

California Electrical Contractor (C-10) License Practice Exam (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. Which agency enforces safety requirements for electrical workers in California?**
 - A. Cal/OSHA (California Division of Occupational Safety and Health)**
 - B. California Department of Public Health**
 - C. California Department of Motor Vehicles**
 - D. California Department of Education**

- 2. Which entity may file a mechanics lien?**
 - A. A neighboring homeowner**
 - B. The lender**
 - C. The city**
 - D. A contractor or supplier who performed work or supplied materials**

- 3. What is a grounding electrode system and name common components?**
 - A. A system that connects the building to the earth; components include ground rods, metal water piping, and building steel.**
 - B. A system that isolates the building from the earth.**
 - C. A measurement device used to assess soil resistivity.**
 - D. A device that connects the neutral to the grounding electrode only at service entrance.**

- 4. What is a GFCI outlet designed to protect against?**
 - A. Overcurrent**
 - B. Voltage spikes**
 - C. Ground faults**
 - D. Temperature spikes**

- 5. Which statement best describes the minimum working space in front of electrical equipment?**
 - A. 3 feet deep, 24 inches wide, 6 feet 6 inches high.**
 - B. 3 feet deep, 30 inches wide, 6 feet high.**
 - C. 3 feet deep, 36 inches wide, 7 feet high.**
 - D. 3 feet deep, 30 inches wide, 6 feet 6 inches high.**

- 6. Which of the following is not a factor influencing ampacity?**
- A. Conductor length.**
 - B. Conductor size (AWG).**
 - C. Ambient temperature.**
 - D. Conduit fill.**
- 7. What is the difference between a short circuit and an overload condition?**
- A. Short circuit is a fault with very high current; overload is excessive current within normal conditions.**
 - B. Short circuit is a low current; overload is a high current fault.**
 - C. Short circuit always trips immediately; overload never trips.**
 - D. Short circuit is a wiring error only; overload is equipment failure only.**
- 8. What is the purpose of an AFCI?**
- A. To monitor GFCI operation.**
 - B. To detect arcing faults and interrupt to prevent electrical fires.**
 - C. To regulate power factor in circuits.**
 - D. To protect against short circuits by opening on overcurrent.**
- 9. In three-phase systems, what is the formula to calculate current from kVA and voltage?**
- A. $kVA = V \times I$**
 - B. $kVA = V \times I \times 1.73$**
 - C. $kVA = I \times R$**
 - D. $kVA = I \times T$**
- 10. 65 street lights are fed by a 2275-volt series circuit. What is the voltage across each light?**
- A. 25 V**
 - B. 30 V**
 - C. 35 V**
 - D. 40 V**

Answers

SAMPLE

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

SAMPLE

Explanations

SAMPLE

1. Which agency enforces safety requirements for electrical workers in California?

- A. Cal/OSHA (California Division of Occupational Safety and Health)**
- B. California Department of Public Health**
- C. California Department of Motor Vehicles**
- D. California Department of Education**

The main concept is that workplace electrical safety in California is enforced by Cal/OSHA, the California Division of Occupational Safety and Health. Cal/OSHA sets and enforces safety standards to protect electrical workers from hazards like shock, arc flash, and electrocution. It requires proper training, use of personal protective equipment, lockout/tagout procedures, correct wiring methods, and safe installation and maintenance practices. Inspectors enforce these rules, conduct inspections, and can issue citations to ensure compliance. The other agencies focus on areas outside employee safety in electrical work—public health, vehicle regulation, and education—so they aren't responsible for enforcing electrical worker safety standards.

2. Which entity may file a mechanics lien?

- A. A neighboring homeowner**
- B. The lender**
- C. The city**
- D. A contractor or supplier who performed work or supplied materials**

Mechanics liens go to those who actually contributed to improving the property by performing work or supplying materials under a contract. That security interest is intended to ensure payment for labor and materials that enhanced the real property. Because of that, the right to file a mechanics lien belongs to a contractor, subcontractor, or material supplier who performed work or provided materials for the project. A neighboring homeowner does not provide labor or materials to the project, so they don't have a mechanics lien. The city is a public entity that issues permits and enforces codes, not a party seeking payment for the project. The lender finances the project and holds a mortgage, but unless they actually supplied labor or materials (which is uncommon for a lender), they aren't the ones who file a mechanics lien. Therefore, the entity that may file is a contractor or supplier who performed work or supplied materials.

3. What is a grounding electrode system and name common components?

- A. A system that connects the building to the earth; components include ground rods, metal water piping, and building steel.**
- B. A system that isolates the building from the earth.**
- C. A measurement device used to assess soil resistivity.**
- D. A device that connects the neutral to the grounding electrode only at service entrance.**

A grounding electrode system is the network that bonds the electrical system to the earth to establish a stable reference and provide a low-impedance path for fault currents so protective devices can operate. Common components are grounding electrodes such as ground rods driven into the soil, metal water piping that's bonded to the system, and building steel that is connected as part of the grounding path. There can also be other electrode forms like concrete-encased electrodes; all are tied together with a grounding electrode conductor to the service equipment. This setup ensures fault current can flow to earth and helps keep voltages from rising to dangerous levels. The alternative ideas aren't correct because isolating the building from the earth does not provide a fault path, a measurement device is not the grounding system, and bonding neutral to the grounding path at the service entrance describes a specific bonding action rather than the entire grounding electrode system.

4. What is a GFCI outlet designed to protect against?

- A. Overcurrent**
- B. Voltage spikes**
- C. Ground faults**
- D. Temperature spikes**

A GFCI (Ground Fault Circuit Interrupter) outlet is specifically designed to protect against ground faults, which occur when there is an unintended path between the electrical supply and a grounded surface. This can happen, for instance, when a person's body becomes part of the electrical circuit, creating a risk of electric shock. The primary function of a GFCI outlet is to detect differences in the current flowing through the hot and neutral wires, which indicates that current may be leaking to the ground. If such a discrepancy is detected, the GFCI interrupts the circuit almost instantaneously, significantly reducing the risk of serious injury or electrocution. Understanding the role of a GFCI outlet is crucial for safety in areas where water is present, such as kitchens, bathrooms, and outdoor locations. It enhances protection against electrical hazards that may not be prevented by standard circuit breakers, emphasizing the importance of this device in residential and commercial electrical systems.

5. Which statement best describes the minimum working space in front of electrical equipment?

- A. 3 feet deep, 24 inches wide, 6 feet 6 inches high.
- B. 3 feet deep, 30 inches wide, 6 feet high.
- C. 3 feet deep, 36 inches wide, 7 feet high.
- D. 3 feet deep, 30 inches wide, 6 feet 6 inches high.**

The space in front of electrical equipment is set to ensure safe access for operating, inspecting, and servicing the gear. The minimums are three feet of depth from the front of the equipment, at least 30 inches wide (or the full width of the equipment, whichever is greater, but never less than 30 inches), and a height of at least 6 feet 6 inches from the floor (or up to the top of the equipment if it is higher). This matches the description of three feet deep, thirty inches wide, and six feet six inches high. The other options fall short because they don't meet one of the minimums: one is too narrow (24 inches), another is too short in height (6 feet), and while another has a wider width or taller height, it does not describe the required minimum combination.

6. Which of the following is not a factor influencing ampacity?

- A. Conductor length.**
- B. Conductor size (AWG).
- C. Ambient temperature.
- D. Conduit fill.

Ampacity is the maximum current a conductor can carry without carrying insulation heat beyond its rating, and it depends on how much heat is generated and how well that heat can escape. The amount of heat produced by a conductor is I^2R , and what matters for keeping the insulation within its temperature limit are the conductor size, insulation, ambient temperature, and how tightly the conductors are packed in a raceway. Conductor size matters because a larger cross-section has lower resistance, so for the same current, less heat is produced per length and more current can be tolerated. Ambient temperature matters because hotter surroundings reduce the available temperature headroom, lowering the allowable current. Conduit fill matters because more conductors in a confined space hinder heat dissipation, also lowering allowable current. Conductor length, however, does not influence ampacity. While total heat generated grows with length, the heat that must be removed per unit length remains the same for a given current, and longer runs also provide more surface area for cooling, so the per-length temperature rise stays essentially unchanged. That's why length is not a factor in the ampacity rating.

7. What is the difference between a short circuit and an overload condition?

- A. Short circuit is a fault with very high current; overload is excessive current within normal conditions.**
- B. Short circuit is a low current; overload is a high current fault.**
- C. Short circuit always trips immediately; overload never trips.**
- D. Short circuit is a wiring error only; overload is equipment failure only.**

The main idea is distinguishing a fault with a near-zero-impedance path from a condition where the circuit simply carries more current than it was designed to handle. A short circuit is a fault that creates a path of very low resistance, so the supply drives an enormous current through that path. This often happens when insulation fails or conductors touch each other or ground, bypassing the normal load. Because the current spike is so large, protective devices like fuses or breakers tend to trip almost immediately to interrupt the circuit and prevent damage or fire. An overload, on the other hand, happens when the circuit is carrying more current than its rating but the wiring and insulation are not faulted and the current is not driven by a new, low-impedance path. The current is higher than normal, possibly due to too many devices or a single high-wattage device, but it remains within the design limits of the circuit and equipment. Protection can still trip if the overload lasts or heats the conductors, but the underlying issue is excessive load rather than a fault in the conductors themselves. Put simply, a short circuit is a fault with very high current caused by a low-resistance path; an overload is excessive current from too much load on a healthy circuit.

8. What is the purpose of an AFCI?

- A. To monitor GFCI operation.**
- B. To detect arcing faults and interrupt to prevent electrical fires.**
- C. To regulate power factor in circuits.**
- D. To protect against short circuits by opening on overcurrent.**

Arcing faults are a leading cause of electrical fires, so AFCIs are designed to prevent those fires by watching for the distinctive electrical signature an arc makes. An AFCI continuously monitors a circuit and, when it detects an arc—whether it's a loose connection, damaged insulation, or worn conductors—it trips the breaker to interrupt power. This stops the heat generated by the arc from damaging wires and starting a fire. This is different from a GFCI, which protects against shock by sensing ground faults, not arcing. It's not about regulating power factor, which relates to how efficiently a circuit uses voltage and current. And while some AFCIs can provide overcurrent protection as part of their function, their primary purpose is arc-fault detection and interruption to improve fire safety.

9. In three-phase systems, what is the formula to calculate current from kVA and voltage?

A. $kVA = V \times I$

B. $kVA = V \times I \times 1.73$

C. $kVA = I \times R$

D. $kVA = I \times T$

In three-phase systems, power is distributed across three wires, which is why the calculation for current involves a factor known as the square root of three, approximately equal to 1.73. The formula you would use to calculate the current from kilovolt-amperes (kVA) and voltage in a three-phase system is given as $kVA = V \times I \times 1.73$. To break it down further, in a three-phase system, power is not just the product of voltage and current; you must account for the phase difference and the fact that there are three phases working together to deliver the power. Thus, the correct formula integrates the factor of $\sqrt{3}$ (or 1.73) because it adjusts for the geometry of the three-phase system, allowing you to accurately calculate the total current flowing through the system given a specific amount of power (in kVA) and voltage. This understanding is pivotal for electrical professionals, as it ensures proper calculations are made when designing or troubleshooting three-phase electrical systems.

10. 65 street lights are fed by a 2275-volt series circuit. What is the voltage across each light?

A. 25 V

B. 30 V

C. 35 V

D. 40 V

To determine the voltage across each light in a series circuit, you need to divide the total voltage by the number of lights in the circuit. Here, you have 65 street lights and the total voltage feeding them is 2275 volts. To find the voltage across each light, the calculation is as follows: $\text{Voltage per light} = \text{Total Voltage} / \text{Number of Lights}$ $\text{Voltage per light} = 2275 \text{ V} / 65$ Calculating this gives you: $\text{Voltage per light} \approx 35 \text{ V}$ Therefore, each street light receives approximately 35 volts. This reflects the fundamental principle of a series circuit where the total voltage is evenly distributed among all components. Since there are 65 lights receiving the total voltage, dividing the total by the number of lights yields the voltage across each individual light, confirming that 35 volts is indeed the correct answer.

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://californiac10.examzify.com>

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

SAMPLE