EASA GAS TURBINE ENGINE 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.

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. The velocity of subsonic air in a convergent nozzle typically does which?

A. Remains constant

B. Increases

C. Decreases

D. Increases then decreases

2. Which engine category is most likely to have a noise suppression unit installed?

A. Turboprop

B. Turbojet

C. Turboshaft

D. Turbofan

3. To maintain the selected RPM of a gas turbine at altitude,

A. The pilot will have to throttle back

B. The fuel will automatically be reduced as the aircraft climbs

C. More fuel will automatically be added

D. RPM will adjust automatically with altitude

4. The turbine rotor blade pressure change is best described by which statement?

A. Increases, temperature increases, velocity decreases.

B. Decreases, temperature and velocity decreases.

C. Remains constant, temperature increases.

D. Increases, temperature decreases, velocity increases.

5. Where is the highest pressure location in a gas turbine located according to the material?

A. At the nozzle exit

B. At the burner exit

C. Just after the last compressor stage but before the burner

D. Ambient outside the engine

6. The main factor considered when designing an engine is

A. Maximum turbine temperature
B. Maximum fuel consumption
C. Maximum tip speed
D. Minimum weight

7. Inlet air density is determined by which pair of variables?

A. Altitude of the aircraft, Ambient temperature
B. Humidity and wind speed
C. Engine RPM and fuel flow
D. Airspeed and pressure

8. Which component is hottest in a gas turbine engine?

A. The nozzle guide vanes
B. The turbines
C. The combustion chamber
D. The compressor

9. The total power in a turboprop engine is the.

A. SHP
B. BHP
C. ESHP
D. Propeller power

10. ESHP stands for

A. Engine Shaft Horse Power
B. Equivalent Shaft Horse Power
C. Electrical Shaft Horse Power
D. External Shaft Horse Power

Answers

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

Explanations

1. The velocity of subsonic air in a convergent nozzle typically does which?

A. Remains constant

B. Increases

C. Decreases

D. Increases then decreases

In subsonic flow, a decreasing cross-sectional area causes the fluid to speed up to conserve mass flow. In a convergent nozzle, the air encounters smaller areas as it moves forward, so its velocity increases while its pressure drops. This conversion of pressure energy into kinetic energy accelerates the flow, reaching a maximum at the throat where the flow would become sonic. Beyond the throat, a purely convergent nozzle can't continue to accelerate subsonic flow, so further acceleration requires a diverging section. So, the velocity typically increases in a convergent nozzle.

2. Which engine category is most likely to have a noise suppression unit installed?

A. Turboprop

B. Turbojet

C. Turboshaft

D. Turbofan

Noise suppression units are used to cut the noise coming from the exhaust of jet engines. A turbojet relies entirely on a jet exhaust to produce thrust, with little to no bypass air to muffle the sound. That makes the exhaust the dominant noise source, so installing an exhaust noise suppression device is a common and effective way to meet strict noise limits. Other engine types have different dominant noise sources (propeller noise for turboprops, rotor and mechanical noise for turboshafts, or the bypass stream in turbofans reducing core jet noise), so they are less commonly equipped with a dedicated exhaust noise suppression unit. Therefore, the turbojet is the most likely to have one.

3. To maintain the selected RPM of a gas turbine at altitude,

A. The pilot will have to throttle back

B. The fuel will automatically be reduced as the aircraft climbs

C. More fuel will automatically be added

D. RPM will adjust automatically with altitude

The key idea is that engine speed is controlled by fuel flow through the fuel control or governor, and ambient air density affects how much air is available for combustion. As the aircraft climbs, air becomes thinner, supplying less mass flow for the same rotor speed. To keep the selected RPM constant, the fuel control automatically trims fuel down. If fuel weren't reduced, the reduced air mass could allow the turbine to overspeed or run hotter, so the automatic fuel reduction keeps the target RPM steady. The pilot doesn't need to throttle back manually, and RPM isn't allowed to drift with altitude—the system holds the chosen speed by reducing fuel as you climb.

4. The turbine rotor blade pressure change is best described by which statement?

A. Increases, temperature increases, velocity decreases.

B. Decreases, temperature and velocity decreases.

C. Remains constant, temperature increases.

D. Increases, temperature decreases, velocity increases.

The main idea is that a turbine rotor blade extracts energy from the hot gas as it passes, so the gas slows down, cools, and its pressure drops as it expands doing work on the blades. As the gas expands across the blade row, it performs work on the blades, which lowers its enthalpy.With adiabatic conditions, a decrease in enthalpy means a drop in temperature, so the static temperature falls. The blade also redirects and decelerates the flow in the magnitude sense because energy is being removed to generate shaft power, so the gas velocity decreases through the passage. The pressure falls as the gas expands and loses energy to the rotor. So the description that best fits is a decrease in pressure, accompanied by decreases in temperature and velocity across the rotor blade.

5. Where is the highest pressure location in a gas turbine located according to the material?

A. At the nozzle exit

B. At the burner exit

C. Just after the last compressor stage but before the burner

D. Ambient outside the engine

In a gas turbine, pressure increases through the compressor and is at its peak right after the last compressor stage, just before the burner. The combustor adds heat but operates at essentially the same pressure as the compressor discharge, with only a small loss due to flow friction and heat addition. After combustion, the flow goes to the nozzle where it expands to ambient, so the pressure drops back toward ambient by the time it exits. Therefore, the highest overall pressure in the cycle is at the compressor discharge, just before the burner.

6. The main factor considered when designing an engine is

A. Maximum turbine temperature

B. Maximum fuel consumption

C. Maximum tip speed

D. Minimum weight

Maximum turbine temperature is the key constraint because it directly limits the amount of energy you can extract from the hot gases and thus the engine's efficiency and power. In a gas turbine, higher turbine inlet temperature improves the thermodynamic cycle performance, giving more work and thrust. But the turbine blades and overall hot section must survive the heat, so material strength, cooling methods, and durability cap how hot those parts can operate. Designers push the temperature up as far as the limits allow, using advanced cooling and materials to gain performance while staying within safe limits. Other factors like fuel consumption, tip speed, and weight are important, but they are ultimately governed by the temperature the turbine can safely handle.

7. Inlet air density is determined by which pair of variables?

A. Altitude of the aircraft, Ambient temperature

B. Humidity and wind speed

C. Engine RPM and fuel flow

D. Airspeed and pressure

Air density entering the engine is set by the ambient conditions through the ideal gas law, so it hinges on pressure and temperature in the free stream. The most influential factors are altitude, which governs the ambient static pressure (and how temperature varies with height), and the actual ambient temperature. Warmer air is less dense, and lower pressure at higher altitudes also reduces density. Humidity can tweak density slightly, since moist air is a bit less dense than dry air at the same pressure and temperature, but its effect is small for typical engine calculations. Wind speed, engine RPM, or fuel flow don't change the intrinsic density of the air themselves; they affect flow or operation, not the density property of the inlet air. Therefore, the pair that determines inlet air density is altitude and ambient temperature.

8. Which component is hottest in a gas turbine engine?

A. The nozzle guide vanes

B. The turbines

C. The combustion chamber

D. The compressor

In a gas turbine, the hottest heat load on the components comes from the hot gases that form after combustion and flow straight into the turbine. The combustor does reach very high flame temperatures, but its walls are designed and cooled to keep the metal temperatures manageable. The turbine blades and vanes sit directly in that hottest gas stream and must extract energy from it while withstanding a very high heat flux. Even though cooling air and coatings protect them, the turbine section endures the greatest thermal stress, so it is the hottest component overall.

9. The total power in a turboprop engine is the.

A. SHP

B. BHP

C. ESHP

D. Propeller power

Total power is expressed as Equivalent Shaft Horsepower. This term represents the engine's overall usable power in a single shaft-horsepower value, factoring in the loads the engine must drive (like the reduction gearbox and accessories) and converting it to a common reference for comparison. SHP is just the power at the turbine/gearbox shaft, not accounting for those additional loads, and the power actually delivered to the propeller is the propeller power. ESHP brings all this together into one measure, which is why it is called the total power for a turboprop.

10. ESHP stands for

A. Engine Shaft Horse Power

B. Equivalent Shaft Horse Power

C. Electrical Shaft Horse Power

D. External Shaft Horse Power

Power values from different drive forms are made comparable by expressing them in a common mechanical basis. That's what ESHP does: Equivalent Shaft Horse Power transforms electrical or other form of power into the amount of shaft horsepower that would produce the same work rate on the engine shaft. This lets you compare performance or loads on the same footing, even when some power comes from electricity or other sources instead of a direct engine shaft. So ESHP is not just the actual engine shaft power, and it isn't a standard term for electrical or external power in itself; it's the equivalent mechanical (shaft) power used for fair comparisons.

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!