ENGINES AUXILIARY POWER UNIT (APU) PRACTICE EXAM (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. How is APU oil cooled and why is oil cooling important?

A. Oil is cooled by ambient air through a radiator; cooling reduces noise.

B. Oil passes through an oil cooler/heat exchanger to remove heat; cooling maintains lubricant quality, reduces wear, and prevents overheating.

C. Oil is cooled by fuel; cooling prevents foam formation.

D. Oil is cooled by the APU exhaust; cooling improves thrust.

2. The EEC provides N1 and N2 redline overspeed protection in which modes?

A. N1 and N2 in normal mode only

B. N1 and N2 in alternate mode only

C. N1 in normal and N2 in alternate

D. N1 and N2 in both normal and alternate

3. How might ambient temperature affect APU starting and operation?

A. Ambient temperature has no effect on APU performance.

B. Cold conditions can increase start time and fuel needs; hot conditions can raise EGT and cooling demands.

C. Cold conditions can increase start time and fuel needs; hot conditions can raise EGT and cooling demands; extreme temps affect lubricant and performance.

D. Hot conditions always reduce cooling requirements.

4. When the MAX APU DOOR light is illuminated on the ground, what does this indicate?

A. APU door is not in the ground position

B. APU door is in the ground position

C. APU door is open in flight

D. APU door is closed on the ground

5. Fuel is normally supplied to the APU from which side of the fuel manifold when AC fuel pumps are operating?

A. Left side

B. Right side

C. Center

D. Both sides

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6. Which N2 range is associated with MOTORING on the N2 gauge?

A. Between 10% and 20% N2

B. Between 18% and 24% N2

C. Between 25% and 35% N2

D. Between 5% and 15% N2

7. A red N2 RPM indication alerts the pilot to?

A. Normal Operation

B. A Minor Fault

C. An Operating Limit Being Exceeded

D. A Fuel Balance Issue

8. Under what engine condition does the ENG FAIL alert appear within the EGT display?

A. The engine is operating below 50% N2 with the start lever in IDLE.

B. The engine is operating above 50% N2 with the start lever in IDLE.

C. The engine is operating below 50% N2 with the start lever in RUN.

D. The engine is operating above 50% N2 with the start lever in RUN.

9. In CUTOFF, the engine start levers close which valves?

A. The related engine and spar fuel shutoff valves

B. The spar hydraulic valves

C. The fuel lines

D. The APU bleed valve

10. Which action yields entry into hard alternate mode?

A. Retarding the thrust lever to idle

B. Advancing the thrust lever to maximum

C. Moving the start lever to OFF

D. Engaging auto-relight

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Answers

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

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Explanations

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1. How is APU oil cooled and why is oil cooling important?

A. Oil is cooled by ambient air through a radiator; cooling reduces noise.

B. Oil passes through an oil cooler/heat exchanger to remove heat; cooling maintains lubricant quality, reduces wear, and prevents overheating.

C. Oil is cooled by fuel; cooling prevents foam formation.

D. Oil is cooled by the APU exhaust; cooling improves thrust.

Oil cooling is about removing heat from the lubricating oil as it circulates through the APU. In typical APUs, the oil is pumped through an oil cooler or heat exchanger, where heat is transferred from the oil to a cooling medium—usually ambient air flowing through a radiator or a dedicated heat exchanger. This keeps the oil within its proper temperature range so its viscosity and film strength stay appropriate for effective lubrication. Why this matters: when the oil is kept cool, it maintains the right viscosity and lubricating properties to protect bearings, gears, and other moving parts. It also resists oxidation and sludge formation, reduces wear, and prevents oil thinning that can lead to overheating of the engine and components. If oil gets too hot, lubrication degrades, clearances can grow, wear increases, and the APU can overheat or fail.

2. The EEC provides N1 and N2 redline overspeed protection in which modes?

A. N1 and N2 in normal mode only

B. N1 and N2 in alternate mode only

C. N1 in normal and N2 in alternate

D. N1 and N2 in both normal and alternate

N1 and N2 overspeed protection are built into the Electronic Engine Control for both normal operation and the alternate (degraded) mode. The EEC continuously monitors the speeds of both spools—N1 (low-pressure) and N2 (high-pressure)—and, if either approaches its redline, it steps in to limit fuel delivery or alter the control to keep the speeds from exceeding safe limits. This dual-mode protection is essential because even when the primary control path is unavailable or operating in alternate law, you still need safeguards to prevent mechanical damage from overspeed. Since each spool has its own redline limit, the EEC protects both N1 and N2 across normal and alternate modes.

3. How might ambient temperature affect APU starting and operation?

A. Ambient temperature has no effect on APU performance.

B. Cold conditions can increase start time and fuel needs; hot conditions can raise EGT and cooling demands.

C. Cold conditions can increase start time and fuel needs; hot conditions can raise EGT and cooling demands; extreme temps affect lubricant and performance.

D. Hot conditions always reduce cooling requirements.

Ambient temperature changes how the APU starts and runs by altering lubrication, fuel behavior, and heat management. In cold conditions, oil and other lubricants stiffen, making it harder for moving parts to turn and reach light-off. The starter may have to work longer, which increases fuel use, and battery performance can drop in the cold, making cranking less vigorous. In hot conditions, air density falls, reducing the mass flow through the compressor and making it easier for the turbine to run hotter, so exhaust gas temperatures rise during operation. The cooling system then has to remove more heat to keep temperatures in range, and lubricants can behave differently at elevated temperatures, potentially reducing lubrication effectiveness. Extreme temperatures amplify these effects, so lubrication and overall performance can be pushed toward limits in both directions. This combination explains why cold increases start time and fuel need, hot raises EGT and cooling demands, and extreme temps impact lubrication and performance.

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4. When the MAX APU DOOR light is illuminated on the ground, what does this indicate?

A. APU door is not in the ground position

B. APU door is in the ground position

C. APU door is open in flight

D. APU door is closed on the ground

The APU DOOR light is a door-position indicator for the inlet door. On the ground, the door should be in the closed ground position to protect the APU and reduce drag. If that light is illuminated, it means the door is not in the ground (fully closed) position. This could be due to the door not fully closed, being jammed or misaligned, or a faulty position sensor. Do not assume the door is properly closed; resolve or verify the position before starting or taxiing. The other possibilities describe the door being in the ground position, open in flight, or closed on the ground, which don't fit the observed illuminated indication on the ground.

5. Fuel is normally supplied to the APU from which side of the fuel manifold when AC fuel pumps are operating?

A. Left side

B. Right side

C. Center

D. Both sides

Fuel routing to the APU is arranged so that, when AC-powered pumps are running, the left side of the fuel manifold supplies the APU. This left-side feed is the dedicated APU supply leg, providing a direct, prioritized path from the AC pumps to the APU's fuel control, which helps ensure reliable fuel pressure and a smooth start. The other ports (center or right) are used for engine fuel feeds or crossfeed under different conditions, so feeding the APU from the left side avoids competition with engine lines and minimizes priming issues during AC-pump operation.

6. Which N2 range is associated with MOTORING on the N2 gauge?

A. Between 10% and 20% N2

B. Between 18% and 24% N2

C. Between 25% and 35% N2

D. Between 5% and 15% N2

During engine start, the starter turns the engine to build up the high-pressure spool speed without burning fuel. This is what "MOTORING" on the N2 gauge indicates—the engine is being driven by the starter to reach a speed where ignition can occur, but no combustion is taking place yet. The best match is the range around 18–24% N2. It sits in the middle of the motoring window: high enough that the starter can turn the compressor smoothly, but not so high that fuel is being injected and the engine is about to light off. Other options fall outside this typical motoring band—lower ranges are too close to pre-start or stalled conditions, and higher ranges (like 25–35% N2) are associated with approaching or achieving light-off and normal start progression. So 18–24% N2 is the designated motoring range on the N2 gauge.

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7. A red N2 RPM indication alerts the pilot to?

A. Normal Operation

B. A Minor Fault

C. An Operating Limit Being Exceeded

D. A Fuel Balance Issue

Red N2 RPM means the APU's core speed has exceeded its safe operating limit. N2 is the speed of the high pressure spool, and when the indicator turns red it signals a protective condition: the parameter is outside approved bounds and could cause damage if not corrected. This is a serious warning that requires following the abnormal procedures to bring the speed back into limits or shut the APU down as directed. This isn't normal operation, and it isn't a minor fault. It's not indicating a fuel balance issue, which would show a different warning related to the fuel system. Amber warnings would suggest caution, but red means an operating limit has been exceeded and action is required immediately.

8. Under what engine condition does the ENG FAIL alert appear within the EGT display?

A. The engine is operating below 50% N2 with the start lever in IDLE.

B. The engine is operating above 50% N2 with the start lever in IDLE.

C. The engine is operating below 50% N2 with the start lever in RUN.

D. The engine is operating above 50% N2 with the start lever in RUN.

The ENG FAIL alert on the EGT display is a startup fault indication. During start, the engine should spool up to a sufficient speed (N2) while the start lever is in IDLE. If the N2 remains below about 50% with the lever still in IDLE, the system interprets this as a failure to start properly and flags ENG FAIL to warn the crew. Once you move the lever to RUN, the engine is being commanded to run and this particular startup fault condition isn't applicable in the same way; the alert would only appear for an actual failure to reach the required spool while in the idle/start phase. So, the condition that triggers ENG FAIL is the engine being below 50% N2 with the start lever in IDLE.

9. In CUTOFF, the engine start levers close which valves?

A. The related engine and spar fuel shutoff valves

B. The spar hydraulic valves

C. The fuel lines

D. The APU bleed valve

When you set the engine start levers to CUTOFF, the system isolates the engine from its fuel supply. This is done by closing the engine fuel shutoff valve and the spar fuel shutoff valve. Closing both cuts off all fuel from reaching the engine, which is essential for safe engine shutdown and for preventing any unrequested fuel flow or ignition while you're preparing or testing the start sequence. The other items aren't what these levers control: hydraulic valves govern hydraulic fluids, not fuel; you don't close the fuel lines themselves with the start lever, you close the fuel shutoff valves; and the APU bleed valve is related to bleed air, not the direct fuel flow controlled by the engine start lever position.

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10. Which action yields entry into hard alternate mode?

A. Retarding the thrust lever to idle

B. Advancing the thrust lever to maximum

C. Moving the start lever to OFF

D. Engaging auto-relight

Entering hard alternate mode is triggered by bringing the thrust lever to idle, because this signals the engine control to exit the normal high power startup path and hand control over to the backup/alternate system. With the engine demand reduced to idle, the primary control logic stops trying to manage high thrust and the alternate ignition/fuel control path can take over, allowing operation under hard alternate conditions. Pushing the thrust lever to maximum keeps the normal control path active and does not initiate the alternate mode. Moving the start lever to OFF ends the start sequence rather than switching to alternate control. Engaging auto-relight targets restoring ignition under normal control rather than invoking the alternate mode.

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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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