CEA FUNDAMENTALS BLOCK 3 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. Increase of velocity increases which aerodynamic forces?

A. Lift and drag

B. Lift only

C. Drag only

D. Neither

2. From which source does bleed air originate for the described system?

A. Engine compressor bleed ports

B. External air intake

C. Cabin exhaust

D. Crossing manifold

3. The tail rotor provides

A. The tail rotor provides anti-torque and directional control

B. Lift

C. Fuel supply

D. Navigation lights

4. What happens to drag when airspeed is increased?

A. Increase

B. Decrease

C. Remain the same

D. Doubles

5. Tiltrotor modes of flight include which mode?

A. Cruise: horizontal cruise

B. Conversion mode

C. VTOL: vertical takeoff/landing

D. Airplane mode

6. Why are breakers used in place of fuses in aircraft electrical systems?

A. It is easier to close a circuit in flight by resetting the breaker than by replacing a fuse

B. Breakers are lighter than fuses

C. They provide continuous protection without interruption

D. Fuses can be reset quickly in flight

7. Have-Quick / Frequency Hopping is used to overcome what threat?

A. Intercept

B. Delay

C. Jamming

D. Eavesdropping

8. What is the initial method used to cool air in an aircraft air cycle system?

A. Refrigeration unit

B. Air-to-air heat exchangers

C. Water separators

D. Venturi

9. What does the sump box do in the fuel-tank system?

A. Stores fuel for later use

B. Supplies boost pump through flapper valves

C. Regulates fuel temperature

D. Controls venting

10. Which system is designed to deceive radar by returning radar emissions to the threat?

A. ECM

B. CMDS

C. IRCM

D. RWR

Answers

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

Explanations

1. Increase of velocity increases which aerodynamic forces?

A. Lift and drag

B. Lift only

C. Drag only

D. Neither

Rising speed increases dynamic pressure, which is ½ times density times velocity squared. Both lift and drag depend on this dynamic pressure: lift is proportional to ½ ρ v^2 S C_L and drag is proportional to ½ ρ v^2 S C_D. So when velocity goes up, and the wing's lift and drag coefficients don't drop due to a change in angle of attack or other conditions, both forces rise with v^2. In short, faster flight increases both lift and drag (under typical conditions with the coefficients held constant at a given angle of attack).

2. From which source does bleed air originate for the described system?

A. Engine compressor bleed ports

B. External air intake

C. Cabin exhaust

D. Crossing manifold

Bleed air for this system comes from a crossing (cross-bleed) manifold, not from a single engine port. The crossing manifold is a shared distribution duct that collects bleed air from one or more engine compressor bleed ports (and sometimes the APU) and routes it to the pneumatic/air system through control valves. This arrangement allows the system to be supplied from whichever engine is available or to start an engine using bleed air from the other engine, by crossfeeding through the manifold. External air intake isn't bleed air, and cabin exhaust isn't a source of bleed air. The key idea is that the crossing manifold serves as the source/distribution point for the system's bleed air, enabling flexible, cross-bleed operation.

3. The tail rotor provides

A. The tail rotor provides anti-torque and directional control

B. Lift

C. Fuel supply

D. Navigation lights

The tail rotor's job is to counteract the torque produced by the main rotor and to provide yaw control. When the main rotor spins, the fuselage tends to rotate in the opposite direction. The tail rotor generates thrust to balance that torque, and by varying its thrust, the pilot can rotate the helicopter's nose to change heading. Lift comes from the main rotor, not the tail rotor. The tail rotor doesn't supply fuel, which comes from the engine's fuel system, nor does it handle navigation lights, which are separate avionics.

4. What happens to drag when airspeed is increased?

A. Increase

B. Decrease

C. Remain the same

D. Doubles

Drag is the resistive force opposing motion through air. As airspeed increases, the air's dynamic pressure rises, boosting the forces that generate drag. There are two main parts: parasitic drag (from friction and form resistance on surfaces) grows roughly with the square of speed, while induced drag (from wingtip vortices) decreases with speed. In typical flight regimes, parasitic drag becomes the dominant contributor at higher speeds, causing the total drag to rise as you go faster. So the best answer is that drag increases when airspeed is increased.

5. Tiltrotor modes of flight include which mode?

A. Cruise: horizontal cruise

B. Conversion mode

C. VTOL: vertical takeoff/landing

D. Airplane mode

Tiltrotor flight relies on three main modes that cover vertical lift, a smooth transition, and efficient forward flight. Vertical takeoff and landing uses the rotors oriented to push air downward, giving lift straight up so the aircraft can hover, lift off, and land without a runway. This capability is what makes tiltrotors unique: they can start from a standstill in the air, then transition to forward flight. As flight progresses, the nacelles tilt toward the front to enter conversion mode, blending lift and thrust to move from vertical to horizontal flight. Finally, in airplane mode the rotors point forward to act mainly as propellers, maximizing speed and efficiency in cruise. So, describing vertical takeoff and landing highlights one of the foundational modes that enable the tiltrotor to operate like a helicopter at low speeds and then like an airplane at higher speeds.

6. Why are breakers used in place of fuses in aircraft electrical systems?

A. It is easier to close a circuit in flight by resetting the breaker than by replacing a fuse

B. Breakers are lighter than fuses

C. They provide continuous protection without interruption

D. Fuses can be reset quickly in flight

The idea being tested is why aircrafts use resettable protection so crews can quickly restore power after a fault. Circuit breakers are designed to trip and cut the circuit when something goes wrong, but they can be reset in the cockpit after the issue is checked. That means you can re-energize the system in flight without having to replace anything, which is much faster and keeps critical systems available. This is why the best choice says it's easier to close the circuit by resetting a breaker than by replacing a fuse. Replacing a fuse isn't something you can do quickly in flight, and it often requires removing components or tools. Breakers let the crew restore power with a simple reset, minimizing downtime. The other ideas aren't the main reason. The weight difference isn't the core advantage here, and breakers don't provide uninterrupted protection—when they trip, they interrupt current until reset. Fuses can't be reset at all; they must be replaced after they blow.

7. Have-Quick / Frequency Hopping is used to overcome what threat?

A. Intercept

B. Delay

C. Jamming

D. Eavesdropping

Frequency-hopping anti-jamming works by rapidly switching the carrier across many frequencies in a synchronized, pseudo-random sequence. Have-Quick uses this technique so that if a jammer targets one frequency, the signal quickly moves to another, limiting the time the attack can affect the link. To jam effectively, the attacker would have to jam a wide range of frequencies simultaneously or predict the hop pattern, which is highly impractical. So this method is used to defeat deliberate jamming. It can also make interception harder, but its primary purpose is to withstand jamming.

8. What is the initial method used to cool air in an aircraft air cycle system?

A. Refrigeration unit

B. Air-to-air heat exchangers

C. Water separators

D. Venturi

The air is first cooled using an air-to-air heat exchanger. Hot, high-pressure bleed air from the engines passes through this exchanger, where it gives heat to the incoming ram air from outside the aircraft. This pre-cooling lowers the air's temperature before it enters the turbine/expander stage, which makes the subsequent cooling more efficient and reduces the work needed by the cycle. After this initial cooling, the air is further cooled by expansion in the air-turbine portion of the system to provide the cooling for the cabin. The other options don't perform this initial cooling step: a refrigeration unit would imply a separate cooling loop, water separators remove moisture rather than cool air, and a Venturi is used for flow control rather than primary cooling.

9. What does the sump box do in the fuel-tank system?

A. Stores fuel for later use

B. Supplies boost pump through flapper valves

C. Regulates fuel temperature

D. Controls venting

The sump box provides a steady feed to the boost pump by acting as a small reservoir connected to the fuel tank through one-way flapper valves. These valves open to allow fuel from the sump into the boost pump intake when the pump is drawing, and close to prevent backflow or air from entering the line when the pump isn't extracting fuel or during aircraft attitude changes. This setup keeps the engine supplied even if the main tank fuel position shifts, preventing fuel starvation. It isn't mainly for storing fuel for later use, regulating temperature, or venting.

10. Which system is designed to deceive radar by returning radar emissions to the threat?

A. ECM

B. CMDS

C. IRCM

D. RWR

Electronic countermeasures are designed to defeat radar by actively emitting signals that mislead or overwhelm the radar's view. Deception is a key technique here: the system can generate radar-like returns or noise that make the enemy radar see false targets or distorted ranges, effectively fooling the radar. This is different from other countermeasure systems. A dispensing system releases physical decoys like flares or chaff to confuse missiles, not the radar itself. An infrared countermeasure uses heat sources to mislead IR-guided missiles, not radar. A radar warning receiver only detects radar signals and alerts the crew, without emitting signals to deceive. So the option describing deceiving radar by returning radar emissions to the threat is electronic countermeasures.

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://ceafundblock3.examzify.com

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