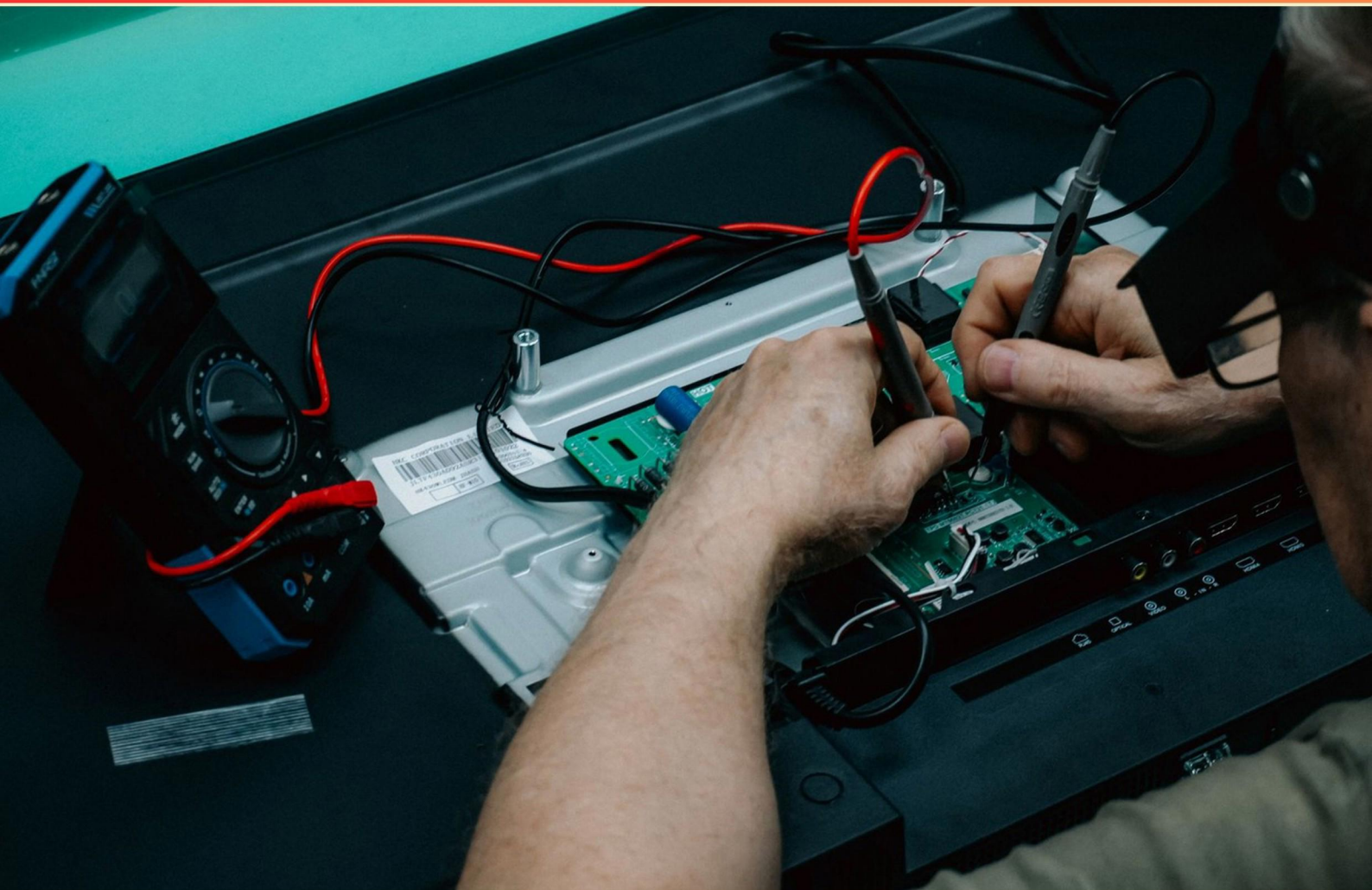


ERJ-145 ELECTRICAL PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

VISIT US ONLINE FOR
THE FULL VERSION STUDY GUIDE

<https://erj145electrical.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

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- 1. Which of the following is NOT powered by the Ground Service Bus?**
 - A. Galley lights
 - B. Cockpit dome lights
 - C. Baggage/service compartment lights
 - D. Flight deck oxygen system

- 2. During an in-flight total loss of generators, which power source energizes the essential buses?**
 - A. External power
 - B. APU power
 - C. Batteries
 - D. Batteries to supply the Essential Buses (in-flight only)

- 3. What is the role of the APU generator in electrical distribution?**
 - A. It powers cabin lights only.
 - B. It provides an additional AC power source, often powering essential and/or main AC buses when engines are not driving generators.
 - C. It powers the landing gear.
 - D. It is used only on the ground and not during flight.

- 4. How might cockpit displays indicate a loss of AC power?**
 - A. Immediate engine shutoff.
 - B. External power indicator lights still on.
 - C. Loss of display data, EICAS/ECAM warnings, reduced brightness, or standard caution indications.
 - D. No changes; displays stay on.

- 5. What happens to BTC2 if the #1 Generator fails with the APU generator available?**
 - A. BTC2 closes
 - B. BTC2 remains closed
 - C. BTC2 opens
 - D. BTC2 disconnects

6. During an electrical emergency, how many minutes can the batteries supply essential power, including APU start attempts?
- A. 20 minutes
 - B. 40 minutes
 - C. 60 minutes
 - D. 10 minutes
7. When does the APU Line Contactor close?
- A. At 90% RPM
 - B. Immediately on start
 - C. At 95% RPM
 - D. At 95% RPM plus 7 seconds
8. Which statement best describes the role of the essential AC bus?
- A. To power critical avionics and flight instruments and remain energized during certain faults.
 - B. To power main cabin lighting.
 - C. To supply hydraulic pumps.
 - D. To power the standby instruments only.
9. How do you re-energize the essential DC bus after a TRU failure?
- A. Replace both TRUs immediately.
 - B. Use the remaining TRU or battery to supply the essential DC bus; ensure the essential AC bus is energized and verify DC voltages.
 - C. Disconnect all loads, reset CBs.
 - D. Use external power only.
10. A battery must be removed from the aircraft for charging below what voltage?
- A. 19 VDC
 - B. 24 VDC
 - C. 16 VDC
 - D. 21 VDC

Answers

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

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Explanations

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1. Which of the following is NOT powered by the Ground Service Bus?

- A. Galley lights
- B. Cockpit dome lights
- C. Baggage/service compartment lights
- D. Flight deck oxygen system**

Ground Service Bus powers nonessential cabin services when external power is available, so items like galley lights, cockpit dome lights, and baggage/service compartment lights are fed by it to aid servicing and passenger comfort on the ground. The flight deck oxygen system, however, is part of the emergency crew oxygen supply and must function independently of normal ground power. It relies on its own gas supply and regulators rather than electrical power from the Ground Service Bus, ensuring breathable air for the crew even if other electrical power is unavailable. That independence is why the flight deck oxygen system is the correct choice for NOT being powered by the Ground Service Bus.

2. During an in-flight total loss of generators, which power source energizes the essential buses?

- A. External power
- B. APU power
- C. Batteries
- D. Batteries to supply the Essential Buses (in-flight only)**

When all generators are lost in flight, the aircraft relies on its emergency power source to keep critical systems alive. In the ERJ-145, the essential buses are powered by the batteries. External power is not available in flight, and the APU's generator is not contributing in this scenario, so the only remaining energy path to the essential buses is the battery. The "in-flight only" note reminds you that on the ground there may be different power arrangements, but during flight the batteries provide the essential power to keep the critical systems operational for a safe approach and landing.

3. What is the role of the APU generator in electrical distribution?

- A. It powers cabin lights only.
- B. It provides an additional AC power source, often powering essential and/or main AC buses when engines are not driving generators.**
- C. It powers the landing gear.
- D. It is used only on the ground and not during flight.

The APU generator serves as an extra AC power source for the aircraft's electrical distribution. It can feed the essential and main AC buses when the engine-driven generators aren't available or during engine start, ensuring vital systems, avionics, lighting, and other electrical loads stay powered. This power source is not limited to cabin lighting and it isn't restricted to ground use; it can be used in flight as well if required.

4. How might cockpit displays indicate a loss of AC power?

- A. Immediate engine shutoff.
- B. External power indicator lights still on.
- C. Loss of display data, EICAS/ECAM warnings, reduced brightness, or standard caution indications.**
- D. No changes; displays stay on.

When cockpit displays lose their AC power, the signs you'll see are centered on the displays themselves failing to refresh data and dimming, with warning or advisory messages appearing. Primary indicators such as EICAS or ECAM pages may show no data or a degraded presentation, and the backlighting or brightness typically decreases. These cues collectively signal a power fault to the display system without implying immediate engine action or other unrelated faults. Immediate engine shutdown isn't caused by a loss of display power, and external power lights staying on doesn't guarantee full display operation since the buses feeding the displays may be affected. If power is restored or standby power is available, you might see some relief of these symptoms, but the characteristic response to AC power loss is degraded or blank data with caution/alert messages.

5. What happens to BTC2 if the #1 Generator fails with the APU generator available?

- A. BTC2 closes
- B. BTC2 remains closed
- C. BTC2 opens**
- D. BTC2 disconnects

When a generator drops offline, the electrical system reconfigures to isolate the failed source and rely on the remaining healthy source. The bus transfer contactors (BTCs) control cross-connection between the DC buses. With the #1 generator failed and the APU available, the system opens BTC2 to prevent backfeeding into the failed generator and to keep the two buses separated so the APU can power the load without fighting the failed source. This ensures proper source priority and avoids reverse power flow. If BTC2 stayed closed, there could be unwanted cross-connection that risks backfeeding the failed generator and destabilizing the power distribution.

6. During an electrical emergency, how many minutes can the batteries supply essential power, including APU start attempts?

- A. 20 minutes
- B. 40 minutes**
- C. 60 minutes
- D. 10 minutes

During an electrical emergency, the batteries are relied on to keep essential systems alive while you work to restore power from other sources. The endurance figure for essential power is calculated to include the energy used during APU start attempts, because starting the APU is a standard step to bring generating power back online. For the ERJ-145, the batteries are sized so that essential systems can be powered for about 40 minutes even when you are attempting to start the APU. This gives crews enough time to try to start the APU and, if successful, to bring the generators back on line while maintaining essential flight deck and avionics power. The other durations are not the designed endurance; 40 minutes reflects the aircraft's emergency battery capability including APU start attempts.

7. When does the APU Line Contactor close?

- A. At 90% RPM
- B. Immediately on start
- C. At 95% RPM
- D. At 95% RPM plus 7 seconds**

The APU Line Contactor closes only after the APU is ready to supply stable electrical power and won't connect to the electrical bus during start. It waits for the APU to reach 95% RPM, which shows the unit has reached near steady-state operation and can deliver proper voltage and frequency. After that, a 7-second delay allows transient effects to settle and confirms the power is stable before connection. When both conditions are met, the contactor closes to tie the APU to the aircraft buses. If the APU doesn't reach 95% RPM or doesn't hold for the 7-second window, the contactor stays open to protect the electrical system.

8. Which statement best describes the role of the essential AC bus?

- A. To power critical avionics and flight instruments and remain energized during certain faults.**
- B. To power main cabin lighting.
- C. To supply hydraulic pumps.
- D. To power the standby instruments only.

The essential AC bus is dedicated to keeping the most critical flight equipment powered and available even when electrical faults occur. It is sized and isolated so that, if other parts of the electrical system fade or fail, the crew still has power for the essential avionics and flight instruments that provide attitude, guidance, and critical information needed to fly safely. That's why this bus is described as powering critical avionics and flight instruments and remaining energized during certain faults. Main cabin lighting and other nonessential systems are not the focus of this bus, and hydraulic pumps are not served by this essential AC bus. Standby instruments may be powered by related essential or standby power paths, but the essential AC bus covers more than just standby instruments.

9. How do you re-energize the essential DC bus after a TRU failure?

- A. Replace both TRUs immediately.
- B. Use the remaining TRU or battery to supply the essential DC bus; ensure the essential AC bus is energized and verify DC voltages.**
- C. Disconnect all loads, reset CBs.
- D. Use external power only.

Essential DC power comes from transformer-rectifier units that convert AC on the essential AC bus into the DC needed by critical systems. If a TRU fails, you can still restore power to the essential DC bus by using the remaining TRU, as long as the essential AC bus feeding that TRU is energized. On the ground or in flight, this typically means the generators or APU (or external power on the ground) are supplying the essential AC bus so the remaining TRU can deliver DC to the essential bus. If needed, the battery can also back up the essential DC bus to provide a temporary source of power while you verify and monitor voltages. After re-energizing, check the DC voltages to confirm they're within the normal range and that critical systems have the power they require.

10. A battery must be removed from the aircraft for charging below what voltage?

A. 19 VDC

B. 24 VDC

C. 16 VDC

D. 21 VDC

The main idea is safe, controlled charging by isolating the battery from the aircraft when it is very discharged. When the battery voltage drops to around 19 V DC, it's considered deeply discharged, and charging it with the battery still connected to the aircraft can risk backfeeding the aircraft electrical system, energizing unintended circuits, or causing uncontrolled current paths. Removing the battery lets you charge it on a dedicated bench charger, where the charging current can be precisely controlled without interacting with the aircraft's power bus. Since a 24 V aircraft system uses a battery that sits at about 24 V when healthy and decreases as it discharges, 19 V is the practical threshold where isolation for charging becomes necessary. Leaving it connected above that point is acceptable because the aircraft's system isn't at risk, but below that, safe, isolated charging is required.

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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://erj145electrical.examzify.com>

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

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