FAA HELICOPTER FLYING HANDBOOK 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.

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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!

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Questions

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1. **What term describes when two hands on an engine/rotor tachometer are superimposed over each other?**

   A. Married Needles

   B. Lead and Lag

   C. NAVAID

   D. Mast Bumping

2. **Which term describes the area swept by the rotor blades?**

   A. Rotor Disk Area

   B. Disk Sweep

   C. Rotor Circle

   D. Blade Sweep

3. **What is the mechanical change of the angle of incidence, or pitch, of individual rotor blades independently of the others called?**

   A. Cyclic Feathering

   B. Cyclic Pitch Control

   C. Delta Hinge

   D. Density Altitude

4. **What type of flight is described as straight and level, unaccelerated flight with all forces in balance?**

   A. Steady-State Flight

   B. Transient Flight

   C. Hovering Flight

   D. Cruise Flight

5. **Which term describes the angular difference between true north and magnetic north on navigation charts?**

   A. Variation

   B. Deviation

   C. Magnetic Declination

   D. True North

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6. What is the term for the rotor head striking the mast on underslung rotors?

A. Mast Bumping

B. Mast

C. Night

D. NAVAID

7. What term denotes the action that changes the pitch angle of the rotor blades by rotating them around the feathering axis?

A. Feathering

B. Feathering Axis

C. Direct Shaft Turbine

D. Disk Loading

8. A rotor hub that rotates below the top of the mast, as on semi-rigid rotor systems is called what?

A. Underslung

B. Overhung

C. Inboard Hub

D. Outboard Hub

9. What term describes a vibration in which the movement is in the lateral direction due to main rotor imbalance?

A. Lateral Vibration

B. Lead and Lag

C. Licensed Empty Weight

D. Night

10. Which term describes the rotor condition when rotor force has been removed or when the rotor is operating under low or negative G?

A. Unloaded Rotor

B. Loaded Rotor

C. Free Rotor

D. Hovering Rotor

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Answers

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

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Explanations

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1. What term describes when two hands on an engine/rotor tachometer are superimposed over each other?

A. Married Needles

B. Lead and Lag

C. NAVAID

D. Mast Bumping

When two indicators on a dual-needle tachometer line up exactly, pilots call that condition "married needles." On rotorcraft, the tachometer often shows two RPM readings—engine RPM and rotor RPM—each with its own needle. If those needles coincide, they visually merge into one, and the term used to describe that overlap is married needles. This is just a descriptive label for the exact alignment of the two readings on the same dial. The other terms don't describe this visual phenomenon. Lead and lag refer to timing differences in system response, NAVAID is a navigation aid, and mast bumping is a dangerous mechanical condition involving rotor clearance.

2. Which term describes the area swept by the rotor blades?

A. Rotor Disk Area

B. Disk Sweep

C. Rotor Circle

D. Blade Sweep

The area swept by the rotor blades is called the rotor disk area. When the rotor spins, each blade traces out a circular path, and the union of all those paths forms a circular disk defined by the rotor's radius. This disk represents the space the rotor occupies and is used in calculations like disk loading. Other terms aren't standard or describe a different idea—the blade's motion itself (blade sweep) isn't the same as the entire swept area, and "rotor circle" or "disk sweep" aren't the accepted terms for this concept.

3. What is the mechanical change of the angle of incidence, or pitch, of individual rotor blades independently of the others called?

A. Cyclic Feathering

B. Cyclic Pitch Control

C. Delta Hinge

D. Density Altitude

The concept being tested is how a helicopter changes the pitch of each rotor blade as it sweeps around the rotor disk. This cyclic variation in pitch causes the lift vector to move around the disc, tilting the rotor plane and enabling directional control (forward, backward, or sideward motion). The standard term for this control action is cyclic pitch control. It's different from collective pitch control, which changes the pitch of all blades together to adjust overall thrust, and from terms like delta hinge or density altitude, which refer to separate mechanical or atmospheric concepts. So the mechanism described is best described as cyclic pitch control—the means by which each blade's angle of attack changes through its rotation to steer the helicopter. Feasibility-wise, cyclic feathering isn't the FAA term used for this control function, as feathering generally relates to blade alignment with the airflow to reduce drag rather than the pilot's directional input.

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4. What type of flight is described as straight and level, unaccelerated flight with all forces in balance?

A. Steady-State Flight

B. Transient Flight

C. Hovering Flight

D. Cruise Flight

Steady-state flight occurs when the aircraft flies straight and level with no acceleration and forces in balance. In this state lift equals weight and thrust equals drag, so there is no net force or moment and the speed and altitude stay constant. That's exactly what "straight and level, unaccelerated flight with all forces in balance" describes. Transient flight involves acceleration or deceleration when forces aren't balanced. Hovering isn't translating through space, so it isn't straight and level forward flight. Cruise flight is forward, level flight at constant speed and altitude, which is a form of steady-state flight, but the description points to the general condition of steady-state.

5. Which term describes the angular difference between true north and magnetic north on navigation charts?

A. Variation

B. Deviation

C. Magnetic Declination

D. True North

Magnetic variation is the angular difference between true north (geographic north) and magnetic north as shown on navigation charts. This value lets pilots convert between true headings, which are based on geographic north, and magnetic headings, which the compass indicates. For example, if the chart shows variation to the west, a true heading of 90 degrees would correspond to a magnetic heading of 78 degrees (you subtract the variation). If the variation is to the east, you would add it to the true heading to get the magnetic heading. Variation changes with location and over time as Earth's magnetic field evolves, so charts display the current variation for the area. Deviation refers to errors caused by the aircraft itself, not the chart, and magnetic declination is a broader term sometimes used in other fields, but on navigation charts the offset between true north and magnetic north is labeled as variation.

6. What is the term for the rotor head striking the mast on underslung rotors?

A. Mast Bumping

B. Mast

C. Night

D. NAVAID

In underslung rotor systems, the rotor head sits close to the mast and can physically come into contact with it under certain flight conditions. When the rotor head actually strikes the mast, that event is called mast bumping. It's described this way because it specifically refers to the rotor head "bumping" or striking the mast, which is a hazardous situation that can lead to structural damage if it occurs. The other terms don't fit because they refer to the mast itself, a time-of-day condition, or a navigation aid, none of which describe the contact between the rotor head and the mast.

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7. What term denotes the action that changes the pitch angle of the rotor blades by rotating them around the feathering axis?

A. Feathering

B. Feathering Axis

C. Direct Shaft Turbine

D. Disk Loading

Feathering is the action of changing the rotor blade pitch by rotating the blade around the feathering axis. This axis is the line about which the blade pitch is adjusted, so moving the blade about it changes the angle of attack and, therefore, lift and drag. The collective control activates the pitch-change mechanism to rotate each blade around this axis, producing a uniform pitch change for all blades. The other terms either name the axis itself, refer to a component of the engine, or describe a performance concept, but none describe the act of changing blade pitch.

8. A rotor hub that rotates below the top of the mast, as on semi-rigid rotor systems is called what?

A. Underslung

B. Overhung

C. Inboard Hub

D. Outboard Hub

Underslung describes a rotor hub that is mounted below the top of the mast. In semi-rigid rotor systems, the hub is typically carried beneath the mast top, allowing the rotor to tilt and flap about a single teetering hinge. This vertical placement contrasts with an overhung hub, which sits above the mast top and is more associated with other rotor system designs. The horizontal positions (inboard vs outboard) refer to where the hub sits along the rotor axis, not how it sits relative to the mast top, so they don't apply here. So, the rotor hub below the mast top is underslung.

9. What term describes a vibration in which the movement is in the lateral direction due to main rotor imbalance?

A. Lateral Vibration

B. Lead and Lag

C. Licensed Empty Weight

D. Night

The movement described is side-to-side, or lateral, vibration. When the main rotor has an imbalance, the heavier portion of the rotor produces a periodic sideways force as it spins. That force shows up as a vibration in the lateral direction of the aircraft, repeating at the rotor's speed. The term lead and lag refers to the blade's motion within the plane of rotation rather than the fuselage's vibration direction, and Licensed Empty Weight and Night are unrelated to rotor-induced vibrations.

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10. Which term describes the rotor condition when rotor force has been removed or when the rotor is operating under low or negative G?

A. Unloaded Rotor

B. Loaded Rotor

C. Free Rotor

D. Hovering Rotor

Unloaded rotor describes the rotor condition when the rotor is not producing lift to support the aircraft's weight. This happens when rotor force is removed or the aircraft experiences low or negative G, so the rotor isn't required to carry load. In this state, the lift demand on the rotor is essentially zero, unlike a loaded rotor which is bearing the weight, or a hovering rotor which is actively lifting to hold a hover. A free rotor, on the other hand, refers to a rotor that is not driven by the engine and free to coast, which is a different situation. So the term that fits the described condition is unloaded rotor.

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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:

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

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