

Navy AT(O) - Aviation Electronics Technician (Ordinance) Second Class Advancement 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 is the primary limitation of waveguides at lower frequencies?**
 - A. Impedance matching**
 - B. Signal loss**
 - C. Physical size**
 - D. Skin depth**
- 2. What is the major method for testing shorts in transformers, motor windings, and capacitors?**
 - A. Using a multimeter for voltage measurement**
 - B. Taking resistance measurements and comparing them with schematics**
 - C. Performing thermal analysis**
 - D. Conducting visual inspections**
- 3. Which of the following types of storage loses its data when power is turned off?**
 - A. Read-only memory (ROM)**
 - B. Cache memory**
 - C. Dynamic RAM**
 - D. Magnetic core storage**
- 4. What is a floppy disk?**
 - A. A rigid platter with limited access**
 - B. A thin, flexible platter coated with magnetic material**
 - C. A circular disk used only for storing audio**
 - D. A type of external hard drive**
- 5. How is EPROM erased?**
 - A. With electrical signals**
 - B. By formatting the memory**
 - C. With a burst of ultra-violet light**
 - D. By exposing it to heat**

- 6. What method does the Navy use to ensure Sailors work efficiently as a unit?**
- A. Incentives through bonuses**
 - B. Motivation and correction through reward and punishment**
 - C. Encouragement through teamwork activities**
 - D. Regular training and drills**
- 7. What trade-offs do designers consider in fiber optic systems?**
- A. Cost vs. performance**
 - B. Material durability**
 - C. Trade-offs in fiber properties, types of connections, optical sources, and detector types**
 - D. Manufacturing speed**
- 8. What is the purpose of performing continuity tests?**
- A. To measure the voltage across components**
 - B. To check for opens or to see if a circuit is complete or continuous**
 - C. To assess the frequency response of a circuit**
 - D. To determine the power consumption**
- 9. A semiconductor memory consists of what?**
- A. Solid-state drives containing magnetic disks**
 - B. Hundreds of thousands of tiny electronic circuits etched on a silicon chip**
 - C. Optical storage media**
 - D. Long magnetic tapes**
- 10. Why are coaxial lines more efficient at microwave frequencies?**
- A. They are lighter in weight**
 - B. The fields are completely confined by the conductors**
 - C. They have lower resistance**
 - D. They are easier to install**

Answers

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

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Explanations

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1. What is the primary limitation of waveguides at lower frequencies?

- A. Impedance matching**
- B. Signal loss**
- C. Physical size**
- D. Skin depth**

The primary limitation of waveguides at lower frequencies is related to physical size. As frequency decreases, the wavelength of the signal increases. Waveguides are designed to operate efficiently at specific frequency ranges, and their dimensions must be a fraction of the wavelength of the signal being transmitted. At lower frequencies, the wavelengths can become very long, requiring larger physical dimensions for the waveguide to function properly. This presents practical challenges in terms of installation, cost, and size constraints when designing systems for lower frequency applications, making it less feasible to use standard waveguide structures. In contrast, impedance matching, signal loss, and skin depth tend to have different implications in the realm of waveguide theory and application. Impedance matching issues typically arise at high frequencies or in specific transmission line scenarios. Signal loss can occur in various mediums, including waveguides, but it's not the primary issue with lower frequencies, as this usually becomes a more significant concern at higher frequencies or with longer distances. Skin depth refers to the depth at which a signal can penetrate a conductor and is more critical in the context of high-frequency signals where losses from the skin effect become significant.

2. What is the major method for testing shorts in transformers, motor windings, and capacitors?

- A. Using a multimeter for voltage measurement**
- B. Taking resistance measurements and comparing them with schematics**
- C. Performing thermal analysis**
- D. Conducting visual inspections**

Taking resistance measurements and comparing them with schematics is the major method for testing shorts in transformers, motor windings, and capacitors because it allows for an accurate assessment of the electrical characteristics of these components. By measuring the resistance in various windings and comparing it to the expected values provided in the schematics, technicians can identify low resistance areas that may indicate a short circuit. This approach relies on the principle that shorts typically present with significantly lower resistance than normal operation, and such discrepancies can help diagnose issues effectively. In addition, this method enables the technician to assess not just the presence of a short, but also the condition of the components in relation to their design specifications. This is critical for ensuring that the components are functioning properly and safely within the intended parameters. Other methods, while important for general maintenance and troubleshooting, do not specifically focus on detecting shorts in the same precise manner. For instance, using a multimeter for voltage measurement may provide insights into operational status, but it does not offer direct information regarding short circuits. Performing thermal analysis can identify overheating components due to resistance issues but doesn't pinpoint shorts specifically. Visual inspections can help in noticing physical damage but are not conclusive for electrical testing. Thus, measuring resistance against schematics remains the authoritative method for

3. Which of the following types of storage loses its data when power is turned off?

- A. Read-only memory (ROM)**
- B. Cache memory**
- C. Dynamic RAM**
- D. Magnetic core storage**

Dynamic RAM (DRAM) is indeed the type of storage that loses its data when power is turned off. This form of memory is used extensively in computers and electronic devices because of its ability to store data using capacitors and transistors. However, the capacitors in DRAM are not able to maintain their charge indefinitely. When the power supply is cut off, the charge dissipates, and thus the data stored in DRAM is lost. In contrast, read-only memory (ROM) retains its information even when the power is turned off, making it suitable for firmware that needs to be preserved across sessions. Cache memory, which holds frequently accessed data to speed up processing, is also volatile and loses data when power is removed; however, the distinction lies in DRAM being the most common form of memory highlighting this characteristic in computing. Magnetic core storage, an older form of memory technology, retains its data without power and is not subject to the same loss as DRAM. Thus, dynamic RAM is correctly recognized for its volatility and temporary data retention nature.

4. What is a floppy disk?

- A. A rigid platter with limited access**
- B. A thin, flexible platter coated with magnetic material**
- C. A circular disk used only for storing audio**
- D. A type of external hard drive**

A floppy disk is indeed a thin, flexible platter coated with magnetic material, which is what allows it to store data. The surface of the disk is designed to be readable by a floppy disk drive, where magnetic heads move over the disk to write or read the data stored on it. When the disk is inserted into the drive, its flexibility allows it to be aligned properly for reading and writing operations. Floppy disks were widely used in the late 20th century for data storage, although they have since been largely replaced by more advanced storage media. The magnetic coating on the disk is crucial because it holds the data in a format that can be interpreted by computers. The physical structure and design of the floppy disk make it distinct from other forms of data storage, emphasizing its unique characteristics as a flexible medium for storing digital information.

5. How is EPROM erased?

- A. With electrical signals
- B. By formatting the memory
- C. With a burst of ultra-violet light**
- D. By exposing it to heat

EPROM, which stands for Erasable Programmable Read-Only Memory, is a type of memory chip that can be erased and reprogrammed. The method used to erase EPROM involves exposing it to ultraviolet (UV) light. When the chip is placed in an eraser device that emits UV light, the energy from the light disrupts the stored charge within the memory cells, effectively resetting the EPROM so that it can be reprogrammed with new data. This process is specific to EPROMs, as other types of memory use different methods for erasure. For instance, some may utilize electrical signals or thermal methods, but those methods do not apply to EPROM technology. The requirement to expose EPROM to UV light is a key feature that distinguishes it from other forms of programmable memory, underlining the importance of the ultraviolet light in the erasure process.

6. What method does the Navy use to ensure Sailors work efficiently as a unit?

- A. Incentives through bonuses
- B. Motivation and correction through reward and punishment**
- C. Encouragement through teamwork activities
- D. Regular training and drills

The Navy employs a method that emphasizes motivation and correction through reward and punishment to ensure that Sailors work efficiently as a unit. This approach is grounded in the principles of discipline and leadership, where positive reinforcement is provided for achieving goals and adhering to standards, while corrective measures are implemented when there are deviations or failures to meet expectations. This creates a structured environment in which Sailors understand the consequences of their actions, which fosters accountability and encourages them to perform to the best of their abilities. This method is essential in maintaining operational readiness and cohesion, as it helps establish a clear understanding of roles and responsibilities within a team. By balancing recognition of good performance with the necessity of corrective actions, the Navy cultivates a culture of continuous improvement and mutual support, which is crucial for the effective functioning of military units, especially in high-stakes environments where teamwork is pivotal for mission success.

7. What trade-offs do designers consider in fiber optic systems?

A. Cost vs. performance

B. Material durability

C. Trade-offs in fiber properties, types of connections, optical sources, and detector types

D. Manufacturing speed

Designers of fiber optic systems often weigh several critical factors to ensure optimal performance and reliability. The correct choice highlights that there are trade-offs in fiber properties, types of connections, optical sources, and detector types. In fiber optic systems, the type of fiber used can greatly affect transmission quality and distance. Different fibers, such as single-mode and multimode, have unique properties that make them suitable for specific applications, impacting performance metrics such as bandwidth and attenuation. Moreover, the choice of connections is crucial, as it determines how well the system can integrate components and maintain signal integrity. Poor connections can lead to high insertion loss or signal degradation. The optical sources, like LEDs or laser diodes, also play a significant role in performance. Designers must consider the characteristics of these sources, such as wavelength and output power, which influence the overall efficiency of the fiber optic system. Lastly, the selection of detector types—whether photodiodes or avalanche photodiodes—affects sensitivity and response time, crucial parameters for effective data transmission. Understanding these interrelated trade-offs allows designers to create fiber optic systems that meet performance requirements without exceeding budgetary constraints or compromising on reliability, thus ensuring the system is both efficient and effective for its intended application.

8. What is the purpose of performing continuity tests?

A. To measure the voltage across components

B. To check for opens or to see if a circuit is complete or continuous

C. To assess the frequency response of a circuit

D. To determine the power consumption

Performing continuity tests is primarily aimed at checking for opens in the circuit and ensuring that a circuit is complete or continuous. In practical terms, a continuity test verifies that there is a complete path for current to flow within the electrical circuit. This is crucial for troubleshooting because if a circuit has an open, electrical signals cannot travel to their intended destinations, which could result in equipment malfunction. By using a multimeter or a continuity tester, a technician can quickly determine if a wire or connection is intact or if there's a break somewhere in the circuit. This process helps technicians locate faults in wiring, connectors, and components, ensuring reliable operation of electrical and electronic systems. The other answer choices touch on various electrical concepts, but they do not align with the specific purpose of continuity testing. Measuring voltage across components assesses how much voltage is present, frequency response analysis looks at how circuits respond to different frequencies, and determining power consumption involves calculating the total energy used by a circuit or component over time. Each of these tasks serves a different function within electronic testing and diagnostics, but they do not fulfill the primary role of continuity testing.

9. A semiconductor memory consists of what?

- A. Solid-state drives containing magnetic disks
- B. Hundreds of thousands of tiny electronic circuits etched on a silicon chip**
- C. Optical storage media
- D. Long magnetic tapes

A semiconductor memory is defined by its use of tiny electronic circuits made from semiconductor materials, primarily silicon, which allow for the storage and retrieval of data. This type of memory is integral to modern computing, as it provides faster access times and lower power consumption compared to traditional mechanical storage methods. The hundreds of thousands of circuits within a silicon chip work together to create memory cells that can hold binary data. Each memory cell is controlled by transistors that can represent a bit of information, enabling efficient and rapid data processing. In contrast, other storage options mentioned, such as solid-state drives with magnetic disks or optical storage media, do not utilize semiconductor memory in the same way. Solid-state drives rely on NAND flash memory, which is a type of semiconductor memory, but they also involve controller technology and complex architectures that go beyond the definition of semiconductor memory as standalone circuits. Optical storage media and long magnetic tapes are entirely different technologies that use physical and magnetic methods for data recording and do not involve the electronic circuits defined in semiconductor memory. Thus, the characterization of semiconductor memory as comprised of tiny electronic circuits on a silicon chip aligns perfectly with its operational principles and physical structure.

10. Why are coaxial lines more efficient at microwave frequencies?

- A. They are lighter in weight
- B. The fields are completely confined by the conductors**
- C. They have lower resistance
- D. They are easier to install

Coaxial lines are more efficient at microwave frequencies primarily because the electromagnetic fields are completely confined within the conductors. This characteristic minimizes the loss of signal energy and reduces the potential for interference from external sources. The design of coaxial cables, which comprises an inner conductor surrounded by a dielectric and an outer conductor, ensures that the fields remain tightly bound within the structure, leading to lower radiation losses compared to other types of transmission lines. This confinement improves the performance of coaxial cables at higher frequencies, thus making them suitable for microwave applications. While other aspects like weight, resistance, and installation ease may have their importance in different contexts, the key feature that makes coaxial lines particularly efficient at microwave frequencies is the complete confinement of the electromagnetic fields by the conductors.

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://navyato2advancement.examzify.com>

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