

# NCATT Aircraft Electronics Technician (AET) Certification Practice Exam (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

- 1. What color corresponds to the first digit of 0 in a resistor's color code?**
  - A. Black**
  - B. Brown**
  - C. Red**
  - D. Green**
- 2. What is the primary function of a variable capacitor in a circuit?**
  - A. To change resistance in the circuit**
  - B. To change inductance in the circuit**
  - C. To change capacitance by altering the plate area**
  - D. To serve as a state switch for high voltage**
- 3. What unique property do piezoelectric crystals exhibit?**
  - A. They conduct electricity at low frequencies**
  - B. They vibrate at a specific resonant frequency when voltage is applied**
  - C. They filter high frequencies only**
  - D. They can amplify electrical signals**
- 4. For a resistor with a brown band, what does the multiplier represent?**
  - A. 1**
  - B. 10**
  - C. 100**
  - D. 1000**
- 5. Which agency has the authority to regulate hazardous waste?**
  - A. Environmental Protection Agency (EPA)**
  - B. Occupational Safety and Health Administration (OSHA)**
  - C. Federal Aviation Administration (FAA)**
  - D. Department of Labor (DOL)**

- 6. What is the nature of static electricity in relation to aircraft?**
- A. It serves a useful purpose in aircraft operations**
  - B. It is a beneficial effect of electronic systems**
  - C. It is more of a nuisance than useful**
  - D. It can power electronic devices temporarily**
- 7. What is the primary function of an insulator in an electrical context?**
- A. To conduct electricity efficiently**
  - B. To prevent the passage of heat, electricity, or sound**
  - C. To store electrical energy**
  - D. To amplify current flow**
- 8. How should hazardous materials be stored to prevent accidents?**
- A. Stacked without any barriers**
  - B. Left on the floor for easy access**
  - C. Stored in ways that prevent sliding or collapse**
  - D. Piled up as high as possible**
- 9. What is the motion called when an aircraft rotates around its longitudinal axis?**
- A. Pitch**
  - B. Yaw**
  - C. Roll**
  - D. Lift**
- 10. Which of the following statements about neutrons is true?**
- A. They are positively charged subatomic particles**
  - B. They conduct electricity**
  - C. They are neutral particles in the nucleus of atoms**
  - D. They are the primary carriers of electric current**



## **Answers**

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

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## **Explanations**

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**1. What color corresponds to the first digit of 0 in a resistor's color code?**

- A. Black**
- B. Brown**
- C. Red**
- D. Green**

In the resistor color code system, each digit from 0 to 9 is represented by a specific color. For the digit 0, the corresponding color is black. The color coding is essential for identifying the resistor's value and tolerance in electronic circuits. In this system, the first digit is indicated by the first color band on the resistor, and since 0 aligns with black, choosing black indicates an understanding of how the color code is applied. Understanding the significance of these colors is crucial for anyone working with electronic components, especially in assembling, troubleshooting, or designing electronic circuits, where accurate voltage and resistance readings are necessary for reliable performance. The other color choices represent different digits: brown corresponds to 1, red to 2, and green to 5, which are not applicable for representing the digit 0 in this context.

**2. What is the primary function of a variable capacitor in a circuit?**

- A. To change resistance in the circuit**
- B. To change inductance in the circuit**
- C. To change capacitance by altering the plate area**
- D. To serve as a state switch for high voltage**

The primary function of a variable capacitor is to change capacitance by altering the plate area. In electronic circuits, a capacitor stores and releases electrical energy, and the amount of energy it can store is determined by its capacitance. By adjusting the distance between the capacitor plates or varying the effective plate area, a variable capacitor can increase or decrease its capacitance value. This ability to modify capacitance allows it to be used in tuning circuits, filters, and oscillators, where precise control of capacitance is necessary for optimal circuit performance. This flexibility is crucial in applications such as radio frequency tuning, where achieving the correct frequency resonance is dependent on the capacitance value. Variability in capacitance allows for adjustments to be made dynamically, enhancing the functionality of the circuit without the need for replacing components.

### 3. What unique property do piezoelectric crystals exhibit?

- A. They conduct electricity at low frequencies
- B. They vibrate at a specific resonant frequency when voltage is applied**
- C. They filter high frequencies only
- D. They can amplify electrical signals

Piezoelectric crystals possess the ability to vibrate at a specific resonant frequency when an electrical voltage is applied. This unique property is the result of the internal arrangement of atoms within the crystal lattice structure, which allows for mechanical deformation in response to an electric field and vice versa. When a voltage is applied across a piezoelectric material, it induces a mechanical strain, causing the crystal to oscillate at its natural resonant frequency. This vibrational characteristic is widely utilized in various applications, such as in sensors, actuators, and ultrasonic transducers. The precise control over frequency and amplitude of the vibrations makes piezoelectric crystals vital in technologies where accurate signal generation or detection is necessary, such as in microphones, speakers, and quartz watches. The other options do not accurately represent the defining characteristic of piezoelectric materials. While they may touch on related concepts, they do not capture the fundamental nature of how piezoelectric crystals operate.

### 4. For a resistor with a brown band, what does the multiplier represent?

- A. 1
- B. 10**
- C. 100
- D. 1000

A resistor with a brown band indicates a multiplier of 10. In the standard resistor color code, each color corresponds to a specific digit or value. The brown band is specifically used to represent the number 1, but when it is used in the context of a multiplier in the color code, it signifies multiplying by 10. This means that for resistors displaying a brown band as part of their color code, it is essential to understand that this indicates a multiplication factor of 10 added to the resistance value derived from the other colored bands on the resistor. In practical applications, knowing this multiplier is crucial for calculating the correct resistance value, which can affect circuit performance. In the context of the given choices, this is why the answer indicating a multiplier of 10 is the correct response.

**5. Which agency has the authority to regulate hazardous waste?**

- A. Environmental Protection Agency (EPA)**
- B. Occupational Safety and Health Administration (OSHA)**
- C. Federal Aviation Administration (FAA)**
- D. Department of Labor (DOL)**

The Environmental Protection Agency (EPA) is the agency responsible for regulating hazardous waste in the United States. Established to protect human health and the environment, the EPA administers programs and regulations concerning the management and disposal of hazardous materials, ensuring that industries comply with environmental laws and standards. This includes overseeing the generation, storage, treatment, and disposal of hazardous waste to prevent pollution and safeguard public health and the environment. The other agencies mentioned serve different purposes; for instance, OSHA focuses on workplace safety and health regulations, the FAA regulates civil aviation and ensures flight safety, and the Department of Labor oversees various aspects of labor policy and worker welfare. While each agency plays a crucial role in its respective domain, the specific authority to regulate hazardous waste lies with the EPA.

**6. What is the nature of static electricity in relation to aircraft?**

- A. It serves a useful purpose in aircraft operations**
- B. It is a beneficial effect of electronic systems**
- C. It is more of a nuisance than useful**
- D. It can power electronic devices temporarily**

Static electricity poses significant challenges in aviation, primarily serving as a nuisance rather than a utility. In the context of aircraft, static electricity can build up on surfaces during flight due to airflow over the aircraft's body, particularly at high speeds. This accumulation can lead to a range of issues, such as interference with sensitive electronic equipment, damage to avionics, and increased drag which can affect performance. Grounding and bonding techniques are often employed on aircraft to mitigate the dangers posed by static electricity, ensuring that any static charge is safely dissipated before it can cause harm. Hence, while there are measures to manage static electricity, it does not contribute positively to aircraft operations and is considered more troublesome than beneficial.

**7. What is the primary function of an insulator in an electrical context?**

- A. To conduct electricity efficiently**
- B. To prevent the passage of heat, electricity, or sound**
- C. To store electrical energy**
- D. To amplify current flow**

The primary function of an insulator in an electrical context is to prevent the passage of heat, electricity, or sound. Insulators are materials that do not allow electrical current to flow freely through them, which makes them essential in various electrical applications. By inhibiting the flow of electricity, insulators ensure that current is contained within the intended pathways, thereby protecting both equipment and individuals from electric shock and short circuits. In addition to their role in electrical wiring, insulators also contribute to the overall efficiency of electronic systems by minimizing energy losses due to unwanted conduction. They can also help prevent heat transfer, which is crucial in managing heat dissipation in electronic devices. This quality makes insulators vital in ensuring safety and effectiveness in electrical and electronic applications.

**8. How should hazardous materials be stored to prevent accidents?**

- A. Stacked without any barriers**
- B. Left on the floor for easy access**
- C. Stored in ways that prevent sliding or collapse**
- D. Piled up as high as possible**

The correct approach to storing hazardous materials is to ensure they are stored in ways that prevent sliding or collapse. This is crucial for safety as it minimizes the risk of accidents that can result from spills, leaks, or falls. Proper storage techniques include using appropriate containers, placing materials on stable shelves, and ensuring that heavy items are stored at lower levels to reduce the likelihood of an unstable stack tipping over. Ensuring that hazardous materials are securely stored not only protects individuals handling these materials but also safeguards the entire environment in which they are used. This proactive measure is fundamental in workplaces where hazardous substances are prevalent, as it aligns with industry regulations and safety protocols. In contrast, stacking materials without barriers, leaving them on the floor, or piling them as high as possible pose significant risks. These practices can lead to disorganization, increased likelihood of accidents, and difficulty in accessing materials when needed, highlighting the importance of proper storage methods.

**9. What is the motion called when an aircraft rotates around its longitudinal axis?**

- A. Pitch**
- B. Yaw**
- C. Roll**
- D. Lift**

The motion when an aircraft rotates around its longitudinal axis is referred to as "roll." This movement involves tilting the aircraft from one wing to the other, which is crucial for executing turns and maintaining balance during flight. The longitudinal axis runs from the nose to the tail of the aircraft, and when an aircraft rolls, it alters the angle of its wings relative to the horizon, allowing the aircraft to maneuver more effectively. Pitch and yaw, while also critical axes of motion, refer to different movements. Pitch involves rotation around the lateral axis (the wingtip to wingtip axis), resulting in the nose of the aircraft moving up or down. Yaw involves rotation around the vertical axis (the top to bottom axis), which dictates the aircraft's left or right movement. Lift describes the aerodynamic force that opposes the weight of the aircraft and is not related to the rotation of the aircraft around any axis. Thus, roll is the correct terminology for the specific motion of rotation around the longitudinal axis.

**10. Which of the following statements about neutrons is true?**

- A. They are positively charged subatomic particles**
- B. They conduct electricity**
- C. They are neutral particles in the nucleus of atoms**
- D. They are the primary carriers of electric current**

Neutrons are indeed neutral particles found within the nucleus of atoms. They play a crucial role in the stability of the nucleus by balancing the repulsive forces between positively charged protons. The presence of neutrons helps to maintain the integrity of atomic structure, which is fundamental to understanding atomic behavior and the principles of nuclear physics. In contrast, the other statements do not accurately describe neutrons. For instance, neutrons are not positively charged, nor do they conduct electricity, as they have no charge at all and are located within the nucleus. Additionally, while electric current is generally carried by charged particles (such as electrons in a wire), neutrons do not participate in electrical conduction as they do not possess an electric charge. This distinction highlights the unique properties and functions of neutrons in atomic theory.



## 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](mailto:hello@examzify.com).**

**Or visit your dedicated course page for more study tools and resources:**

**<https://ncattaet.examzify.com>**

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