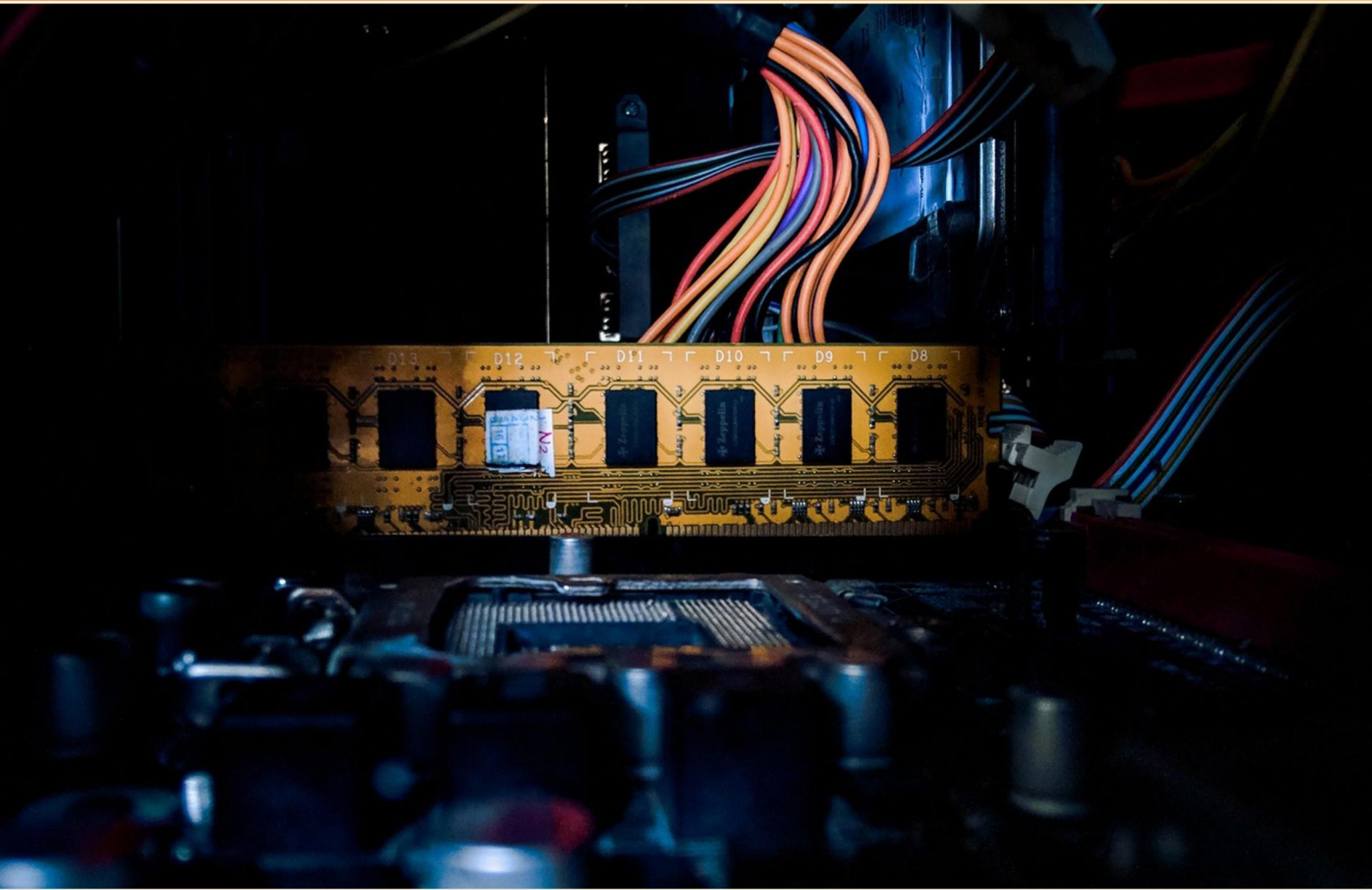


NCCER INTRODUCTION TO ELECTRICAL CIRCUITS (26103-23) PRACTICE TEST (SAMPLE) STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

**VISIT US ONLINE FOR
THE FULL VERSION STUDY GUIDE**

<https://nccerintoeleccircuits2610323.examzify.com>



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	15

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. What is the term for an amount of electric charge equal to 6.25×10^{18} electrons?
 - A. Coulomb
 - B. Ampere
 - C. Volt
 - D. Watt
2. An insulator typically has valence electrons in the valence shell of at least how many?
 - A. two
 - B. five or more
 - C. four
 - D. six
3. Copper is classified as a(n)?
 - A. Conductor
 - B. Insulator
 - C. Semiconductor
 - D. Superconductor
4. Another term used for voltage
 - A. Current
 - B. Voltage
 - C. emf
 - D. Power
5. What is the SI unit of power?
 - A. Watt (W)
 - B. Volt (V)
 - C. Ampere (A)
 - D. Joule (J)

6. What is the circuit current if the voltage source is 120V and the resistance is 10 ohms?
- A. 1A
 - B. 120A
 - C. 12A
 - D. 0.12A
7. Which material is a common conductor?
- A. Copper
 - B. Plastic
 - C. Glass
 - D. Wood
8. Which material is a poor conductor?
- A. Copper
 - B. Aluminium
 - C. Wood
 - D. Water
9. If 6.25×10^{18} electrons pass a point in 2 seconds, what is the current?
- A. 1 Coulomb per second
 - B. 6.25×10^{18} Coulombs per second
 - C. 6.25×10^{18} Coulombs
 - D. 6.25×10^{18} A
10. Which PPE hazard protections does proper PPE provide in electrical work?
- A. It increases circuit complexity.
 - B. It reduces lead resistance.
 - C. It protects from shocks, burns, and arc flash hazards.
 - D. It prevents electromagnetic interference.

Answers

SAMPLE

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

SAMPLE

Explanations

SAMPLE

1. What is the term for an amount of electric charge equal to 6.25×10^{18} electrons?

A. Coulomb

B. Ampere

C. Volt

D. Watt

Charge is measured in coulombs. One coulomb represents the amount of charge carried by about 6.24×10^{18} elementary charges. Since each electron has a charge of roughly -1.602×10^{-19} C, multiplying by 6.25×10^{18} electrons gives about 1 coulomb of charge in magnitude (the negative sign would make it negative one coulomb). The other units describe different things: ampere is current (how fast charge flows), volt is potential difference, and watt is power. So the term for that amount of charge is coulomb.

2. An insulator typically has valence electrons in the valence shell of at least how many?

A. two

B. five or more

C. four

D. six

Electrical conduction depends on how easily electrons can be excited into a conduction path. In insulators, the electrons are tightly bound in the outer shell and the energy gap between the valence band and the conduction band is large. When an atom has five or more valence electrons, those outer electrons are strongly bound in covalent or ionic bonds, which tends to produce a wide band gap. A wide band gap means it takes a lot of energy to free an electron to conduct, so the material resists current flow and acts as an insulator. That's why five or more valence electrons in the outer shell is the typical rule of thumb for insulators. (There are exceptions, such as some materials with four valence electrons that still form insulators due to their network structure, but the general pattern used here centers on five or more.)

3. Copper is classified as a(n)?

A. Conductor

B. Insulator

C. Semiconductor

D. Superconductor

Copper is a conductor. Metals like copper have many free electrons that can move easily when an electric field is applied, creating a path for current to flow with relatively low resistance. This makes copper ideal for wiring and electrical connections. An insulator, by contrast, tightly binds its electrons and resists current flow; a semiconductor has conductivity that can be controlled and is typically between a conductor and an insulator; a superconductor carries current with zero resistance but only at very low temperatures for most materials. Under normal conditions, copper has measurable resistance, so it's not a superconductor.

4. Another term used for voltage

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

Understanding voltage terminology: EMF, or electromotive force, is another term used for voltage. It describes the energy per unit charge that a source can supply to move charges through a circuit, which is what drives current. In an ideal source with no internal resistance, the emf equals the voltage you measure at the source's terminals when no load is connected. In real sources, internal resistance causes a small drop, so the terminal voltage under load is emf minus the $I \cdot R$ drop. Voltage is the general term for the potential difference between two points, which can be across a component or a source, while emf specifically refers to the driving potential generated by a source. Current is the rate of charge flow, not a measure of potential difference, and power is the rate of doing work, equal to voltage times current.

5. What is the SI unit of power?

- A. Watt (W)**
- B. Volt (V)
- C. Ampere (A)
- D. Joule (J)

Power in electrical circuits is the rate at which electrical energy is converted or transferred to another form, such as light, heat, or motion. In SI units, this rate is measured in watts. A watt means one joule of energy moved or used each second, so $P = \text{energy per time}$. In practical terms for circuits, power also equals voltage times current ($P = V \times I$), which aligns with the unit watt since volts times amperes give joules per second. The other units serve different roles: volt measures electrical potential difference, ampere measures current, and joule measures energy. So the SI unit for power is the watt.

6. What is the circuit current if the voltage source is 120V and the resistance is 10 ohms?

- A. 1A
- B. 120A
- C. 12A**
- D. 0.12A

Ohm's Law is at work here: current through a conductor equals voltage divided by resistance ($I = V / R$). With a 120 V source across a 10 Ω resistor, the current is $120 / 10 = 12$ A. So the circuit current is 12 amperes. The other numbers would come from different conditions: 1 A would require only 10 V across 10 Ω , 120 A would need about 1 Ω , and 0.12 A would correspond to about 1.2 V across 10 Ω .

7. Which material is a common conductor?

A. Copper

B. Plastic

C. Glass

D. Wood

Conduction happens best in materials with many free electrons that can move easily. Copper is a metal with a high density of free electrons and low resistivity, so electrical current flows through it with little opposition. That combination makes copper the standard material for wiring and other conductors. In contrast, plastic, glass, and wood resist current strongly (they're insulators), so they don't carry current well and are used to insulate or separate conductors rather than serve as the conductor itself.

8. Which material is a poor conductor?

A. Copper

B. Aluminium

C. Wood

D. Water

Electric current moves most easily through materials that have many mobile charge carriers. Metals like copper and aluminum have lots of free electrons that can flow readily, so they are excellent conductors. Wood, by contrast, is an insulating material. In dry wood there are few free charges to carry current, and its structure includes air gaps and tightly bound molecules that resist the movement of electrons. That's why wood does not conduct electricity well. Water's conductivity depends on impurities: pure water conducts poorly, but ordinary tap water contains ions that carry charge, so it can conduct better than dry wood. So among common materials, wood behaves as a poor conductor.

9. If 6.25×10^{18} electrons pass a point in 2 seconds, what is the current?

A. 1 Coulomb per second

B. 6.25×10^{18} Coulombs per second

C. 6.25×10^{18} Coulombs

D. 6.25×10^{18} A

Current is the rate at which charge passes a point: $I = \Delta Q / \Delta t$. Each electron carries a charge of 1.602×10^{-19} C. If 6.25×10^{18} electrons pass in 2 seconds, the total charge is $Q = (6.25 \times 10^{18}) \times (1.602 \times 10^{-19} \text{ C}) \approx 1.00$ C. Now divide by the time to get the current: $I = Q / \Delta t \approx 1.00 \text{ C} / 2 \text{ s} \approx 0.50 \text{ A}$. So the current is about 0.5 Coulombs per second (0.5 A). The magnitude is 0.5 A, and the direction would be opposite to the actual electron flow for conventional current. The other options either ignore the time interval or confuse total charge with current.

10. Which PPE hazard protections does proper PPE provide in electrical work?

- A. It increases circuit complexity.
- B. It reduces lead resistance.
- C. It protects from shocks, burns, and arc flash hazards.
- D. It prevents electromagnetic interference.

Proper PPE in electrical work is designed to shield you from energy that can injure you. It provides protection from electric shocks by insulating you from current, from burns by preventing skin and tissue damage from heat or arc heat, and from arc flash hazards by containing and reducing the energy released during an arc. PPE doesn't change how a circuit behaves, so it won't increase circuit complexity, affect lead resistance, or prevent electromagnetic interference. Instead, it works alongside safe-work practices and procedures like de-energizing circuits and lockout/tagout to keep you safer on the job.

SAMPLE

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://nccerintrotoeleccircuits2610323.examzify.com>

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

SAMPLE