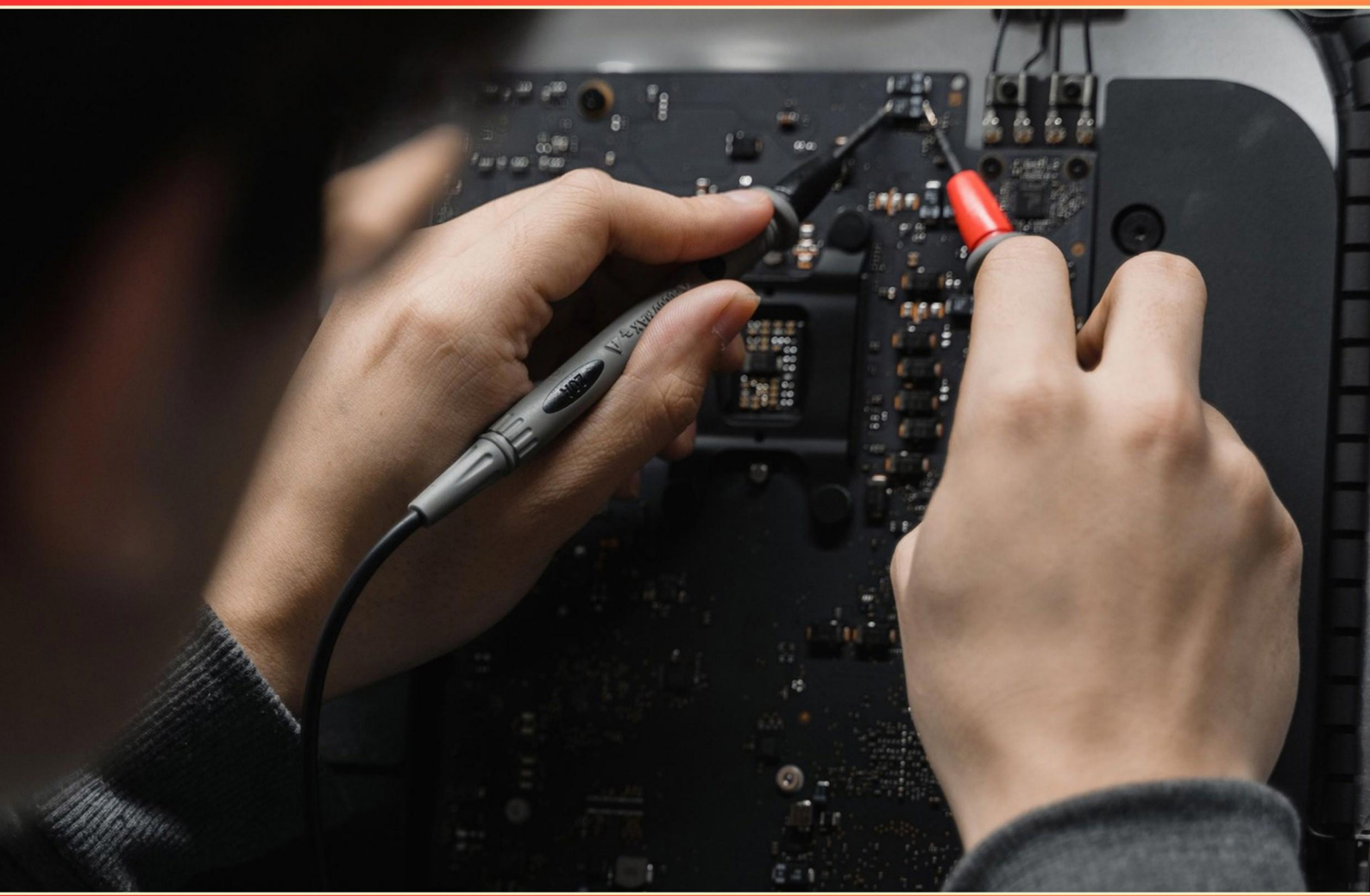
BASIC ELECTRICITY PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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https://basicelectricity.examzify.com

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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

1. What term describes a circuit in which electrons can flow from the power source to the load and back?

A. Open circuit

B. Short circuit

C. Complete circuit

D. Isolated circuit

2. In an AC circuit, the current or voltage values are typically specified as which type of value?

A. Peak values

B. Effective values

C. Average values

D. Instantaneous values

3. The control valve switch must be placed in the neutral position when the landing gears are down to _____.

A. Delay the horn

B. Immediately sound the horn

C. Prevent the warning horn from sounding when the throttles are closed

D. No effect

4. A 5-band resistor has bands Brown, Black, Black, Red, Gold. What is its resistance and tolerance?

A. 1 kΩ ±5%

B. 100 Ω ±5%

C. 1 MΩ ±5%

D. 10 kΩ ±5%

5. In a parallel lighting circuit, if one of the three bulbs is removed, what happens to the total resistance?

A. It increases

B. It decreases

C. It stays the same

D. It becomes zero

6. If the supply voltage doubles while the total resistance remains constant, the total current will

A. double

B. increase fourfold

C. remain the same

D. increase twofold

7. What is the basic unit of inductance?

A. The Farad

B. The Henry

C. The Volt

D. The Ohm

8. How is capacitance defined in terms of charge and voltage?

A. Voltage per unit charge (V/C)

B. Energy per charge (J/C)

C. Current per voltage (A/V)

D. Charge per unit voltage (C/V)

9. In a parallel circuit with three 6-ohm resistors across a 12-volt battery, what is the current through each resistor?

A. 4 amps

B. 2 amps

C. 1 amp

D. 0.5 amps

10. What is the purpose of lockout/tagout procedures in electrical work?

A. To ensure equipment is energized during maintenance

B. To ensure equipment remains powered during maintenance

C. To prevent maintenance from starting

D. To ensure equipment is de-energized and cannot be turned on during maintenance

Answers

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

Explanations

1. What term describes a circuit in which electrons can flow from the power source to the load and back?

A. Open circuit

B. Short circuit

C. Complete circuit

D. Isolated circuit

Current can flow only when there is a closed path for the charges to travel. A complete circuit provides a continuous loop from the power source, through the load, and back to the source, so electrons can leave the source, pass through the load, and return, delivering power in the process. If the loop is broken, no current flows, which is what an open circuit describes. A short circuit is a closed path with very low resistance that bypasses the load, so while current can flow, it doesn't go through the intended device. An isolated circuit isn't connected to a power source or load, so no current flows either. Therefore, the term that best fits electrons flowing from the power source to the load and back is a complete circuit.

2. In an AC circuit, the current or voltage values are typically specified as which type of value?

A. Peak values

B. Effective values

C. Average values

D. Instantaneous values

AC voltages and currents vary with time, so we use a single number that reflects the actual power they can deliver. That number is the RMS (root-mean-square) or effective value. It's defined so that the power in a resistor with AC voltage equals the same as with a steady DC voltage of the same magnitude, i.e., P = V_rms^2 / R = I_rms^2 R. For a sinusoidal signal, V_rms is the peak voltage divided by sqrt(2); the same relation holds for current. If we used peak values, power ratings wouldn't have a consistent basis; the average value over a full cycle for a sine wave is zero, which isn't useful for power. Instantaneous values describe the exact momentary reading, but ratings and comparisons require a stable measure, hence RMS. Devices and systems are thus specified by effective (RMS) values.

3. The control valve switch must be placed in the neutral position when the landing gears are down to _____.

A. Delay the horn

B. Immediately sound the horn

C. Prevent the warning horn from sounding when the throttles are closed

D. No effect

When the landing gear are down, the warning horn system is designed to stay quiet unless there's a true fault. Placing the control valve switch in the neutral position isolates the throttle-position input from the horn circuit, so closing the throttles won't trigger the horn. This keeps the cockpit from hearing a nuisance warning during approach or after landing when gear are down. Therefore, the correct outcome is to prevent the warning horn from sounding when the throttles are closed. The other options would either imply delaying or triggering the horn, or having no effect, which doesn't align with how the interlock is intended to work.

4. A 5-band resistor has bands Brown, Black, Black, Red, Gold. What is its resistance and tolerance?

A. 1 kΩ ±5%

B. 100 Ω ±5%

C. 1 MΩ ±5%

D. 10 kΩ ±5%

Reading a 5-band resistor involves three significant digits, a multiplier, and a tolerance. Brown, Black, Black give 1-0-0, so the digits are 100. The multiplier band is red, which represents 10^2 (100), so 100 × 100 = 10,000 ohms. The final band is gold, meaning a tolerance of ±5%. So the resistor is 10 kΩ with ±5% tolerance.

5. In a parallel lighting circuit, if one of the three bulbs is removed, what happens to the total resistance?

A. It increases

B. It decreases

C. It stays the same

D. It becomes zero

In a parallel circuit, the total resistance depends on how many separate paths for current exist. Each extra path lowers the overall resistance because current has more routes to flow through. For three identical bulbs in parallel, the combined resistance is one-third of a single bulb's resistance. If one bulb is removed, only two paths remain, so the total resistance becomes one-half of a single bulb's resistance, which is higher than the three-path case. So the total resistance increases. It wouldn't decrease, stay the same, or become zero as long as at least one path remains.

6. If the supply voltage doubles while the total resistance remains constant, the total current will

A. double

B. increase fourfold

C. remain the same

D. increase twofold

Voltage and current are directly related when resistance stays fixed: I = V / R. If you double the voltage while the resistance remains the same, the current doubles too. For example, with V = 10 V and R = 5 Ω, the current is 2 A. If V becomes 20 V, the current becomes 20/5 = 4 A. So the current increases by a factor of two. The other possibilities don't fit because a fourfold increase would require quadrupling the voltage or changing the resistance, which isn't happening here. Leaving the current unchanged would require no voltage change or a compensating change in resistance. The phrasing "increase twofold" conveys the same doubling of current as "double," so the essential result is that the current doubles.

7. What is the basic unit of inductance?

A. The Farad

B. The Henry

C. The Volt

D. The Ohm

Inductance is measured in henries. The henry is defined by the relationship V = L di/dt, where voltage across the inductor equals the inductance times the rate of change of current. This means a circuit with 1 henry of inductance produces 1 volt when the current is changing at 1 ampere per second. In other words, L = V / (di/dt), so 1 H corresponds to V = 1 × (di/dt) with di/dt = 1 A/s giving V = 1 V. The other units shown—farad (capacitance), volt (voltage), and ohm (resistance)—do not measure inductance.

8. How is capacitance defined in terms of charge and voltage?

A. Voltage per unit charge (V/C)

B. Energy per charge (J/C)

C. Current per voltage (A/V)

D. Charge per unit voltage (C/V)

Capacitance tells you how much charge a capacitor can store for a given voltage. It is defined as the charge divided by the voltage: C = Q / V. This makes the units coulomb per volt, and the standard SI unit is the farad. The other descriptions don't fit because: voltage per unit charge would be the reciprocal of capacitance (1/C), not C itself; energy per charge is voltage (J/C equals volts), which isn't a measure of capacitance; and current per voltage isn't a fixed ratio for a capacitor since i = C dv/dt, so the relation depends on how quickly the voltage changes.

9. In a parallel circuit with three 6-ohm resistors across a 12-volt battery, what is the current through each resistor?

A. 4 amps

B. 2 amps

C. 1 amp

D. 0.5 amps

In a parallel circuit, each resistor experiences the full battery voltage, so the same voltage appears across every branch. The current through a resistor is I = V/R, so with 12 volts across a 6-ohm resistor, each branch draws I = 12/6 = 2 amperes. Since all three resistors are identical, each one carries 2 A, and the total current drawn from the battery would be 3 × 2 A = 6 A. The other numbers would correspond to different branch resistances (for example, a 3-ohm branch would give 4 A, a 12-ohm branch 1 A, and a 24-ohm branch 0.5 A), but the current through each resistor here is 2 A.

10. What is the purpose of lockout/tagout procedures in electrical work?

A. To ensure equipment is energized during maintenance

B. To ensure equipment remains powered during maintenance

C. To prevent maintenance from starting

D. To ensure equipment is de-energized and cannot be turned on during maintenance

Lockout/tagout practices are used to prevent unexpected energization and the release of stored energy during electrical work. The main goal is to ensure the equipment is de-energized and cannot be turned on while a technician is servicing it. This is done by isolating the energy source, applying a lock to the disconnecting device, and affixing a tag that identifies who is working and what is being done. The lock prevents the switch or breaker from being re-energized, while the tag warns others not to restore power. After the work is completed and verified safe, the power is restored only by the person who applied the lock. This protects workers from shock, arc flash, burns, and other hazards that could occur if energy were unexpectedly applied.

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://basicelectricity.examzify.com

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