

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 does resistance describe in an electrical circuit?**
 - A. The energy provided to the circuit.
 - B. The amount a material slows down the flow of current.
 - C. The device that converts current to light.
 - D. The speed of electrons.
- 2. Which is a key to successful implementation of the Rules We Live By?**
 - A. Delegating all safety authority to supervisors.
 - B. Relying on external audits as the sole safety measure.
 - C. Reinforcing personal accountability among employees.
 - D. Focusing on compliance paperwork only.
- 3. Which participants are required to take part in a job briefing?**
 - A. Only the lead supervisor.
 - B. External contractors.
 - C. Safety personnel only.
 - D. All persons involved in the work.
- 4. Which quantity does a voltmeter measure?**
 - A. Current
 - B. Resistance
 - C. Voltage
 - D. Power
- 5. Which statement best describes how HPI views errors?**
 - A. Errors are random and unpreventable
 - B. Errors arise from individual fault only
 - C. Errors result from equipment failure
 - D. Errors reflect weaknesses in both people and systems, requiring defenses
- 6. How does duration affect electrical shock severity?**
 - A. The effect of duration is negligible unless the current is above 1000 mA.
 - B. The duration of current has no impact on injury under any circumstances.
 - C. Even currents as low as 20 mA can cause significant damage or be fatal if sustained for a period.
 - D. Short duration always causes more damage than long duration.

- 7. In network distribution, what best describes the network of customers fed by several network transformers tied together with a grid of secondary cables?**
- A. Transmission system.
 - B. Transmission substation.
 - C. Network Distribution.
 - D. Underground service area.
- 8. Which items are included in the safety equipment when maneuvering vehicles into traffic?**
- A. Good judgment, hard hat, flag, and retroreflective clothing.
 - B. Safety glasses and gloves only.
 - C. Ear protection and sunscreen.
 - D. Steel-toed boots only.
- 9. In circuit notation, which letter is commonly used to denote current?**
- A. I
 - B. R
 - C. V
 - D. E
- 10. An ammeter is used to measure which electrical quantity, and how is it connected?**
- A. It measures voltage.
 - B. It measures current but is connected in parallel.
 - C. It measures current and is connected in series.
 - D. It measures resistance.

Answers

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

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Explanations

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1. What does resistance describe in an electrical circuit?

- A. The energy provided to the circuit.
- B. The amount a material slows down the flow of current.**
- C. The device that converts current to light.
- D. The speed of electrons.

Resistance describes how much a material or component opposes the flow of electric current. It sets how much current will flow for a given voltage, as captured by Ohm's law ($I = V/R$). A higher resistance means greater opposition, so the current is smaller for the same voltage. Resistance depends on what the material is, its size and shape, and also temperature, and it's measured in ohms. It's not about the energy provided to the circuit (that's the voltage or power), it's not about a device that creates light, and it isn't the speed of the electrons (drift velocity).

2. Which is a key to successful implementation of the Rules We Live By?

- A. Delegating all safety authority to supervisors.
- B. Relying on external audits as the sole safety measure.
- C. Reinforcing personal accountability among employees.**
- D. Focusing on compliance paperwork only.

Personal accountability is what makes the Rules We Live By effective. When every employee takes ownership of safety—recognizing hazards, speaking up about unsafe conditions, following procedures, and correcting peers when needed—the daily work environment becomes consistently safer. Why this matters: safety isn't just about who has formal authority or about audits or paperwork. If safety authority is handed only to supervisors, the people actually doing the work may not feel empowered to intervene in real-time. External audits can identify problems, but they don't change how people act in the moment. Focusing only on compliance paperwork creates a checkbox mentality and can miss risky behaviors that aren't documented. Personal accountability ensures safe choices happen every shift, not just during inspections or reviews. To put it into practice, workers are trained to assess risks before starting, use the right PPE and controls, pause or stop work when conditions are unsafe, and promptly report hazards or near-misses. Leadership supports this by empowering workers, recognizing safe actions, and providing a clear pathway for reporting without fear of blame.

3. Which participants are required to take part in a job briefing?

- A. Only the lead supervisor.
- B. External contractors.
- C. Safety personnel only.
- D. All persons involved in the work.**

Everyone involved in the work must participate in the job briefing. The purpose is to ensure that the entire team understands the scope, hazards, controls, and each person's role before work starts. When all participants—workers, the lead supervisor, contractors, safety personnel, and anyone else on site—are briefed, there's a shared understanding of what will be done, what risks exist, and how those risks will be managed. This open communication helps prevent missteps, ensures proper coordination, and makes it easier to respond to any changes or emergencies. If only one group is included, important perspectives and responsibilities can be missed, leaving exposed workers or unseen hazards unaddressed. External contractors or safety staff alone don't cover the people who actually perform the tasks, so requiring everyone involved to take part ensures the plan is comprehensive and actionable.

4. Which quantity does a voltmeter measure?

- A. Current
- B. Resistance
- C. Voltage**
- D. Power

The quantity being tested is the electrical potential difference, or voltage. A voltmeter is designed to measure the difference in electric potential between two points, so you connect it across the component or portion of the circuit you want to inspect. Because it should not significantly alter the circuit, a voltmeter is built with very high input resistance, which minimizes current flow and allows it to sense the potential difference without drawing much current. The reading is given in volts. In case you're comparing with other instruments: an ammeter measures current and is placed in series with a circuit so it can track the flow of electrons through the path. An ohmmeter measures resistance by applying a small test current or voltage and observing the response. A wattmeter measures power, which is the product of voltage and current ($P = V \times I$).

5. Which statement best describes how HPI views errors?

- A. Errors are random and unpreventable
- B. Errors arise from individual fault only
- C. Errors result from equipment failure
- D. Errors reflect weaknesses in both people and systems, requiring defenses**

In HPI thinking, errors are not just random events or the sole fault of a single person, nor are they only about equipment failing. They come from how people interact with the systems around them, including procedures, tools, environment, and organizational practices. Because performance is shaped by both people and the surrounding system, the most effective view is that errors reveal weaknesses in both areas and that we should build defenses to catch and prevent mistakes at multiple points. This approach leads to practical defenses: clear and well-designed procedures, thoughtful human-centered equipment design, thorough training, checklists, independent verification, redundant safeguards, and a culture that encourages reporting and learning from near-misses. By strengthening both the people and the system, you reduce the chance that an individual slip leads to a problem. That's why the statement describing errors as stemming from weaknesses in both people and systems and requiring defenses is the best fit.

6. How does duration affect electrical shock severity?

- A. The effect of duration is negligible unless the current is above 1000 mA.
- B. The duration of current has no impact on injury under any circumstances.
- C. Even currents as low as 20 mA can cause significant damage or be fatal if sustained for a period.**
- D. Short duration always causes more damage than long duration.

The main idea is that how long a current flows through the body matters as much as how strong it is. The body absorbs energy from the electrical current, and this energy turns into heat and can disrupt nerves, muscle control, and heart rhythms. The longer the current flows, the more energy is deposited, so the greater the potential for injury. Even a relatively small current, like about 20 mA, can cause serious damage or be fatal if it is sustained for a few seconds or longer. At this level, muscles can seize, making it hard or impossible to let go of the source, which can prolong exposure. With enough duration, the risk of dangerous heart rhythms increases, leading to potentially fatal outcomes. Short, brief shocks are less likely to cause long-term harm, but extensions of exposure time raise the danger significantly. This is why duration is a critical factor in electrical injury—it's not enough to look at current alone.

7. In network distribution, what best describes the network of customers fed by several network transformers tied together with a grid of secondary cables?

- A. Transmission system.
- B. Transmission substation.
- C. Network Distribution.**
- D. Underground service area.

Network distribution is when several transformers feed a network of secondary cables that are interconnected to supply many customers. This setup creates multiple supply paths, so power can still reach loads if one line or transformer is out, providing greater reliability for a dense local area. It differs from the transmission system, which handles long-distance, high-voltage power, and from a transmission substation, which is the facility that steps voltage down from transmission to distribution levels. It isn't simply an underground service area, which describes how individual customer connections are laid out rather than the overall distribution network topology.

8. Which items are included in the safety equipment when maneuvering vehicles into traffic?

- A. Good judgment, hard hat, flag, and retroreflective clothing.**
- B. Safety glasses and gloves only.
- C. Ear protection and sunscreen.
- D. Steel-toed boots only.

When maneuvering vehicles into traffic, the priority is to be visible, signal clearly, and protect yourself while making safe decisions. Retroreflective clothing helps drivers see you from a distance, especially in low light or bad weather. A flag provides a direct, visible signal to guide vehicle movement, making your intentions clear to approaching drivers. A hard hat adds head protection in a work zone where overhead hazards or accidental bumps could occur. And good judgment ties it all together—assessing traffic conditions, timing your actions, and choosing a safe position and pace for the maneuver. The other options don't provide the same combination of visibility and signaling. Safety glasses and gloves protect the eyes and hands but don't address signaling or staying visible to traffic. Ear protection and sunscreen cover different safety needs that aren't specific to moving vehicles into traffic. Steel toed boots protect feet, but without signaling gear and visibility measures, they don't fully meet the safety requirements for this task.

9. In circuit notation, which letter is commonly used to denote current?

- A. I**
- B. R
- C. V
- D. E

Current is represented by the letter I in circuit notation. This convention comes from the word "intensity" (often used to describe the strength of the flow of charge) and is used consistently across circuit theory and textbooks. In Ohm's law, $V = IR$, the current I is the quantity that flows through a resistor R, linking it directly to the voltage across the element. The other symbols correspond to different quantities: resistance is denoted by R, voltage or potential difference by V, and E is typically used for electromotive force or energy, not current. So I is the natural and widely accepted symbol for current.

10. An ammeter is used to measure which electrical quantity, and how is it connected?

- A. It measures voltage.
- B. It measures current but is connected in parallel.
- C. It measures current and is connected in series.
- D. It measures resistance.

An ammeter measures the flow of electric current and must be connected in series with the circuit so that all the current passes through it. This placement lets the meter read the actual current flowing through the branch. If it were placed in parallel, its very low resistance would create an alternate path, diverting current and distorting the reading or even causing a short. So the correct approach is to measure current in series.

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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.

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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