

City & Guilds Level 2 Award in F-Gas Practice Exam (Sample)

Study Guide



Everything you need from our exam experts!

This is a sample study guide. To access the full version with hundreds of 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. Don't worry about getting everything right, 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, and take breaks to retain information better.

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.

7. Use Other Tools

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. Which classification applies to the refrigerant R410A?**
 - A. Azeotropic refrigerant**
 - B. Zeotropic refrigerant**
 - C. Single component refrigerant**
 - D. Hydrocarbon refrigerant**

- 2. What is a potential consequence of failing to comply with F-Gas regulations?**
 - A. Increased energy efficiency**
 - B. Legal penalties and fines**
 - C. Improved public perception**
 - D. Partnership opportunities**

- 3. What could cause increased discharge vapour superheat in an air conditioning system?**
 - A. Faulty thermostat**
 - B. Undersized ductwork**
 - C. Excessive indoor temperatures**
 - D. Low refrigerant charge**

- 4. How do F-Gas regulations affect refrigerant selection in HVAC systems?**
 - A. They allow any refrigerant without restrictions**
 - B. They promote the use of high GWP alternatives**
 - C. They encourage the use of lower GWP alternatives**
 - D. They eliminate the need for regulations**

- 5. What is a significant environmental impact of F-gases?**
 - A. They deplete the ozone layer**
 - B. They have a high global warming potential (GWP)**
 - C. They contribute to groundwater contamination**
 - D. They increase air pollutants**

6. What is a reasonable condensing temperature for evaporative condensers?

- A. Air on the condenser dry bulb + 10k**
- B. Air on the condenser wet bulb + 5k**
- C. Air on the condenser wet bulb + 10k**
- D. Air on the condenser dry bulb + 5k**

7. Which component typically captures the conversion of liquid refrigerant into vapor within a refrigeration system?

- A. Expansion valve**
- B. Compressor**
- C. Evaporator**
- D. Condenser**

8. What type of refrigerant is R-134a?

- A. A natural refrigerant**
- B. An HFC refrigerant**
- C. A hydrocarbon refrigerant**
- D. A CFC refrigerant**

9. What is the primary goal of the EU F-Gas Regulation?

- A. To promote the use of HFCs**
- B. To limit emissions of fluorinated gases**
- C. To encourage the use of alternative energy sources**
- D. To reduce production costs of refrigeration equipment**

10. What does an increase in system pressure usually indicate?

- A. Low refrigerant levels**
- B. High ambient temperatures**
- C. Possible system blockage or overcharging**
- D. Improved cooling performance**

Answers

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

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Explanations

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1. Which classification applies to the refrigerant R410A?

- A. Azeotropic refrigerant
- B. Zeotropic refrigerant**
- C. Single component refrigerant
- D. Hydrocarbon refrigerant

R410A is classified as a zeotropic refrigerant. Zeotropic refrigerants are mixtures that do not have a constant boiling point during phase changes, meaning their composition can change as they evaporate or condense. In the case of R410A, it is a blend of two refrigerants, R32 and R125, which have differing boiling points. As the mixture evaporates, the more volatile component (R32) vaporizes first, leading to a change in composition of the remaining liquid. This characteristic of zeotropic refrigerants is critical in system design and operation, as it affects the efficiency and performance of refrigeration and air conditioning systems. Understanding the zeotropic nature of R410A is essential for technicians handling these refrigerants, as proper management of charge and system operation can influence overall system efficiency and reliability. This classification impacts how technicians approach servicing, troubleshooting, and repairs in systems utilizing R410A.

2. What is a potential consequence of failing to comply with F-Gas regulations?

- A. Increased energy efficiency
- B. Legal penalties and fines**
- C. Improved public perception
- D. Partnership opportunities

Failing to comply with F-Gas regulations can lead to legal penalties and fines. These regulations are in place to ensure the safe handling and disposal of fluorinated gases, which can be harmful to the environment due to their potential to contribute to global warming. Non-compliance not only jeopardizes public health and safety but can also result in significant financial penalties from regulatory bodies. This serves as a strong deterrent for individuals and businesses, emphasizing the importance of adhering to legal requirements to protect both the environment and their operations. In contrast, the other options do not directly stem from non-compliance. Increased energy efficiency and improved public perception are positive outcomes of responsible practices, while partnership opportunities typically arise from adherence to standards and regulations, rather than from violations.

3. What could cause increased discharge vapour superheat in an air conditioning system?

- A. Faulty thermostat**
- B. Undersized ductwork**
- C. Excessive indoor temperatures**
- D. Low refrigerant charge**

Increased discharge vapour superheat in an air conditioning system indicates that the refrigerant is absorbing heat from the system before it reaches the evaporator, leading to a higher temperature of the refrigerant gas returning to the compressor. This condition is often linked to insufficient refrigerant in the system. When the refrigerant charge is low, it results in inadequate heat absorption in the evaporator. Consequently, the remaining refrigerant that does circulate will be subject to increased heat, causing it to superheat more than it normally would. This can lead to efficiency losses, compressor overheating, and potential system failure if not addressed. The other factors, while they can influence air conditioning performance, do not directly cause increased discharge vapour superheat in the same way. For example, a faulty thermostat may lead to improper cycling of the system but doesn't inherently alter the refrigerant charge. Undersized ductwork can restrict airflow but typically results in poor cooling rather than affecting the refrigerant superheat directly. Excessive indoor temperatures can push a system's limits but don't directly cause the refrigerant to superheat unless compounded by low refrigerant levels.

4. How do F-Gas regulations affect refrigerant selection in HVAC systems?

- A. They allow any refrigerant without restrictions**
- B. They promote the use of high GWP alternatives**
- C. They encourage the use of lower GWP alternatives**
- D. They eliminate the need for regulations**

F-Gas regulations are designed to minimize the environmental impact of refrigerants used in HVAC systems, particularly focusing on reducing greenhouse gas emissions. One significant aspect of these regulations is their emphasis on selecting refrigerants with a lower Global Warming Potential (GWP). By encouraging the use of lower GWP alternatives, the regulations aim to promote more sustainable practices within the industry. Lower GWP refrigerants contribute less to global warming compared to their high GWP counterparts. This directive not only helps in combating climate change but also pushes companies and manufacturers to innovate and develop more environmentally friendly refrigerants that can still provide effective cooling solutions. Through these regulations, HVAC professionals are provided with guidance on best practices when it comes to selecting refrigerants, ultimately fostering a shift towards more responsible usage that meets both performance needs and environmental responsibilities. This aligns with global efforts to reduce the carbon footprint associated with refrigerants used in various systems.

5. What is a significant environmental impact of F-gases?

- A. They deplete the ozone layer
- B. They have a high global warming potential (GWP)**
- C. They contribute to groundwater contamination
- D. They increase air pollutants

F-gases, which include hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF6), and nitrogen trifluoride (NF3), are known for their high global warming potential (GWP). This means that, when released into the atmosphere, they have a significantly greater capacity to trap heat compared to carbon dioxide (CO2). For example, some F-gases can have a GWP thousands of times greater than CO2 over a 100-year period. Their use in refrigeration, air conditioning, and foam-blowing agents has contributed to their prevalence in emissions, prompting regulatory efforts to reduce their use to combat climate change. The other options touch on other environmental issues but are not applicable in the context of F-gases. Ozone layer depletion is primarily associated with chlorofluorocarbons (CFCs) and halons, rather than F-gases. Groundwater contamination can result from various chemicals but is not a significant impact attributed to F-gases. Similarly, while air pollutants are a valid environmental concern, F-gases are specifically linked to global warming rather than general air pollution. Thus, the defining impact of F-gases is

6. What is a reasonable condensing temperature for evaporative condensers?

- A. Air on the condenser dry bulb + 10k
- B. Air on the condenser wet bulb + 5k
- C. Air on the condenser wet bulb + 10k**
- D. Air on the condenser dry bulb + 5k

A reasonable condensing temperature for evaporative condensers is generally determined by considering the ambient conditions and the efficiency of the cooling system. When using an evaporative condenser, the temperature of the air entering the condenser is a key factor in achieving optimal performance. The correct choice of air on the condenser wet bulb + 10k is appropriate because the wet bulb temperature accounts for the cooling effect of evaporation. In evaporative cooling applications, the wet bulb temperature reflects both the temperature and the humidity of the air. By adding a margin (in this case, 10k), one allows for the heat rejection capacity needed to efficiently condense the refrigerant. This margin helps ensure that the condenser operates effectively, taking into account that the cooling potential of the wet bulb temperature is higher than that of the dry bulb due to its consideration of humidity. This choice ensures the system operates within the expected range of temperatures for effective condensing, taking advantage of the cooling properties of evaporation, especially in humid conditions where the wet bulb temperature may be significantly lower than the dry bulb temperature.

7. Which component typically captures the conversion of liquid refrigerant into vapor within a refrigeration system?

- A. Expansion valve
- B. Compressor
- C. Evaporator**
- D. Condenser

The component that captures the conversion of liquid refrigerant into vapor within a refrigeration system is the evaporator. The primary function of the evaporator is to absorb heat from the surrounding space, which causes the refrigerant inside to evaporate. This occurs when the low-pressure liquid refrigerant flows through the evaporator coils, where it absorbs heat from the environment, causing it to change into a vapor. This vapor then moves to the compressor, where it is compressed before being sent to the condenser. In this process, the evaporator plays a vital role in cooling the space by utilizing the phase change of the refrigerant. It effectively removes heat from the area being cooled, making it essential for the refrigeration cycle to function efficiently.

8. What type of refrigerant is R-134a?

- A. A natural refrigerant
- B. An HFC refrigerant**
- C. A hydrocarbon refrigerant
- D. A CFC refrigerant

R-134a is classified as an HFC (hydrofluorocarbon) refrigerant. This designation is significant because HFCs, which include R-134a, are synthetic compounds that were developed in response to environmental concerns associated with CFCs (chlorofluorocarbons) and HCFCs (hydrochlorofluorocarbons). HFCs like R-134a have no ozone-depleting potential, making them more environmentally friendly compared to their predecessors. They are commonly used in automotive and refrigeration applications due to their favorable thermodynamic properties, such as efficiency and stability over a range of temperatures. Understanding the classification of refrigerants is crucial in the context of regulations and environmental impact, as many countries have phased out or restricted the use of high ozone-depleting substances. Knowing that R-134a is an HFC helps in identifying it within the broader context of refrigerants used today and their implications for ozone depletion and climate change.

9. What is the primary goal of the EU F-Gas Regulation?

- A. To promote the use of HFCs
- B. To limit emissions of fluorinated gases**
- C. To encourage the use of alternative energy sources
- D. To reduce production costs of refrigeration equipment

The primary goal of the EU F-Gas Regulation is to limit emissions of fluorinated gases. This regulation was implemented to address the environmental concerns associated with these gases, which are potent greenhouse gases. By limiting their use and emissions, the regulation aims to mitigate climate change and promote a more sustainable environment. Fluorinated gases, including hydrofluorocarbons (HFCs), have a high global warming potential and can remain in the atmosphere for a long time. Therefore, the regulation puts in place measures to encourage the adoption of alternatives with lower environmental impact, manage the phase-down of HFCs, and ensure proper leak checks and maintenance of equipment that uses these gases. This comprehensive approach is essential for achieving the broader climate targets set by the EU.

10. What does an increase in system pressure usually indicate?

- A. Low refrigerant levels
- B. High ambient temperatures
- C. Possible system blockage or overcharging**
- D. Improved cooling performance

An increase in system pressure typically indicates a potential blockage or overcharging in a refrigeration or air conditioning system. When there is a blockage, the refrigerant cannot circulate properly, leading to higher pressures in the system. This could happen in various components, such as the expansion valve, the condenser, or even the evaporator. Overcharging, where too much refrigerant has been added to the system beyond its designed capacity, can also result in an increase in pressure, as the excess refrigerant provides an increased volume for the same amount of system space. Understanding this relationship is important for diagnosing issues within the system. For example, a technician might notice elevated pressures and subsequently investigate the system for signs of a blockage or check the refrigerant levels to determine if there is an overcharge. Addressing these issues promptly is vital to maintaining efficient operation and preventing damage to the system components.

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://cityandguildslvl2fgas.examzify.com>

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

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