MAC262 – ACFT LIMITS AND SPEEDS PRACTICE TEST (SAMPLE)

STUDY GUIDE

SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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. PCR (divert) pressure value is which of the following?

A. 70 PSI

B. 80 PSI

C. 92 PSI

D. 100 PSI

2. Which statement about density altitude is correct?

A. It is the current altitude above sea level

B. It is the altitude corresponding to current air density

C. It is the altitude where temperature is standard

D. It is the maximum altitude for climb

3. What is Vapp and how is it chosen relative to Vref?

A. Vapp is the target approach airspeed selected to maintain stabilized approach with margins relative to Vref.

B. Vapp is chosen to maximize glide ratio.

C. Vapp equals Vref.

D. Vapp is the minimum landing speed.

4. During takeoff, which speeds are used to assess rotation and engine-out performance?

A. VR for rotation, V2 for takeoff performance, and V1 as required

B. V1 and Vref

C. Vne and Vmo

D. Vs1

5. The aircraft length is accurate as 14.2m, 46'8". Which statement is true?

A. 14.2m, 46'8"

B. 14.2m, 46'0"

C. 13.9m, 46'8"

D. 14.5m, 46'8"

6. Which speed is the stall speed in clean configuration?

A. Vs

B. Vref

C. Vapp

D. Vne

7. What is the purpose of speed planning in performance charts?

A. It is not related to performance charts.

B. It guides selecting safe speeds for takeoff, climb, cruise, approach, and landing.

C. It determines fuel efficiency only.

D. It sets maximum allowable flight time.

8. What is the amount in each auxiliary fuel tank?

A. 532.5

B. 400

C. 500

D. 550

9. Aircraft Tail Height is specified as which value?

A. 4.50m, 14'9"

B. 4.10m, 13'6"

C. 4.36m, 14'4"

D. 4.20m, 13'9"

10. How does weight affect stall speed?

A. Heavier weight increases stall speed.

B. Heavier weight decreases stall speed.

C. Weight has no effect on stall speed.

D. Weight only affects stall speed with full flaps.

Answers

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

Explanations

1. PCR (divert) pressure value is which of the following?

A. 70 PSI

B. 80 PSI

C. 92 PSI

D. 100 PSI

The idea being tested is the pressure at which the divert path in the PCR system activates. This divert pressure is a deliberate setpoint that tells the system when to switch flow from the primary route to an alternate one. In this configuration, the setpoint is 92 psi. That value sits high enough to avoid nuisance trips during normal operation, yet low enough to divert before pressures rise to unsafe levels in the downstream circuit. If the setpoint were much lower, you'd see unnecessary diversions and potential under-pressurization; if it were much higher, you could push the system toward its maximum limits and risk overpressure. So 92 psi is chosen to balance reliability and safety.

2. Which statement about density altitude is correct?

A. It is the current altitude above sea level

B. It is the altitude corresponding to current air density

C. It is the altitude where temperature is standard

D. It is the maximum altitude for climb

Density altitude is the altitude in the standard atmosphere that would have the same air density as the air you're actually experiencing. That's why the statement describing density altitude as the altitude corresponding to current air density is the best choice. Air density is what affects engine power, prop thrust, and wing lift, so when the density altitude is higher than your true altitude (due to hot weather, low pressure, or high humidity), performance suffers; when it's lower (cold air, high pressure), performance improves. It's not simply the current altitude above sea level, nor the altitude where temperature is standard, nor the maximum altitude for climb.

3. What is Vapp and how is it chosen relative to Vref?

A. Vapp is the target approach airspeed selected to maintain stabilized approach with margins relative to Vref.

B. Vapp is chosen to maximize glide ratio.

C. Vapp equals Vref.

D. Vapp is the minimum landing speed.

Vapp is the approach airspeed you fly during the approach that is chosen to optimize glide performance. In practice, the speed is selected to give the best lift-to-drag ratio, which means the greatest glide distance for the aircraft in an engine-out scenario. This makes Vapp the speed you'd use to maximize how far you can glide from a given altitude while still being able to manage the approach safely. Relating it to Vref, Vref is the reference landing speed used to set the target on final approach in the landing configuration. Vapp is chosen with that reference in mind but is not the same as Vref; it is typically set to a value that provides the best glide efficiency (and thus energy management) while still allowing a stabilized approach and a safe margin above stall.

4. During takeoff, which speeds are used to assess rotation and engine-out performance?

A. VR for rotation, V2 for takeoff performance, and V1 as required

B. V1 and Vref

C. Vne and Vmo

D. Vs1

The key idea is matching speeds to the takeoff actions: when to rotate, and what speed means you can safely continue with an engine out. The rotation speed is VR, the speed at which you lift the nose to get airborne. For engine-out performance, you need to be able to maintain a safe climb with one engine inoperative, which is defined by V2, the takeoff safety speed. In addition, V1 is the decision speed: if an engine failure occurs before V1 you should abort the takeoff; if it happens at or after V1 you continue. So the speeds used to assess rotation and engine-out performance are VR for rotation, V2 for takeoff performance with an engine out, and V1 as required by the takeoff profile. Other options don't match these roles: Vne/Vmo are maximum operating speeds, and Vs1 is the stall speed in takeoff configuration, not the rotation or engine-out performance speeds.

5. The aircraft length is accurate as 14.2m, 46'8". Which statement is true?

A. 14.2m, 46'8"

B. 14.2m, 46'0"

C. 13.9m, 46'8"

D. 14.5m, 46'8"

Length can be given in both metric and imperial units, and they describe the same dimension. The stated accurate length is 14.2 m with 46'8"; the true statement is the one that lists both of those values together, since it preserves the exact pairing provided. For a quick check, 46'8" converts to about 14.22 m, which rounds to 14.2 m, so the two representations are consistent within typical rounding. The other options mix a different metric value or a different feet-inches value, so they don't match the given length.

6. Which speed is the stall speed in clean configuration?

A. Vs

B. Vref

C. Vapp

D. Vne

Stall speed in clean configuration is the minimum steady, level-flight speed at which the airplane can be flown with flaps and gear retracted. At this speed, the wing is producing just enough lift to balance the weight; below it, the wing can't sustain level flight and a stall occurs. The symbol used for this specific case is Vs, which is why that option is the correct one. The other speeds refer to different flight phases: Vref is the landing reference speed, Vapp is the approach speed, and Vne is the never-exceed speed. So they aren't the stall speed in clean configuration.

7. What is the purpose of speed planning in performance charts?

A. It is not related to performance charts.

B. It guides selecting safe speeds for takeoff, climb, cruise, approach, and landing.

C. It determines fuel efficiency only.

D. It sets maximum allowable flight time.

Speed planning in performance charts is about choosing safe, appropriate speeds for every phase of flight so the airplane can meet its performance targets and stay within limits. By using weight, altitude, temperature, runway length, and obstacle data, you pick a takeoff speed that provides enough acceleration and distance with a safety margin, a climb speed that ensures obstacle clearance and the desired climb performance, a cruise speed that balances fuel use and time, and an approach/landing speed that yields a stabilized approach with adequate stall margin and stopping capability. This approach keeps you within structural and engine limits (V speeds and other max/min restrictions) and helps guarantee you can meet requirements like takeoff and landing distances, climb gradients, and safe stall margins.

8. What is the amount in each auxiliary fuel tank?

A. 532.5

B. 400

C. 500

D. 550

Two identical auxiliary fuel tanks are usually filled evenly, so the amount in each tank is half of the total auxiliary fuel on board. In this problem, the total auxiliary fuel is such that half of it equals 532.5, so each tank holds 532.5. The other numbers would imply a different total or an uneven distribution, which doesn't fit the setup of two symmetrical tanks being filled evenly.

9. Aircraft Tail Height is specified as which value?

A. 4.50m, 14'9"

B. 4.10m, 13'6"

C. 4.36m, 14'4"

D. 4.20m, 13'9"

The tail height is the vertical distance from the ground to the top of the aircraft's tail (the highest point of the tail surface) when the aircraft sits on its landing gear. This dimension is what you'd check to ensure clearance under hangar doors, gates, or other overhead obstacles, and it's published in the aircraft's data in both metric and imperial units. For this aircraft, the published tail height is 4.36 meters, which equals 14 feet 4 inches when converted and rounded. That's the value used in the performance data for tail clearance. The other numbers would correspond to different height references (like cabin or fuselage height) and don't reflect the tail's highest point.

10. How does weight affect stall speed?

A. Heavier weight increases stall speed.

B. Heavier weight decreases stall speed.

C. Weight has no effect on stall speed.

D. Weight only affects stall speed with full flaps.

Stall speed is the speed at which the wing can just generate enough lift to balance the aircraft's weight in level flight, with the lift coefficient at its maximum. Lift is L = 0.5 ρ V^2 S CL, and at stall CL equals CLmax, while in level flight L must equal W. Solving for V gives Vstall = sqrt((2W) / (ρ S CLmax)). This shows that as weight W increases, Vstall increases proportionally to the square root of weight. The intuition is simple: carrying more weight requires more lift, and since CLmax is fixed for a given configuration, you must fly faster to develop the needed lift. Lighter weight lowers the stall speed, while heavier weight raises it. The effect happens for any configuration (flaps, gear, etc.), though changing configuration alters CLmax and thus the actual stall speed.

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://mac262acftlimitsspeeds.examzify.com

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