

Avionics Electronics Technician (AET) 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 often should aircraft pitot-static systems be inspected?**
 - A. Every month**
 - B. Every two years**
 - C. At least once a year**
 - D. Every five years**

- 2. Which of the following is NOT a function of the avionics systems?**
 - A. Navigation**
 - B. Automatic flight controls**
 - C. Propulsion management**
 - D. Communication**

- 3. Which electrical components are primarily used for voltage regulation in aircraft avionics?**
 - A. Batteries and capacitors**
 - B. Voltage regulators and transformers**
 - C. Resistors and inductors**
 - D. Generators and circuit breakers**

- 4. What is the negative feedback path in a crystal oscillator?**
 - A. Completely separate from the crystal's pathway**
 - B. The same as the crystal's pathway**
 - C. Dependent on external components**
 - D. An adjustable feature**

- 5. What happens to the output signal in a full wave rectifier compared to the input signal?**
 - A. The output signal is always lower**
 - B. The output signal is smoother**
 - C. The output signal is inverted**
 - D. The output signal maintains the same frequency**

- 6. Which law is used to determine the amount of induced voltage in a conductor?**
- A. Ohm's Law**
 - B. Faraday's Law**
 - C. Kirchhoff's Law**
 - D. Newton's Law**
- 7. What is the required separation minimum between aircraft in controlled airspace?**
- A. 1,000 feet vertically and 1 mile laterally**
 - B. 3,000 feet vertically and 1 mile laterally**
 - C. 5,000 feet vertically and 3 miles laterally**
 - D. 2,000 feet vertically and 2 miles laterally**
- 8. What is the effect of increasing the load resistance in a circuit with a fixed voltage source?**
- A. Current through the circuit will increase.**
 - B. Current through the circuit will decrease.**
 - C. Current through the circuit will remain the same.**
 - D. Current will fluctuate unpredictably.**
- 9. What is the characteristic of a diode's forward bias resistance?**
- A. High**
 - B. Low**
 - C. Variable**
 - D. Infinite**
- 10. What is a key operational characteristic of an asynchronous counter?**
- A. Each flip-flop is triggered independently**
 - B. Each flip-flop triggers the next in sequence**
 - C. Each flip-flop operates without a clock**
 - D. Each flip-flop has a fixed output**

Answers

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

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Explanations

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1. How often should aircraft pitot-static systems be inspected?

- A. Every month**
- B. Every two years**
- C. At least once a year**
- D. Every five years**

Inspections of aircraft pitot-static systems are crucial for ensuring the accuracy and reliability of various flight instruments that rely on this system, including the airspeed indicator, altimeter, and vertical speed indicator. The industry standard for the frequency of pitot-static system inspections typically mandates that these systems be checked at least once a year. This annual inspection helps to verify the integrity of the system, check for blockages, ensure proper operation, and calibrate instruments as needed. The need for at least yearly inspections arises from the importance of these systems in maintaining flight safety. An undetected issue within the pitot-static system can lead to improper readings that could affect pilot decision-making and aircraft operation. While some maintenance schedules may require more frequent checks based on specific operational conditions or regulatory requirements, the baseline standard aims to ensure that the systems do not become neglected over time, thus enhancing safety in aviation operations. This standard reflects a balance between ensuring safety and managing costs associated with maintenance, making it a widely accepted practice in the aviation industry.

2. Which of the following is NOT a function of the avionics systems?

- A. Navigation**
- B. Automatic flight controls**
- C. Propulsion management**
- D. Communication**

The correct answer is identified as propulsion management because it is not a function typically associated with avionics systems. Avionics systems primarily encompass the electronic systems used for communication, navigation, and flight control within an aircraft. Navigation systems help pilots determine their position and direction, ensuring safe travel from one point to another. Automatic flight control systems assist in managing the aircraft's trajectory, enabling automated operations like altitude and speed control to enhance efficiency and safety during flight. Communication systems are vital for maintaining contact with air traffic control and other aircraft, allowing clear exchanges of information regarding operations and safety concerns. In contrast, propulsion management involves the systems and processes necessary to control and monitor the engine or propulsion system of the aircraft, which falls outside the realm of avionics. Propulsion management deals with aspects such as thrust management, fuel flow, and engine performance, functions that are typically managed by the aircraft's powerplant systems rather than the avionics systems. Thus, propulsion management is the correct answer as it is not considered a core function of avionics.

3. Which electrical components are primarily used for voltage regulation in aircraft avionics?

- A. Batteries and capacitors
- B. Voltage regulators and transformers**
- C. Resistors and inductors
- D. Generators and circuit breakers

Voltage regulation in aircraft avionics is crucial for maintaining a constant output voltage, which is necessary for the proper operation of electronic systems. The correct choice highlights the use of voltage regulators and transformers. Voltage regulators are designed to manage the voltage level within a specific range, ensuring that the electrical components receive a stable voltage despite variations in load or input voltage. In avionics systems, this is essential because fluctuations could lead to improper functioning or damage to sensitive equipment. Transformers, on the other hand, can help adjust voltage levels as well, particularly when stepping up or stepping down voltages for different parts of the aircraft's electrical system. They allow for the conversion of electrical energy from one voltage level to another while maintaining the power flow. In contrast, batteries and capacitors do play a role in energy storage and filtration, but they do not actively regulate voltage in the way that regulators do. Resistors and inductors may help control current flow and manage inductance, but they are not primarily associated with voltage regulation. Generators provide power but don't regulate voltage directly, while circuit breakers serve as protective devices rather than voltage control components.

4. What is the negative feedback path in a crystal oscillator?

- A. Completely separate from the crystal's pathway
- B. The same as the crystal's pathway**
- C. Dependent on external components
- D. An adjustable feature

In a crystal oscillator, the negative feedback path is indeed the same as the crystal's pathway. This is essential for the operation of the oscillator because the crystal acts as a frequency-selective element. It provides the necessary feedback at its resonant frequency, allowing the circuit to maintain stable oscillations. The design of the oscillator relies on applying a part of the output signal back into the input through the crystal, which reinforces the oscillation at the crystal's natural frequency. This feedback is crucial, as it governs the frequency stability and precision of the oscillator. The feedback must align closely with the oscillation path established by the crystal to effectively sustain the oscillation at a constant frequency. Other options present different interpretations of the feedback path, which do not accurately describe its function in relation to the crystal. The feedback must be tightly coupled to the crystal's pathway for the oscillator to behave predictably and efficiently.

5. What happens to the output signal in a full wave rectifier compared to the input signal?

- A. The output signal is always lower**
- B. The output signal is smoother**
- C. The output signal is inverted**
- D. The output signal maintains the same frequency**

In a full wave rectifier, the output signal maintains the same frequency as the input signal. This is because the rectification process involves converting both the positive and negative halves of the input AC waveform into a pulsating DC output. The frequency of the output is effectively doubled compared to the input frequency because both halves of the AC signal are utilized. For example, if the input AC signal has a frequency of 60 Hz, the output of a full-wave rectifier will have a frequency of 120 Hz due to the contribution of both the positive and negative cycles. This characteristic is essential for various applications in electronics where maintaining the frequency is crucial for proper operation and performance. Other options may incorrectly imply aspects of the rectification process, but they don't accurately reflect what happens with frequency. For instance, the output signal is not inherently lower in amplitude, smoother (which refers to the reduction of ripple achieved through filtering rather than by rectification alone), or simply inverted; it processes the waveform but preserves its fundamental frequency characteristics.

6. Which law is used to determine the amount of induced voltage in a conductor?

- A. Ohm's Law**
- B. Faraday's Law**
- C. Kirchhoff's Law**
- D. Newton's Law**

The law that is used to determine the amount of induced voltage in a conductor is Faraday's Law. This law establishes that a change in magnetic flux through a closed loop induces an electromotive force (EMF) in the conductor. In practical terms, this means that the induced voltage depends on the rate of change of the magnetic field, the area of the loop, and the number of turns in the coil. Faraday's Law is fundamental in understanding electromagnetic induction and is crucial for the operation of many electronic devices and systems in avionics, such as generators and transformers. It demonstrates how electrical energy can be generated from magnetic fields, which is a core principle in many applications involving avionics technologies. This insight is vital for technicians working within this field to effectively troubleshoot and design systems that rely on induced voltage.

7. What is the required separation minimum between aircraft in controlled airspace?

- A. 1,000 feet vertically and 1 mile laterally**
- B. 3,000 feet vertically and 1 mile laterally**
- C. 5,000 feet vertically and 3 miles laterally**
- D. 2,000 feet vertically and 2 miles laterally**

The required separation minimum between aircraft in controlled airspace is primarily determined by the classifications of airspace and the type of flights operating within them. The answer indicating 3,000 feet vertically and 1 mile laterally aligns with the FAA guidelines for certain airspace classes, particularly in air traffic management scenarios where larger aircraft and faster speeds are involved. For example, in Class A airspace where aircraft operate at high altitudes, a vertical separation of 3,000 feet is often required between aircraft flying above 29,000 feet. This ensures safe distance to prevent wake turbulence and enables management of aircraft at higher altitudes, especially given the potential for more complex traffic patterns. The lateral separation of 1 mile is standard for various categories of controlled airspace, especially when utilizing radar separation techniques. It ensures that aircraft are sufficiently distanced to avoid collision risks as they maintain their respective flight paths. Understanding these separation minimums is crucial for maintaining safety and efficiency in aviation operations, particularly in high-density air traffic environments.

8. What is the effect of increasing the load resistance in a circuit with a fixed voltage source?

- A. Current through the circuit will increase.**
- B. Current through the circuit will decrease.**
- C. Current through the circuit will remain the same.**
- D. Current will fluctuate unpredictably.**

Increasing the load resistance in a circuit with a fixed voltage source leads to a decrease in the current flowing through the circuit. This relationship is defined by Ohm's Law, which states that current (I) is equal to the voltage (V) divided by the resistance (R) in the circuit, expressed mathematically as $I = V/R$. When the voltage remains constant and the resistance increases, the formula shows that for a higher resistance value, the resulting current value must be lower to maintain the equality. Specifically, as load resistance increases, the denominator in the equation becomes larger, thus reducing the overall current. This principle is fundamental in understanding how circuits operate and is frequently applied in various electronic and electrical scenarios.

9. What is the characteristic of a diode's forward bias resistance?

- A. High**
- B. Low**
- C. Variable**
- D. Infinite**

The characteristic of a diode's forward bias resistance is low. When a diode is in forward bias, it allows electrical current to flow through it with minimal resistance, which is essential for its function in a circuit. This low resistance enables the diode to effectively conduct current, typically resulting in a voltage drop of approximately 0.7 volts for silicon diodes and about 0.3 volts for germanium diodes. In forward bias, the diode's p-n junction becomes conductive, which facilitates charge carrier movement across the junction and contributes to a low resistance state. This property is crucial in applications where diodes are utilized for tasks such as rectification, signal clipping, or as part of switching circuits. In contrast, other characteristics such as high resistance, variable resistance, or infinite resistance would not accurately represent the operational behavior of a diode in forward bias. A diode exhibiting high resistance would not allow significant current to pass, which contradicts the purpose of conducting current in the forward direction. Similarly, variable resistance or infinite resistance does not reflect the consistent low resistance condition seen during forward bias conduction.

10. What is a key operational characteristic of an asynchronous counter?

- A. Each flip-flop is triggered independently**
- B. Each flip-flop triggers the next in sequence**
- C. Each flip-flop operates without a clock**
- D. Each flip-flop has a fixed output**

An asynchronous counter is designed such that each flip-flop within the counter is triggered by the previous one in the sequence, rather than being triggered by a common clock signal. This sequential triggering creates a ripple effect, where the output of one flip-flop serves as the clock input for the next flip-flop in the series. This characteristic distinguishes asynchronous counters from synchronous counters, where all flip-flops are triggered simultaneously by a common clock signal. The operation of asynchronous counters allows them to be simpler in design but can lead to propagation delays, as each flip-flop must wait for the previous one to change state before it can respond. Understanding this sequential triggering is fundamental when working with digital circuits and timing designs, as it directly impacts the reliability and performance of digital counting systems.

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://avionicelectronicstech.examzify.com>

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

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