

Airframe & Powerplant (A&P) Inspection Authorization (IA) Practice Test (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

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- 1. Under what condition may inoperative equipment deferred under a 14 CFR Part 91 MEL remain deferred?**
 - A. Until the annual inspection becomes due**
 - B. As long as it is inspected and poses no hazard**
 - C. Until specified repair periods are met**
 - D. Until the aircraft is sold**

- 2. What material has a main role in the construction of aircraft bodies due to its strength-to-weight ratio?**
 - A. Aluminum**
 - B. Steel**
 - C. Composite materials**
 - D. Titanium**

- 3. What type of surface is created when water is present on an Alclad aluminum surface?**
 - A. Neutral.**
 - B. Cathodic.**
 - C. Anodic.**
 - D. Electrolytic.**

- 4. Under which CFR Part is the Piper PA-28-235 certified along with additional requirements?**
 - A. 14 CFR Part 25.**
 - B. 14 CFR Part 23.**
 - C. 14 CFR Part 21.**
 - D. 14 CFR Part 29.**

- 5. Who is responsible for confirming the durability of the materials in a Part 23 airplane?**
 - A. The applicant**
 - B. FAA inspectors**
 - C. The design engineer**
 - D. The aircraft operator**

- 6. As loaded, this aircraft is classified as?**
- A. Overweight, but within the CG limits.**
 - B. Underweight and outside the aft CG limit.**
 - C. Overweight and outside the forward CG limit.**
 - D. Weight balanced within all limits.**
- 7. If a metal is bent at a 135-degree angle, what is the actual bend angle of the metal?**
- A. 90 degrees**
 - B. 45 degrees**
 - C. 35 degrees**
 - D. 30 degrees**
- 8. Who has the primary responsibility for the airworthiness of an aircraft under 14 CFR Part 135?**
- A. The registered owner of the aircraft**
 - B. The pilot of the aircraft**
 - C. The certificate holder of the aircraft**
 - D. The FAA granted maintenance provider**
- 9. What is the minimum requirement to operate a gyroscopic instrument at the proper speed?**
- A. Minimum required vacuum and rated CFM**
 - B. A flow requirement of .50 cubic feet per minute**
 - C. Maximum negative pressure requirement**
 - D. A flow requirement of 2.30 cubic feet per minute**
- 10. Who may perform an annual inspection and approve aircraft for return to service under an inspection authorization?**
- A. The mechanic with a regular license**
 - B. The inspection authorization holder**
 - C. The aircraft owner**
 - D. The FAA certified technician**

Answers

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

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Explanations

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1. Under what condition may inoperative equipment deferred under a 14 CFR Part 91 MEL remain deferred?

- A. Until the annual inspection becomes due**
- B. As long as it is inspected and poses no hazard**
- C. Until specified repair periods are met**
- D. Until the aircraft is sold**

The condition under which inoperative equipment deferred under a 14 CFR Part 91 Minimum Equipment List (MEL) may remain deferred is that it must be inspected regularly and pose no hazard to the safety of the operation. The MEL allows operators to maintain flight operations with certain equipment inoperative, as long as the procedures and operational limitations specified in the MEL are followed. This includes ensuring that the inoperative equipment does not compromise the safe operation of the aircraft, which is why ongoing inspections are critical. Maintaining the aircraft's safety and adherence to regulatory requirements is paramount; hence, ensuring that the inoperative equipment is adequately managed and does not present a flight safety issue is key to deferring its maintenance for the duration allowed. This approach ensures that operational flexibility is balanced with a strong emphasis on safety during flight operations.

2. What material has a main role in the construction of aircraft bodies due to its strength-to-weight ratio?

- A. Aluminum**
- B. Steel**
- C. Composite materials**
- D. Titanium**

Aluminum is widely recognized for its exceptional strength-to-weight ratio, making it an ideal choice for aircraft construction. This characteristic enables aircraft designers to create structures that are both lightweight and robust, essential for performance, fuel efficiency, and safety. The lightweight nature of aluminum helps improve overall aircraft performance, allowing for better fuel economy and payload capacity. Additionally, aluminum alloys can be easily worked with, have good corrosion resistance, and can be treated or coated for enhanced durability. While other materials like composite materials, titanium, and steel have their advantages in specific applications within aviation, aluminum remains the dominant material for the airframe due to its balance of strength, weight, and cost-effectiveness. Composite materials, while offering excellent strength-to-weight ratios and design flexibility, are typically used in specific components rather than the entire airframe. Titanium, known for its high strength and resistance to corrosion, is heavier and more expensive, making it less desirable for complete airframe construction. Steel, although very strong, is significantly heavier than aluminum, making it less suitable for the overall framework of aircraft bodies where weight is a critical factor.

3. What type of surface is created when water is present on an Alclad aluminum surface?

- A. Neutral.
- B. Cathodic.
- C. Anodic.**
- D. Electrolytic.

When water is present on an Alclad aluminum surface, it creates an anodic surface condition. Alclad aluminum consists of a core of pure aluminum that is coated with a thin layer of aluminum alloy, which provides a barrier against corrosion. In the presence of moisture, the aluminum oxide layer that forms on the surface becomes anodic relative to the underlying aluminum, leading to a galvanic reaction. In this setting, this anodic condition is critical as it helps to protect the underlying metal from corrosion. The protective oxide layer becomes more stable and reinforces the material's resistance to deterioration when in contact with water. Understanding this interaction is essential for maintenance and inspection procedures within airframe and powerplant work to ensure the longevity and structural integrity of aluminum components.

4. Under which CFR Part is the Piper PA-28-235 certified along with additional requirements?

- A. 14 CFR Part 25.
- B. 14 CFR Part 23.**
- C. 14 CFR Part 21.
- D. 14 CFR Part 29.

The Piper PA-28-235 is certified under 14 CFR Part 23, which governs the airworthiness standards for normal, utility, acrobatic, and commuter category airplanes. Part 23 establishes criteria for design, performance, and safety to ensure that these aircraft are suitable for their intended roles. This part covers a wide range of parameters including structural integrity, flight control systems, and emergency procedures, specifically tailored for smaller general aviation aircraft like the Piper PA-28 series. Part 25, in contrast, applies to large transport category airplanes, which is not applicable to the PA-28-235. Part 21 addresses the certification processes for aircraft and their components but does not specifically establish airworthiness standards. Lastly, Part 29 pertains to rotorcraft, which is irrelevant to the PA-28-235 since it is a fixed-wing aircraft. Therefore, the correct framework for certifying the Piper PA-28-235 along with its operational requirements is found in Part 23.

5. Who is responsible for confirming the durability of the materials in a Part 23 airplane?

- A. The applicant**
- B. FAA inspectors**
- C. The design engineer**
- D. The aircraft operator**

The responsibility for confirming the durability of the materials used in a Part 23 airplane primarily falls on the applicant. The applicant, typically the manufacturer or entity seeking certification, must provide substantiation and evidence that the materials meet the necessary performance and safety standards as outlined by regulations. They must conduct thorough testing and analysis to ensure that materials will withstand the operating conditions the aircraft may encounter throughout its service life. Compliance with safety and airworthiness standards is essential, and the applicant plays a crucial role in gathering the documentation and data required to satisfy regulatory authorities, including the FAA. They are expected to understand the specifications and to demonstrate that their materials are capable of withstanding the stresses and conditions of flight operations. FAA inspectors and design engineers have their own roles in the process. Inspectors evaluate the presented documentation and may review compliance with regulations during inspections, while design engineers focus on creating designs that are safe and effective but rely on applicants to verify material choices. The aircraft operator's responsibilities center more on the operation and maintenance of the aircraft after it has entered service, rather than the initial material durability assessments required for certification.

6. As loaded, this aircraft is classified as?

- A. Overweight, but within the CG limits.**
- B. Underweight and outside the aft CG limit.**
- C. Overweight and outside the forward CG limit.**
- D. Weight balanced within all limits.**

The correct classification for the aircraft being loaded as overweight, but within the CG (center of gravity) limits indicates that while the total weight of the aircraft exceeds the maximum allowable weight for it to operate safely, its center of gravity is still within the acceptable range for flight stability and control. In aviation, each aircraft has specific weight and balance limits defined in its flight manual. The "overweight" status means that the aircraft is carrying more weight than it was designed to handle, which could potentially affect its performance, takeoff, landing, and structural integrity. However, being within the CG limits suggests that the balance of the aircraft is appropriate, meaning that the distribution of weight is such that it will not lead to adverse handling characteristics. Thus, an aircraft could be overweight but still function within its designed safety margins regarding lateral stability and trim if its load distribution is managed correctly. This is a critical distinction in aviation safety practice, as being within CG limits helps mitigate some risks associated with being overweight.

7. If a metal is bent at a 135-degree angle, what is the actual bend angle of the metal?

- A. 90 degrees**
- B. 45 degrees**
- C. 35 degrees**
- D. 30 degrees**

When a metal is bent at a 135-degree angle, the actual bend angle is calculated based on the difference between the total angle around a bend versus the given angle. In this case, the total angle around a bend is 180 degrees. To find the actual bend angle, you subtract the bend angle from 180 degrees. Therefore, the actual bend angle is: $180 \text{ degrees} - 135 \text{ degrees} = 45 \text{ degrees}$. This calculation shows that the correct answer reflects the true angle of the bend in relation to the linear extension of the metal. Understanding this fundamental concept is crucial in metalworking and fabrication, as it ensures precision in the bending process and is critical for achieving desired shapes and maintaining structural integrity.

8. Who has the primary responsibility for the airworthiness of an aircraft under 14 CFR Part 135?

- A. The registered owner of the aircraft**
- B. The pilot of the aircraft**
- C. The certificate holder of the aircraft**
- D. The FAA granted maintenance provider**

The primary responsibility for the airworthiness of an aircraft under 14 CFR Part 135 lies with the certificate holder of the aircraft, which typically refers to the operator or the entity that holds the operating certificate. This responsibility includes ensuring that the aircraft is maintained and operated according to FAA regulations and that it meets all safety standards before flight. The certificate holder is responsible for establishing maintenance schedules, ensuring that inspections are performed, and that any necessary repairs are completed. This includes keeping records of maintenance activities and ensuring that personnel involved in the maintenance and operation of the aircraft are properly trained and qualified. While other parties, such as the registered owner and the pilot, play significant roles in operations and compliance with regulations, it is the certificate holder who has the ultimate legal obligation to ensure that the aircraft is airworthy at all times when it is in operation under Part 135.

9. What is the minimum requirement to operate a gyroscopic instrument at the proper speed?

- A. Minimum required vacuum and rated CFM**
- B. A flow requirement of .50 cubic feet per minute**
- C. Maximum negative pressure requirement**
- D. A flow requirement of 2.30 cubic feet per minute**

To operate a gyroscopic instrument effectively, it is essential to meet the minimum required vacuum and the rated Cubic Feet per Minute (CFM). Gyroscopic instruments, such as artificial horizons or gyrocompasses, rely on a stable, high-speed rotor to maintain their accuracy and performance. The performance of these instruments is contingent upon a sufficient vacuum pressure to spin the gyroscope at the required speed. Insufficient vacuum will result in inadequate rotation speed, which directly affects the instrument's accuracy and reliability. The rated CFM specifies the flow of air required to sustain that vacuum level, ensuring the gyroscope can maintain the necessary speed for accurate readings. By focusing on the vacuum and rated CFM as the criteria, one recognizes that both parameters are critical for proper operation, as they ensure the gyroscope achieves the optimal performance characteristics necessary for reliable flight data interpretation.

10. Who may perform an annual inspection and approve aircraft for return to service under an inspection authorization?

- A. The mechanic with a regular license**
- B. The inspection authorization holder**
- C. The aircraft owner**
- D. The FAA certified technician**

An individual who holds an inspection authorization (IA) has met specific experience and knowledge requirements set forth by the Federal Aviation Administration (FAA). This authorization allows them to conduct comprehensive inspections beyond those permitted by a regular airframe and powerplant license. Annual inspections are critical to ensuring that an aircraft complies with safety regulations and is in a condition for safe operation. The IA holder is specifically trained to identify potential issues and has the authority to approve the aircraft for return to service after completing an annual inspection. While other individuals, such as mechanics with a regular license or FAA certified technicians, possess valuable skills, they do not have the same scope of authority as an IA holder regarding annual inspections and the approval for return to service. The aircraft owner can certainly oversee the maintenance process but usually does not have the technical expertise or certification required to conduct annual inspections and approve the aircraft for flights. Thus, the inspection authorization holder is distinctly qualified to take this responsibility.

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://aandpinspectionauthorization.examzify.com>

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

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