

Air Conditioning (A/C) and Heating Certification Practice Test (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. At which component does the refrigerant reach its lowest pressure and temperature?**
 - A. Compressor**
 - B. Evaporator orifice (inlet)**
 - C. Condenser**
 - D. Expansion valve**
- 2. What should homeowners check regularly to maintain their heating systems?**
 - A. Refrigerant levels**
 - B. Carbon monoxide detectors and regular furnace inspections**
 - C. Number of air filters used**
 - D. Length of ductwork**
- 3. Why is it important to have a licensed professional install HVAC equipment?**
 - A. To assess indoor air quality**
 - B. To ensure safety and compliance**
 - C. To increase system aesthetics**
 - D. To enhance system noise reduction**
- 4. Which technician correctly states the certification requirements for R-12 air-conditioning?**
 - A. A only**
 - B. B only**
 - C. Both A and B**
 - D. Neither A nor B**
- 5. If a blower motor works on high but not on low or medium, where is the problem likely found?**
 - A. the resistor block**
 - B. the blower motor itself**
 - C. both A and B**
 - D. neither A nor B**

6. What does the acronym HSPF stand for?

- A. Heating Seasonal Performance Factor**
- B. Heating System Performance Factor**
- C. Heating Seasonal Power Factor**
- D. Heating System Power Factor**

7. What is the recommended action if the A/C system is not cooling effectively?

- A. Check the air filter**
- B. Replace the refrigerant**
- C. Inspect the compressor for unusual noise**
- D. All of the above**

8. Tech A claims that evacuating an A/C system removes air and moisture, while Tech B states it removes dirt particles. Who is correct?

- A. A only**
- B. B only**
- C. Both A and B**
- D. Neither A nor B**

9. Before recovering refrigerant, what must the technician do?

- A. Heat the refrigerant**
- B. Measure the refrigerant**
- C. Filter the refrigerant**
- D. Identify the refrigerant**

10. Which statement is true about the normal operating pressures of refrigerants?

- A. A only**
- B. B only**
- C. Both A and B**
- D. Neither A nor B**

Answers

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

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Explanations

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1. At which component does the refrigerant reach its lowest pressure and temperature?

- A. Compressor**
- B. Evaporator orifice (inlet)**
- C. Condenser**
- D. Expansion valve**

The refrigerant reaches its lowest pressure and temperature at the evaporator orifice inlet. In the refrigeration cycle, as the refrigerant expands through the expansion valve, it experiences a significant drop in pressure. This reduction in pressure causes the refrigerant to cool, reaching its lowest temperature as it enters the evaporator. The evaporator is where the refrigerant absorbs heat from the surrounding environment, causing it to evaporate into a gas. In comparison, the compressor pressurizes the refrigerant, raising both its pressure and temperature, while the condenser allows the refrigerant to release heat, which results in a higher temperature and pressure as it transitions back into a liquid. Therefore, the evaporator orifice inlet is the point in the cycle where the refrigerant is at its lowest energy state, making it essential for the cooling process.

2. What should homeowners check regularly to maintain their heating systems?

- A. Refrigerant levels**
- B. Carbon monoxide detectors and regular furnace inspections**
- C. Number of air filters used**
- D. Length of ductwork**

Homeowners should prioritize checking carbon monoxide detectors and conducting regular furnace inspections to maintain their heating systems effectively. Carbon monoxide is a colorless, odorless gas that can be produced by malfunctioning heaters, making it essential for safety. Regular inspections of the furnace ensure that it operates efficiently and safely, as they allow for the identification and rectification of potential issues before they escalate into serious problems. Maintaining functional carbon monoxide detectors is critical because they alert homeowners to dangerous gas leaks, safeguarding against poisoning. Additionally, regular furnace inspections help to ensure that heating components are clean, functional, and in good repair, promoting more efficient heating, reducing energy consumption, and prolonging the life of the system. Although refrigerant levels are crucial in air conditioning systems, they are not relevant for heating systems. The number of air filters used can affect air quality but is not as significant a safety concern or essential maintenance task for heating systems as the condition of carbon monoxide detectors and furnace inspections. Length of ductwork is also not a routine maintenance item, as its structural integrity and design are generally set upon installation. Regularly checking detectors and conducting inspections directly impacts the performance and safety of the heating system, making this the best choice for homeowners.

3. Why is it important to have a licensed professional install HVAC equipment?

- A. To assess indoor air quality**
- B. To ensure safety and compliance**
- C. To increase system aesthetics**
- D. To enhance system noise reduction**

Having a licensed professional install HVAC equipment is crucial for ensuring safety and compliance with local codes, regulations, and industry standards. Proper installation involves understanding the technical aspects of the HVAC system, including electrical connections, refrigerant handling, and mechanical system integration. Licensed professionals have the necessary training and knowledge to perform these tasks correctly, minimizing risks such as electrical hazards, gas leaks, or improper installation that can lead to equipment failure. In addition, compliance with local building codes is essential since these codes are in place to protect both the occupants and the property. A licensed technician will follow these guidelines, ensuring that the system operates safely and efficiently. This careful adherence helps to prevent future issues, such as increased energy costs, code violations, or even potential legal liabilities that could arise from improper installations. By trusting a licensed professional, homeowners can have peace of mind that their HVAC system has been installed correctly and safely.

4. Which technician correctly states the certification requirements for R-12 air-conditioning?

- A. A only**
- B. B only**
- C. Both A and B**
- D. Neither A nor B**

In the context of certification requirements for R-12 air-conditioning systems, the correct response reflects the regulations that govern the handling of refrigerants. To work on systems containing R-12, technicians must be certified under the rules established by the Environmental Protection Agency (EPA). This certification typically involves proving knowledge and understanding of safe handling practices, compliance with environmental regulations, and the implications of releasing refrigerants into the atmosphere. When both A and B affirm the necessary requirements for certification, it indicates that each statement contributes valid information that together encapsulates the entire scope of what is necessary. This collaboration ensures that technicians not only have the theoretical knowledge but also the practical guidance needed to avoid environmental hazards associated with R-12. Thus, the inclusion of both A and B signifies a comprehensive acknowledgment of the certification standards in place for R-12 air-conditioning, leading to the conclusion that both are correct. Choosing this option illustrates an understanding that certification is multifaceted and should encompass various necessary aspects for effective and responsible practice in the industry.

5. If a blower motor works on high but not on low or medium, where is the problem likely found?

- A. the resistor block**
- B. the blower motor itself**
- C. both A and B**
- D. neither A nor B**

When a blower motor operates properly on high speed but fails to function on low or medium speeds, the issue typically lies within the resistor block. The resistor block is responsible for controlling the voltage supplied to the blower motor at different speeds. When the motor is running at high speed, it receives full voltage, bypassing the resistor. However, when it is intended to run at lower speeds, the current must pass through the resistor block, which reduces voltage. If the blower works on high but not on low or medium, it indicates that the blower motor itself is functioning correctly, as it operates at the highest setting. Thus, the malfunction can be attributed to a failure in the resistor block, which is not providing the necessary reduced voltage for the lower speed settings. This reasoning supports the conclusion that the resistor block is the likely source of the problem.

6. What does the acronym HSPF stand for?

- A. Heating Seasonal Performance Factor**
- B. Heating System Performance Factor**
- C. Heating Seasonal Power Factor**
- D. Heating System Power Factor**

The acronym HSPF stands for Heating Seasonal Performance Factor. This metric is specifically used to measure the efficiency of heat pumps during the heating season. HSPF indicates how much heating output a heat pump provides for each unit of energy it consumes, effectively showing its energy efficiency over an entire heating season. Understanding HSPF is critical for professionals in the HVAC field, as it helps inform customers about the potential energy savings and performance of different heat pump options. A higher HSPF value means a more efficient heating operation, which can lead to lower energy bills and reduced environmental impact. Recognizing the precise meaning of HSPF is essential for making informed decisions regarding heating systems, ensuring that installations meet energy efficiency standards and customer expectations.

7. What is the recommended action if the A/C system is not cooling effectively?

- A. Check the air filter**
- B. Replace the refrigerant**
- C. Inspect the compressor for unusual noise**
- D. All of the above**

When an A/C system is not cooling effectively, it's crucial to take a systematic approach to diagnose the issue. Each of the recommended actions plays a vital role in ensuring optimal performance of the air conditioning system. Checking the air filter is essential because a clogged or dirty air filter can restrict airflow, causing the system to work harder and reducing its cooling efficiency. Regular maintenance of the air filter is recommended to ensure unobstructed air circulation, which is crucial for proper cooling. Inspecting the compressor for unusual noise is also an important step in troubleshooting, as the compressor is the heart of the air conditioning system. Unusual noises can indicate internal problems that may affect the cooling performance and overall functionality of the unit. Replacing the refrigerant may be necessary if there is a leak or if the refrigerant levels are low. Low refrigerant levels hinder the system's ability to absorb and transfer heat, directly impacting its capacity to cool effectively. Since all of these actions contribute to identifying and resolving cooling problems in an A/C system, multiple checks and inspections are recommended to pinpoint and rectify the issue accurately. Therefore, choosing the action that encompasses all these checks represents a comprehensive approach to troubleshooting A/C performance issues.

8. Tech A claims that evacuating an A/C system removes air and moisture, while Tech B states it removes dirt particles. Who is correct?

- A. A only**
- B. B only**
- C. Both A and B**
- D. Neither A nor B**

Evacuating an A/C system is a crucial process that primarily serves the purpose of removing non-condensables, such as air and moisture, from the system. When air enters the A/C system, it can lead to several issues, including reduced efficiency, corrosion of components, and potential system failure due to moisture leading to acid formation. Thus, the primary benefit of evacuation is indeed to create a vacuum that eliminates these undesirable elements, ensuring the system can function optimally. While Tech B's claim about removing dirt particles does touch on a valid concern in A/C maintenance, it is not the primary focus of the evacuation process itself. Filtering out dirt and debris is typically handled through regular system maintenance and by using appropriate filters, not during evacuation. Therefore, the assertion made by Tech A accurately reflects the key objectives of the evacuation process in an air conditioning system.

9. Before recovering refrigerant, what must the technician do?

- A. Heat the refrigerant**
- B. Measure the refrigerant**
- C. Filter the refrigerant**
- D. Identify the refrigerant**

Identifying the refrigerant before recovering it is crucial for several reasons. Different refrigerants have distinct properties, pressures, and recovery methods. Using the wrong method for a particular type of refrigerant can lead to system damage, safety hazards, or environmental harm. Knowing the specific refrigerant allows technicians to apply the appropriate recovery techniques and equipment, ensuring compliance with safety regulations and environmental guidelines. Furthermore, refrigerants are regulated due to their potential impact on the ozone layer and global warming; identifying the refrigerant helps in adhering to proper disposal procedures. By accurately determining the refrigerant type, a technician ensures that the recovery process is safe, efficient, and compliant with industry standards.

10. Which statement is true about the normal operating pressures of refrigerants?

- A. A only**
- B. B only**
- C. Both A and B**
- D. Neither A nor B**

To determine the true statement regarding the normal operating pressures of refrigerants, it is essential to understand the fundamental properties of refrigerants and how their behavior varies under different temperature and pressure conditions. Normal operating pressures of refrigerants can vary significantly based on the specific type of refrigerant and the application in which it is used. Typically, each refrigerant has a defined range of pressures that correspond to its saturation temperature. These pressures reflect how much heat the refrigerant can absorb or reject and are critical for the efficient operation of HVAC systems. In this context, if both statements A and B were found to be misleading or inaccurate regarding these operating pressures, it aligns with the correct choice of stating that neither A nor B is true. This suggests that the information presented in both statements A and B does not accurately reflect the established principles regarding refrigerant pressures in normal operating conditions, leading to the conclusion that the correct assessment of the situation is that neither statement holds validity. Understanding the behavior of refrigerants under pressure is crucial for HVAC technicians, as it influences system performance, efficiency, and safety in operational contexts.

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://acandheating.examzify.com>

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

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