

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

## Study Guide



Everything you need from our exam experts!

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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

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1. What are potential health hazards from exposure to F-Gases?
  - A. Nausea and dizziness
  - B. Respiratory issues, skin irritation, and in some cases, asphyxiation
  - C. Headaches and fatigue
  - D. Visual disturbances and muscle cramps
  
2. Why is proper disposal of refrigerants important?
  - A. To maintain system integrity
  - B. To reduce maintenance costs
  - C. To prevent environmental harm and comply with regulations
  - D. To enhance the efficiency of refrigeration systems
  
3. What best describes the role of a refrigerant in a cooling system?
  - A. To absorb heat
  - B. To facilitate airflow
  - C. To insulate components
  - D. To condense moisture
  
4. What does the F-Gas phasedown strategy aim to achieve?
  - A. Increase the market share of F-Gases
  - B. Eliminate all F-Gases from use
  - C. Reduce the amount of F-Gas in the market
  - D. Stabilize the use of F-Gases at current levels
  
5. What is the effect of high pressure on a refrigeration system's performance?
  - A. It improves overall efficiency
  - B. It reduces heat transfer rate
  - C. It can lead to system failure
  - D. It leads to better refrigerant circulation

6. A refrigeration system contains a refrigerant at a dew point condition of -25 degrees. What is desired?
- A. 5k of subcooling
  - B. 5k of superheat
  - C. 10k of superheat
  - D. No superheat
7. What should be done if an F-gas cylinder is damaged?
- A. It should be reused in a different application
  - B. It should be marked as defective and returned to the supplier
  - C. It can be repaired for continued use
  - D. It should be disposed of in a landfill
8. What role do carbon offsets have in managing the impacts of F-Gases?
- A. They increase emissions to balance reductions
  - B. They help mitigate environmental impact by compensating for emissions
  - C. They have no role in F-Gases management
  - D. They are only applicable to fossil fuel emissions
9. 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
10. To effectively find a suspected refrigerant leak on a freezer room evaporator, what should be done?
- A. Change the refrigerant
  - B. Leak test the evaporator with the unit in shutdown
  - C. Increase the compressor pressure
  - D. Perform a thermal scan

## Answers

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

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## Explanations

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## 1. What are potential health hazards from exposure to F-Gases?

- A. Nausea and dizziness
- B. Respiratory issues, skin irritation, and in some cases, asphyxiation
- C. Headaches and fatigue
- D. Visual disturbances and muscle cramps

The potential health hazards from exposure to F-Gases primarily include respiratory issues, skin irritation, and in some instances, asphyxiation. F-Gases, or fluorinated gases, can cause significant harm due to their chemical properties. When inhaled, some F-Gases can irritate the respiratory system, leading to breathing difficulties. Skin contact with these gases can also lead to irritation and chemical burns, depending on the specific gas and concentration level. Asphyxiation is a particularly critical concern because many F-Gases are heavier than air and can displace oxygen in enclosed spaces. This can create a dangerous environment where the oxygen levels are insufficient for breathing, potentially leading to unconsciousness or suffocation. Understanding these health risks is vital for anyone working with or around these substances, as it highlights the importance of proper safety protocols and personal protective equipment to minimize exposure risks.

## 2. Why is proper disposal of refrigerants important?

- A. To maintain system integrity
- B. To reduce maintenance costs
- C. To prevent environmental harm and comply with regulations
- D. To enhance the efficiency of refrigeration systems

The proper disposal of refrigerants is crucial primarily to prevent environmental harm and comply with regulations. Many refrigerants used in HVAC systems have a significant negative impact on the environment if released, particularly those that contribute to ozone depletion or global warming. The ability to manage these substances in an environmentally responsible manner is mandated by various laws and regulations that aim to protect the atmosphere and public health. Additionally, improper disposal can lead to serious legal repercussions for businesses and individuals who handle these substances. Regulations often require certified recovery and disposal methods that ensure refrigerants are not inadvertently released into the atmosphere. Hence, compliance is not just a matter of ethics but also a legal obligation, emphasizing why this choice is the most appropriate answer regarding the importance of refrigerant disposal. Although maintaining system integrity, reducing maintenance costs, and enhancing the efficiency of refrigeration systems are important in their own right, they do not directly address the critical environmental and regulatory concerns associated with refrigerant disposal.

3. What best describes the role of a refrigerant in a cooling system?

- A. To absorb heat
- B. To facilitate airflow
- C. To insulate components
- D. To condense moisture

The role of a refrigerant in a cooling system is best described as its function to absorb heat. Refrigerants are specially formulated fluids that have unique thermal properties enabling them to efficiently transfer heat. During the cooling process, the refrigerant absorbs heat from the environment or the space being cooled, effectively lowering the temperature of that area. As it circulates through the system, the refrigerant transitions from a liquid to a gas as it absorbs heat, allowing it to carry away energy. This heat absorption is a critical aspect of the refrigeration cycle, which ultimately contributes to the cooling effect experienced in spaces such as homes, refrigerators, or industrial cooling systems. The other roles suggested by different options, such as facilitating airflow, insulating components, or condensing moisture, do not accurately capture the primary function of a refrigerant within the context of mechanical and thermodynamic processes involved in cooling systems. While airflow may be important for distributing cool air, and insulation plays a role in maintaining system efficiency, neither of these describes what the refrigerant physically does in terms of absorbing heat in order to enable the cooling effect.

4. What does the F-Gas phasedown strategy aim to achieve?

- A. Increase the market share of F-Gases
- B. Eliminate all F-Gases from use
- C. Reduce the amount of F-Gas in the market
- D. Stabilize the use of F-Gases at current levels

The F-Gas phasedown strategy is designed to reduce the amount of F-Gas in the market systematically over time. The main objective of this strategy is to minimize the environmental impact of these gases, which are potent greenhouse gases and contribute significantly to climate change. By limiting their availability, the strategy encourages the adoption of alternative refrigerants and technologies that are less harmful to the environment. The phasedown approach focuses on achieving reductions rather than an outright ban or elimination of all F-Gases. It allows for a controlled transition and provides industries with time to adapt to new regulations and technologies, thereby ensuring a balanced and effective reduction in the use of these gases. This careful management of the phasedown process aims to achieve sustainable practices while addressing the risks posed by F-Gases.

5. What is the effect of high pressure on a refrigeration system's performance?

- A. It improves overall efficiency
- B. It reduces heat transfer rate
- C. It can lead to system failure
- D. It leads to better refrigerant circulation

High pressure in a refrigeration system can have significant impacts on its performance, primarily leading to potential system failure. When the pressure inside the system rises excessively, it can cause stress on components such as compressors, condensers, and expansion devices. This increased pressure can result in mechanical failures, such as ruptures, leaks, or excessive wear on moving parts. Furthermore, high pressure can disrupt the intended phase changes of the refrigerant, causing it to operate outside of its designed parameters, which may lead to inefficiencies. In contrast, while some may think of high pressure as beneficial for efficiency or circulation, those scenarios often assume optimal operating ranges. However, when pressure exceeds safe levels, it generally moves the system towards failure rather than improving its capabilities. The considerations regarding heat transfer rates and refrigerant circulation at high pressures often highlight that such conditions might not facilitate optimal performance, reinforcing that excessive pressure typically correlates with adverse outcomes in refrigeration systems.

6. A refrigeration system contains a refrigerant at a dew point condition of -25 degrees. What is desired?

- A. 5k of subcooling
- B. 5k of superheat
- C. 10k of superheat
- D. No superheat

In refrigeration systems, the terms "subcooling" and "superheat" are critical to understanding the performance and efficiency of the system. When the refrigerant is at a dew point condition of -25 degrees, it indicates that the refrigerant is in a vapor state above its boiling point. Superheat refers to the heating of the refrigerant vapor to a temperature above its boiling point at a given pressure. This is important in a refrigeration cycle to ensure that the refrigerant is completely vaporized before it enters the compressor. If there is not enough superheat, there might be a risk of liquid refrigerant returning to the compressor, which could cause damage. In this case, having 5k of superheat is desired because it guarantees that the refrigerant is in a safe vapor state when it reaches the compressor. This ensures proper operation and prevents potential compressor failures from liquid slugging. Additionally, a small amount of superheat helps in achieving better efficiency and effectiveness of the refrigeration cycle. Therefore, having 5k of superheat provides a safe operational margin while allowing for effective heat transfer, enhancing the overall reliability of the system.

## 7. What should be done if an F-gas cylinder is damaged?

- A. It should be reused in a different application
- B. It should be marked as defective and returned to the supplier**
- C. It can be repaired for continued use
- D. It should be disposed of in a landfill

If an F-gas cylinder is damaged, the appropriate course of action is to mark it as defective and return it to the supplier. This procedure is crucial because damaged cylinders can pose significant safety hazards, including the risk of leaks or ruptures that could release harmful gases into the environment. By returning the cylinder to the supplier, it ensures that the cylinder is properly assessed, and any necessary measures are taken for safe disposal or replacement. Handling damaged F-gas cylinders in this manner helps maintain safety standards, comply with environmental regulations, and prevent potential accidents that could arise from continued use of compromised equipment. Keeping the cylinders in service by reusing them, attempting repairs, or improper disposal methods, such as placing them in a landfill, would not only be unsafe but also violate regulations regarding the handling of hazardous materials.

## 8. What role do carbon offsets have in managing the impacts of F-Gases?

- A. They increase emissions to balance reductions
- B. They help mitigate environmental impact by compensating for emissions**
- C. They have no role in F-Gases management
- D. They are only applicable to fossil fuel emissions

Carbon offsets play a significant role in managing the impacts of F-gases by helping to mitigate environmental effects through compensation for emissions produced. F-gases, which include substances like HFCs, PFCs, SF<sub>6</sub>, and N<sub>2</sub>O, have a high global warming potential and contribute to climate change. When organizations or individuals emit these gases, they can invest in carbon offset projects to balance out their carbon footprint. These carbon offset projects may include reforestation, renewable energy initiatives, or energy efficiency programs, which collectively lead to a reduction in greenhouse gas emissions. By purchasing these offsets, whether through specific projects or carbon credit systems, stakeholders help finance efforts that directly lower the amount of greenhouse gases in the atmosphere, thus acting as a form of compensation for their F-gas emissions. This approach emphasizes a broader understanding of environmental responsibility, where the goal is to not only reduce one's own emissions but also support initiatives that generate positive environmental outcomes. Therefore, through the mechanism of carbon offsets, the impact of F-gases can be managed more effectively.

9. 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 (SF<sub>6</sub>), and nitrogen trifluoride (NF<sub>3</sub>), 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 (CO<sub>2</sub>). For example, some F-gases can have a GWP thousands of times greater than CO<sub>2</sub> 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

10. To effectively find a suspected refrigerant leak on a freezer room evaporator, what should be done?

- A. Change the refrigerant
- B. Leak test the evaporator with the unit in shutdown**
- C. Increase the compressor pressure
- D. Perform a thermal scan

To effectively find a suspected refrigerant leak on a freezer room evaporator, conducting a leak test of the evaporator with the unit in shutdown is the most appropriate action. When the refrigeration system is not running, it is easier to identify the presence of a leak because the refrigerant is not circulating, allowing for a more accurate assessment. Additionally, this approach can involve techniques such as the use of soap bubbles, electronic leak detectors, or other methods that can help pinpoint the location of the leak without interference from the operational system. Other methods, such as changing the refrigerant or increasing the compressor pressure, do not directly address the leak detection process and could potentially complicate the situation or introduce additional risks. Performing a thermal scan can provide insights into temperature differentials, but it may not specifically confirm a refrigerant leak as effectively as a targeted leak testing approach. Thus, the focused method of leak testing with the unit in shutdown is the most reliable and effective strategy in this scenario.

## 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](mailto: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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