

LADWP Electric Station Operator - Circuit Breakers, Disconnects, Transformers Practice Test (Sample)

Study Guide



Everything you need from our exam experts!

Copyright © 2026 by Examzify - A Kaluba Technologies Inc. product.

ALL RIGHTS RESERVED.

No part of this book may be reproduced or transferred in any form or by any means, graphic, electronic, or mechanical, including photocopying, recording, web distribution, taping, or by any information storage retrieval system, without the written permission of the author.

Notice: Examzify makes every reasonable effort to obtain accurate, complete, and timely information about this product from reliable sources.

SAMPLE

Table of Contents

Copyright 1

Table of Contents 2

Introduction 3

How to Use This Guide 4

Questions 5

Answers 8

Explanations 10

Next Steps 16

SAMPLE

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

SAMPLE

1. _____ switching performed by Operators is usually in response to power outages and abnormal conditions such as overloads.
 - A. Routine
 - B. Emergency
 - C. Automatic
 - D. Protective

2. The rapid fragmentation of porcelain when a fault current travels along an insulator surface is known as a porcelain _____.
 - A. Grenade
 - B. Fragment
 - C. Arc
 - D. Fuse

3. Which component's surface is involved in porcelain fragmentation due to fault currents?
 - A. Bushing
 - B. Transformer
 - C. Capacitor
 - D. Bus

4. What voltages are typical for the DWP Transmission System?
 - A. 138 kV or 230 kV
 - B. 34.5 kV
 - C. 4.8 kV
 - D. 480 V

5. The mechanical linkage in a circuit breaker is often described as what component, also referred to as the actuating arm or lever?
 - A. Linkage
 - B. Armature
 - C. Lever
 - D. Cam

6. The _____ operation of these electrical switches can pose a serious hazard to personnel, cause destruction of equipment, and cause unnecessary interruptions.
- A. Proper
 - B. Improper
 - C. Routine
 - D. Emergency
7. What is the Department's Subtransmission System voltage?
- A. 34.5 kV
 - B. 138 kV
 - C. 230 kV
 - D. 4.8 kV
8. Which device is used to energize or de-energize transformers and voltage regulators?
- A. Circuit Breakers
 - B. Disconnects
 - C. Fuses
 - D. Relays
9. In a transformer with no moving parts, the losses arise from field excitation and the resistance of what component?
- A. Windings insulation
 - B. Core material
 - C. Cooling system
 - D. External load
10. During surface faults, porcelain fragmentation is observed on the surface of a _____ or insulator.
- A. Bushing
 - B. Conductor
 - C. Transformer
 - D. Panel

Answers

SAMPLE

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

SAMPLE

Explanations

SAMPLE

1. _____ switching performed by Operators is usually in response to power outages and abnormal conditions such as overloads.

A. Routine

B. Emergency

C. Automatic

D. Protective

Emergency switching is the actions Operators take in response to outages or abnormal conditions, such as overloads, to restore service or safely isolate issues. This type of switching is about a real-time, manual response to keep the system stable when something has gone wrong, which fits the scenario of an outage or overcurrent event. Routine switching is planned work, done on the schedule for maintenance or routine reconfiguration, not in reaction to an outage. Automatic switching happens through protective devices and relays without operator intervention, immediately reconfiguring circuits as faults occur or loads need rebalancing. Protective switching involves actions taken to isolate faults to protect equipment, typically driven by protection schemes rather than operator-initiated responses. So the action described—operators reacting to outages and abnormal conditions with intentional switching—best matches emergency switching.

2. The rapid fragmentation of porcelain when a fault current travels along an insulator surface is known as a porcelain _____.

A. Grenade

B. Fragment

C. Arc

D. Fuse

When fault current travels along the surface of a porcelain insulator, the energy concentrates in a narrow path, causing intense local heating and mechanical stress. The porcelain can crack and shatter abruptly, throwing fragments outward in a rapid, explosive manner. This destructive fragmentation is what engineers and field crews refer to as a porcelain grenade. It's different from arcing along the surface, which describes a conductive discharge path rather than a physical breakup of the insulator. The other terms don't capture the violent, explosive breakup of the porcelain, which is why porcelain grenade is the best fit.

3. Which component's surface is involved in porcelain fragmentation due to fault currents?

A. Bushing

B. Transformer

C. Capacitor

D. Bus

Porcelain fragmentation from fault currents happens when the insulating glaze on a porcelain surface is driven into breakdown by the energy of the fault. The HV conductor in equipment like transformers passes through bushings that are made with porcelain to insulate and seal the lead through the enclosure. During a fault, intense current and transient voltages can cause surface discharges (tracking) along the porcelain, especially if the surface is contaminated or moist. This arcing along the surface deposits heat and mechanical stress, causing the porcelain to crack and break apart. The surface involved is the porcelain insulation on the bushing, which is why the bushing is the correct choice. The other components don't present the same porcelain surface in this context, so they aren't the source of porcelain fragmentation.

4. What voltages are typical for the DWP Transmission System?

A. 138 kV or 230 kV

B. 34.5 kV

C. 4.8 kV

D. 480 V

Transmission systems move bulk power over long distances, so they use high voltages to keep currents low and reduce I^2R losses. In the Los Angeles Department of Water and Power network, the bulk transmission voltage levels are typically very high, around 138 kV or 230 kV. The other voltages listed are associated with lower-stage electrical delivery: 34.5 kV is a mid-range or sub-transmission level used in some grids, while 4.8 kV and 480 V are distribution voltages used closer to customers after stepping down from the transmission level. So the high-voltage values of 138 kV or 230 kV best represent the DWP Transmission System.

5. The mechanical linkage in a circuit breaker is often described as what component, also referred to as the actuating arm or lever?

A. Linkage

B. Armature

C. Lever

D. Cam

The movement from the operating mechanism to the actual contact assemblies in a circuit breaker is carried through a set of interconnected bars and pins—the mechanical linkage. This assembly transmits and coordinates motion, providing the proper path and timing for opening or closing the contacts, and it often includes an actuating arm or lever as part of that chain. The armature is a separate magnetic component that can actuate movement in some designs, the lever is just a single piece within the linkage that helps change the direction or magnitude of motion, and a cam is a rotating part used to convert rotation into linear motion in other mechanisms. Because the question describes the whole connecting system that transfers actuation to the contact parts, the term that fits best is linkage.

6. The _____ operation of these electrical switches can pose a serious hazard to personnel, cause destruction of equipment, and cause unnecessary interruptions.

A. Proper

B. Improper

C. Routine

D. Emergency

Operating these switches must be done correctly to prevent arc flash, equipment damage, and unnecessary interruptions. When a switch is operated improperly, steps aren't followed, interlocks or lockouts aren't respected, or the device is used under incorrect conditions (for example, under load or without proper coordination with other devices), conditions that cause an arc or a fault can arise. That arc can injure personnel, and fault conditions can stress contacts, weld them, or trip protection in ways that damage equipment. It can also cause unnecessary outages by tripping or mis-sequencing devices. Proper operation, by contrast, follows the approved procedures, keeps circuits in a safe state, and ensures coordination with protection schemes, which minimizes these hazards. Routine operation is normal handling under controlled conditions, and emergency operation is for urgent fault response, but the hazards described stem from performing actions improperly rather than from the routine or emergency nature of the task.

7. What is the Department's Subtransmission System voltage?

- A. 34.5 kV**
- B. 138 kV**
- C. 230 kV**
- D. 4.8 kV**

Subtransmission sits between the high-voltage transmission network and the local distribution feeders, using a voltage level that carries bulk power efficiently while still allowing reliable step-down to distribution voltages. In this system, 34.5 kV is the voltage used for subtransmission, which makes sense because it can carry substantial power with manageable current and protection requirements, and it steps down to the 4.8 kV distribution feeders for local service. The other options are either typical transmission voltages (138 or 230 kV) or a distribution voltage (4.8 kV), not the subtransmission level.

8. Which device is used to energize or de-energize transformers and voltage regulators?

- A. Circuit Breakers**
- B. Disconnects**
- C. Fuses**
- D. Relays**

Energizing or de-energizing a transformer or voltage regulator is done by a circuit breaker. A breaker can close to supply power to the equipment, or open to remove power, all under control. It also protects the circuit by interrupting fault currents if something goes wrong, which is essential when bringing equipment online or taking it offline safely. Disconnects mainly serve to isolate equipment for maintenance after it's de-energized; they aren't designed to carry or interrupt current during normal operation. Fuses are protective devices that interrupt current if a fault occurs but must be replaced after they blow, so they don't provide a controllable on/off energize/de-energize function. Relays are sensing/control devices that trigger other equipment actions, not the devices that physically connect or disconnect power themselves.

9. In a transformer with no moving parts, the losses arise from field excitation and the resistance of what component?

- A. Windings insulation**
- B. Core material**
- C. Cooling system**
- D. External load**

When a transformer has no moving parts, the main losses come from the magnetic core as it is excited by the primary field. The changing magnetic flux in the core leads to energy loss through hysteresis in the core material and through eddy currents inside the conductive core. These core losses are intrinsic to the core material and scale with the level of field excitation and flux density, which is why the resistance associated with the core material is the source of these losses. Copper losses in the windings are a separate effect due to winding resistance, while the cooling system and insulation don't themselves dissipate significant energy; they merely carry away heat produced by those losses. External load affects the power delivered to the load, not the intrinsic loss mechanisms inside the transformer core.

10. During surface faults, porcelain fragmentation is observed on the surface of a _____ or insulator.

A. Bushing

B. Conductor

C. Transformer

D. Panel

During a surface fault, the current travels along the surface of the insulation rather than through the air, causing arcing and mechanical stress that chips and fragments the porcelain. A bushing is a porcelain-insulated component through which a conductor passes, so its outer porcelain surface is where fragmentation is most readily observed. While conductors, transformers, and panels may be involved in faults, the visible porcelain fragmentation described here is characteristic of the insulating surface—specifically a bushing or insulator.

SAMPLE

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!

SAMPLE