GENERAL AIRCRAFT TECHNICAL KNOWLEDGE 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 are the two main types of contents gauges?

A. Variable resistance type and Capacitance type

B. Pressure gauge and Float gauge

C. Digital gauge and Analog gauge

D. Mechanical gauge and Electrical gauge

2. What is the diesel term for detonation?

A. Knock

B. Pre-ignition

C. Misfire

D. Backfire

3. If the EDP fails, what will happen to fuel pressure?

A. Fuel pressure will increase.

B. Fuel pressure will reduce rapidly.

C. Fuel pressure remains constant.

D. Fuel pressure fluctuates slowly.

4. Which result is associated with designs aimed at producing better mixing of fuel and air in the cylinders?

A. Reducing time taken for combustion to start

B. Increasing engine weight

C. Increasing fuel consumption

D. Decreasing compression ratio

5. In the compression ratio formula, which term represents the volume displaced by the piston as it moves within the cylinder?

A. CLEARANCE VOLUME.

B. SWEPT VOLUME.

C. COMPRESSION VOLUME.

D. IGNITION VOLUME.

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6. What is the primary function of glow plugs during starting?

A. Spark igniter

B. Inject fuel

C. Regulate air intake

D. Heat the combustion space to assist ignition during starting

7. Where are superchargers/turbochargers located in relation to the carburetor and inlet manifold?

A. Located before the carburetor

B. Located after the inlet manifold

C. Imposed between the carburetor/fuel control unit and the inlet manifold

D. Located inside the carburetor

8. What are the benefits of supercharging in terms of density and sea level power?

A. Density is higher at altitude and higher sea level power than a normally aspirated engine of the same size

B. Density is lower at altitude and lower sea level power

C. Density remains the same at altitude; sea level power is unchanged

D. Density is higher at sea level but lower altitude performance

9. The booster pump is commonly used during which flight phase to ensure fuel supply?

A. Cruise

B. Descent

C. Takeoff and landing

D. Parking

10. Which sequence correctly lists the four strokes of a typical four-stroke engine?

A. Induction(down) 2. Compression(up) 3. Power(expansion) (down) 4. Exhaust (up).

B. Intake, Exhaust, Combustion, Compression.

C. Compression, Induction, Exhaust, Power.

D. Exhaust, Induction, Compression, Power.

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Answers

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

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Explanations

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1. What are the two main types of contents gauges?

A. Variable resistance type and Capacitance type

B. Pressure gauge and Float gauge

C. Digital gauge and Analog gauge

D. Mechanical gauge and Electrical gauge

Fuel contents are read using two main electrical principles. In the variable resistance type, a float rides with the fuel surface and is linked to a resistance network; as the level changes, the resistance output varies, and the transmitter converts that change into a quantity reading on the gauge. In the capacitance type, a probe acts as part of a capacitor; the fuel height changes the effective dielectric and thus the capacitance, which the transmitter converts into a signal for the gauge to display the quantity. Capacitance gauges have no moving parts and can offer good linearity, while variable resistance gauges are simple and robust but involve moving parts that can wear and be affected by slosh. This is why the two main categories are variable resistance and capacitance.

2. What is the diesel term for detonation?

A. Knock

B. Pre-ignition

C. Misfire

D. Backfire

Knock is the diesel term for detonation. In a diesel engine, fuel is injected into highly compressed, hot air and normally ignites in a controlled, steady way as combustion progresses. If ignition occurs explosively and prematurely, a sharp pressure pulse—detonation—is created, which you hear as a knocking sound known as diesel knock. This differs from pre-ignition (ignition before the intended timing due to hot spots), misfire (a cylinder failing to ignite at all), and backfire (flame traveling back into the intake or exhaust). So the correct term for detonation in this context is knock.

3. If the EDP fails, what will happen to fuel pressure?

A. Fuel pressure will increase.

B. Fuel pressure will reduce rapidly.

C. Fuel pressure remains constant.

D. Fuel pressure fluctuates slowly.

The engine-driven fuel pump is the primary source that maintains fuel pressure in the system. If it fails, there's no active pump to push fuel into the lines, so the pressure in the fuel system quickly drops as fuel is consumed by the engine and any leaks or returns dissipate the remaining stored pressure. Without a functioning pump to replenish it, the pressure falls rapidly. Some systems may have an emergency pump or an accumulator that can hold pressure briefly, but the immediate effect of an EDP failure is a rapid reduction in fuel pressure.

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4. Which result is associated with designs aimed at producing better mixing of fuel and air in the cylinders?

A. Reducing time taken for combustion to start

B. Increasing engine weight

C. Increasing fuel consumption

D. Decreasing compression ratio

Faster, more uniform mixing of fuel and air means the flame front can start and propagate more quickly after ignition. When the mixture is well combined, there's less time needed to reach a stable flame, so combustion begins sooner. That's the key effect designers seek with improved mixing—shorter ignition delay leads to a faster start of combustion and more complete burning. So, the result associated with these designs is the reduction in the time taken for combustion to start. Increased engine weight, higher fuel consumption, or a lower compression ratio aren't direct aims or typical outcomes of improving mixing quality; those factors relate to other design choices or operating tradeoffs rather than the mixing improvement itself.

5. In the compression ratio formula, which term represents the volume displaced by the piston as it moves within the cylinder?

A. CLEARANCE VOLUME.

B. SWEPT VOLUME.

C. COMPRESSION VOLUME.

D. IGNITION VOLUME.

The volume displaced by the piston as it moves inside the cylinder is the swept volume. This is the gas volume the piston pushes through as it travels from bottom dead center to top dead center (its displacement). In the compression ratio, the swept volume is added to the clearance volume to give the total cylinder volume when the piston is at BDC, and the ratio is that total divided by the clearance volume (the space left in the cylinder at TDC). So the term you're looking for is swept volume because it exactly represents the volume the piston moves through. Clearance volume is the small leftover space at TDC, and the other terms aren't standard, so they don't fit this definition.

6. What is the primary function of glow plugs during starting?

A. Spark igniter

B. Inject fuel

C. Regulate air intake

D. Heat the combustion space to assist ignition during starting

Glow plugs are heating devices used to raise the temperature inside the combustion chamber to help ignition when starting, especially in cold conditions. By warming the air (and any residual fuel-air mixture) just before and during the start, they bring the temperature to where combustion can occur reliably as the engine turns over. Once the engine starts and warms up, the glow plugs reduce or stop heating. This isn't about creating a spark, injecting fuel, or regulating the air intake. Spark igniters would be used in spark-ignition engines, fuel injectors supply fuel, and air intake is controlled by the throttle and intake system. The glow plugs' job is specifically to heat the combustion space to aid ignition during starting.

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7. Where are superchargers/turbochargers located in relation to the carburetor and inlet manifold?

A. Located before the carburetor

B. Located after the inlet manifold

C. Imposed between the carburetor/fuel control unit and the inlet manifold

D. Located inside the carburetor

A turbocharger or supercharger is placed in the intake path after the fuel metering device but before the cylinders. In a carbureted system, the carburetor meters fuel based on the air it draws in, so it must sit ahead of the boost to maintain proper fuel–air control. If the boosting device were before the carburetor, the carburetor's metering would be upset by the higher pressure and the mixture could become unreliable. If it were inside the carburetor or after the inlet manifold, you'd either disrupt the metering mechanism or fail to deliver boosted air to the cylinders effectively. So the boost device sits between the carburetor/fuel control unit and the inlet manifold, delivering boosted air to the cylinders while preserving proper fuel metering.

8. What are the benefits of supercharging in terms of density and sea level power?

A. Density is higher at altitude and higher sea level power than a normally aspirated engine of the same size

B. Density is lower at altitude and lower sea level power

C. Density remains the same at altitude; sea level power is unchanged

D. Density is higher at sea level but lower altitude performance

Supercharging increases the density of air entering the engine by compressing it. More dense air means more oxygen for combustion, which lets the engine burn more fuel and produce more power. At altitude, the surrounding air is thinner, so a normally aspirated engine loses density and power. The supercharger counteracts this by pressurizing the intake air, raising its density above what the ambient air would provide at that altitude, which helps preserve or even boost power. At sea level, the boosted air can be denser than what a naturally aspirated engine of the same displacement would ingest, so the engine can develop more power than the NA counterpart. That combination—higher density at altitude and higher sea-level power—captures the main benefits of supercharging.

9. The booster pump is commonly used during which flight phase to ensure fuel supply?

A. Cruise

B. Descent

C. Takeoff and landing

D. Parking

The main idea here is why an extra fuel pump is used when fuel demand is at its peak. The booster pump provides positive pressure in the fuel lines and helps prime the system so the engine-driven pump receives a steady, adequate flow. This is especially important during takeoff and landing, when the engines demand maximum fuel flow and any drop in pressure could cause the engine to lose power or surge. The booster pump ensures reliable fuel supply during these high-demand phases. In cruise, descent, or when parked, the engine-driven pump alone usually provides enough pressure, so the booster pump isn't routinely required.

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10. Which sequence correctly lists the four strokes of a typical four-stroke engine?

A. Induction(down) 2. Compression(up) 3. Power(expansion) (down) 4. Exhaust (up).

B. Intake, Exhaust, Combustion, Compression.

C. Compression, Induction, Exhaust, Power.

D. Exhaust, Induction, Compression, Power.

Understanding the order of the four strokes in a typical four-stroke engine. The cycle goes in this exact sequence: induction (intake) with the piston moving downward to draw the air-fuel mixture into the cylinder, then compression with the piston moving upward to compress that mixture, followed by the power (expansion) stroke where the mixture burns and pushes the piston downward, and finally the exhaust stroke with the piston moving upward to expel the exhaust gases. The correct option matches this order and the associated piston directions: induction down, compression up, power down, exhaust up. Other sequences mix up these steps (for example, starting with compression or exhaust would not properly draw in or expel gases at the right times), which is why they're not correct.

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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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