EASA GAS TURBINE ENGINE PRACTICE TEST (SAMPLE)

STUDY GUIDE

Prepare with structure. Pass with confidence

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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. Ram pressure recovery will generally take effect at aircraft speeds of

A. Mach 1

B. Mach 0.1 - 0.2

C. Only stationary with engines running

D. Mach 2

2. To ensure an engine maintains self sustaining speed.

A. Idle increases with density decrease.

B. Idle remains same for any density.

C. Idle increases with density increase.

D. Idle decreases with density increase.

3. In the Brayton cycle, the heat addition process occurs at

A. Constant pressure.

B. Constant volume.

C. Constant temperature.

D. Variable pressure.

4. Which statement is false regarding the mass airflow temperature profile?

A. Temperature increases through the compressor.

B. Temperature increases through the diffuser.

C. Temperature increases at the burner.

D. Temperature remains constant from the diffuser to exhaust.

5. In the turbine section, how do velocity and pressure change?

A. Velocity decreases and pressure increases

B. Velocity increases and pressure decreases

C. Temperature remains constant

D. Velocity variations with temperature

6. Which of the following is not a standard jet engine rating?

A. Maximum Take Off

B. Take Off

C. Maximum Continuous

D. Idle

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7. The principle of jet propulsion is.

A. The calorific value of fuel burnt is equal to aircraft

B. The interaction of fluids and gases

C. Every action has an equal and opposite reaction

D. The change in momentum of air

8. In an axial flow, dual compressor forward fan engine, the fan turns at the same speed as which component?

A. High Pressure Compressor

B. Front Turbine Wheel

C. Low Pressure Turbine

D. Forward Turbine Wheel

9. What part of a jet engine has the most potential energy?

A. Immediately after the combustion chamber

B. Just before the combustion chamber

C. Immediately after the HP compressor

D. In the exhaust

10. Varying the EPR datum plug will primarily affect

A. The engine thrust

B. The fuel flow

C. The compressor pressure ratio

D. The indicated EPR value

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Answers

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

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Explanations

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1. Ram pressure recovery will generally take effect at aircraft speeds of

A. Mach 1

B. Mach 0.1 - 0.2

C. Only stationary with engines running

D. Mach 2

Ram pressure recovery is the increase in total pressure at the engine face that comes from the incoming air's forward speed. As you fly faster, the air ahead of the engine carries more kinetic energy, and when it is decelerated to enter the compressor, part of that kinetic energy shows up as extra pressure. This effect becomes noticeable even at relatively low subsonic speeds, typically around Mach 0.1 to 0.2, when the dynamic pressure is sufficient to contribute to the stagnation pressure at the inlet. At zero airspeed (stationary), there's essentially no ram effect because there's no incoming flow to convert into extra pressure. At very high speeds (Mach 1 and above), flow becomes highly compressible and complex, with shocks and other phenomena that change how pressure contributes to the inlet, so the simple ram recovery concept isn't the dominant factor anymore. So, ram pressure recovery generally takes effect at speeds around Mach 0.1 to 0.2.

2. To ensure an engine maintains self sustaining speed.

A. Idle increases with density decrease.

B. Idle remains same for any density.

C. Idle increases with density increase.

D. Idle decreases with density increase.

Air mass flow is tied to air density, so at a fixed engine speed a drop in density means less air is entering the compressor. That reduces the pressure rise the engine can generate and the power available to drive the compressor-turbine system. To keep the engine able to sustain rotation and stay in stable operation, the idle speed must increase to draw more air and restore the balance between compressor demand and turbine supply. So, as density decreases, idle tends to rise. If density increases, more air is available for the same speed, so the engine can maintain self-sustaining operation without needing to raise idle as much. The ideas that idle stays the same with density or that it increases with density are not consistent with the way mass flow and the power balance affect self-sustaining speed.

3. In the Brayton cycle, the heat addition process occurs at

A. Constant pressure.

B. Constant volume.

C. Constant temperature.

D. Variable pressure.

Heat addition in the Brayton cycle happens at essentially constant pressure. In the ideal Brayton model, air is first compressed, then fuel is burned in the combustor while the flow remains at the same pressure as it enters and leaves the combustor. This isobaric (constant-pressure) heating raises the gas temperature and enthalpy without a large change in pressure. The flame adds energy to the flowing gas, but the overall pressure is kept fixed by the upstream compressor and downstream turbine, so the state moves along a constant-pressure line on a P–H or T–s diagram. If the process were at constant volume, the added heat would cause a significant pressure rise, which isn't observed in the actual combustor. If it were at constant temperature, the fuel would need to be removed or the heat transfer controlled in a way that isn't how a typical combustor operates. Real systems do have small pressure losses, but they're usually neglected in the ideal cycle analysis, so the heat addition is treated as constant-pressure.

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4. Which statement is false regarding the mass airflow temperature profile?

A. Temperature increases through the compressor.

B. Temperature increases through the diffuser.

C. Temperature increases at the burner.

D. Temperature remains constant from the diffuser to exhaust.

The mass airflow temperature changes along the engine flow path because energy is added or removed at different stages. At the diffuser, air is slowed but not heated or cooled by heat transfer; the stagnation temperature stays the same, so the static temperature tends to rise as velocity drops. When the air moves into the compressor, work is done on it, increasing its internal energy and raising its temperature. In the burner, fuel combustion adds heat, causing a further rise in temperature. The turbine expands the hot gas to extract work, which lowers the gas temperature, though it remains well above ambient by the time it reaches the exhaust. Because of these varying processes, the temperature profile from the diffuser to exhaust is not constant.

5. In the turbine section, how do velocity and pressure change?

A. Velocity decreases and pressure increases

B. Velocity increases and pressure decreases

C. Temperature remains constant

D. Velocity variations with temperature

In the turbine, hot high-pressure gas expands through the blades, doing work on the rotor. This expansion causes the gas to accelerate as it passes the stages, so its velocity increases. At the same time, as the gas expands, its static pressure falls. Temperature also drops with expansion, but the defining change for velocity and pressure is that speed rises while pressure decreases.

6. Which of the following is not a standard jet engine rating?

A. Maximum Take Off

B. Take Off

C. Maximum Continuous

D. Idle

Understanding engine thrust ratings is about the defined thrust levels used to describe what an engine can produce for different phases of flight. In jet engines, the standard ratings you'll see on performance data are typically Take Off (or TO) and Maximum Take Off (often TOGA), and Maximum Continuous thrust. Idle, on the other hand, is a low-thrust condition used during starting, taxiing, and ground operations rather than a published performance rating used to plan takeoff or climb. So, while the engine does operate at idle, it isn't described as one of the formal thrust ratings that define the performance limits for flight phases. That's why idle is considered not a standard jet engine rating in this context.

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7. The principle of jet propulsion is.

A. The calorific value of fuel burnt is equal to aircraft

B. The interaction of fluids and gases

C. Every action has an equal and opposite reaction

D. The change in momentum of air

At the heart of jet propulsion is Newton's third law: for every action there is an equal and opposite reaction. In a jet engine, the engine accelerates a mass of air backward by burning fuel and expanding gases. That backward push on the air is met with an equal forward push on the engine, which is the thrust that moves the aircraft forward. You can also view this in terms of momentum: the engine ejects exhaust mass at high speed, changing its momentum backward, and the aircraft experiences a forward reaction as a result. The other ideas don't capture the fundamental cause of thrust: energy content powers the process, but propulsion is about the action-reaction pair and the resulting momentum transfer to the air.

8. In an axial flow, dual compressor forward fan engine, the fan turns at the same speed as which component?

A. High Pressure Compressor

B. Front Turbine Wheel

C. Low Pressure Turbine

D. Forward Turbine Wheel

In a two-spool axial flow turbofan, there are two shafts: the low-pressure (LP) spool and the high-pressure (HP) spool. The fan sits on the LP spool along with the LP compressor. Since they share the same shaft, they all run at the same speed. The HP compressor and HP turbine are on a separate shaft and run at a different speed. Therefore, the fan turns at the same speed as the low-pressure turbine.

9. What part of a jet engine has the most potential energy?

A. Immediately after the combustion chamber

B. Just before the combustion chamber

C. Immediately after the HP compressor

D. In the exhaust

Potential energy in a jet engine is the pressure energy stored in the working fluid. The air is repeatedly compressed by the stages of the compressor, raising its pressure to the highest level in the cycle. The point just before entering the combustion chamber is where this compressed air reaches its peak pressure, so it holds the most potential energy to be converted into heat and later into kinetic energy as the engine operates. The combustor then burns fuel, adding heat and raising the temperature, but the pressure doesn't rise to higher levels than the compressor discharge; after combustion the gas expands through turbines and the nozzle, so the pressure falls, reducing the stored pressure (potential) energy. The exhaust is at a much lower pressure as the gas exits to ambient, so it has less potential energy. So, the location just before the combustion chamber is where the highest pressure (and thus the most potential energy) resides in the engine cycle.

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10. Varying the EPR datum plug will primarily affect

A. The engine thrust

B. The fuel flow

C. The compressor pressure ratio

D. The indicated EPR value

The reading you see as EPR is a pressure ratio that is calibrated against a reference pressure. The datum plug sets that reference for the EPR sensing system. When you vary the datum, you're shifting the calibration of the EPR indicator, so the displayed EPR value changes even though the actual engine pressures and flow haven't changed. This is why the primary effect is on the indicated EPR value rather than on thrust, fuel flow, or compressor pressure ratio, which depend on the engine's real operating conditions.

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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:

https://easagasturbineengine.examzify.com

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

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