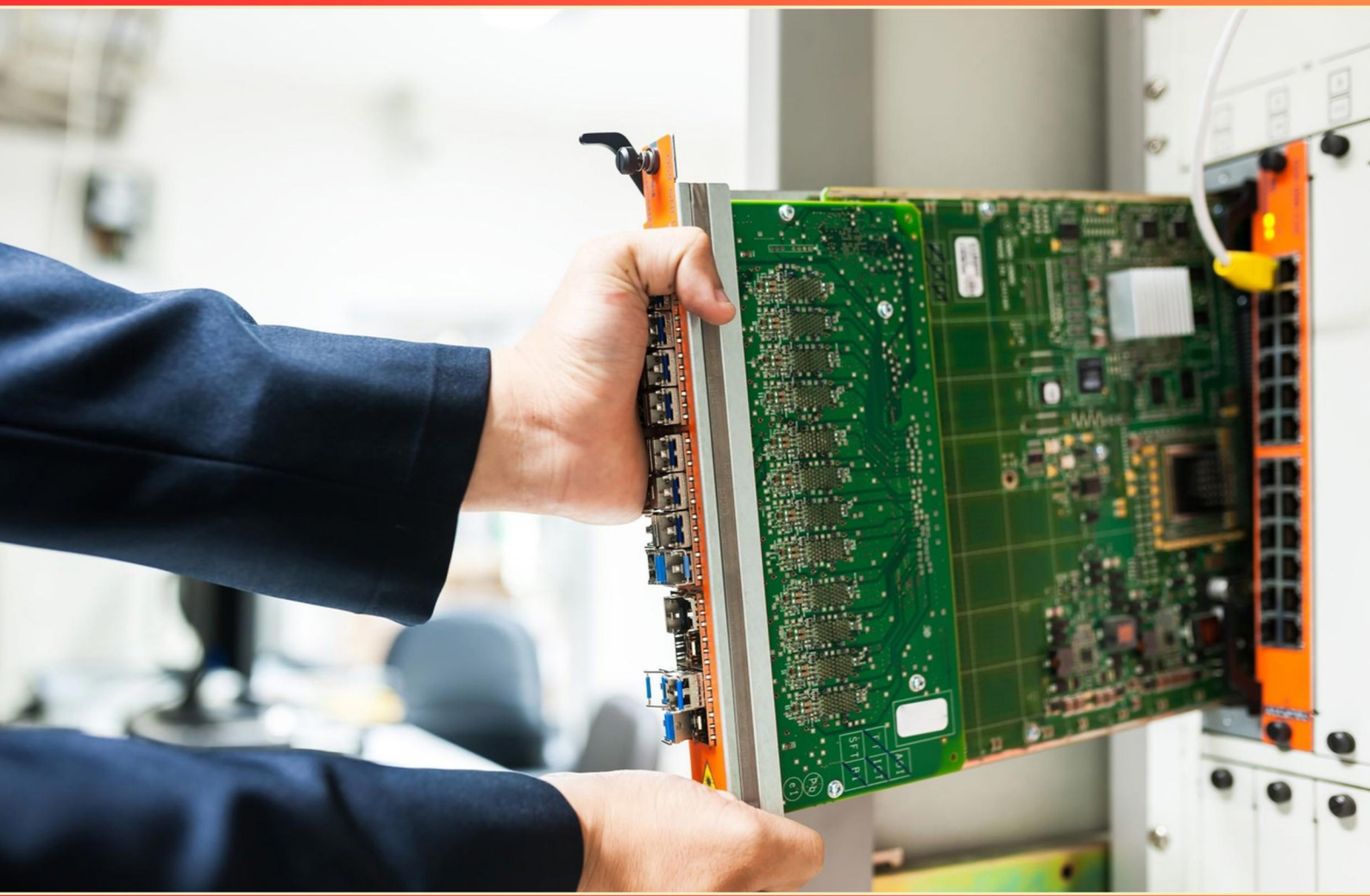
INDEPENDENT ELECTRICAL CONTRACTORS (IEC) YEAR 4 PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

VISIT US ONLINE FOR THE FULL VERSION STUDY GUIDE

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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 15

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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.

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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!

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Questions

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1. The minimum size service disconnect for a single-family dwelling with a computed load of 10 kVA is ___ amps.

A. 30

B. 50

C. 100

D. 60

2. Which of the following is not an element of an energized electrical work permit?

A. Electrical inspector approval

B. Estimate of likelihood and severity

C. Justification for the energized work

D. Safe work practices while performing the task

3. Conductor protection for fire pump motors: the protective device shall be rated at not less than what percent of the motor's full-load current?

A. 80

B. 125

C. 100

D. 150

4. Output circuits in a one-family dwelling supplied by a wind turbine shall be permitted to have a maximum voltage up to ___ V.

A. 125

B. 600

C. 250

D. 300

5. Which device handles the logic for each HVAC piece of equipment in building automation?

A. Gateway

B. Sensor

C. PLC

D. HMI

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6. The grounded conductor for feeders shall be permitted to be sized by adding ___ percent of the continuous load and ___ percent of the noncontinuous load.

A. 125,100

B. 100,125

C. 100,100

D. 100,80

7. In infrared thermography, which property is most directly associated with the rate of energy emission from a surface?

A. Reflectivity

B. Emissivity

C. Thermal conductivity

D. Specific heat

8. Which chapters apply generally unless modified by later chapters?

A. Chapters 5 & 6 only

B. Chapters 1 & 2 only

C. Chapters 1 through 4

D. Chapters 5 through 7

9. In PoE terminology, what best describes the device that receives power from the network?

A. Powered device

B. Power supply

C. Switch

D. Hub

10. What is the feeder demand in amps for a 70′ × 50′ office that is accessible to pedestrians? The office has 25 feet of show window and a connected lighting load of 3,200 VA. All lighting, including any show windows and signs, is continuous. The panel supplying the feeder is 120/240V 1-phase 3-wire.

A. 57.3 A

B. 60 A

C. 64.6 A

D. 65.8 A

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Answers

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

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Explanations

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1. The minimum size service disconnect for a single-family dwelling with a computed load of 10 kVA is ___ amps.

A. 30

B. 50

C. 100

D. 60

The main idea is how the service disconnect is sized for a dwelling. For single-family homes, electrical code sets a minimum rating for the service disconnect at 100 amperes, regardless of the computed load. Here, the computed load is 10 kVA, which is about 41.7 amperes at 240 volts—below 100 A. Because of the dwelling minimum, the service disconnect must be rated at 100 A. This provides headroom for future growth and keeps the service equipment consistently sized for residential use. If the calculated load ever exceeds 100 A, you'd size the disconnect to meet or exceed that load, but you never go below 100 A for a dwelling.

2. Which of the following is not an element of an energized electrical work permit?

A. Electrical inspector approval

B. Estimate of likelihood and severity

C. Justification for the energized work

D. Safe work practices while performing the task

When a task must be performed with equipment energized, the permit focuses on why the energized condition is necessary and how to control the associated hazards. The permit should capture the justification for doing energized work, a reasoned assessment of risk (likelihood and potential severity of exposure), and the safe work practices that will be followed. These elements ensure that the work is clearly authorized, that the risks are understood, and that proper procedures, PPE, and controls are in place before and during the task. An electrical inspector's approval, by contrast, is not a standard part of the on-site energized work permit. The permit is typically issued by the employer or the supervisor responsible for the job, documenting the specific energized-task controls and approvals within that organization. An inspector may verify code compliance in general, but sign-off on every energized-work permit is not a required element. So the item that is not an element of an energized electrical work permit is the electrical inspector approval.

3. Conductor protection for fire pump motors: the protective device shall be rated at not less than what percent of the motor's full-load current?

A. 80

B. 125

C. 100

D. 150

The main idea is to size the protective device so it can tolerate the motor's starting surge while still protecting the conductors from faults. A fire pump motor draws a much higher current when starting than it does in normal running, so using a protection rating at only the running (full-load) current would cause nuisance trips. Setting the protective device at 125% of the motor's full-load current provides enough headroom for start-up inrush without compromising protection against actual faults. While a higher rating (like 150%) would still meet the requirement, 125% is the minimum commonly specified. That's why 125% is the correct choice.

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4. Output circuits in a one-family dwelling supplied by a wind turbine shall be permitted to have a maximum voltage up to ___ V.

A. 125

B. 600

C. 250

D. 300

The key idea is that the energy from a wind turbine feeding a single-family dwelling is limited by the voltage rating of the equipment used in the installation. In residential electrical practice, equipment and insulation used for such circuits are typically rated up to 600 volts. Allowing the wind-turbine output circuits to be up to 600 V keeps the installation within standard equipment ratings while avoiding the need for higher-voltage, more specialized components and wiring practices. Using a higher voltage would require equipment ratings above 600 V and more stringent safety and protection requirements, which aren't generally necessary for a typical dwelling setup. The other voltages listed aren't standard maximums for this type of application: 125 V is a common rating for simple receptacle circuits, not wind-energy output to a dwelling; 250 V and 300 V aren't standard maximums for residential wind-integrated circuits. Therefore, 600 V is the correct maximum.

5. Which device handles the logic for each HVAC piece of equipment in building automation?

A. Gateway

B. Sensor

C. PLC

D. HMI

The device that handles the logic for each HVAC piece of equipment in building automation is the programmable logic controller. A PLC runs a control program that constantly reads inputs from sensors (like temperature, humidity, pressure, occupancy), applies programmed rules and sequencing (setpoints, deadbands, interlocks), and updates outputs to operate actuators (such as contactors, dampers, valves, fans, and pumps). This setup lets the system coordinate multiple components, respond to changes, and maintain desired conditions with reliable timing and safety interlocks. The PLC can be centralized or distributed, and its program can be updated as system needs evolve. Gateways, by contrast, mainly handle communication between different networks and protocols; sensors provide measurements rather than decision-making logic; HMIs offer a human interface for monitoring and manual control but do not execute the control logic themselves.

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6. The grounded conductor for feeders shall be permitted to be sized by adding ___ percent of the continuous load and ___ percent of the noncontinuous load.

A. 125,100

B. 100,125

C. 100,100

D. 100,80

The main idea is that the grounded conductor (the neutral) must be sized to carry the maximum possible return current from all loads on the feeder. Since both continuous and noncontinuous loads can contribute current through the neutral, the sizing rule uses the full value of each type of load. That's why you add 100% of the continuous load and 100% of the noncontinuous load to determine the neutral size. For example, if you have 20 A of continuous load and 30 A of noncontinuous load on the feeder, size the grounded conductor to handle 50 A (20 + 30). The neutral is not reduced by any factor here, so both portions are taken at full value. Other percentage combinations would imply applying reductions or extra allowances to one type of load, which isn't how this sizing rule is applied for the grounded conductor in feeders.

7. In infrared thermography, which property is most directly associated with the rate of energy emission from a surface?

A. Reflectivity

B. Emissivity

C. Thermal conductivity

D. Specific heat

Emissivity is the property that describes how efficiently a surface emits thermal radiation compared with a perfect blackbody. In infrared thermography, what you detect is radiated energy from the surface, which follows $E = \varepsilon\sigma T^4$, so the emission rate scales directly with emissivity. A surface with high emissivity radiates more energy at a given temperature, making it appear hotter in IR images, while a low-emissivity surface radiates less energy and can look cooler even if the temperature is higher. Reflectivity affects how much energy is reflected rather than emitted, so it doesn't set the emission rate itself. Thermal conductivity and specific heat relate to how heat moves through or stores energy in the material, not how much energy is radiated from the surface.

8. Which chapters apply generally unless modified by later chapters?

A. Chapters 5 & 6 only

B. Chapters 1 & 2 only

C. Chapters 1 through 4

D. Chapters 5 through 7

Early chapters establish the baseline rules, definitions, and general principles that apply across most situations. They're written to serve as the default framework you use unless later sections introduce changes. So, the chapters that apply generally are the ones that come first, before any modifications are described in later chapters. In this structure, chapters 1 through 4 provide the general rules, while chapters 5 through 7 introduce modifications or exceptions. That's why the correct answer points to the initial set of chapters as applying generally.

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9. In PoE terminology, what best describes the device that receives power from the network?

A. Powered device

B. Power supply

C. Switch

D. Hub

In PoE, two roles exist: Power Sourcing Equipment (PSE) that provides power, and Powered Device (PD) that uses it. The device that receives power from the network is the Powered Device—the endpoint like an IP camera, VoIP phone, or wireless access point. A switch can be a PSE if it supports PoE, but the device described as receiving power is the PD. Hub devices aren't used for PoE and don't define the power-receiving endpoint.

10. What is the feeder demand in amps for a 70′ × 50′ office that is accessible to pedestrians? The office has 25 feet of show window and a connected lighting load of 3,200 VA. All lighting, including any show windows and signs, is continuous. The panel supplying the feeder is 120/240V 1-phase 3-wire.

A. 57.3 A

B. 60 A

C. 64.6 A

D. 65.8 A

The key idea is how feeder demand is calculated for a space with lighting that is continuously operated and has display (show window) elements. In feeder calculations, continuous lighting loads are increased by 25% (multiply by 1.25) to account for the fact they run for long periods. Then, for spaces that are open to and used by people (such as offices with show windows), a demand factor from NEC tables is applied to reflect usage patterns in that type of space. After applying these factors, you convert the resulting total VA to amperes using the feeder voltage. Step by step: - Lighting load is 3,200 VA. Since lighting is continuous, apply 1.25: 3,200 × 1.25 = 4,000 VA. - Apply the appropriate demand factor for a space with show windows accessible to pedestrians (as specified by the NEC). This yields a total feeder load of 15,792 VA. - The feeder is a 120/240 V single-phase system, so use the 240 V for the current calculation: 15,792 VA ÷ 240 V = 65.8 A. Thus, the feeder demand is 65.8 A. The other numbers correspond to different total VA if the factors were applied differently or not 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.

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

https://iecyear4.examzify.com

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

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