

# FDNY CoF - Supervision of Fire Alarm Systems (Q-01)

## Practice Test (Sample)

### Study Guide



**Everything you need from our exam experts!**

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# Table of Contents

<b>Copyright</b> .....	<b>1</b>
<b>Table of Contents</b> .....	<b>2</b>
<b>Introduction</b> .....	<b>3</b>
<b>How to Use This Guide</b> .....	<b>4</b>
<b>Questions</b> .....	<b>5</b>
<b>Answers</b> .....	<b>8</b>
<b>Explanations</b> .....	<b>10</b>
<b>Next Steps</b> .....	<b>16</b>

SAMPLE

# 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. How much energy does one ton of refrigeration equal in BTUs per day?**
  - A. 120,000 BTU/day**
  - B. 288,000 BTU/day**
  - C. 200,000 BTU/day**
  - D. 1,000,000 BTU/day**
- 2. How many BTUs does one ton of refrigeration equal per hour?**
  - A. 8,000 BTU/hour**
  - B. 10,000 BTU/hour**
  - C. 12,000 BTU/hour**
  - D. 15,000 BTU/hour**
- 3. What distinguishes the condenser water return line?**
  - A. Has a valve on it**
  - B. Has a sight glass on it**
  - C. Has a "Y" strainer on it**
  - D. Is insulated**
- 4. Where is the scale trap located in a refrigerating system?**
  - A. Between the compressor and condenser**
  - B. Between the condenser and receiver**
  - C. Between the receiver and evaporator**
  - D. Between the compressor and evaporator**
- 5. What is a consequence of failing to purge a refrigerating system?**
  - A. Increased energy efficiency**
  - B. Higher system reliability**
  - C. Reduced pressure in the system**
  - D. High-head pressure**

- 6. Which property is desirable for ammonia refrigerant oil?**
- A. High paraffin content**
  - B. Being free of water**
  - C. Very low flash point**
  - D. All of the above**
- 7. Sodium chloride is not used effectively when the temperature is below what?**
- A. -20° F**
  - B. 10° F**
  - C. 5° F**
  - D. 0° F**
- 8. What happens if the pressure drop across the evaporator is between 2.5 lbs. and 5 lbs.?**
- A. Nothing noteworthy occurs**
  - B. It indicates a malfunction**
  - C. It suggests the use of an external equalizer**
  - D. It requires immediate maintenance**
- 9. What is an open compressor characterized by?**
- A. It has a built-in refrigerant storage**
  - B. It has an external drive**
  - C. It does not use oil**
  - D. It operates silently**
- 10. What is the main cooling medium for the motor in a semi-hermetic reciprocating compressor?**
- A. The squirrel-cage fan.**
  - B. The water cooling-jacket.**
  - C. The refrigerant suction gas.**
  - D. The cooling tower.**

## **Answers**

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

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## **Explanations**

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**1. How much energy does one ton of refrigeration equal in BTUs per day?**

- A. 120,000 BTU/day
- B. 288,000 BTU/day**
- C. 200,000 BTU/day
- D. 1,000,000 BTU/day

One ton of refrigeration is defined as the ability to remove heat at a rate of 12,000 BTUs per hour. To convert this to a daily figure, you multiply the hourly rate by the number of hours in a day, which is 24. Therefore, the calculation is as follows:  $12,000 \text{ BTUs/hour} \times 24 \text{ hours/day} = 288,000 \text{ BTUs/day}$ . This means that one ton of refrigeration corresponds to the removal of 288,000 BTUs in a single day. Understanding this conversion is important for professionals in HVAC and refrigeration, as it facilitates the accurate sizing and operation of cooling systems in various applications.

**2. How many BTUs does one ton of refrigeration equal per hour?**

- A. 8,000 BTU/hour
- B. 10,000 BTU/hour
- C. 12,000 BTU/hour**
- D. 15,000 BTU/hour

One ton of refrigeration is defined as the amount of heat required to melt one ton of ice in a 24-hour period. This measure is standardized to 12,000 BTU per hour. The definition comes from the fact that melting one ton of ice absorbs a significant amount of heat, specifically 288,000 BTU over 24 hours, which averages to 12,000 BTU per hour. This standard is widely accepted in refrigeration and air conditioning calculations, making it essential knowledge for those working in fire alarm systems and related fields, where understanding BTU and refrigeration is relevant for ensuring that systems function correctly under varying environmental conditions.

**3. What distinguishes the condenser water return line?**

- A. Has a valve on it
- B. Has a sight glass on it
- C. Has a "Y" strainer on it**
- D. Is insulated

The condenser water return line is typically distinguished by the presence of a "Y" strainer. This component plays a critical role in maintaining system efficiency by filtering out debris and impurities from the water returning to the condenser. The strainer ensures that the water being circulated is clean, which helps prevent fouling of the condenser coils and promotes effective heat transfer. Having a "Y" strainer also aids in system maintenance, as it allows for easy cleaning or replacement without needing to shut down the entire system. This is important for ongoing operational efficiency and reliability in heating and cooling systems that utilize condensers. The presence of a strainer is specific to the functional needs of the condenser water return line, making it a distinguishing feature among the options presented.

**4. Where is the scale trap located in a refrigerating system?**

- A. Between the compressor and condenser**
- B. Between the condenser and receiver**
- C. Between the receiver and evaporator**
- D. Between the compressor and evaporator**

In a refrigerating system, the scale trap is situated between the compressor and the evaporator. Its primary function is to prevent the accumulation of unwanted substances, such as scale and dirt, that can affect the efficiency and functionality of the system. By being located in this position, the scale trap effectively captures these impurities before they can reach the evaporator, which is critical for maintaining optimal heat transfer and refrigeration performance. Ensuring that the refrigerant entering the evaporator is clean helps to avoid blockages and operational issues that could arise from debris or scale buildup. This placement is essential for prolonging the life of the system and ensuring efficient operation.

**5. What is a consequence of failing to purge a refrigerating system?**

- A. Increased energy efficiency**
- B. Higher system reliability**
- C. Reduced pressure in the system**
- D. High-head pressure**

Failing to purge a refrigerating system can lead to high-head pressure, which occurs when non-condensable gases accumulate in the system. These gases can contribute to inefficiencies and hinder the system's ability to cool effectively, resulting in elevated pressure readings. High-head pressure not only affects the refrigerant's performance but also places additional stress on the compressor, potentially leading to premature failure and increased energy consumption. In contrast, purging the system of air and other non-condensables is essential for maintaining optimal performance and ensuring that the refrigerant functions as intended. Thus, not addressing the need to purge a refrigerating system can directly correlate with operational issues, including high-head pressure.

**6. Which property is desirable for ammonia refrigerant oil?**

- A. High paraffin content**
- B. Being free of water**
- C. Very low flash point**
- D. All of the above**

The desirable property for ammonia refrigerant oil is being free of water. Water contamination in ammonia refrigerant oil can lead to several issues. Primarily, the presence of water can cause the formation of ice in low-temperature applications, which may clog filters and disrupt the normal functioning of the refrigeration system. Additionally, water can react with ammonia to form ammonium hydroxide, which can contribute to corrosion and degrade both the oil and the refrigeration system components. While high paraffin content might be preferred in certain contexts, it is not universally desirable for ammonia refrigerant oil, as it can affect the oil's miscibility and flow characteristics, potentially leading to complications in operation. A very low flash point is hazardous, as it increases the risk of fire and safety concerns. Therefore, ensuring ammonia refrigerant oil is free of water is critical for maintaining optimal performance and longevity of the refrigeration system.

**7. Sodium chloride is not used effectively when the temperature is below what?**

- A. -20° F**
- B. 10° F**
- C. 5° F**
- D. 0° F**

Sodium chloride, commonly known as rock salt, is often used for de-icing roadways and pavements. However, its effectiveness diminishes significantly at lower temperatures. Below approximately -20° F, sodium chloride begins to lose its ability to lower the freezing point of water efficiently, leading to reduced melting performance on icy surfaces. At these frigid temperatures, the salt does not dissolve as readily into the ice, thus its ability to create a brine solution that can effectively melt ice is compromised. This understanding is crucial for managing winter road safety and ensuring that appropriate measures are taken for ice control in severe cold conditions. Alternatives or supplementary de-icing materials may be needed in scenarios where temperatures drop below this threshold to maintain effective ice management.

**8. What happens if the pressure drop across the evaporator is between 2.5 lbs. and 5 lbs.?**

- A. Nothing noteworthy occurs**
- B. It indicates a malfunction**
- C. It suggests the use of an external equalizer**
- D. It requires immediate maintenance**

When the pressure drop across the evaporator falls within the range of 2.5 lbs. to 5 lbs., it indicates that there could be an imbalance affecting the system's performance. Specifically, this condition suggests the potential need for an external equalizer. An external equalizer can help ensure that the pressure is balanced effectively throughout the system, optimizing performance and preventing issues such as inefficient cooling or overloading of the system components. Maintaining proper pressure balance is crucial in HVAC systems to ensure that the evaporator operates correctly and efficiently. Without the use of an external equalizer when needed, the system may face more significant complications down the line, including performance drops and possible system failure. Therefore, recognizing the pressure drop within this specific range and understanding the need for an external equalizer is key to effective system maintenance and operation.

**9. What is an open compressor characterized by?**

- A. It has a built-in refrigerant storage**
- B. It has an external drive**
- C. It does not use oil**
- D. It operates silently**

An open compressor is characterized by having an external drive. This type of compressor is typically powered by an outside source, which means the compressor itself does not contain a motor within its housing. Instead, it is connected to an external drive system, such as an electric motor or a steam engine, thereby allowing for more versatility in applications where varying speeds or configurations are beneficial. This design can be advantageous in industrial settings where different power sources may be utilized, and it often contributes to easier servicing and maintenance because the components are more easily accessible. Understanding the characteristics of open compressors is essential when it comes to selecting the right type for specific applications in heating, ventilation, and air conditioning (HVAC) systems or refrigeration. The other options discuss features that do not pertain to the defining characteristics of an open compressor, further distinguishing its unique operational structure compared to other compressor types.

**10. What is the main cooling medium for the motor in a semi-hermetic reciprocating compressor?**

- A. The squirrel-cage fan.**
- B. The water cooling-jacket.**
- C. The refrigerant suction gas.**
- D. The cooling tower.**

The main cooling medium for the motor in a semi-hermetic reciprocating compressor is the refrigerant suction gas. In this type of compressor, the suction gas entering the compressor not only serves as a refrigerant to absorb heat from the conditioned space but also plays a crucial role in cooling the motor. As the refrigerant vapor passes through the compressor, it removes some of the heat generated by the motor, thereby maintaining an optimal operating temperature and ensuring efficient functioning. This method of cooling is advantageous because it utilizes the same refrigerant that circulates within the system, which is designed to absorb and transport heat. This minimizes additional cooling requirements and enhances the overall efficiency of the refrigeration cycle. In contrast, a squirrel-cage fan, cooling jacket water, or cooling towers serve different functions in the context of HVAC systems and do not provide the same direct cooling effect on the motor within the compressor. The efficient cooling of the motor is essential for preventing overheating and ensuring the reliability of the compressor during operation.

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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](mailto:hello@examzify.com).**

**Or visit your dedicated course page for more study tools and resources:**

**<https://fdnyq01.examzify.com>**

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

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