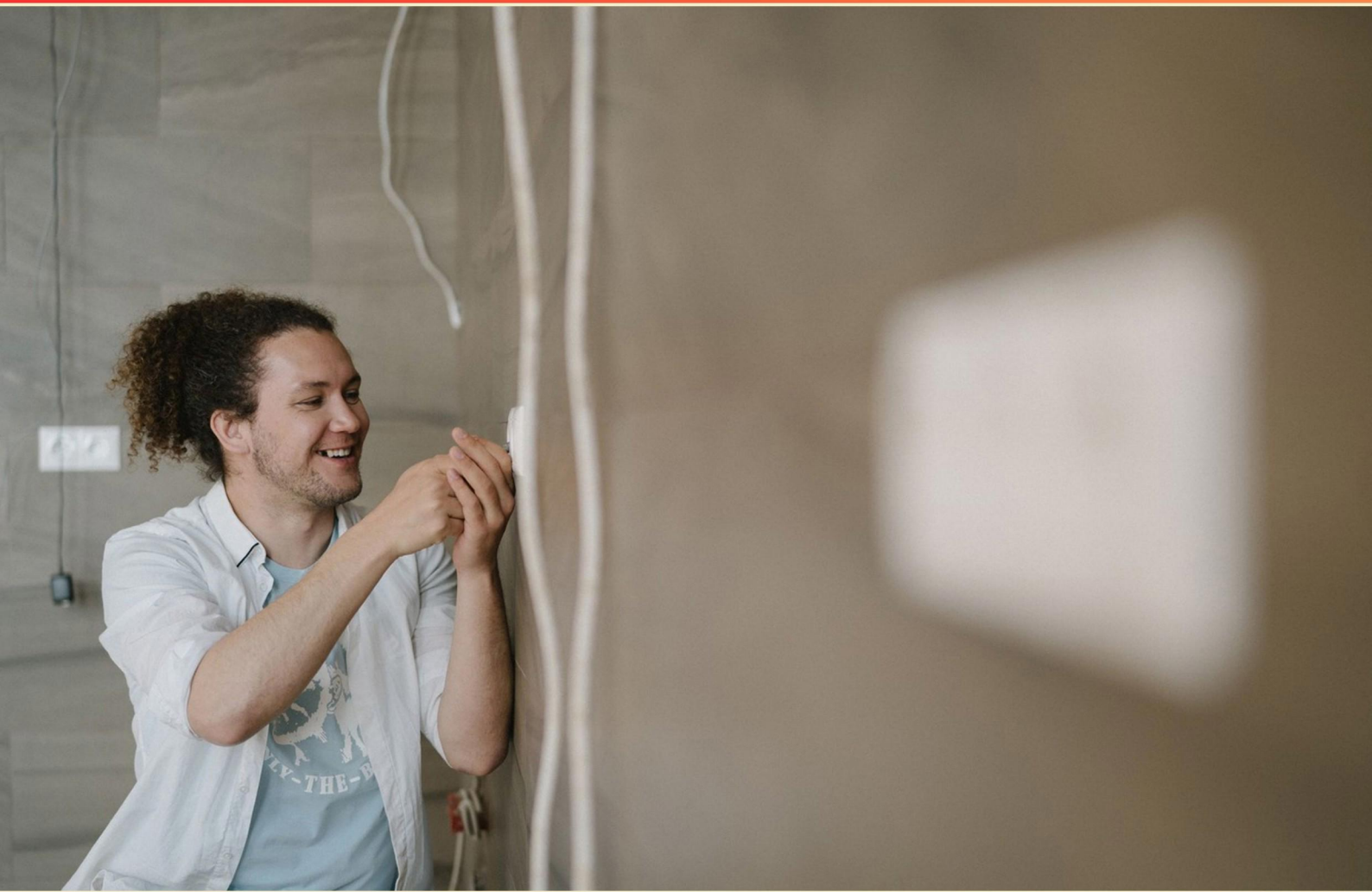


3RD YEAR ELECTRICAL TRADES QUALIFICATION (TQ) PRACTICE EXAM (SAMPLE) STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

VISIT US ONLINE FOR
THE FULL VERSION STUDY GUIDE

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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. Where should the relief vent be added on a bank of eight lavatories?**
 - A. In the central utility room
 - B. At the most downstream circuit vented fixture
 - C. At the upstream end
 - D. At the end of the main drain line
- 2. Copper losses in a transformer are caused by winding resistance.**
 - A. Core losses
 - B. Magnetic saturation
 - C. Winding resistance
 - D. Core cooling
- 3. State the standard domestic supply in Australia.**
 - A. 230 V nominal, 50 Hz.
 - B. 240 V nominal, 60 Hz.
 - C. 110 V nominal, 60 Hz.
 - D. 400 V nominal, 50 Hz.
- 4. Core losses in transformers are comprised of hysteresis and eddy currents.**
 - A. False
 - B. Partly true
 - C. True
 - D. Not defined
- 5. Spacing for gang showers?**
 - A. 750 mm / 30 inches
 - B. 600 mm / 24 inches
 - C. 900 mm / 36 inches
 - D. 500 mm / 20 inches
- 6. How is AC conductor voltage drop typically calculated in practice?**
 - A. $\Delta V = I \times Z$, with length and temperature corrections.
 - B. $\Delta V = I \times Z^2$.
 - C. $\Delta V = V \times I$.
 - D. $\Delta V = P / V$.

- 7. What is the function of an RCD and what is a typical domestic trip current?**
- A. It detects imbalance between live and neutral and trips when leakage exceeds its rating; typical domestic trip current is 30 mA.
 - B. It provides overcurrent protection for short circuits.
 - C. It regulates voltage to appliances.
 - D. It protects against voltage transients.
- 8. What is the clean out size on a branch serving six lavatories?**
- A. 1/2 inch
 - B. 1 inch
 - C. 2 inch
 - D. 3 inch
- 9. What is the required gas pressure test for piping 200 feet or less?**
- A. 50 psi 60 mins
 - B. 15 psi 15 mins
 - C. 5 psi 10 mins
 - D. 25 psi 30 mins
- 10. In a multi-purpose system, which load takes priority?**
- A. Domestic
 - B. Space heating
 - C. Hot water
 - D. Cooling

Answers

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

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Explanations

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1. Where should the relief vent be added on a bank of eight lavatories?

- A. In the central utility room
- B. At the most downstream circuit vented fixture**
- C. At the upstream end
- D. At the end of the main drain line

When multiple lavatories drain into a common line, traps can siphon if the downstream flow creates a vacuum. A relief vent supplies air to the drain to break that vacuum as the fixtures drain. Placing the relief vent at the farthest downstream fixture in the vented circuit ensures air can move back along the entire run, protecting every trap along the bank. If you put the vent elsewhere, parts of the run might not receive sufficient air to prevent siphonage. So the best placement is at the most downstream fixture that is part of the vented circuit.

2. Copper losses in a transformer are caused by winding resistance.

- A. Core losses
- B. Magnetic saturation
- C. Winding resistance**
- D. Core cooling

Copper losses come from the resistance of the windings. When current flows through the winding copper, its finite resistance dissipates power as heat, described by $P = I^2 R$. This loss is localized in the windings and is what we call copper loss. Core losses, in contrast, arise from the magnetic core material—hysteresis and eddy currents—and occur in the core, not the windings. Magnetic saturation is about the core's flux limit, not a direct loss mechanism, and cooling affects how heat is removed rather than creating the loss itself. So the winding resistance is the source of copper losses.

3. State the standard domestic supply in Australia.

- A. 230 V nominal, 50 Hz.**
- B. 240 V nominal, 60 Hz.
- C. 110 V nominal, 60 Hz.
- D. 400 V nominal, 50 Hz.

Australia's standard domestic supply is 230 V nominal, 50 Hz. This means the voltage between live and neutral is about 230 volts RMS, and the system operates at 50 cycles per second. Appliances are designed to work within this range, and the frequency of 50 Hz keeps motors and timing devices running consistently across the country. The other figures refer to different electrical systems: 240 V at 60 Hz would align with some regions outside Australia, 110 V at 60 Hz is typical of North American systems, and 400 V at 50 Hz indicates a three-phase industrial supply rather than a standard home supply.

4. Core losses in transformers are comprised of hysteresis and eddy currents.

- A. False
- B. Partly true
- C. True**
- D. Not defined

Core losses in transformers consist of two mechanisms: hysteresis losses and eddy current losses. Hysteresis losses come from the magnetic domains in the core material not aligning instantly with the changing magnetic field as the AC waveform cycles, so energy is dissipated as heat with each cycle. Eddy current losses arise because the changing magnetic flux induces circulating currents in the conductive core, and these currents also heat the material. The total core loss is the sum of these two components, while copper losses come from the resistance of the windings and are separate from core losses. Therefore, the statement is true.

5. Spacing for gang showers?

- A. 750 mm / 30 inches**
- B. 600 mm / 24 inches
- C. 900 mm / 36 inches
- D. 500 mm / 20 inches

Spacing between adjacent gang showers must allow safe access to each unit and prevent spray from one shower from interfering with the next. The standard spacing is 750 mm (about 30 inches) from center to center. This provides enough room for a person to stand in front of a shower, reach the controls, and move to safety without crowding the neighboring unit, while also reducing the chance of water impacting the adjacent shower area. Spacing smaller than this, like 600 mm (24 inches) or 500 mm (20 inches), tends to be too tight for comfortable and safe operation. A larger gap, such as 900 mm (36 inches), uses more space than typically required for most layouts.

6. How is AC conductor voltage drop typically calculated in practice?

- A. $\Delta V = I \times Z$, with length and temperature corrections.**
- B. $\Delta V = I \times Z^2$.
- C. $\Delta V = V \times I$.
- D. $\Delta V = P / V$.

In AC circuits the voltage drop along a conductor comes from the impedance the current encounters, not just pure resistance. The drop is found with Ohm's law for AC: the drop is the current times the impedance, $\Delta V \approx I \times |Z|$ (using the magnitude of Z to get the size of the drop). Z combines resistance and reactance ($Z = R + jX$), so the drop depends on both how much resistance the conductor has and how much reactive effect its inductance and capacitance create. To apply this in practice you use the impedance per unit length of the conductor and multiply by the length, giving $Z \approx Z_{\text{per_length}} \times L$, then calculate $\Delta V = I \times |Z|$. Temperature matters because resistance rises with temperature, so you apply a correction to R : $R(T) = R_{\text{ref}} \times [1 + \alpha (T - T_{\text{ref}})]$. Reactance can also play a role, but for many practical short runs the magnitude of $I Z$ is a good overall indicator. If X is small, you can approximate $\Delta V \approx I \times R$. The other formulas don't describe how AC voltage drop arises and don't give the correct relationship.

7. What is the function of an RCD and what is a typical domestic trip current?

- A. It detects imbalance between live and neutral and trips when leakage exceeds its rating; typical domestic trip current is 30 mA.**
- B. It provides overcurrent protection for short circuits.
- C. It regulates voltage to appliances.
- D. It protects against voltage transients.

An RCD's job is to monitor the current in the live and neutral conductors and trip the circuit if there is any leakage to earth. This imbalance means some current is escaping the intended path, which could flow through a person and cause an electric shock. When leakage exceeds the device's rating, the RCD quickly disconnects the circuit to reduce the risk. A typical domestic RCD rating is around 30 mA, chosen to provide fast protection for people while avoiding nuisance trips from normal small leakage currents. The other functions listed—overcurrent protection for short circuits, voltage regulation, and protection against voltage transients—are handled by other devices (like fuses/MCBs, voltage regulators, or surge protectors), not by an RCD.

8. What is the clean out size on a branch serving six lavatories?

- A. 1/2 inch
- B. 1 inch
- C. 2 inch**
- D. 3 inch

The main idea is that a cleanout should be sized to the drain it accesses. When a branch serves multiple fixtures, the branch itself is sized to handle the combined flow, and the cleanout is then made the same size as that branch so you have proper access for clearing blockages. For a branch feeding six lavatories, the common practice is to use a 2-inch drain branch. A 2-inch cleanout allows adequate access and capacity for clearing the line, whereas a smaller size would limit access and capacity, and a much larger size is not typically required for a bathroom group. So the correct cleanout size is two inches.

9. What is the required gas pressure test for piping 200 feet or less?

- A. 50 psi 60 mins
- B. 15 psi 15 mins**
- C. 5 psi 10 mins
- D. 25 psi 30 mins

Gas piping pressure testing checks for leaks by raising the installed piping to a specified test pressure for a set time. For piping 200 feet or less, the standard requirement is to pressurize to 15 psi and hold for 15 minutes. This level is high enough to reveal leaks in typical small-diameter gas piping without risking damage to fittings or components, and the duration is long enough to show whether the system holds pressure reliably. Larger or longer runs would require higher pressures or longer test times, but short runs use this 15 psi for 15 minutes as the baseline.

10. In a multi-purpose system, which load takes priority?

- A. Domestic**
- B. Space heating
- C. Hot water
- D. Cooling

In a multi-purpose system, domestic hot water takes priority because it's an essential, time-critical demand. When hot water is drawn, occupants expect immediate hot water, so the control system directs the boiler's energy toward heating the domestic hot water storage or coil first. Only after DHW demand is met does the system allocate energy to space heating or cooling. This priority ensures a reliable supply of hot water even if other loads are calling for heat or cooling.

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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://3rdyreelectricaltq.examzify.com>

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

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