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

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

VISIT US ONLINE FOR THE FULL VERSION STUDY GUIDE

https://philscaacrm.examzify.com

Copyright © 2026 by Examzify - A Kaluba Technologies Inc. product.

ALL RIGHTS RESERVED.

No part of this book may be reproduced or transferred in any form or by any means, graphic, electronic, or mechanical, including photocopying, recording, web distribution, taping, or by any information storage retrieval system, without the written permission of the author.

Notice: Examzify makes every reasonable effort to obtain accurate, complete, and timely information about this product from reliable sources.

SAMPLE

Table of Contents

Copyright 1

Table of Contents 2

Introduction 3

How to Use This Guide 4

Questions 5

Answers 8

Explanations 10

Next Steps 16

SAMPLE

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.

SAMPLE

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!

SAMPLE

Questions

SAMPLE

1. What aspect of welding is affected most by internal stresses?

A. Durability

B. Aesthetic finish

C. Flexibility

D. Electrical conductivity

2. What is the significance of a pre-flight inspection?

A. To secure compliance with regulations

B. To test the engine functionality only

C. To ensure all systems function correctly before the flight

D. To check the fuel levels

3. What color indicates an AN steel flared-tube fitting?

A. Black

B. Red

C. Blue

D. Green

4. What is the benefit of using titanium rivets in aircraft construction?

A. Lightweight and high strength

B. Cost-effective

C. Easy to install

D. Corrosion resistant

5. If the empty weight center of gravity (CG) of an airplane is within limits, what can we conclude?

A. It is necessary to calculate CG extremes

B. Minimum fuel should be used in all CG checks

C. It is not necessary to calculate CG extremes

D. Weight and balance is not important

6. Name a common type of composite material used in modern aircraft.

A. Glass fiber reinforced polymer (GFRP)

B. Carbon fiber reinforced polymer (CFRP)

C. Steel reinforced plastic (SRP)

D. Aluminum composite metal (ACM)

SAMPLE

7. Which tool is used to measure the alignment of a rotor shaft?

A. Protractor

B. Plumb bob

C. Dial indicator

D. Shift gauge

8. What is the role of the Federal Aviation Administration (FAA) in aircraft maintenance?

A. To enforce traffic laws for aviation

B. To regulate and oversee the safety and standards of aircraft operations and maintenance

C. To provide pilot training

D. To manage airport operations

9. Which kind of analysis is vital in ensuring aircraft structural integrity?

A. Structural stress analysis

B. Thermal dynamics analysis

C. Aerodynamic performance analysis

D. Material composition analysis

10. A faint line running across the grain of a wood spar usually indicates which type of failure?

A. Compression failure

B. Shear failure

C. Decay

D. Bending failure

SAMPLE

Answers

SAMPLE

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

SAMPLE

Explanations

SAMPLE

1. What aspect of welding is affected most by internal stresses?

A. Durability

B. Aesthetic finish

C. Flexibility

D. Electrical conductivity

Durability is significantly affected by internal stresses that occur during the welding process. As materials are welded, they undergo rapid heating and cooling, which can create a non-uniform distribution of stresses within the weld and surrounding materials. These internal stresses can lead to various issues, such as distortion, cracking, and reduced lifespan of the welded joint when subjected to operational loads or environmental conditions. In terms of durability, the presence of internal stresses may compromise the integrity of the weld, making it more susceptible to failure under load or impact. A high level of durability is essential for welded structures, especially in applications such as aviation and other fields where safety and reliability are paramount. While aesthetic finish, flexibility, and electrical conductivity are also relevant properties in various contexts of welding and metalworking, they are not the primary aspects affected by internal stresses to the same extent as durability. Aesthetic finish may be impacted to some degree by distortion caused by stresses, but the critical factor in designing and evaluating welded structures is their long-term durability in service.

2. What is the significance of a pre-flight inspection?

A. To secure compliance with regulations

B. To test the engine functionality only

C. To ensure all systems function correctly before the flight

D. To check the fuel levels

A pre-flight inspection is crucial for the safety and reliability of an aircraft before it takes off. The primary significance of this inspection is to ensure that all systems function correctly, which encompasses checking various components such as the flight controls, landing gear, lights, and other vital systems. This thorough examination helps identify any issues that could potentially affect the aircraft's performance during flight, ultimately safeguarding the safety of both the crew and passengers. While securing compliance with regulations is important, and checking fuel levels is part of the process, the broader aspect of the pre-flight inspection is ensuring the overall operational condition of the aircraft. Testing engine functionality is just one component of this comprehensive check, but it doesn't cover the entirety of what the inspection entails. Therefore, the emphasis on verifying that all systems are operational is the most significant aspect of a pre-flight inspection.

3. What color indicates an AN steel flared-tube fitting?

A. Black

B. Red

C. Blue

D. Green

AN steel flared-tube fittings are designated by a color code for easy identification in aircraft maintenance and repair practices. The specific color that indicates AN steel flared-tube fittings is black. This coding system helps maintenance personnel quickly recognize the type and suitability of the fittings being used, which is crucial for ensuring safety and compatibility within the aircraft's hydraulic system. Understanding these color codes is essential in the ACRM field to prevent potential mistakes that could lead to accidents or equipment failure. The other colors mentioned are used for different types of fittings or purposes, which highlights the importance of properly identifying components in aircraft maintenance.

SAMPLE

4. What is the benefit of using titanium rivets in aircraft construction?

A. Lightweight and high strength

B. Cost-effective

C. Easy to install

D. Corrosion resistant

Using titanium rivets in aircraft construction offers notable advantages, particularly their lightweight nature coupled with high strength. Titanium is known for its excellent strength-to-weight ratio, which is crucial in aerospace applications where every pound matters. Lower weight contributes to improved fuel efficiency and performance, making aircraft lighter and more efficient in flight. Additionally, the strength of titanium allows for thinner sections of materials, which can further reduce weight without compromising structural integrity. The other benefits of titanium, such as corrosion resistance, are also significant, but they do not directly relate to the primary advantage of using titanium rivets during construction. While cost-effectiveness and ease of installation are important considerations in aircraft design and maintenance, the defining characteristic of titanium rivets is their ability to enhance structural performance through weight reduction and high strength. This makes them an ideal choice in situations where durability and efficiency are paramount.

5. If the empty weight center of gravity (CG) of an airplane is within limits, what can we conclude?

A. It is necessary to calculate CG extremes

B. Minimum fuel should be used in all CG checks

C. It is not necessary to calculate CG extremes

D. Weight and balance is not important

When the empty weight center of gravity (CG) of an airplane is confirmed to be within limits, it indicates that the aircraft has been constructed or modified correctly with respect to its weight distribution. This adherence to CG limits ensures that the aircraft will perform optimally within its designed parameters, positively affecting stability and control during flight. The conclusion that it is not necessary to calculate CG extremes stems from the understanding that if the empty weight CG is already within acceptable parameters, there is less urgency to identify every possible extreme case. However, it is still important to consider various loading configurations during operations, especially once fuel and payload are added. This moving forward implies a standard of safety in weight and balance practices without needing extensive recalculations if the base is confirmed to be correct. In contrast, other choices point towards additional considerations or actions that are not immediately necessary given that the empty weight CG meets established guidelines. Calculating CG extremes, setting minimum fuel limits for checks, and implying that weight and balance are insignificant are approaches that would be more applicable if the initial CG were out of limits or if there were other complicating factors to monitor.

SAMPLE

6. Name a common type of composite material used in modern aircraft.

A. Glass fiber reinforced polymer (GFRP)

B. Carbon fiber reinforced polymer (CFRP)

C. Steel reinforced plastic (SRP)

D. Aluminum composite metal (ACM)

Carbon fiber reinforced polymer (CFRP) is widely recognized as a common type of composite material used in modern aircraft due to its exceptional strength-to-weight ratio and resistance to corrosion. These properties make CFRP ideal for applications in aviation, where reducing weight while maintaining structural integrity is crucial for performance and fuel efficiency. The lightweight nature of CFRP contributes to improved overall efficiency in aircraft design, allowing for higher payload capacities and lower operational costs. CFRP is used extensively in the construction of various aircraft components, such as wing structures, fuselage panels, and interior components, where both performance and weight savings are paramount. Its ability to be molded into complex shapes allows for innovative designs that can enhance aerodynamic efficiency. As a result, CFRP has become a preferred material in the aerospace industry, particularly in modern aircraft development and production.

7. Which tool is used to measure the alignment of a rotor shaft?

A. Protractor

B. Plumb bob

C. Dial indicator

D. Shift gauge

The tool specifically designed for measuring the alignment of a rotor shaft is the dial indicator. This instrument utilizes a probe that makes contact with the shaft and displays measurements on a dial. It allows for precise readings of any misalignments by showing variations in distance as the rotor shaft is rotated. This precision is crucial in ensuring that the rotor operates smoothly, reducing excessive wear or vibration, which can lead to mechanical failure. In the context of rotor shaft alignment, the dial indicator provides more accurate and relevant measurements than the other tools listed. For example, while a protractor is useful for measuring angles, it doesn't provide the detailed linear measurement needed for alignment. A plumb bob can help establish a vertical reference but isn't suited for precision measurement of mechanical components like a rotor shaft. Similarly, a shift gauge, though it may have its applications, is not the preferred tool for this specific alignment task. Therefore, the dial indicator remains the standard instrument for ensuring rotor shaft alignment in aircraft maintenance and repair.

SAMPLE

8. What is the role of the Federal Aviation Administration (FAA) in aircraft maintenance?

A. To enforce traffic laws for aviation

B. To regulate and oversee the safety and standards of aircraft operations and maintenance

C. To provide pilot training

D. To manage airport operations

The role of the Federal Aviation Administration (FAA) in aircraft maintenance is primarily to regulate and oversee the safety and standards associated with aircraft operations and maintenance. The FAA establishes regulations and guidelines that ensure aircraft are maintained properly to operate safely within the national airspace system. This encompasses setting maintenance standards, approving maintenance facilities, and certifying aviation personnel, including mechanics who conduct maintenance on aircraft. The FAA also plays a critical role in the development of procedures for aircraft inspections and repairs through regulations such as the Federal Aviation Regulations (FARs), ensuring that aircraft meet safety compliance before they can be operated. This regulatory oversight is vital for maintaining public safety, as it helps to prevent accidents and enhances the reliability of air transport. In contrast, while the FAA has some involvement in the presence of traffic laws for aviation, the focal point of their authority is safety regulation, which encompasses maintenance. Providing pilot training and managing airport operations are separate aspects of aviation governance primarily handled through various programs and collaborations, rather than being the FAA's core responsibility in relation to maintenance activities.

9. Which kind of analysis is vital in ensuring aircraft structural integrity?

A. Structural stress analysis

B. Thermal dynamics analysis

C. Aerodynamic performance analysis

D. Material composition analysis

Structural stress analysis is essential for ensuring aircraft structural integrity because it involves assessing how materials and structures will respond to various forces during operation. This type of analysis helps engineers determine the limits of materials used in the aircraft's construction and whether they can withstand the loads experienced during flight, such as those from turbulence and pressure changes. By evaluating factors like maximum stress and strain, along with identifying potential failure points, engineers can make informed decisions regarding design modifications, material choices, and maintenance protocols. Proper structural stress analysis is critical to ensuring safety and performance, as it allows for the identification of weak points in the aircraft's framework before they lead to catastrophic failures. While thermal dynamics, aerodynamic performance, and material composition are also important considerations in aircraft design and maintenance, they do not directly focus on structural integrity in the same way that structural stress analysis does. Understanding the stresses that the aircraft will experience in various operational conditions is central to maintaining its safety and functionality over time.

SAMPLE

10. A faint line running across the grain of a wood spar usually indicates which type of failure?

A. Compression failure

B. Shear failure

C. Decay

D. Bending failure

A faint line running across the grain of a wood spar typically indicates a compression failure. This occurs when the wood is subjected to forces that exceed its ability to support the load. In wood, compression failure often manifests as visible lines or fractures, which run perpendicular to the grain direction, reflecting the structural compromise caused by compressive forces. During the load-bearing process, the fibers of the wood may buckle or crush under excessive pressure, leading to the formation of these faint lines. It is essential for aircraft constructors and maintainers to recognize signs of such failures, as they relate to the integrity and safety of wooden components in aircraft structure. Proper evaluation and understanding of failure types ensure better maintenance practices and structural reliability.

SAMPLE

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!

SAMPLE