Private Pilot License (PPL) Aircraft General Knowledge (AGK) Practice Test (Sample)

Study Guide

BY EXAMZIFY

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

1. What are the potential consequences of excessively high engine temperatures?

- **A. Loss of power, excessive oil consumption, and possible permanent internal engine damage.**
- **B. Increased fuel efficiency.**
- **C. No effect on engine performance.**
- **D. Faster propeller RPM.**

2. Which instrument is used to measure the rate of climb or descent?

- **A. Airspeed Indicator**
- **B. Altimeter**
- **C. Vertical Speed Indicator**
- **D. Attitude Indicator**

3. How is engine operation controlled on an engine equipped with a constant-speed propeller?

- **A. The throttle controls power output and the propeller control maintains a constant blade angle**
- **B. The propeller control controls RPM and the throttle controls fuel flow**
- **C. Mixture controls RPM and the throttle controls blade angle**
- **D. The throttle controls blade angle and the propeller control sets power**

4. The circuit that supplies the field winding of an aircraft alternator is best described as which type?

- **A. AC circuit**
- **B. DC circuit**
- **C. Automatic control circuit**
- **D. Signal circuit**

5. During preflight planning, runways lengths at airports of intended use should be considered.

- **A. Runway lengths at airports of intended use**
- **B. In-flight entertainment options**
- **C. Passenger manifest**
- **D. Cargo weight limits**

6. Which statement about ELT transmission frequencies is correct?

A. It transmits on 406 and 121.5 MHz

B. It transmits on 30 and 300 MHz

C. It transmits on 121.5 and 243.0 MHz

D. It transmits on 58 and 108 MHz

7. The powerplant converts what type of power?

A. Mechanical power to chemical power

B. Electrical power to mechanical power

C. Chemical power to mechanical power

D. Thermal power to electrical power

8. Which statement about rearward center of gravity on an airplane is true?

A. Produces no change in stability.

B. Increases stability about the vertical axis.

C. Reduces stability about the vertical axis.

D. Has no effect on stall speed.

9. Which instrument provides heading information using a gyroscope?

A. Attitude Indicator

B. Turn Coordinator

C. Airspeed Indicator

D. Heading Indicator

10. Which of the following is NOT a stroke in the four-stroke engine cycle?

A. Intake

B. Compression

C. Ignition

D. Power

Answers

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

Explanations

1. What are the potential consequences of excessively high engine temperatures?

A. Loss of power, excessive oil consumption, and possible permanent internal engine damage.

B. Increased fuel efficiency.

C. No effect on engine performance.

D. Faster propeller RPM.

Excessive engine temperatures cause the engine to overheat, which harms both performance and the engine's parts. When an engine runs too hot, power tends to drop because combustion and mechanical processes become less efficient and the engine may pull back power to avoid damage. The oil also loses viscosity with heat, so the lubricating film becomes thinner and wear increases; some of the oil may burn or escape past seals, leading to higher oil consumption. If overheating continues, it can cause permanent damage to components such as cylinder heads, pistons and rings, bearings, and valve seats due to excessive expansion, scoring, or seizure. This combination of reduced power, higher oil use, and potential lasting damage is why the described consequences are the correct choice. Higher temps do not improve fuel efficiency, and they do not directly cause faster propeller RPM or leave engine performance unchanged.

2. Which instrument is used to measure the rate of climb or descent?

A. Airspeed Indicator

B. Altimeter

C. Vertical Speed Indicator

D. Attitude Indicator

The rate of climb or descent is shown by the instrument that measures how fast you're moving vertically, usually expressed in feet per minute. It does this by monitoring changes in the outside air pressure from the static port and using a calibrated leak to sense how quickly that pressure is changing as you climb or descend. When you start climbing, the ambient static pressure drops, and the instrument responds by deflecting to indicate a positive rate. When you descend, the opposite happens and it shows a negative rate. If you're level, the needle sits near zero. There is some delay because the mechanism is vented to smooth the reading, so rapid changes won't be shown instantaneously. This instrument is different from the airspeed indicator, which measures dynamic pressure to show speed; from the altimeter, which shows altitude based on static pressure; and from the attitude indicator, which shows the aircraft's orientation relative to the horizon.

3. How is engine operation controlled on an engine equipped with a constant-speed propeller?

A. The throttle controls power output and the propeller control maintains a constant blade angle

B. The propeller control controls RPM and the throttle controls fuel flow

C. Mixture controls RPM and the throttle controls blade angle

D. The throttle controls blade angle and the propeller control sets power

In a setup with a constant-speed propeller, engine operation is managed by two separate controls: the throttle and the propeller control. The throttle determines power output by regulating the amount of air entering the engine (and thus fuel usage indirectly), so moving the throttle changes how much power the engine produces. The propeller control sets the target RPM, and the propeller governor automatically adjusts blade pitch to hold that RPM as flight conditions change. When more power is needed, the throttle opens and the governor increases blade angle to absorb the extra energy and keep RPM steady; when power is reduced, the governor decreases blade angle to let RPM drop as appropriate. Mixture affects the fuel/air ratio but does not set RPM directly. So the best description is that the throttle controls power output and the propeller control maintains the selected RPM by varying blade pitch. (Note: the pitch is not held constant—the system adjusts it to maintain the chosen RPM.)

4. The circuit that supplies the field winding of an aircraft alternator is best described as which type?

A. AC circuit

B. DC circuit

C. Automatic control circuit

D. Signal circuit

The field winding is excited with direct current to create a steady magnetic field in the rotor. Although the alternator's output is alternating current, the excitation circuit that feeds the field winding uses DC, delivered through brushes and slip rings and controlled by a voltage regulator. This DC excitation allows the regulator to increase or decrease the field strength and thus regulate the generator's output voltage. Using AC for the field would produce a changing magnetic field and unpredictable output, so the field circuit is classified as a DC circuit. The other choices don't fit because this path's purpose is to supply power (excitation) to the field, not to carry AC power to the load, be an automatic control loop, or serve as a signaling pathway.

5. During preflight planning, runways lengths at airports of intended use should be considered.

A. Runway lengths at airports of intended use

B. In-flight entertainment options

C. Passenger manifest

D. Cargo weight limits

The main idea is that runway length directly affects aircraft performance planning. Before you fly, you must confirm that the runways you'll use have enough length for your airplane to safely take off and land under the expected conditions. This means checking the required takeoff distance and the landing distance against the available runway length, taking into account weight, density altitude (temperature and elevation), wind, runway slope, and surface condition. If the runway isn't long enough for your current weight and conditions, you'd adjust by reducing payload or fuel, or choosing a different airport with a longer runway. The other items listed don't address whether a given runway can support your operation. In-flight entertainment options are irrelevant to performance, the passenger manifest isn't used to determine runway suitability, and while cargo and passenger weights affect overall performance, they don't replace the need to verify the actual runway length for safe takeoff and landing.

6. Which statement about ELT transmission frequencies is correct?

A. It transmits on 406 and 121.5 MHz

B. It transmits on 30 and 300 MHz

C. It transmits on 121.5 and 243.0 MHz

D. It transmits on 58 and 108 MHz

ELTs use two types of transmissions: a 406 MHz beacon that goes to satellites, and local homing beacons on 121.5 MHz (civil) and 243.0 MHz (military UHF) that rescuers use to locate the beacon on the ground or from the air. The statement listing 121.5 and 243.0 MHz is correct because those are the two homing frequencies specifically used for locating an ELT once the initial satellite alert has been received. The other options mix in frequencies not used together for the ELT's homing purpose or rely on the satellite frequency, which isn't part of the homing pair.

7. The powerplant converts what type of power?

A. Mechanical power to chemical power

B. Electrical power to mechanical power

C. Chemical power to mechanical power

D. Thermal power to electrical power

The engine's job is to take the chemical energy stored in the fuel and convert it into mechanical energy that drives the propeller. When fuel combusts, energy is released as heat and pressure, pushing pistons or turning turbine blades, which then produces shaft or propulsion power. That makes chemical power being transformed into mechanical power the correct description of a powerplant. The other options describe different energy conversions (mechanical to chemical, electrical to mechanical, or thermal to electrical) that aren't how a typical aircraft powerplant operates.

8. Which statement about rearward center of gravity on an airplane is true?

A. Produces no change in stability.

B. Increases stability about the vertical axis.

C. Reduces stability about the vertical axis.

D. Has no effect on stall speed.

The key idea here is directional stability, or stability about the vertical axis. The aircraft tends to weathercock into the relative wind, and the gravity-related pendulum effect helps provide a restoring yaw moment when the CG is forward of the vertical plane through the center of gravity. When the CG is moved rearward, that restoring moment is reduced, so the airplane becomes less directionally stable and yaw is more likely or harder to damp. So a rearward center of gravity reduces stability about the vertical axis. The statement claiming no change in stability is inaccurate because shifting the CG along the longitudinal axis changes how much restoring yaw moment gravity provides. It also doesn't increase stability about the vertical axis, and while stall speed is mostly governed by weight and wing loading, the main point tested here is the effect on directional stability.

9. Which instrument provides heading information using a gyroscope?

A. Attitude Indicator

B. Turn Coordinator

C. Airspeed Indicator

D. Heading Indicator

Heading information is provided by the instrument that uses a gyroscope to hold a stable reference in the horizontal plane and displays the aircraft's magnetic heading on a rotating compass card. This is the heading indicator, which is built to show heading rather than attitude or rate of turn. The attitude indicator uses a gyro to maintain the artificial horizon and shows pitch and bank, not heading. The turn coordinator uses a gyro tilted to sense yaw and roll and indicates the rate of turn, not the heading. The airspeed indicator relies on pitot-static pressure, with no gyroscope involved. Gyros drift over time, so pilots cross-check with the magnetic compass and periodically reset the heading indicator to stay accurate.

10. Which of the following is NOT a stroke in the four-stroke engine cycle?

A. Intake

B. Compression

C. Ignition

D. Power

The four-stroke cycle is defined by four piston movements: intake, compression, power, and exhaust. Ignition isn't a piston movement; it's the moment when the air-fuel charge is ignited to start combustion. In a spark-ignition engine, the spark plug fires near the end of the compression stroke to ignite the mixture, and the resulting rapid expansion drives the piston through the power stroke. In a diesel engine, ignition happens due to high compression heat, still an event rather than a separate stroke. So ignition isn't a stroke in the cycle, making it the correct choice.

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://pplagk.examzify.com

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