

Airframe Electrical 2 Practice Test (Sample)

Study Guide



Everything you need from our exam experts!

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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. How is a failed alternator detected and indicated to the pilot?**
 - A. The system monitors ambient temperature and lights a warning if too hot**
 - B. The system detects abnormal voltage or current and triggers a warning light or annunciator**
 - C. Automatic engine shutdown occurs**
 - D. The cockpit displays a graphic of the alternator on the screen**

- 2. Commutators are used to do this on _____ generators:**
 - A. mechanical means to rectify/convert AC to DC in the armature**
 - B. increase efficiency of insulation**
 - C. balance load**
 - D. cool the windings**

- 3. Why is a diode OR-ing arrangement used when multiple power sources are present?**
 - A. It averages outputs from all sources to create a stable supply.**
 - B. It prevents backfeeding between sources and allows the highest available source to power the loads while isolating others.**
 - C. It regenerates DC power from AC.**
 - D. It filters out noise from each source.**

- 4. Which statement best describes the readiness impact of the battery master switch?**
 - A. It does not affect readiness**
 - B. It controls whether power is available for starting and systems operation**
 - C. It governs fuel flow**
 - D. It alters voltage output of alternator**

- 5. What is the role of protection devices in an interconnected aircraft power system?**
 - A. They isolate sources or prevent backfeed during faults.**
 - B. They continuously connect all sources to all loads.**
 - C. They store energy for standby power.**
 - D. They provide visual indicators only.**

- 6. Which protective device is a one-time device that opens the circuit when overloaded and cannot be reset?**
- A. Fuse**
 - B. Circuit breaker**
 - C. Relay**
 - D. Switch**
- 7. What is the function of a transformer-rectifier unit in some aircraft?**
- A. It supplies alternating current to the bus.**
 - B. It converts DC to AC.**
 - C. It converts AC power to DC and regulates it to supply DC loads such as avionics and instruments.**
 - D. It stores energy for peak demand.**
- 8. In a distributed power architecture, which bus powers critical systems?**
- A. Main bus powers noncritical loads.**
 - B. Both buses power some critical loads.**
 - C. Essential bus powers critical systems.**
 - D. The main bus powers critical systems.**
- 9. What does continuity testing assess, and what is an acceptable result for a wiring harness?**
- A. Continuity testing measures insulation resistance.**
 - B. Continuity testing checks for an unbroken path; acceptable readings are a low resistance value.**
 - C. It tests for cross-talk.**
 - D. It verifies amperage capacity of the wire.**
- 10. Why is bonding to the airframe important, and what could happen if bonding is inadequate?**
- A. Bonding reduces stray currents and corrosion and improves electrical performance; inadequate bonding can cause arcing, erratic instrument operation, or corrosion**
 - B. Bonding increases fuel efficiency**
 - C. Bonding has no effect on electrical systems**
 - D. Bonding only affects radio reception**

Answers

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

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Explanations

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1. How is a failed alternator detected and indicated to the pilot?

- A. The system monitors ambient temperature and lights a warning if too hot**
- B. The system detects abnormal voltage or current and triggers a warning light or annunciator**
- C. Automatic engine shutdown occurs**
- D. The cockpit displays a graphic of the alternator on the screen**

The system detects an alternator problem by watching the electrical output and alerting the pilot when it falls outside normal limits. It continuously monitors the alternator's output voltage and current; if voltage drops too low (or the current/charging capability is abnormal), a warning light or annunciator comes on. This immediate indication lets the pilot know the electrical system isn't being supported by the alternator, so loads can be managed, and battery power or standby sources can be used if available. Other options don't fit because ambient temperature monitoring isn't how an alternator fault is signaled, and automatic engine shutdown doesn't typically occur just from generator failure—the engine usually continues running and the pilot must handle power management. Displaying a graphic of the alternator isn't the standard, immediate indication pilots rely on during a fault.

2. Commutators are used to do this on _____ generators:

- A. mechanical means to rectify/convert AC to DC in the armature**
- B. increase efficiency of insulation**
- C. balance load**
- D. cool the windings**

Commutators act as a mechanical rectifier in DC machines. As the armature turns, each winding generates an alternating emf, but the commutator is arranged with insulated copper segments so that the connection to the external circuit is reversed with each half turn. This keeps the current delivered to the load in one direction, effectively converting the AC produced in the armature into DC for the output. The other options don't reflect the function of a commutator—they relate to insulation, load balancing, or cooling, which aren't what the commutator does.

3. Why is a diode OR-ing arrangement used when multiple power sources are present?
- A. It averages outputs from all sources to create a stable supply.
 - B. It prevents backfeeding between sources and allows the highest available source to power the loads while isolating others.**
 - C. It regenerates DC power from AC.
 - D. It filters out noise from each source.

Diode OR-ing lets multiple power sources share the load while keeping them isolated from each other. Each source has a diode in series to the common load, so current can flow from the source to the load, but not from one source back into another. This means the load is supplied by whichever source currently has the higher voltage; if one source drops, the others continue to power the load automatically without backfeeding into the weaker sources. It's a simple, automatic way to provide redundancy and prevent each source from feeding into the others. Keep in mind the forward voltage drop of the conducting diode, which reduces the load voltage by roughly 0.2-0.7 V depending on diode type (Schottky diodes have lower drops). This needs to be accounted for in the design. Other options don't fit because averaging outputs, rectifying AC, or filtering noise aren't the goals of diode OR-ing.

4. Which statement best describes the readiness impact of the battery master switch?
- A. It does not affect readiness
 - B. It controls whether power is available for starting and systems operation**
 - C. It governs fuel flow
 - D. It alters voltage output of alternator

The main idea is that the battery master switch controls whether the aircraft's electrical system is connected to the battery, which directly affects readiness. When the switch is ON, the battery can supply power to the starter and to essential systems, so you can start the engine and operate avionics, lights, pumps, and other equipment. When the switch is OFF, the electrical system is isolated from the battery, reducing battery drain and preventing inadvertent operation of systems. This switch does not govern fuel flow, nor does it set or change the voltage output of the alternator. Fuel flow is managed by the fuel system, and alternator voltage is regulated by its own regulator and requires the electrical system to be connected to the battery to influence loads.

5. What is the role of protection devices in an interconnected aircraft power system?

- A. They isolate sources or prevent backfeed during faults.**
- B. They continuously connect all sources to all loads.**
- C. They store energy for standby power.**
- D. They provide visual indicators only.**

Protection devices in an interconnected aircraft power system are there to isolate sources or prevent backfeed during faults. When a fault happens on one generator or feeder, protective relays and breakers trip to disconnect that source from the common bus. This stops fault current from energizing other sources or feeding into a fault path, protecting generators, wiring, and equipment and helping the remaining system continue to power critical loads. In practice, these devices also work with bus-tie switches to reconfigure the network so essential systems stay powered while the faulty section is isolated. That's why this option is the best: it describes the core protective role—breaking the connection to a source to prevent backfeed and limit fault impact. The other choices describe functions that aren't the primary role of protection devices in this context: continuous connection of all sources to all loads would risk backfeed and widespread faults; storing energy for standby power is an energy-storage function, not protection; and being only visual indicators ignores the active protective action these devices perform.

6. Which protective device is a one-time device that opens the circuit when overloaded and cannot be reset?

- A. Fuse**
- B. Circuit breaker**
- C. Relay**
- D. Switch**

Overcurrent protection that is used up and cannot be reset is provided by a fuse. A fuse contains a metal conductor designed to melt or vaporize when the current exceeds its rating, causing the circuit to open and stop the current flow. This intentional failure protects wiring and equipment from damage due to overload or a short circuit. Because the fusible element is destroyed, it cannot be reset; you replace the fuse after it blows. In contrast, a circuit breaker also interrupts current when there's an overload, but it trips and can be reset after the fault is cleared. A relay is an electrically actuated switch used in control circuits, not primarily a protective device for overloads. A switch is a manual control and does not automatically interrupt power due to overload.

7. What is the function of a transformer-rectifier unit in some aircraft?

A. It supplies alternating current to the bus.

B. It converts DC to AC.

C. It converts AC power to DC and regulates it to supply DC loads such as avionics and instruments.

D. It stores energy for peak demand.

In aircraft electrical systems, you often have AC power available from generators, and many loads—like avionics and instruments—need stable DC power. A transformer-rectifier unit takes that AC input, rectifies it to DC, and then regulates the output to a steady DC voltage suitable for the DC buses. This means it provides clean, consistent DC power (often around 28 V) to the DC loads and can supply the necessary current while keeping voltage within limits. That's why the correct description is that it converts AC power to DC and regulates it to supply DC loads. It doesn't supply AC to the bus, nor convert DC to AC, nor store energy for peak demand (that's the role of other components like inverters or batteries).

8. In a distributed power architecture, which bus powers critical systems?

A. Main bus powers noncritical loads.

B. Both buses power some critical loads.

C. Essential bus powers critical systems.

D. The main bus powers critical systems.

In distributed power architecture, loads are divided by importance so critical systems stay powered even if part of the system isn't. The essential bus is the dedicated path for those critical systems, providing the power they need under normal and fault conditions. The main bus handles noncritical loads, so a fault or load change on the main bus won't necessarily affect essential equipment. That's why the statement that the essential bus powers critical systems is the best fit: it reflects the deliberate separation of power paths to protect vital functions. Statements that place noncritical or mixed-critical loads on the essential path, or imply the main bus also powers the critical systems, don't align with this purpose.

9. What does continuity testing assess, and what is an acceptable result for a wiring harness?

- A. Continuity testing measures insulation resistance.**
- B. Continuity testing checks for an unbroken path; acceptable readings are a low resistance value.**
- C. It tests for cross-talk.**
- D. It verifies amperage capacity of the wire.**

Continuity testing checks for an unbroken electrical path between two points. In a wiring harness, you're verifying that each conductor runs from end to end without a break, so the current can flow freely. The best result is a low resistance value, ideally near zero ohms for a single, intact conductor. A reading that's high or infinite means there's an open somewhere in the path, indicating a break. The exact "acceptable" low value can vary with wire length and gauge, but it should be much lower than an open-circuit reading. Perform the test with power off and across the conductor's two ends (or through the harness connector) to avoid misleading results from energized circuits. This test specifically confirms a continuous path, unlike insulation resistance testing (which checks for leaks in insulation) or measurements of cross-talk or amperage capacity.

10. Why is bonding to the airframe important, and what could happen if bonding is inadequate?

- A. Bonding reduces stray currents and corrosion and improves electrical performance; inadequate bonding can cause arcing, erratic instrument operation, or corrosion**
- B. Bonding increases fuel efficiency**
- C. Bonding has no effect on electrical systems**
- D. Bonding only affects radio reception**

Bonding provides a low-impedance return path and keeps all metal parts of the aircraft at the same electrical potential. This minimizes stray currents, helps prevent galvanic corrosion at joints and fasteners, and stabilizes voltages so electrical systems operate reliably. When bonding is inadequate, voltage differences can build up across surfaces or between conductors and the airframe, leading to arcing, especially if a fault or static charge is present. Arcing can damage equipment and wiring, cause erratic instrument readings or interference with avionics, and accelerate corrosion at connection points. Bonding also helps control EMI, aiding radios and other sensitive systems to function consistently.

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://airframeelectrical2.examzify.com>

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

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