LADWP Electric Station Operator – Circuit Breakers, Disconnects, Transformers Practice Test (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. **If a transformer has primary 80 turns and secondary 40 turns, the turns ratio is.**

   A. 1:2

   B. 2:1

   C. 1:1

   D. 3:1

2. **Transformer ratios of 400:1 are typically used in _____ transformers, depending on installation and equipment needs.**

   A. Instrument

   B. Potential

   C. Current

   D. Distribution

3. **A switching plan must include the name of the _____ being operated and the major steps required to perform the switching.**

   A. Circuit

   B. Transformer

   C. Bus

   D. Generator

4. **Electrical _____ are installed in the path from the generator to the consumer to provide reliability, flexibility, and safeguards for the electrical power system.**

   A. Generators

   B. Fuses

   C. Switches

   D. Relays

5. **Which current flows when a bank is first energized, not during steady-state operation?**

   A. Armature current

   B. Magnetizing current

   C. Load current

   D. Friction current

6. _____-ratio is the number of turns of wire in the primary winding compared to the number of turns in the secondary winding.

A. Turns

B. Voltage ratio

C. Current ratio

D. Impedance ratio

7. _____ are hook-stick operated and gang-operated.

A. Disconnects

B. Breakers

C. Switches

D. Relays

8. The current that flows across the gap in air when contacts separate is called the _____.

A. Arc

B. Leakage

C. Inrush

D. Surge

9. When energizing large banks, _____ current can be considerable and may negatively affect customer service if not performed properly.

A. Armature current

B. Magnetizing current

C. Reactive current

D. Line current

10. Which statement best describes the core material used in transformers?

A. It is non-magnetic

B. It is a highly permeable ferromagnetic material often laminated

C. It is made of copper

D. It is a non-conductive ceramic

Answers

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

Explanations

1. If a transformer has primary 80 turns and secondary 40 turns, the turns ratio is.

A. 1:2

B. 2:1

C. 1:1

D. 3:1

Turns ratio tells you how many times more (or fewer) turns the primary has compared with the secondary, and it sets how the voltage and current are scaled in an ideal transformer. With 80 turns on the primary and 40 on the secondary, the ratio is 80:40, which simplifies to 2:1. So the turns ratio is 2:1, meaning the primary has twice as many turns as the secondary and the transformer steps the voltage down by a factor of two (Vp/Vs = 2, so Vs = Vp/2). Correspondingly, the current goes the other way: Is = 2*Ip, so the secondary current is twice the primary current to keep power roughly the same (Vp*Ip ≈ Vs*Is). Ratios like 1:2, 1:1, or 3:1 don't match the given turn counts.

2. Transformer ratios of 400:1 are typically used in _____ transformers, depending on installation and equipment needs.

A. Instrument

B. Potential

C. Current

D. Distribution

The key idea is that instrument transformers are designed to scale down high electrical quantities for metering and protection equipment. A 400:1 ratio means the secondary signal is 1/400 of the primary, so a high line voltage or current is reduced to a safe, standard level that meters or relays can handle. This kind of large step-down is typical for measurement devices because you want to feed inputs that are within their precise, low-range ratings while keeping electrical isolation from the high-power circuit. That's why instrument transformers are the correct category here: they encompass both current and voltage types and are selected to match the installation and the input requirements of the protective relays and meters. Distribution transformers aren't focused on measurement scaling, and while current or potential transformers exist, the broad, correct grouping for this ratio is instrument transformers.

3. A switching plan must include the name of the _____ being operated and the major steps required to perform the switching.

A. Circuit

B. Transformer

C. Bus

D. Generator

When planning a switching operation, you must clearly identify exactly what will be operated. The name of the circuit is used because it points to the precise path of electrical energy that will be opened or closed, and the major steps in the plan hinge on that specific circuit. By naming the circuit, the plan can specify the correct devices to operate (breakers, disconnects, etc.), the sequence to follow, and the safety checks needed to de-energize, isolate, and then re-energize the circuit as required. While other equipment like transformers, buses, or generators may be involved nearby, the action centers on the circuit being switched, so that everyone knows exactly what is controlled and what steps to perform.

4. Electrical _____ are installed in the path from the generator to the consumer to provide reliability, flexibility, and safeguards for the electrical power system.

A. Generators

B. Fuses

C. Switches

D. Relays

Electrical switches act as the controllable points in the path from generation to the load, allowing operators to connect or disconnect parts of the system as needed. This control enables reliability by isolating a faulty section or performing maintenance without shutting down the entire network, and it provides flexibility to reconfigure power flow—for example, routing generation to different feeders or isolating a circuit for load management. Switches also serve as safeguards by quickly opening a circuit to prevent damage or safety hazards when a problem is detected, and they work in concert with protective devices to maintain safe operation. While fuses interrupt current and relays detect faults to trigger protection, it is the switches that provide the deliberate, reconfigurable path along the generator-to-consumer route, making them the best fit for this description.

5. Which current flows when a bank is first energized, not during steady-state operation?

A. Armature current

B. Magnetizing current

C. Load current

D. Friction current

When a transformer bank is energized, the first current that flows is the magnetizing current, sometimes called the exciting current. This current is needed to establish the magnetic flux in the core and it flows even with no load on the secondary. It is largely reactive, and you can see a brief inrush spike at switch-on as the core flux builds, after which it settles to the normal magnetizing current value. Armature current would be the current in rotating machine windings and isn't what appears just from energizing a transformer. Load current would only flow if there is a connected load on the secondary, and friction current isn't a standard term for this context. So the initial current when the bank is energized is the magnetizing current.

6. _____-ratio is the number of turns of wire in the primary winding compared to the number of turns in the secondary winding.

A. Turns

B. Voltage ratio

C. Current ratio

D. Impedance ratio

The number of turns on the primary compared to the secondary defines the transformer turns ratio. This ratio, written as Np/Ns, directly determines how voltages and currents are transformed in an ideal transformer: Vp/Vs ≈ Np/Ns and Ip/Is ≈ Ns/Np. If the primary has more turns, the secondary voltage drops (step-down); if the secondary has more turns, the voltage rises (step-up). The term that fits the blank is turns, since it's the count of windings being compared. The other options describe resulting quantities (voltage, current, impedance) rather than the actual count of turns used to form the ratio, though they are related through the transformer equations.

7. _____ are hook-stick operated and gang-operated.

A. Disconnects

B. Breakers

C. Switches

D. Relays

Disconnects are hook-stick operated and gang-operated. A hook-stick is a long insulated bar that lets the operator move the switch contacts from a safe distance, which is essential when dealing with high voltages. Gang-operated means several disconnect switches are mechanically linked to operate together with a single motion, allowing rapid, simultaneous isolation of a section of the system such as a feeder or bus. This combination is characteristic of isolation devices used to safely disconnect parts of the circuit for maintenance or clearance. Breaker devices are protective and are typically controlled by relays and control circuitry, not operated by a hand-held hook-stick. Switches is a broader term, but the specific hook-stick and gang linkage describe disconnect switches used for isolation. Relays are protective control elements, not manual isolation devices.

8. The current that flows across the gap in air when contacts separate is called the _____.

A. Arc

B. Leakage

C. Inrush

D. Surge

When contacts separate under load, the voltage across the gap rises and the air can become ionized, forming a conductive plasma channel. That flowing current through the ionized air is called an arc. The arc keeps current flowing across the gap until the circuit is opened far enough or the current naturally goes to zero, at which point the arc can be quenched by the breaker's design (arc runners, chutes, or insulating mediums). This arc behavior is different from leakage, which is a small, unwanted current that leaks through insulation when the circuit should be off; from inrush, which is a temporary, large current spike when a device is energized; and from surge, which is a transient overvoltage or overcurrent event—none of these describe the sustained conductive path formed by ionized air across the separating contacts.

9. When energizing large banks, _____ current can be considerable and may negatively affect customer service if not performed properly.

A. Armature current

B. Magnetizing current

C. Reactive current

D. Line current

When you energize large transformer banks, the current needed to establish the magnetic field in the cores—magnetizing current—can surge significantly. This magnetizing, or inrush, current is the no-load current that excites the transformer core to its operating flux. Because it can momentarily be several times the normal full-load current, it can cause voltage dips on downstream customers and nuisance trips if not managed properly. This is why magnetizing current is the best fit: it specifically describes the large, transient current drawn to energize the core, not steady line current or rotor armature current, and not the reactive component in normal loading.

10. Which statement best describes the core material used in transformers?

A. It is non-magnetic

B. It is a highly permeable ferromagnetic material often laminated

C. It is made of copper

D. It is a non-conductive ceramic

Transformers work by guiding magnetic flux along a path of least reluctance, so the core is made from a material that is highly permeable and ferromagnetic. This lets the magnetic field couple efficiently between the windings. The standard choice is silicon steel, formed into thin laminated sheets. The laminations are insulated from one another, which greatly reduces eddy currents and their associated losses when the transformer is operating on AC. This combination—high permeability to channel flux and laminated construction to limit circulating currents—gives an efficient, low-loss core. Choosing a non-magnetic material would impede flux, wasting energy in the core. Copper is used for the windings, not the core, so it wouldn't provide the desired magnetic path. A non-conductive ceramic wouldn't offer the necessary magnetic properties or coil integration, making it unsuitable for the core's role.

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://ladwpcircuitbreakersdisconnectstransformers.examzify.com

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