

# CALIFORNIA ELECTRICAL CONTRACTOR (C-10) LICENSE PRACTICE EXAM (SAMPLE) STUDY GUIDE



## SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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. The symbol represents a:**

- A. Transformer
- B. Relay coil
- C. Circuit breaker
- D. Switch

**2. What is a GFCI outlet designed to protect against?**

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

**3. Ampacity is defined as:**

- A. The maximum voltage rating of a conductor.
- B. The maximum current a conductor can carry continuously under installation conditions.
- C. The maximum number of loads on a circuit.
- D. The minimum breaker size required.

**4. How is the power rating of a three-phase transformer calculated?**

- A.  $V \times A$
- B.  $V \times A \times 1.414$
- C.  $V \times A \times 1.732$
- D.  $V \times A \times 2.0$

**5. What is the maximum amperage permitted for No. 8 THWN conductor?**

- A. 30 amps
- B. 40 amps
- C. 50 amps
- D. 60 amps

**6. In residential wiring, what is the standard voltage used?**

- A. 120 volts
- B. 240 volts
- C. 480 volts
- D. 600 volts

- 7. If the plumber accidentally cuts installed wires, to whom should you report the problem?**
- A. Electrician
  - B. General Contractor
  - C. Inspector
  - D. Property Owner
- 8. What is the maximum length of flexible metal conduit that can be used without a ground?**
- A. 3 feet
  - B. 6 feet
  - C. 10 feet
  - D. 12 feet
- 9. What is the minimum working clearance from an electrical panel under 600 V?**
- A. 30 inches
  - B. 36 inches
  - C. 42 inches
  - D. 48 inches
- 10. What is one primary function of a conduit?**
- A. To provide structural support
  - B. To house electrical wiring
  - C. To protect against moisture
  - D. To insulate wires from interference

## **Answers**

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

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## **Explanations**

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## 1. The symbol represents a:

- A. Transformer
- B. Relay coil**
- C. Circuit breaker
- D. Switch

The symbol in question represents a relay coil, which is an essential component in electrical and electronic circuits. Relays are electromagnetic switches that utilize a small amount of current to control a larger current. When current flows through the coil, it generates a magnetic field that moves the armature, thereby opening or closing a set of contacts. Determining the correct symbol can be crucial for interpreting a schematic accurately, as each component's symbol conveys specific information about its functionality within a circuit. Unlike the symbols for transformers, circuit breakers, or switches, the relay coil symbol typically consists of a coil graphic, sometimes with connections for input and output, characterized by its distinct representation of the winding. In summary, understanding this symbol as a representation of a relay coil helps in grasping how relays function within electrical systems, allowing for the control of high-power circuits with low-level signals. This knowledge is integral for anyone studying for the California Electrical Contractor (C-10) License, ensuring they can accurately read and interpret electrical schematics.

## 2. 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.

### 3. Ampacity is defined as:

- A. The maximum voltage rating of a conductor.
- B. The maximum current a conductor can carry continuously under installation conditions.
- C. The maximum number of loads on a circuit.
- D. The minimum breaker size required.

*Ampacity is the maximum current a conductor can carry continuously under installation conditions. This reflects how much heat the conductor can safely generate without the insulation or surroundings exceeding their temperature rating, given the specific installation environment. It's not about the voltage a conductor can carry, nor about how many loads are on a circuit, and it doesn't specify the minimum breaker size. In practice, you size the conductor so its ampacity meets or exceeds the expected continuous current, and you select a protective device that will limit current to protect the conductor from overheating. Factors that influence ampacity include the conductor material, the insulation's temperature rating, ambient temperature, and derating for multiple conductors in a raceway or bundle. So ampacity is all about safe current-carrying capacity driven by heat, not voltage rating or the count of loads.*

### 4. How is the power rating of a three-phase transformer calculated?

- A.  $V \cdot A$
- B.  $V \cdot A \cdot 1.414$
- C.  $V \cdot A \cdot 1.732$
- D.  $V \cdot A \cdot 2.0$

*The power rating of a three-phase transformer is calculated using the formula involving voltage, current, and a factor that accounts for the phase configuration of the system. In a three-phase system, the relationship between voltage and current increases the overall power carrying capacity of the transformer. The correct formula for calculating the power rating in a three-phase transformer is the product of the voltage (line-to-line voltage), current, and the square root of three (approximately 1.732). This square root factor arises from the geometry of three-phase systems, where the power delivered is more efficient due to the phase angle differences between the currents. Using  $V \cdot A \cdot 1.732$  effectively incorporates the additional power contributions from the three phases into the overall power rating. This accounts for the fact that the total power is spread across three conductors, resulting in a value that is greater than what would be calculated from a single-phase system. Considering the nature of the question, this understanding not only applies to transformers but is also applicable in various three-phase power calculations in electrical engineering, making it essential knowledge for anyone preparing for the C-10 Electrical License.*

**5. What is the maximum amperage permitted for No. 8 THWN conductor?**

- A. 30 amps
- B. 40 amps
- C. 50 amps**
- D. 60 amps

*The maximum allowable amperage for a No. 8 THWN (Thermoplastic Heat and Water Resistant Nylon-coated) conductor is based on the National Electrical Code (NEC) and its associated tables that outline the ampacity of conductors. For a No. 8 conductor, the maximum ampacity is typically 50 amps under certain conditions, which is in accordance with NEC Table 310.16. In this context, the ampacity can vary depending on several factors, including the installation conditions, the type of insulation, and the ambient temperature. THWN conductors are designed for wet and dry locations and can handle high temperatures. When considering these factors, the specific ampacity for No. 8 THWN in standard conditions is most correctly identified as 50 amps. This makes it important for electrical contractors to refer to the appropriate tables and consider these variables when determining what amperage can safely be carried by this conductor size.*

**6. In residential wiring, what is the standard voltage used?**

- A. 120 volts**
- B. 240 volts
- C. 480 volts
- D. 600 volts

*In residential wiring, the standard voltage used is 120 volts. This voltage level is utilized primarily for lighting and general-purpose receptacles throughout homes. In the United States, 120 volts is the standard for most household appliances and devices, ensuring that they can operate efficiently and safely without the need for special transformers or equipment. The voltage choice of 120 volts is a result of historical standards and safety considerations. It strikes a balance between delivering sufficient power for typical household uses while reducing the risk of electric shock compared to higher voltages. Additionally, the residential electrical systems are typically designed to work in conjunction with 240-volts for specific larger appliances, like dryers and ovens, which allows for versatility in ensuring that each appliance can receive the appropriate power level without creating safety hazards. In contrast, the other voltage levels provided are not standard for residential settings: 240 volts is sometimes used for specific appliances, while 480 volts and 600 volts are primarily found in industrial contexts where higher power is necessary for heavy machinery and equipment.*

**7. If the plumber accidentally cuts installed wires, to whom should you report the problem?**

- A. Electrician
- B. General Contractor**
- C. Inspector
- D. Property Owner

*Reporting the incident to the general contractor is crucial because the general contractor is typically responsible for overseeing the entire construction project and coordinating between various trades, including electricians and plumbers. When one trade inadvertently damages the work of another, the general contractor needs to be informed to manage the situation effectively. They can assess the situation, determine the extent of the damage, and take appropriate steps to ensure that repairs are made and that the project timeline and safety standards are maintained. The general contractor serves as the main point of communication and resolution in these situations, ensuring that all parties are informed and any necessary remediation is planned and executed properly. This approach helps maintain order on the job site and facilitates a collaborative effort to resolve the issue.*

**8. What is the maximum length of flexible metal conduit that can be used without a ground?**

- A. 3 feet
- B. 6 feet**
- C. 10 feet
- D. 12 feet

*The maximum length of flexible metal conduit (FMC) that can be used without a separate grounding conductor is 6 feet. This regulation ensures that electrical installations maintain proper grounding for safety and performance reasons. FMC is typically used in areas where flexibility is needed, but it must still provide adequate grounding protection to prevent electrical shock and ensure equipment safety. If the length exceeds 6 feet, it is generally required to be grounded through a separate means to comply with the National Electrical Code (NEC). Therefore, the correct answer reflects the specified limit set by the code for flexible metal conduit installations where grounding is not provided through the conduit itself.*

**9. What is the minimum working clearance from an electrical panel under 600 V?**

- A. 30 inches
- B. 36 inches**
- C. 42 inches
- D. 48 inches

*The minimum working clearance from an electrical panel under 600 V is specified to be 36 inches. This clearance is important for safety and accessibility, allowing enough space for workers to operate equipment and perform maintenance without risk of injury. The 36-inch requirement is established to ensure that there is sufficient room for technicians to maneuver when working near energized electrical equipment. It also helps to minimize the risk of electrical hazards in case of accidental contacts with live parts during maintenance or troubleshooting. Maintaining this minimum clearance is part of the National Electrical Code (NEC) regulations, which aim to promote safe electrical installations and practices. By adhering to these safety standards, electricians can protect themselves and others from potential dangers associated with high-voltage electrical systems.*

**10. What is one primary function of a conduit?**

- A. To provide structural support
- B. To house electrical wiring**
- C. To protect against moisture
- D. To insulate wires from interference

*A primary function of a conduit is to house electrical wiring. Conduits serve as protective pathways for electrical wires, ensuring that they remain organized and secured while also providing physical protection from damage. This is particularly important in environments where wiring may be exposed to potential physical harm or environmental factors that could lead to degradation of the wires. While conduits can also provide some level of moisture protection depending on the material used (for example, PVC or metal conduits can offer different degrees of moisture resistance), their central purpose centers around the safe housing of electrical conductors. The use of conduits helps greatly in maintaining compliance with electrical codes and standards, enhancing safety and reliability in electrical installations. Other functions such as providing structural support or insulating wires from interference may be relevant to specific contexts, but they are not the primary or defining function of a conduit when it comes to electrical systems.*

## 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](mailto:hello@examzify.com).

Or visit your dedicated course page for more study tools and resources:

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

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