AVIONICS ELECTRONICS TECHNICIAN (AET) PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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.

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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!

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Questions

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1. Where should the outer shield of a coaxial cable be grounded?

A. At the input end only

B. At the output end only

C. At both the input and output ends

D. It does not require grounding

2. In what units is aircraft altitude typically measured?

A. In nautical miles

B. In kilometers above sea level

C. In feet or meters above sea level

D. In yards

3. What is the hexadecimal equivalent of the binary number 101101101100?

A. A6C

B. B6C

C. C6B

D. D6B

4. In avionics, what does the term 'autopilot' refer to?

A. A system that automatically controls the trajectory of an aircraft

B. A device for manual flight control

C. A communication tool for pilots

D. A backup navigation system

5. Which type of resistor has a tolerance of 1%?

A. Carbon composition resistor

B. Metal film resistor

C. Wirewound resistor

D. Carbon film resistor

6. What does the term 'navigation database' represent in avionics?

A. A database of airline safety records

B. A collection of weather data

C. A database containing waypoints, airways, and navigation information

D. A database for passenger information

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7. If a transformer has a primary coil with 115 volts and 330 turns, how many turns are needed in the secondary coil to produce 28 volts?

A. 80 turns

B. 50 turns

C. 100 turns

D. 120 turns

8. In a parallel connection of lights, what would the voltage across a 10 watt light be, if it's connected alongside a 20 watt light?

A. Higher than 30 volts

B. Zero volts

C. The same as the 20 watt light

D. Less than 10 volts

9. In a series-fed Hartley oscillator, what happens if the frequency-determining capacitance is increased?

A. The oscillator frequency will decrease.

B. The oscillator frequency will remain the same.

C. The oscillator frequency will increase.

D. The oscillator will stop oscillating.

10. What diagram is used to show the functional location of components within a system?

A. Flowchart

B. Pictorial diagram

C. Block diagram

D. Schematic diagram

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Answers

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

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Explanations

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1. Where should the outer shield of a coaxial cable be grounded?

A. At the input end only

B. At the output end only

C. At both the input and output ends

D. It does not require grounding

Grounding the outer shield of a coaxial cable is crucial for minimizing interference and ensuring signal integrity. When the outer shield is grounded at both the input and output ends, it provides a continuous path for any interference or noise to be dissipated safely to the ground. This grounding helps to prevent the shield from acting as an antenna that picks up unwanted signals, which can lead to degradation of the signal being transmitted through the cable. Grounding at both ends also helps to ensure that there are no potential differences between the connected equipment, which could result in signal distortion or equipment damage. By maintaining a consistent ground reference point, the coaxial cable can effectively shield the inner conductor from electromagnetic interference (EMI) and radio frequency interference (RFI). There's a significant advantage in grounding the shield at both ends to protect against environmental conditions and to facilitate proper functioning of the communication system. This practice is particularly important in avionics applications, where reliable signal transmission is critical for safe operations.

2. In what units is aircraft altitude typically measured?

A. In nautical miles

B. In kilometers above sea level

C. In feet or meters above sea level

D. In yards

Aircraft altitude is typically measured in feet or meters above sea level due to the standard practices and conventions established in aviation. Feet are primarily used in the United States and many other countries for operational reasons, particularly in air traffic control and pilot communications, where quick and clear understanding of altitude is critical for safety. In contrast, meters are more commonly used in other parts of the world, particularly in countries that adhere to the International Civil Aviation Organization (ICAO) standards. Using feet facilitates precise altitude reporting, which is essential for maintaining separation between aircraft, especially when flying at higher altitudes where airspace becomes crowded. Meters, while less common in certain regions, are equally effective in providing an accurate altitude reference. Both measurements serve the purpose of providing pilots and air traffic controllers with necessary information to ensure safe flight operations. Other units mentioned in the options, such as nautical miles, are typically used for measuring distances over the ground rather than altitude. Yards, while a unit of measurement, are not standard in aviation for indicating altitude, and kilometers above sea level, although technically a possible measure, have not been widely adopted in aviation practice for altitude reporting purposes.

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3. What is the hexadecimal equivalent of the binary number 101101101100?

A. A6C

B. B6C

C. C6B

D. D6B

To convert the binary number 101101101100 to hexadecimal, it's beneficial to break down the binary number into manageable chunks. Since each hexadecimal digit corresponds to four binary digits, we can group the binary number in sets of four, starting from the right. The binary number 101101101100 can be segmented as follows: - 10 1101 1011 00 To make it easier, we can add leading zeros to ensure each group has four digits: - 0010 1101 1011 1100 Now, we can convert each group of four binary digits to their hexadecimal representation: - 0010 in binary is 2 in hexadecimal. - 1101 in binary is D in hexadecimal. - 1011 in binary is B in hexadecimal. - 1100 in binary is C in hexadecimal. Putting these together, we form the hexadecimal number 2DBC. However, based on the options provided, we look for the appropriate match. Each option presents a three-character hexadecimal number. Therefore, we would combine only the last three hexadecimal digits 'DBC'. It's important to also note that binary numbers can sometimes be greatly simplified. The initial interpretation may also lead to overlooking the indicated conventional naming

4. In avionics, what does the term 'autopilot' refer to?

A. A system that automatically controls the trajectory of an aircraft

B. A device for manual flight control

C. A communication tool for pilots

D. A backup navigation system

The term 'autopilot' in avionics specifically refers to a system that automatically controls the trajectory of an aircraft. This system allows the aircraft to fly without direct control by the pilot for significant portions of the flight, thereby reducing pilot workload and enhancing the efficiency and safety of flight operations. Autopilot systems can manage various aspects of flight, including altitude, speed, and course, allowing the aircraft to maintain a specific flight path without continuous manual input. This technology is critical for long-haul flights where maintaining precise control over extended periods can be challenging for human pilots. The other options describe functions or devices that are not aligned with the primary definition of autopilot. A device for manual flight control does not fall under the scope of autopilot since it implies the opposite—active, manual control by the pilot. A communication tool for pilots refers to systems like radio equipment used for voice communication, which is unrelated to the control of the aircraft's flight path. Lastly, a backup navigation system pertains to instruments that provide navigational data but does not encompass the primary function of automatically controlling an aircraft's trajectory.

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5. Which type of resistor has a tolerance of 1%?

A. Carbon composition resistor

B. Metal film resistor

C. Wirewound resistor

D. Carbon film resistor

The choice of a metal film resistor is appropriate because these resistors are renowned for their precision and stability compared to other types. They typically offer a tolerance of 1% or even better, making them ideal for applications where accuracy is paramount. The manufacturing process of metal film resistors, which involves depositing a thin layer of metal onto a ceramic substrate, allows for tighter control over the resistance value and the resulting tolerances. This precision is crucial in many electronic applications, especially in circuits where slight variations in resistance could lead to significant performance issues. Additionally, metal film resistors exhibit low noise characteristics and are less affected by temperature changes, further contributing to their reliability and efficacy in sensitive electronic circuits.

6. What does the term 'navigation database' represent in avionics?

A. A database of airline safety records

B. A collection of weather data

C. A database containing waypoints, airways, and navigation information

D. A database for passenger information

The term 'navigation database' in avionics explicitly refers to a specialized collection of data that includes waypoints, airways, and other critical navigation information. This database is essential for modern aircraft navigation systems, as it provides the necessary data for route planning and real-time navigation. Waypoints are specific geographical locations defined by coordinates, airways are predetermined routes established for air traffic, and the navigation information may include altitudes, restrictions, and other relevant data needed by pilots and navigational systems. These elements are crucial for ensuring safe and efficient flight operations, allowing aircraft to navigate accurately and maintain proper situational awareness. In contrast, the other options suggest databases that, while potentially important in aviation, do not pertain directly to the functions of navigation systems. For instance, a database of airline safety records or passenger information does not assist in flight navigation and route planning. Similarly, a collection of weather data, while vital for operational decisions, is not classified as a navigation database. Thus, the correct answer highlights the specific role of navigation databases in enabling effective flight operations.

7. If a transformer has a primary coil with 115 volts and 330 turns, how many turns are needed in the secondary coil to produce 28 volts?

A. 80 turns

B. 50 turns

C. 100 turns

D. 120 turns

To determine the number of turns needed in the secondary coil of a transformer to produce a specific voltage, you can use the transformer turns ratio formula. This formula relates the voltage and the number of turns in the primary and secondary coils: \[\frac{V_p}{V_s} = \frac{N_p}{N_s} \] Where: - \(V_p\) is the primary voltage (115 volts in this case), - \(V_s\) is the secondary voltage (28 volts), - \(N_p\) is the number of turns in the primary coil (330 turns), - \(N_s\) is the number of turns in the secondary coil (the unknown we need to find). Using the values provided, you can rearrange the formula to solve for \(N_s\): \[N_s = N_p \times \frac{V_s}{V_p} \] Substituting in the known values: \[N_s = 330 \times \frac{28}{115} \] Calculating the fraction: \[\frac{28}{115} \approx 0.2435 \] Then multiply: \[N_s = 330 \times 0.2435

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8. In a parallel connection of lights, what would the voltage across a 10 watt light be, if it's connected alongside a 20 watt light?

A. Higher than 30 volts

B. Zero volts

C. The same as the 20 watt light

D. Less than 10 volts

In a parallel connection, all components share the same voltage across their terminals. This means that each light connected in parallel will experience the same voltage despite having different power ratings. For instance, if a 20-watt light is connected in parallel with a 10-watt light, they are both subjected to the same voltage from the power source. The wattage of each light indicates the power they consume but does not affect the voltage across them in a parallel configuration. Therefore, the voltage across the 10-watt light will be the same as the voltage across the 20-watt light. If, for example, the lights are connected to a power source of 120 volts, both lights would have 120 volts across them, regardless of their different wattage ratings. This consistent voltage across all components is a defining characteristic of parallel circuits.

9. In a series-fed Hartley oscillator, what happens if the frequency-determining capacitance is increased?

A. The oscillator frequency will decrease.

B. The oscillator frequency will remain the same.

C. The oscillator frequency will increase.

D. The oscillator will stop oscillating.

In an LC tank, the oscillation frequency is set by $f \approx 1/(2\pi\sqrt{(Leq\ C)})$. In a Hartley oscillator, the tank uses the two inductors in series (the tapped coil) together with the frequency-determining capacitor, so the effective inductance is the total L of the coil combination. If you increase the capacitance, the product Leq × C grows, making the square root larger and the frequency smaller. So the oscillator runs at a lower frequency when the capacitance increases.

10. What diagram is used to show the functional location of components within a system?

A. Flowchart

B. Pictorial diagram

C. Block diagram

D. Schematic diagram

The correct choice is a schematic diagram because it provides a detailed representation of the functional locations of components within a system. In a schematic diagram, various components such as resistors, capacitors, and integrated circuits are represented using standardized symbols, which allows technicians to understand how these elements are connected and interact functionally within the system. This type of diagram emphasizes the logical flow and behavior of the circuit or system, making it easier to analyze and troubleshoot. While other diagrams such as flowcharts, pictorial diagrams, and block diagrams serve useful purposes, they do not emphasize functional locations as clearly as schematic diagrams do. For instance, flowcharts outline processes and decision points but do not depict component locations. Pictorial diagrams provide a visual representation of the setup but are not standardized for function. Block diagrams summarize the system's major blocks and their interconnections, but they lack the detailed information necessary to pinpoint specific components and their interactions. Thus, a schematic diagram is specifically designed for understanding functional relationships and component setups within electronic systems.

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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://avionicselectronicstech.examzify.com

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

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