may be present in a structure at the same time

2. When working underneath energized conductors, what should always be observed?

A. Zoning compliance

B. No clearance requirements

C. Safe work distances

D. Close approach for efficiency

3. If the sling angle from vertical increases, the forces in the individual sling legs do what?

A. Decreases

B. Stays the same

C. Increases

D. Varies with angle

4. If a fault occurs on a lateral, what can a recloser do to allow a fuse to blow?

A. Increase voltage

B. Delay closing

C. Close immediately

D. Do nothing

5. 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

6. Which component is used to carry electrical power along the transmission network?

A. Buses

B. Transmission lines

C. Substations

D. Switchyards

7. Which of the following is typically not associated with power transformers: Cooling Equipment, Sealing Equipment, SF6, or Changing Voltage?

A. Cooling Equipment

B. Sealing Equipment

C. SF6

D. Changing Voltage

8. When slings are used at an angle from vertical, what happens to the load on each sling?

A. Increases

B. Decreases

C. Stays the same

D. Varies with angle

9. What are the major components of a transmission and distribution system?

A. Generators, transformers, converters

B. Substations, switchyards, transmission lines, and distribution lines

C. Wires, meters

D. None of the above

10. 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

Answers

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

Explanations

1. Which statement about stress types in structures is true?

A. Only one type can be present at a time

B. Stress types cancel each other

C. Stress types are independent

D. More than one type of stress may be present in a structure at the same time

Many structural members experience more than one kind of stress at once. Real-world loads don't usually cause just a single effect; a beam, for example, can have bending stresses, axial (tension or compression) stresses, and shear stresses all present at the same location. These different stress components add together to produce the total stress state in the member, rather than canceling each other out. So you can have bending with tension on one side and compression on the other, while also carrying shear or torsion from other loads. This combination of stresses happening simultaneously is why the statement that more than one type of stress may be present in a structure at the same time is true.

2. When working underneath energized conductors, what should always be observed?

A. Zoning compliance

B. No clearance requirements

C. Safe work distances

D. Close approach for efficiency

Safe work distances must be observed whenever energized conductors are nearby. Maintaining a prescribed minimum separation creates a protective buffer that helps prevent accidental contact with live parts and reduces the severity of an arc flash if something slips or a tool contacts the conductor. Even when you're working under lines, this boundary helps protect you from shock and burns and guides how you set up your work zone, use barriers, and coordinate with de-energization procedures when possible. If you cannot keep the safe distance, the proper action is to de-energize or isolate the circuit and follow established safety procedures, rather than relying on proximity for efficiency. Zoning compliance is unrelated to live-conductor clearance, there are indeed clearance requirements, and getting too close for efficiency is dangerous and not allowed.

3. If the sling angle from vertical increases, the forces in the individual sling legs do what?

A. Decreases

B. Stays the same

C. Increases

D. Varies with angle

As sling legs spread away from vertical, the load must be held up by the vertical components of tension in both legs. If each leg makes an angle theta with the vertical, the vertical component of each leg's tension is T cos(theta). With two legs, 2 T cos(theta) equals the load W, so T = W / (2 cos(theta)). When theta increases, cos(theta) decreases, so the required tension T in each leg increases. In short, increasing the sling angle from vertical makes the force in each leg grow. If the angle gets very large, the tension becomes very large. The force does vary with angle, but the trend is that it increases as the angle from vertical grows.

4. If a fault occurs on a lateral, what can a recloser do to allow a fuse to blow?

A. Increase voltage

B. Delay closing

C. Close immediately

D. Do nothing

When a fault happens on a lateral, letting the recloser wait before closing gives the fuse on the lateral time to operate and clear the fault. If the recloser closes immediately, it would re-energize the fault before the fuse had a chance to blow, defeating the protection and potentially spreading the disturbance. A deliberate delay allows the fuse to clear the fault and isolate the lateral, after which the recloser can re-energize the healthy parts of the line. Increasing voltage isn't a function of a recloser, and doing nothing wouldn't clear the fault or restore service.

5. 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.

6. Which component is used to carry electrical power along the transmission network?

A. Buses

B. Transmission lines

C. Substations

D. Switchyards

Transmission lines are the components that move electrical power across the network. They're the actual conductors—overhead lines on towers or underground cables—that span between generation sites, substations, and load centers, carrying high-voltage power over long distances with minimal losses. Buses sit inside substations as common connection points for equipment, not as the long-distance pathway. Substations and switchyards are important for transforming voltage and routing or switching connections, but the energy travels along the lines between these points. So the transmission lines are the path that carries power across the transmission network.

7. Which of the following is typically not associated with power transformers: Cooling Equipment, Sealing Equipment, SF6, or Changing Voltage?

A. Cooling Equipment

B. Sealing Equipment

C. SF6

D. Changing Voltage

SF6 is not typically used in ordinary power transformers. Standard transformers rely on oil for insulation and cooling, with cooling equipment like radiators or fans to remove heat and sealing to prevent oil leaks. They achieve voltage transformation through turns ratio, which is a fundamental function of any transformer. While SF6 is used in gas-insulated switchgear and some specialized gas-filled transformers, it isn't a normal feature of conventional power transformers, making it the option not usually associated.

8. When slings are used at an angle from vertical, what happens to the load on each sling?

A. Increases

B. Decreases

C. Stays the same

D. Varies with angle

When slings are used at an angle from vertical, the load on each sling increases. The weight being lifted is supported by the vertical components of both sling tensions. If theta is the angle each sling makes with the vertical, the tensions must satisfy 2 T cos theta = W, so T = W / (2 cos theta). As theta grows (the slings move farther from vertical), cos theta decreases, causing T to increase. So, the more the slings tilt away from vertical, the higher the load each one must carry.

9. What are the major components of a transmission and distribution system?

A. Generators, transformers, converters

B. Substations, switchyards, transmission lines, and distribution lines

C. Wires, meters

D. None of the above

Power is moved from generation to customers through four main pieces of the system: substations, switchyards, transmission lines, and distribution lines. Substations house transformers and switching gear that change voltage levels and route power while protecting the system. Switchyards are the large-node points where major circuits are interconnected and paths are selected or diverted as needed. Transmission lines carry high-voltage power over long distances from generation sites toward load centers. Distribution lines carry the power from substations to customers at lower voltages. While generators and converters exist in generation, and wires and meters are components used within the system, the major structure of transmission and distribution centers on these four elements.

10. 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.

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!