

PHILSCA AIRCRAFT CONSTRUCTION, REPAIR, AND MAINTENANCE (ACRM) PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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THE FULL VERSION STUDY GUIDE

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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. Which type of oxide forms quickly when metals or alloys are hot, especially during welding?**
 - A. Aluminum oxide
 - B. Iron oxide
 - C. Zinc oxide
 - D. Copper oxide
- 2. Describe the procedure to access aircraft manufacturer technical manuals.**
 - A. Contact local airports for copies
 - B. Request them from the aircraft's pilot
 - C. Obtain from the manufacturer's website or approved distributors
 - D. Purchase them from online retailers
- 3. How often should emergency equipment like fire extinguishers be inspected?**
 - A. Every month
 - B. Every 6 months
 - C. Every 12 months
 - D. Every 2 years
- 4. What is the standard protocol regarding welding over brazed or soldered joints?**
 - A. A) It is not permitted
 - B. B) It is permitted only for aluminum
 - C. C) It can be done with caution
 - D. D) It is permissible with steel
- 5. In aviation maintenance, what does the acronym "TBO" stand for?**
 - A. Total Base Operations
 - B. Time Between Overhaul
 - C. Technical Board Order
 - D. Time Block Operations

- 6. Which method can be used to remove corrosion from highly stressed steel surfaces?**
- A. Steel wire brushes
 - B. High-grit carbon paper
 - C. Fine-grit Aluminum oxide
 - D. Stiff, nonmetallic brush
- 7. Heat treatment enhances which property of metals?**
- A. Weight
 - B. Color
 - C. Hardness
 - D. Appearance
- 8. How frequently must an aircraft typically undergo a comprehensive safety audit?**
- A. Every month
 - B. Every two years
 - C. Every year or as mandated by regulations
 - D. Every five years
- 9. When should a fiber-type, self-locking nut not be used on an aircraft?**
- A. If the bolt is subject to rotation
 - B. If the bolt is under tension loading
 - C. If the bolt is under shear loading
 - D. If the bolt is under torque
- 10. How does an aircraft's autopilot system function?**
- A. By relying on manual inputs from the pilot
 - B. Using sensors, gyroscopes, and servos to control the aircraft's flight path automatically
 - C. Through a centralized control panel operated by air traffic control
 - D. By presetting a flight path prior to departure

Answers

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

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Explanations

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1. Which type of oxide forms quickly when metals or alloys are hot, especially during welding?

A. Aluminum oxide

B. Iron oxide

C. Zinc oxide

D. Copper oxide

The correct answer is aluminum oxide. When aluminum and its alloys are heated, especially during processes such as welding, they rapidly form a protective layer of aluminum oxide on their surface. This occurs because aluminum reacts readily with oxygen, particularly at elevated temperatures. This oxide layer serves as a barrier that prevents further oxidation and protects the underlying metal from corrosion. Aluminum's high affinity for oxygen means that it will quickly generate this oxide layer even in the presence of moisture or air, and this characteristic is crucial to consider during applications like welding where clean metal surfaces are necessary for proper adhesion and structural integrity. The adherence and properties of aluminum oxide also play a significant role in the welding process, as it can affect the quality of the weld if not properly managed.

2. Describe the procedure to access aircraft manufacturer technical manuals.

A. Contact local airports for copies

B. Request them from the aircraft's pilot

C. Obtain from the manufacturer's website or approved distributors

D. Purchase them from online retailers

Accessing aircraft manufacturer technical manuals through the manufacturer's website or approved distributors is the most reliable and effective method. Manufacturers make their technical manuals available through official channels to ensure that users receive the most accurate and up-to-date information. These manuals contain essential maintenance guidelines, specifications, and safety information crucial for aircraft operation and repair. By going through the manufacturer's website or authorized distributors, users can also benefit from the assurance that the information is reliable, as it directly comes from the source that produced the aircraft. This access is typically backed by the latest revisions and updates, which is critical in the fast-evolving field of aviation technology, ensuring compliance with safety regulations and manufacturer recommendations. Using alternative methods, such as contacting local airports, requesting manuals from pilots, or purchasing from online retailers, lacks the reliability and accuracy that obtaining documents directly from the manufacturer provides. Manuals sourced through unofficial means may be outdated, incomplete, or potentially incorrect, leading to safety risks during aircraft operations and maintenance.

3. How often should emergency equipment like fire extinguishers be inspected?

- A. Every month
- B. Every 6 months
- C. Every 12 months**
- D. Every 2 years

For emergency equipment such as fire extinguishers, the correct interval for inspection is typically every 12 months. This is in line with many industry standards and safety regulations, which ensure that fire extinguishers are maintained in a ready state to operate effectively during an emergency. Regular inspections include checking for physical damage, ensuring that the pressure gauge is in the green zone, and verifying that the labels and instructions are legible. Ensuring that fire extinguishers are up to code and functional is critical for safety in any environment, particularly in the aviation industry, where the stakes can be significantly high. While some equipment may have other inspection intervals, a yearly check provides a good balance between maintaining awareness of potential issues and ensuring that the equipment is functional when needed.

4. What is the standard protocol regarding welding over brazed or soldered joints?

- A. A) It is not permitted**
- B. B) It is permitted only for aluminum
- C. C) It can be done with caution
- D. D) It is permissible with steel

The standard protocol regarding welding over brazed or soldered joints is that it is not permitted. This is due to the potential for compromising the integrity of the joint and the surrounding materials. When a welded joint is made over a brazed or soldered joint, the heat from the welding process can adversely affect the properties of the underlying joint and the base materials. Brazing and soldering involve the use of lower melting point materials, which can become re-melted or structurally weakened when subjected to the higher temperatures involved in welding. The resultant joint may not maintain the required strength or durability, leading to potential failures in structural integrity. It is crucial in aircraft construction and maintenance to adhere to strict protocols to ensure safety and reliability, and this standard avoids the risks associated with welding over joints that are not designed to withstand such processes.

5. In aviation maintenance, what does the acronym "TBO" stand for?

- A. Total Base Operations
- B. Time Between Overhaul**
- C. Technical Board Order
- D. Time Block Operations

In aviation maintenance, "TBO" stands for Time Between Overhaul. This term refers to the prescribed duration or total operating time that an aircraft component can operate before it needs to be removed and overhauled to ensure safety and reliability. The TBO is established by manufacturers based on extensive testing, engineering analysis, and operational data. Understanding TBO is crucial for maintaining aircraft, as adhering to these guidelines helps prevent mechanical failures that could jeopardize flight safety. By following the recommended TBO intervals, maintenance personnel can proactively address wear and tear, thereby ensuring that the aircraft components are in optimal condition and compliant with regulations. This practice ultimately contributes to the overall safety and performance of the aircraft during operations.

6. Which method can be used to remove corrosion from highly stressed steel surfaces?

- A. Steel wire brushes
- B. High-grit carbon paper
- C. Fine-grit Aluminum oxide**
- D. Stiff, nonmetallic brush

Using fine-grit aluminum oxide is an effective method for removing corrosion from highly stressed steel surfaces due to its abrasive characteristics, which allow it to effectively abrade away corrosion without significantly damaging the underlying steel surface. This method provides a balance between cleaning the affected area and preserving the integrity of the steel, particularly important for parts that are under stress. The fine grit helps to ensure that the removal process does not introduce additional surface irregularities or weaken the material, which is crucial for highly stressed components where structural integrity is paramount. In contrast, wire brushes may be too aggressive and can potentially damage or gouge the surface of the steel, compromising its strength. High-grit carbon paper, while also abrasive, may not be as effective as aluminum oxide in effectively addressing the specific types of corrosion found on highly stressed steel. A stiff, nonmetallic brush may not have the necessary abrasiveness to remove corrosion effectively, and it may simply smear or push corrosion products around rather than removing them. Therefore, the choice of fine-grit aluminum oxide combines effective removal of corrosion while maintaining the surface characteristics essential for the performance of highly stressed steel components.

7. Heat treatment enhances which property of metals?

- A. Weight
- B. Color
- C. Hardness**
- D. Appearance

Heat treatment is a crucial process in metallurgy that significantly enhances the hardness of metals. This process involves controlled heating and cooling of the metal to alter its microstructure, which directly influences its mechanical properties. When metals are heat-treated, the changes in internal structure can lead to increased strength, improved toughness, and enhanced wear resistance. For instance, processes like quenching and tempering are specifically designed to increase hardness and strength, making the metal more suitable for applications that require high durability and performance. Enhancements in hardness achieved through heat treatment are essential for applications in various industries, especially in aerospace and automotive sectors, where safety and performance are critical. This focus on hardness directly ties into the metal's ability to withstand deformation and wear over time, which is a key factor in ensuring the longevity and reliability of components. While weight, color, and appearance of metals may be altered through different processes, they are not the primary focus of heat treatment. The process's main objective is to improve mechanical properties, with hardness being a primary target. Thus, the enhancement of hardness through heat treatment stands out as the most relevant benefit directly associated with this fundamental metallurgical process.

8. How frequently must an aircraft typically undergo a comprehensive safety audit?

- A. Every month
- B. Every two years
- C. Every year or as mandated by regulations**
- D. Every five years

An aircraft is typically required to undergo a comprehensive safety audit every year or as mandated by regulations because this frequency helps ensure that safety standards are consistently met and maintained. Regular audits contribute to identifying potential safety issues, verifying compliance with safety protocols, and enhancing overall operational safety. Regulatory agencies often have specific timelines for these audits to ensure that the aircraft is maintained in airworthy condition continuously, thereby protecting both the aircraft and its passengers. Annual audits allow for timely interventions and corrective actions before any minor issues have a chance to escalate into serious safety concerns. Additionally, various aviation authorities may have regulations that stipulate formal, documented reviews at this frequency, which reflects industry best practices. This proactive approach is essential in the aviation sector, where safety is the highest priority.

9. When should a fiber-type, self-locking nut not be used on an aircraft?

- A. If the bolt is subject to rotation**
- B. If the bolt is under tension loading
- C. If the bolt is under shear loading
- D. If the bolt is under torque

Fiber-type, self-locking nuts are specifically designed to provide a reliable locking mechanism that prevents loosening under vibration and dynamic loads. However, they are not suitable when the bolt is subject to rotation. This is because the internal fibers of the nut may wear out or deform due to the continuous movement and friction, compromising their locking ability over time. Using a self-locking nut in this scenario could lead to a loss of clamping force and potentially allow the bolt to loosen, resulting in mechanical failure. Aircraft components often experience various forces during operation, and ensuring that fasteners remain secure is critical for safety and performance. When rotation is involved, it's essential to choose fasteners designed for such conditions, which can provide the necessary holding power without the risk of failure associated with fiber-type self-locking nuts. In contrast, other loading conditions like tension or shear can sometimes allow the use of these nuts, provided that the overall design and operating conditions assure sufficient locking capability despite those stresses.

10. How does an aircraft's autopilot system function?

- A. By relying on manual inputs from the pilot
- B. Using sensors, gyroscopes, and servos to control the aircraft's flight path automatically**
- C. Through a centralized control panel operated by air traffic control
- D. By presetting a flight path prior to departure

An aircraft's autopilot system functions by utilizing a combination of sensors, gyroscopes, and servos to automatically control the flight path of the aircraft. The sensors measure various parameters such as altitude, speed, and orientation, while gyroscopes help maintain the stability and orientation of the aircraft in three-dimensional space. Servos then adjust control surfaces such as ailerons, elevators, and rudders to ensure the aircraft follows the desired flight path without constant manual input from the pilot. This automated system is designed to reduce the pilot's workload, particularly during long flights or in phases of flight requiring precision, such as during cruising or approach to landing. The effectiveness of the autopilot system allows for smoother flight dynamics and can enhance overall safety by maintaining steady flight patterns. In contrast, relying solely on manual inputs from the pilot would mean that the aircraft would not be able to consistently maintain its flight path without constant pilot intervention. Additionally, while a centralized control panel might exist for various communications and control aspects, air traffic control does not directly operate an aircraft's autopilot. Presetting a flight path prior to departure can work in conjunction with an autopilot, but the key functionality lies in the system's ability to make real-time adjustments based on the data processed

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://philscaacrm.examzify.com>

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

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