

CITY & GUILDS LEVEL 2 AWARD IN F-GAS PRACTICE EXAM (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.

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. Which hazard may cause a service engineer to cough or experience irritation in the eyes and throat?**
 - A. Thermal decomposition
 - B. High pressure leakage
 - C. Improper ventilation
 - D. Overcharged refrigerant
- 2. Which is a benefit of recovering refrigerants according to regulations?**
 - A. It increases the amount of refrigerant available
 - B. It prevents environmental harm
 - C. It complicates repair processes
 - D. It is expensive and time-consuming
- 3. Why are pressure gauges critical in refrigeration?**
 - A. They are used for refilling refrigerant
 - B. They allow technicians to assess system performance and detect issues
 - C. They help to beautify the system
 - D. They ensure that all components are working correctly
- 4. Which safety feature is commonly found in larger F-Gas systems?**
 - A. Emergency shutoff switches
 - B. Battery backups
 - C. Emergency pressure relief valves
 - D. Automatic defrosting units
- 5. Which agency is responsible for enforcing F-gas regulations in the UK?**
 - A. The Environment Agency
 - B. The Health and Safety Executive
 - C. The Food Standards Agency
 - D. The Department for Business and Trade

- 6. Which device is critical in maintaining proper flow of refrigerant in an air conditioning system?**
- A. Compressor
 - B. Expansion valve
 - C. Condenser
 - D. Evaporator fan
- 7. What effect would a reduction in vapor specific volume have on system efficiency?**
- A. It would decrease efficiency
 - B. It would have no effect
 - C. It would increase efficiency
 - D. It would cause system imbalance
- 8. If the running discharge pressure of a refrigeration system with R134a is 8 barg and the saturation temperature is approximately 35 degrees, what state will the refrigerant be in if the condenser outlet temperature is 40 degrees?**
- A. A saturated liquid
 - B. A superheated vapor
 - C. A mixture of liquid and vapor
 - D. A compressed liquid
- 9. What procedure is necessary to minimize refrigerant loss when removing a service manifold?**
- A. Back seat low side, remove gauge lines, equalize pressure
 - B. Back seat high side, equalize pressure, back seat low side, remove gauge lines
 - C. Remove gauge lines, equalize pressure, back seat high side
 - D. Equalize pressure, back seat low side, back seat high side
- 10. How often should leak checks be performed on refrigeration systems according to best practices?**
- A. Once every two years
 - B. Only when a problem is suspected
 - C. At regular intervals as specified in regulations
 - D. Immediately after installation

Answers

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

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Explanations

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1. Which hazard may cause a service engineer to cough or experience irritation in the eyes and throat?

- A. Thermal decomposition**
- B. High pressure leakage
- C. Improper ventilation
- D. Overcharged refrigerant

Thermal decomposition is the correct answer because it refers to the breakdown of refrigerants into harmful by-products when they are exposed to high temperatures. This process can release toxic gases that may irritate the eyes and throat, leading to coughing or respiratory discomfort. These by-products can also be hazardous if inhaled, making it crucial for service engineers to be aware of thermal decomposition risks when handling refrigerants. Understanding how refrigerants can decompose at elevated temperatures helps engineers recognize the importance of maintaining proper equipment conditions and safe handling practices to minimize exposure to harmful fumes. Safe working practices, such as wearing appropriate personal protective equipment and ensuring good ventilation when dealing with potentially decomposing gases, are essential for reducing health risks in the workplace.

2. Which is a benefit of recovering refrigerants according to regulations?

- A. It increases the amount of refrigerant available
- B. It prevents environmental harm**
- C. It complicates repair processes
- D. It is expensive and time-consuming

Recovering refrigerants according to regulations primarily serves the crucial purpose of preventing environmental harm. Refrigerants can have significant detrimental effects on the atmosphere, particularly certain types that contribute to ozone depletion and global warming. By recovering these substances rather than allowing them to be released into the atmosphere, technicians help to ensure that the integrity of the ozone layer is maintained and the impact on climate change is minimized. Additionally, regulated recovery processes encourage responsible handling of refrigerants, further promoting environmental safety and compliance with legislation aimed at protecting atmospheric conditions. These practices not only uphold environmental obligations but also foster a culture of sustainability within the HVACR industry.

3. Why are pressure gauges critical in refrigeration?

- A. They are used for refilling refrigerant
- B. They allow technicians to assess system performance and detect issues**
- C. They help to beautify the system
- D. They ensure that all components are working correctly

Pressure gauges are critical in refrigeration because they provide essential information about the performance of the refrigeration system. By measuring the pressure of the refrigerant in various parts of the system, technicians can determine if the system is operating within the correct parameters. When a technician reads the pressure gauges, they can identify whether the refrigerant charge is appropriate, whether the compressor is functioning correctly, and if there are any leaks or blockages in the system. These readings allow for accurate diagnosis and troubleshooting of potential issues which is key to maintaining efficiency and preventing breakdowns. Therefore, the ability to assess system performance and detect issues through pressure gauges is vital for the reliability and effectiveness of refrigeration systems.

4. Which safety feature is commonly found in larger F-Gas systems?

- A. Emergency shutoff switches
- B. Battery backups
- C. Emergency pressure relief valves**
- D. Automatic defrosting units

Emergency pressure relief valves are essential safety features commonly found in larger F-Gas systems. These valves are designed to release pressure if it becomes too high within the system, preventing potential ruptures or catastrophic failures. In refrigeration and air conditioning systems, the pressurization can increase due to various factors, such as high ambient temperatures or blockages in the system. The emergency pressure relief valve acts as a critical fail-safe, allowing excess pressure to escape, thus protecting both the equipment and the safety of personnel nearby. While emergency shutoff switches, battery backups, and automatic defrosting units serve important functions in F-Gas systems, they are not specifically geared towards managing excessive pressure situations as the emergency pressure relief valves are. Emergency shutoff switches can stop the operation of the system in case of a malfunction, but they do not address internal pressure issues directly. Battery backups ensure that critical systems remain operational during power loss, and automatic defrosting units help maintain efficiency, but none of these features are as crucial for preventing pressure-related hazards as emergency pressure relief valves in larger systems.

5. Which agency is responsible for enforcing F-gas regulations in the UK?

- A. The Environment Agency**
- B. The Health and Safety Executive
- C. The Food Standards Agency
- D. The Department for Business and Trade

The Environment Agency is the body responsible for enforcing F-gas regulations in the UK. This agency plays a crucial role in the management and protection of the environment, particularly concerning the use and emissions of fluorinated gases, which have a significant impact on climate change. The Environment Agency oversees compliance with the legislative framework set by the F-gas regulations, ensuring that businesses follow proper practices for handling, recovery, and disposal of these substances. The enforcement includes monitoring industry practices, investigating compliance failures, and imposing penalties for non-compliance. Their focus is primarily on environmental protection and climate change mitigation, which aligns directly with the goals of the F-gas regulations to reduce greenhouse gas emissions.

6. Which device is critical in maintaining proper flow of refrigerant in an air conditioning system?

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

The expansion valve plays a crucial role in maintaining the proper flow of refrigerant in an air conditioning system. Its primary function is to regulate the flow of refrigerant from the high-pressure side of the system to the low-pressure side. By controlling this flow, the expansion valve ensures that the refrigerant is expanded and allowed to absorb heat in the evaporator, which is essential for the cooling process to occur effectively. When the refrigerant passes through the expansion valve, it transitions from a liquid to a gas, which reduces its pressure and temperature. This is a vital step in the refrigeration cycle as it prepares the refrigerant to absorb heat from the indoor environment in the evaporator coil. If the flow of refrigerant is not properly managed, it can lead to inefficient cooling, potential damage to system components, or even failure of the entire system. In contrast, while the compressor, condenser, and evaporator fan are all important components of the air conditioning system, they serve different functions that do not directly involve the regulation of refrigerant flow in the same manner as the expansion valve. The compressor increases the pressure of the refrigerant, the condenser facilitates heat rejection to the outside environment, and the evaporator fan helps circulate air over the evaporator coil.

7. What effect would a reduction in vapor specific volume have on system efficiency?

- A. It would decrease efficiency
- B. It would have no effect
- C. It would increase efficiency**
- D. It would cause system imbalance

A reduction in vapor specific volume indicates that the vapor occupies less space for the same mass. This means that more mass of the refrigerant can fit within a given volume. In refrigeration and air conditioning systems, this enhanced packing of the vapor can lead to better heat transfer efficiency. A denser vapor can improve the overall thermodynamic cycle, allowing for more effective heat absorption and rejection at the evaporator and condenser, respectively. As a result, the system can operate at a lower energy input while maintaining or even increasing cooling capacity, which is a key indicator of improved efficiency in such systems. Therefore, a reduction in vapor specific volume is associated with an increase in the efficiency of the refrigeration cycle.

8. If the running discharge pressure of a refrigeration system with R134a is 8 barg and the saturation temperature is approximately 35 degrees, what state will the refrigerant be in if the condenser outlet temperature is 40 degrees?

- A. A saturated liquid
- B. A superheated vapor**
- C. A mixture of liquid and vapor
- D. A compressed liquid

In evaluating the state of the refrigerant R134a in this scenario, consider the relationship between pressure, temperature, and the properties of refrigerants. The running discharge pressure of 8 barg corresponds to a saturation temperature of approximately 35 degrees Celsius, indicating that at this pressure, the refrigerant transitions between its liquid and vapor phases. When the temperature of the condenser outlet is 40 degrees Celsius, which exceeds the saturation temperature of 35 degrees Celsius at the same pressure, it signifies that the refrigerant is no longer in the saturated state. Instead, the increased temperature implies that the refrigerant must be in a superheated state since it is above the saturation temperature associated with its existing pressure. Being in a superheated vapor state means that the refrigerant is entirely vapor without any liquid present. This condition is desirable in the condenser, allowing for effective heat transfer as the refrigerant dissipates heat before transitioning to the liquid state within the condenser coils. The other potential states, like saturated liquid, a mixture of liquid and vapor, or a compressed liquid, do not apply here as they would imply that the refrigerant is either at or below the saturation point or under excessive pressure without being superheated. Being aware of these thermal dynamics is essential for proper

9. What procedure is necessary to minimize refrigerant loss when removing a service manifold?

- A. Back seat low side, remove gauge lines, equalize pressure
- B. Back seat high side, equalize pressure, back seat low side, remove gauge lines**
- C. Remove gauge lines, equalize pressure, back seat high side
- D. Equalize pressure, back seat low side, back seat high side

To minimize refrigerant loss when removing a service manifold, the most effective procedure includes back seating the high side, equalizing pressure, back seating the low side, and then removing the gauge lines. Back seating the high side valve first helps ensure that the high-pressure refrigerant is contained within the system and not released into the atmosphere as the manifold is disconnected. By equalizing the pressure afterward, you can stabilize the system and prevent any sudden release of pressure that could occur during disconnection. This step ensures that both the high and low sides are balanced, reducing the potential for refrigerant loss. Finally, back seating the low side before removing the gauge lines ensures that the low side valve is closed, further minimizing the chance of refrigerant escaping when the lines are disconnected. This thorough procedure emphasizes the importance of maintaining system integrity and minimizing environmental impact by preventing refrigerant leakage during maintenance activities. It reflects best practices in refrigerant management aligning with safety and regulatory standards essential for professionals handling F-gases.

10. How often should leak checks be performed on refrigeration systems according to best practices?

- A. Once every two years
- B. Only when a problem is suspected
- C. At regular intervals as specified in regulations**
- D. Immediately after installation

Leak checks on refrigeration systems should be performed at regular intervals as specified in regulations to ensure compliance with environmental protection standards and to maintain the efficiency and safety of the systems. These regulations are put in place to minimize the release of refrigerants into the atmosphere, which can have harmful effects on the environment, particularly in terms of ozone depletion and contributing to climate change. Performing leak checks at these specified regular intervals allows for the early detection of any refrigerant leaks. Timely identification and repair of leaks can prevent significant loss of refrigerant, ensure the system operates efficiently, and avoid potentially costly repairs in the future. Regular checks are not only a matter of compliance but also of good practice in maintenance management. While checks may also be necessary after installation or when a problem is suspected, relying solely on these scenarios does not align with best practices of routine maintenance and monitoring. Regular, scheduled checks help maintain optimal performance and environmental safety.

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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://cityandguildslvl2fgas.examzify.com>

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

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