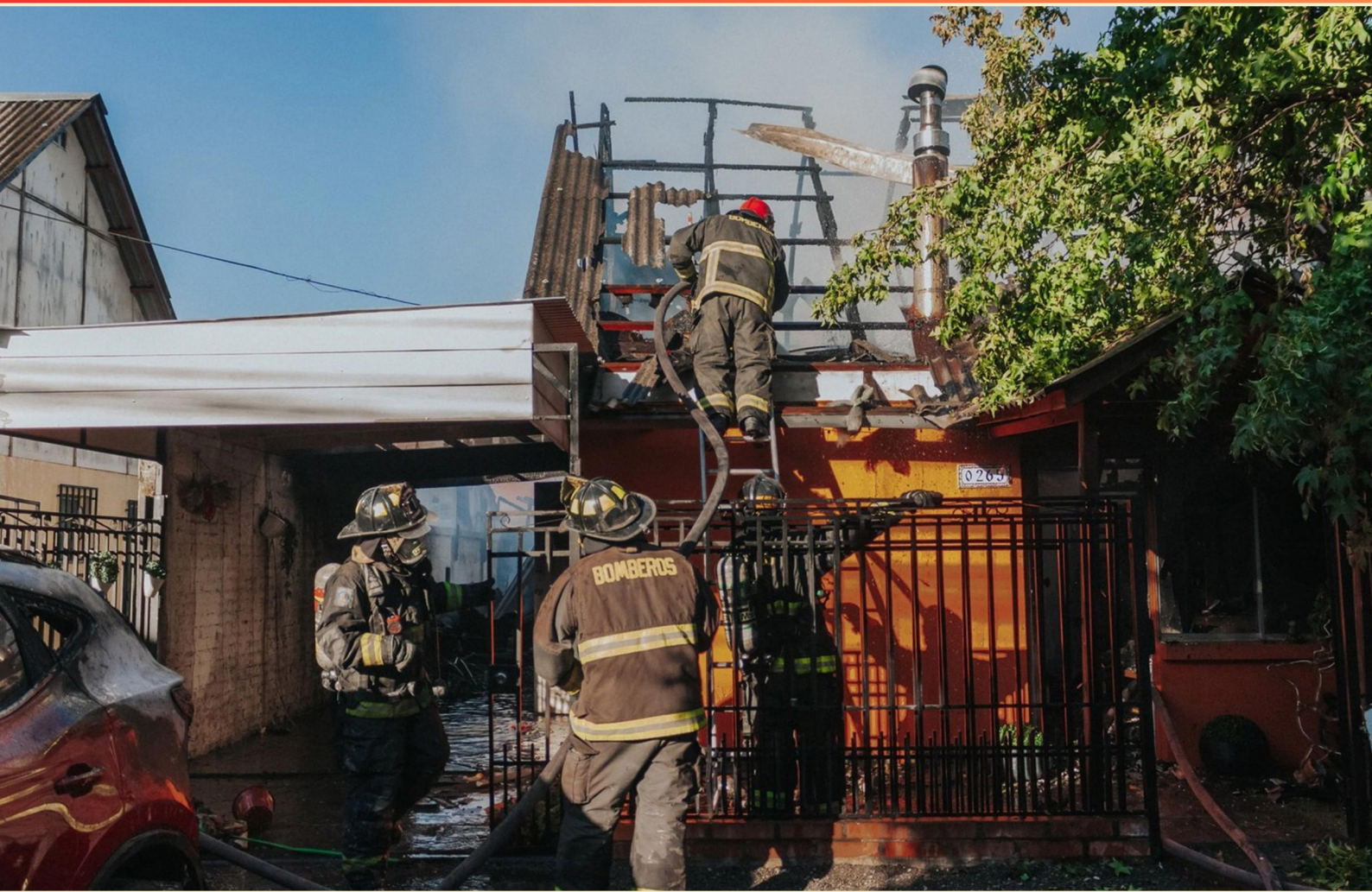


FDNY RESPIRATORY MEDICAL OFFICER (RMO) PRACTICE EXAM (SAMPLE)

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. What likely causes oil foaming in the crankcase of an R-22 single acting compressor system?**
 - A. Overcharging of refrigerants
 - B. Sudden drop in the crankcase pressure
 - C. Excessive operation temperature
 - D. Leaking refrigerant lines
- 2. How many gallons of water can be expected from draining a 75-foot long pipe with a diameter of 12 inches?**
 - A. 220 gallons
 - B. 440 gallons
 - C. 660 gallons
 - D. 880 gallons
- 3. What is a compressor safety head?**
 - A. A device for noise reduction
 - B. A spring on the valve plate
 - C. A gauge for pressure monitoring
 - D. A control mechanism for temperature
- 4. The oil pressure gauge reading in relation to the suction pressure of a compressor should be closer to:**
 - A. 10 to 15 PSI higher
 - B. 5 to 10 PSI higher
 - C. 15 to 30 PSI higher
 - D. 30 to 45 PSI higher
- 5. How many BTUs are removed in a 30 ton cooling system per hour?**
 - A. 180,000 BTUs
 - B. 240,000 BTUs
 - C. 360,000 BTUs
 - D. 480,000 BTUs

- 6. What is a key advantage of forced draft cooling towers over natural draft cooling towers?**
- A. Lower operational costs
 - B. Smaller tower size
 - C. Higher efficiency rates
 - D. Reduced maintenance needs
- 7. What color must cross connections and standpipe risers be painted?**
- A. Blue
 - B. Green
 - C. Yellow
 - D. Red
- 8. In a refrigeration system, what might cause a significant drop in compressor discharge temperature alongside high suction line pressure?**
- A. A faulty compressor motor
 - B. An expansion valve that is open too wide
 - C. Excessive refrigerant charge
 - D. A dirty condenser coil
- 9. What determines the amount of refrigerant that flows through the orifices of an economizer?**
- A. The compressor's horsepower
 - B. The temperature difference between evaporator and condenser
 - C. The difference between the high-side and low-side pressure
 - D. The type of refrigerant used
- 10. What happens to the oil collected in an oil separator?**
- A. It is disposed of safely
 - B. It is discarded
 - C. Returned to the compressor
 - D. Used to lubricate other equipment

Answers

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

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Explanations

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1. What likely causes oil foaming in the crankcase of an R-22 single acting compressor system?

- A. Overcharging of refrigerants
- B. Sudden drop in the crankcase pressure**
- C. Excessive operation temperature
- D. Leaking refrigerant lines

A sudden drop in the crankcase pressure can lead to oil foaming in an R-22 single acting compressor system due to the rapid expansion of the refrigerant within the crankcase. When the pressure in the crankcase decreases abruptly, the boiling point of the oil may drop, allowing some of the oil to vaporize. This vaporization creates bubbles in the oil, leading to the formation of foam. Moreover, the presence of foam can significantly disrupt the lubrication of the moving parts within the compressor, leading to inefficiencies and potential mechanical failure. Proper pressure management is crucial in compressor systems to maintain oil in a liquid state to ensure effective lubrication and prevent foaming. Understanding the relationship between pressure changes and oil behavior in a compressor system is essential for diagnosing issues related to oil foaming and ensuring the operational integrity of refrigeration systems.

2. How many gallons of water can be expected from draining a 75-foot long pipe with a diameter of 12 inches?

- A. 220 gallons
- B. 440 gallons**
- C. 660 gallons
- D. 880 gallons

*To find the volume of water that can be expected from draining a 75-foot long pipe with a diameter of 12 inches, it's important to first convert the measurements into a consistent unit and then use the formula for the volume of a cylinder, which is given by the formula: $\text{Volume} = \pi * r^2 * h$. In this case, the height (h) is the length of the pipe, which is 75 feet. We need to convert the diameter into radius and also convert feet to inches for consistency, since the diameter is given in inches. The radius is half of the diameter, so it would be 6 inches (12 inches / 2). Next, we convert 75 feet to inches: $75 \text{ feet} * 12 \text{ inches/foot} = 900 \text{ inches}$. Now we can plug the values into the volume formula: 1. Convert the radius into feet (since we calculated the length in feet): $\text{Radius} = 6 \text{ inches} = 0.5 \text{ feet}$ 2. Now calculate the volume: $\text{Volume} = \pi * (0.5 \text{ feet})^2 * 75 \text{ feet} = \pi * 0.25 \text{ feet}^2 * 75 \text{ feet} = \pi * 18.75 \text{ cubic feet} \approx$*

3. What is a compressor safety head?

- A. A device for noise reduction
- B. A spring on the valve plate**
- C. A gauge for pressure monitoring
- D. A control mechanism for temperature

A compressor safety head refers to a component that typically includes a spring-loaded valve mechanism designed to promote safety in the operation of air compressors. The primary function of the spring on the valve plate is to regulate and protect the compressor from excessive pressure build-up. If the pressure exceeds a preset limit, the spring allows the valve to open, releasing excess air and preventing potential damage to the compressor or associated equipment. This feature is crucial in maintaining safe operational parameters and minimizing the risk of failures that can occur due to over-pressurization. Understanding the function of the safety head is essential for ensuring both operational safety and equipment longevity in respiratory medical scenarios, where reliable compressor function is vital.

4. The oil pressure gauge reading in relation to the suction pressure of a compressor should be closer to:

- A. 10 to 15 PSI higher
- B. 5 to 10 PSI higher
- C. 15 to 30 PSI higher**
- D. 30 to 45 PSI higher

The correct answer indicates that the oil pressure gauge reading should be 15 to 30 PSI higher than the suction pressure of a compressor for optimal operation. This range is crucial because it ensures that there is sufficient lubrication pressure throughout the system, especially under varying load conditions. Higher oil pressure compared to suction helps prevent scenarios where insufficient lubrication might occur, which can lead to increased wear and potential failure of the compressor components. Maintaining this differential supports effective sealing, reduces the risk of cavitation, and ensures that the compressor operates efficiently without overheating or sustaining damage due to friction. In terms of mechanical principles, the oil must be able to adequately reach all necessary parts of the compressor, and having the oil pressure well above the suction pressure creates a favorable condition for fluid dynamics within the system. This helps maintain the necessary flow of oil to crucial components, which is essential for their longevity and functional efficiency. Thus, maintaining an oil pressure that is 15 to 30 PSI higher than the suction pressure represents a well-balanced state that promotes reliable operation and extends the lifespan of the compressor.

5. How many BTUs are removed in a 30 ton cooling system per hour?

- A. 180,000 BTUs
- B. 240,000 BTUs
- C. 360,000 BTUs**
- D. 480,000 BTUs

To determine how many BTUs are removed by a 30 ton cooling system in one hour, it's important to understand the conversion between tons of cooling capacity and BTUs. In air conditioning, one ton is equivalent to the ability to remove 12,000 BTUs of heat per hour. Therefore, to find the total BTUs for a 30 ton system, you multiply the number of tons by the BTUs per ton. Specifically, for a 30 ton cooling system, the calculation would be: $30 \text{ tons} \times 12,000 \text{ BTUs/ton} = 360,000 \text{ BTUs}$. This means a 30 ton cooling system is capable of removing 360,000 BTUs of heat from an environment every hour. This aligns perfectly with the correct answer, emphasizing the importance of understanding the relationship between tonnage and BTUs in HVAC systems.

6. What is a key advantage of forced draft cooling towers over natural draft cooling towers?

- A. Lower operational costs
- B. Smaller tower size**
- C. Higher efficiency rates
- D. Reduced maintenance needs

The key advantage of forced draft cooling towers over natural draft cooling towers lies in their operational mechanics, which allow for a more controlled airflow. Forced draft cooling towers utilize fans to draw air into the system, creating a forced airflow that significantly enhances the heat exchange process. This method enables these towers to achieve better performance in terms of cooling capacity. The smaller size of forced draft cooling towers is a direct consequence of their design efficiency. Since they can effectively move air with fans, they often require less surface area compared to natural draft towers, which rely on the buoyancy of hot air to create airflow. As a result, forced draft cooling towers can be constructed with a more compact footprint, making them advantageous where space is a constraint. In contrast, while efficiency rates, maintenance needs, and operational costs are important factors in the overall evaluation of cooling tower systems, they do not directly stem from the primary advantage of airflow control that forced draft towers possess. The small physical size and compact design are what allow forced draft cooling towers to be particularly useful in applications where space and efficiency are critical factors.

7. What color must cross connections and standpipe risers be painted?

- A. Blue
- B. Green
- C. Yellow
- D. Red**

The requirement for cross connections and standpipe risers to be painted red is rooted in fire safety standards and regulations. The color red universally signifies danger or the presence of fire protection equipment. This standardization ensures that firefighters and emergency responders can quickly identify essential firefighting apparatus in an emergency situation, facilitating a prompt and efficient response. By painting cross connections and standpipe risers red, there is a clear visual cue that indicates these elements are critical to fire suppression efforts. In the chaos of a fire, having clearly marked equipment can save time and potentially lives, as firefighters can easily locate and utilize the necessary resources without confusion or delay. The red color helps emphasize the importance of these components in maintaining the effectiveness of a building's fire safety system. Overall, this color coding plays a crucial role in the operational safety and effectiveness of fire response protocols.

8. In a refrigeration system, what might cause a significant drop in compressor discharge temperature alongside high suction line pressure?

- A. A faulty compressor motor
- B. An expansion valve that is open too wide**
- C. Excessive refrigerant charge
- D. A dirty condenser coil

The scenario described involves a significant drop in compressor discharge temperature while experiencing high suction line pressure, which can be closely associated with the functioning of the expansion valve. When the expansion valve is open too wide, it allows an overabundance of refrigerant to flow into the evaporator. This excess refrigerant results in a lower temperature in the compressor discharge because the compressor is working harder but not receiving the expected heat load. In a refrigeration system, the role of the expansion valve is to regulate the amount of refrigerant entering the evaporator, where it absorbs heat and transforms from a liquid to a vapor. If the valve stays too open, it can lead to subcooling of refrigerant in the evaporator, which means that the refrigerant does not absorb enough heat, thereby allowing the discharge temperature to drop significantly. Simultaneously, due to the high flow of refrigerant and the associated dynamics, the suction line pressure can remain high, since there's an abundance of refrigerant returning to the compressor. Understanding the components and their interactions in a refrigeration cycle is crucial for diagnosing the causes of specific temperature and pressure characteristics within the system. This knowledge helps in identifying how operational problems within these components can lead to abnormal functioning of the system.

9. What determines the amount of refrigerant that flows through the orifices of an economizer?

- A. The compressor's horsepower
- B. The temperature difference between evaporator and condenser
- C. The difference between the high-side and low-side pressure**
- D. The type of refrigerant used

The amount of refrigerant that flows through the orifices of an economizer is primarily determined by the difference between the high-side and low-side pressure. In a refrigeration system, the pressure difference directly influences the rate of flow of the refrigerant. When the pressure on the high side (where the refrigerant is compressed) is significantly greater than the pressure on the low side (where the refrigerant evaporates), it creates a driving force that facilitates the movement of refrigerant through the economizer orifices. This principle is fundamental in maintaining the efficiency of the refrigeration cycle, allowing the system to optimize the cooling effect. The higher the pressure differential, the more refrigerant can be pushed through the orifices, leading to better performance of the economizer in reclaiming heat and thus improving overall energy efficiency in HVAC systems.

10. What happens to the oil collected in an oil separator?

- A. It is disposed of safely
- B. It is discarded
- C. Returned to the compressor**
- D. Used to lubricate other equipment

The role of an oil separator is to remove oil from the refrigerant mixture in a cooling system, often used in refrigeration and air conditioning systems. When the oil is collected in an oil separator, it is typically returned to the compressor. This process ensures that the compressor has a continuous supply of oil to lubricate its components, which is crucial for the efficient operation and longevity of the equipment. Returning the oil back to the compressor allows it to be reintroduced into the system, maintaining the necessary lubrication while minimizing waste and maintaining effective cooling performance. This process highlights the importance of recycling and reusing materials within HVAC systems to enhance efficiency and reduce environmental impact. Proper management of oil in this context not only ensures operational efficiency but also contributes to the overall sustainability of the system.

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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://fdnyrmo.examzify.com>

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

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