

# Con Edison Basic Electric 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

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- 1. What is a load?**
  - A. A device that generates electrical energy.**
  - B. The source of the circuit's voltage.**
  - C. A conductor with zero resistance.**
  - D. Anything that consumes electricity to create power, such as lights or motors.**
  
- 2. Which detects faults and initiates circuit interruption?**
  - A. Metering Cubicles**
  - B. Protection Relay**
  - C. Area Substation Cubicles**
  - D. Distribution Transformer**
  
- 3. Ohm's Law describes what?**
  - A. The relationship between impedance and admittance**
  - B. The relationship between charge and capacitance**
  - C. The relationship between power and energy**
  - D. The relationship between current, voltage, and resistance.**
  
- 4. In network distribution, the term 'grid of secondary cables' refers to...**
  - A. A single transformer feeding many customers.**
  - B. A backbone of transmission lines.**
  - C. The network of transformers tied together with a grid of secondary cables feeding multiple customers.**
  - D. A set of isolated lines with no interconnection.**
  
- 5. Why is it important to maintain safe distances from energized electrical conductors?**
  - A. They are unnecessary**
  - B. They only matter for high voltage**
  - C. Electrical energy can arc through air and cause injury even without contact, with higher risk at higher voltage**
  - D. They are to avoid heat**

- 6. Which protective measure helps avoid a hand-to-hand current path?**
- A. Standing on a dry rubber mat provides insulation.**
  - B. Wearing insulating gloves guarantees safety.**
  - C. Keeping one hand in your pocket while working inside equipment.**
  - D. Handling energized components with bare hands.**
- 7. What is the main focus of Human Performance Improvement (HPI)?**
- A. Reducing injuries and improving comfort**
  - B. Increasing production and efficiency**
  - C. Reducing errors and managing defenses to prevent significant events**
  - D. Eliminating all procedures and training**
- 8. What is the purpose of advance warning signs?**
- A. To alert motorists of upcoming work areas.**
  - B. To provide shelter for workers.**
  - C. To indicate detours only during emergencies.**
  - D. To speed up traffic through the work zone.**
- 9. Which of the following is an example of a conductor?**
- A. Rubber**
  - B. Glass**
  - C. Plastic**
  - D. Saltwater**
- 10. Pulsating direct current is defined as which of the following?**
- A. A current that moves in one direction but varies in intensity at regular intervals.**
  - B. A current that changes direction and intensity at regular intervals.**
  - C. A constant current.**
  - D. A current with zero amplitude.**

## Answers

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

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## **Explanations**

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## 1. What is a load?

- A. A device that generates electrical energy.
- B. The source of the circuit's voltage.
- C. A conductor with zero resistance.
- D. Anything that consumes electricity to create power, such as lights or motors.**

In electrical circuits, the load is the device that uses electrical energy to perform work or produce another form of energy, such as light, heat, or motion. This is why a lamp or a motor fits the idea of a load—the circuit delivers power to these devices, and they convert that electrical energy into usable energy. So the correct choice describes devices that consume electricity to perform their function. A device that generates electrical energy is a source, not a load. A source provides the voltage or current, not consumes it. A conductor with zero resistance is an ideal wire that doesn't consume power, so it isn't a load either.

## 2. Which detects faults and initiates circuit interruption?

- A. Metering Cubicles
- B. Protection Relay**
- C. Area Substation Cubicles
- D. Distribution Transformer

The device that detects faults and sends the signal to interrupt current is the protection relay. It continuously monitors electrical quantities such as current and voltage (often via sensors like current and potential transformers) and runs protective logic to spot faults like short circuits or ground faults. When a fault is detected, the relay issues a trip command to the circuit breakers, which then interrupt the faulty current to isolate the problem and protect equipment and personnel. Metering cubicles are for measuring and recording energy usage, not for fault detection or tripping. Area substation cubicles are enclosures that may house protective equipment and switchgear, but by themselves they don't perform fault detection. A distribution transformer handles voltage conversion, not fault sensing or interruption. The protection relay is the component that detects faults and initiates the necessary interruption.

### 3. Ohm's Law describes what?

- A. The relationship between impedance and admittance
- B. The relationship between charge and capacitance
- C. The relationship between power and energy
- D. The relationship between current, voltage, and resistance.**

Ohm's Law is about how current through a conductor depends on the voltage across it and the conductor's resistance. In simple DC terms, it's written as  $I = V / R$ , meaning current is proportional to voltage and inversely proportional to resistance. If you raise the voltage while keeping resistance the same, the current increases; if you raise the resistance with the same voltage, the current decreases. This one relationship lets you predict how a circuit responds when you change voltage or resistance, or when you pick a resistor for a desired current. In AC circuits the idea broadens a bit to include impedance, which combines resistance and reactance, and the relationship becomes  $V = I Z$ . But the core idea remains that current, voltage, and resistance (or impedance) are interconnected in determining how much current flows. The other options describe different electrical concepts, such as the link between charge and capacitance or between power and energy, or the broader AC concept of impedance and admittance. They're related topics, but Ohm's Law in its basic form is about the direct relationship among current, voltage, and resistance.

### 4. In network distribution, the term 'grid of secondary cables' refers to...

- A. A single transformer feeding many customers.
- B. A backbone of transmission lines.
- C. The network of transformers tied together with a grid of secondary cables feeding multiple customers.**
- D. A set of isolated lines with no interconnection.

In network distribution, the grid of secondary cables is the interconnected web of low-voltage conductors that ties together multiple transformers to feed many customers. This mesh lets power flow through multiple paths, providing better reliability and flexibility for delivering service even if one path is disrupted. It differs from a single transformer feeding many customers, which is a radial setup; from a backbone of transmission lines, which operate at high voltage and sit upstream of distribution; and from isolated lines with no interconnection, which lacks the redundancy and multiple-supply paths of a grid.

5. Why is it important to maintain safe distances from energized electrical conductors?
- A. They are unnecessary
  - B. They only matter for high voltage
  - C. Electrical energy can arc through air and cause injury even without contact, with higher risk at higher voltage**
  - D. They are to avoid heat

Maintaining safe distances from energized conductors is essential because electrical energy can arc through air and injure you even without making contact. An arc forms when the electric field between the conductor and a person or object ionizes the air, creating a conductive path that current can jump across. If that arc reaches you, it can cause serious burns, electrical shock, or other injuries. The farther the gap, the less likely arcing is; and since the tendency for arcing grows with voltage, higher voltages require larger clearances to prevent an arc. So the key idea is that energy can move through air as an arc, not just through a direct touch, and the risk increases with voltage.

6. Which protective measure helps avoid a hand-to-hand current path?
- A. Standing on a dry rubber mat provides insulation.
  - B. Wearing insulating gloves guarantees safety.
  - C. Keeping one hand in your pocket while working inside equipment.**
  - D. Handling energized components with bare hands.

The main idea is that current travels through any available path between energized points, and a hand-to-hand path through the body can drive current across the chest. Keeping one hand in your pocket prevents a completed circuit between two hands, so there isn't a second contact point for current to flow through your body. The dry rubber mat helps isolate you from the floor, which reduces risk from ground faults, but it doesn't eliminate the possibility of a hand-to-hand path if you touch two live parts with both hands. Insulating gloves can help, but they aren't foolproof—gloves can be damaged or imperfect seals can still allow current to find a path. Handling energized components with bare hands directly creates a path for current and is unsafe. Keeping one hand out of the circuit is the most reliable way to avoid a hand-to-hand current path.

**7. What is the main focus of Human Performance Improvement (HPI)?**

- A. Reducing injuries and improving comfort**
- B. Increasing production and efficiency**
- C. Reducing errors and managing defenses to prevent significant events**
- D. Eliminating all procedures and training**

Reducing human error and building defenses to prevent serious events is what HPI focuses on. It looks at how people interact with tools, procedures, and the work environment, identifying where mistakes are likely to occur and applying training, clear procedures, cues, and system design changes to catch or avert those mistakes before they lead to harm. The aim is a safer, more reliable operation by making human errors more detectable and recoverable, rather than expecting flawless performance. This approach isn't primarily about reducing injuries or increasing production, though better performance can help both. And it isn't about eliminating procedures and training—those are essential defenses in HPI, used to prevent significant events rather than removed.

**8. What is the purpose of advance warning signs?**

- A. To alert motorists of upcoming work areas.**
- B. To provide shelter for workers.**
- C. To indicate detours only during emergencies.**
- D. To speed up traffic through the work zone.**

Advance warning signs are there to alert drivers that a work area lies ahead, giving them time to slow down, merge if needed, and follow detour guidance. This early notice helps create a safer buffer for workers and equipment and reduces the chance of crashes by promoting a controlled approach to the work zone. They aren't for sheltering workers, aren't limited to emergencies, and aren't meant to speed traffic; instead, they encourage reducing speed and driving with extra caution as you approach the area.

**9. Which of the following is an example of a conductor?**

- A. Rubber**
- B. Glass**
- C. Plastic**
- D. Saltwater**

This item tests whether a substance can conduct electric current. Conductors have mobile charge carriers that respond to an electric field, allowing current to flow easily. Saltwater is a conductor because the dissolved salts dissociate into ions that can migrate when voltage is applied; these ions carry charge through the solution and enable current. In contrast, rubber, glass, and plastic are insulators because their electrons are tightly bound and there are few free charge carriers, so these materials resist the flow of electricity. That's why salts in water enable conduction while common plastics, rubber, and glass do not.

**10. Pulsating direct current is defined as which of the following?**

- A. A current that moves in one direction but varies in intensity at regular intervals.**
- B. A current that changes direction and intensity at regular intervals.**
- C. A constant current.**
- D. A current with zero amplitude.**

Pulsating direct current is a flow that keeps its direction in the same way a DC current does, but its magnitude rises and falls in a regular ripple. This happens when AC is converted to DC (for example, with a rectifier) and there isn't enough smoothing to flatten the peaks and valleys. So the current moves in one direction, yet its intensity varies periodically, which matches the described option. In contrast, a current that changes direction and intensity at regular intervals is alternating current with ripple; a constant current would be steady DC with no ripple; and a current with zero amplitude is simply no current at all.

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## 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:**

**<https://conedisonbasicelectric.examzify.com>**

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

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