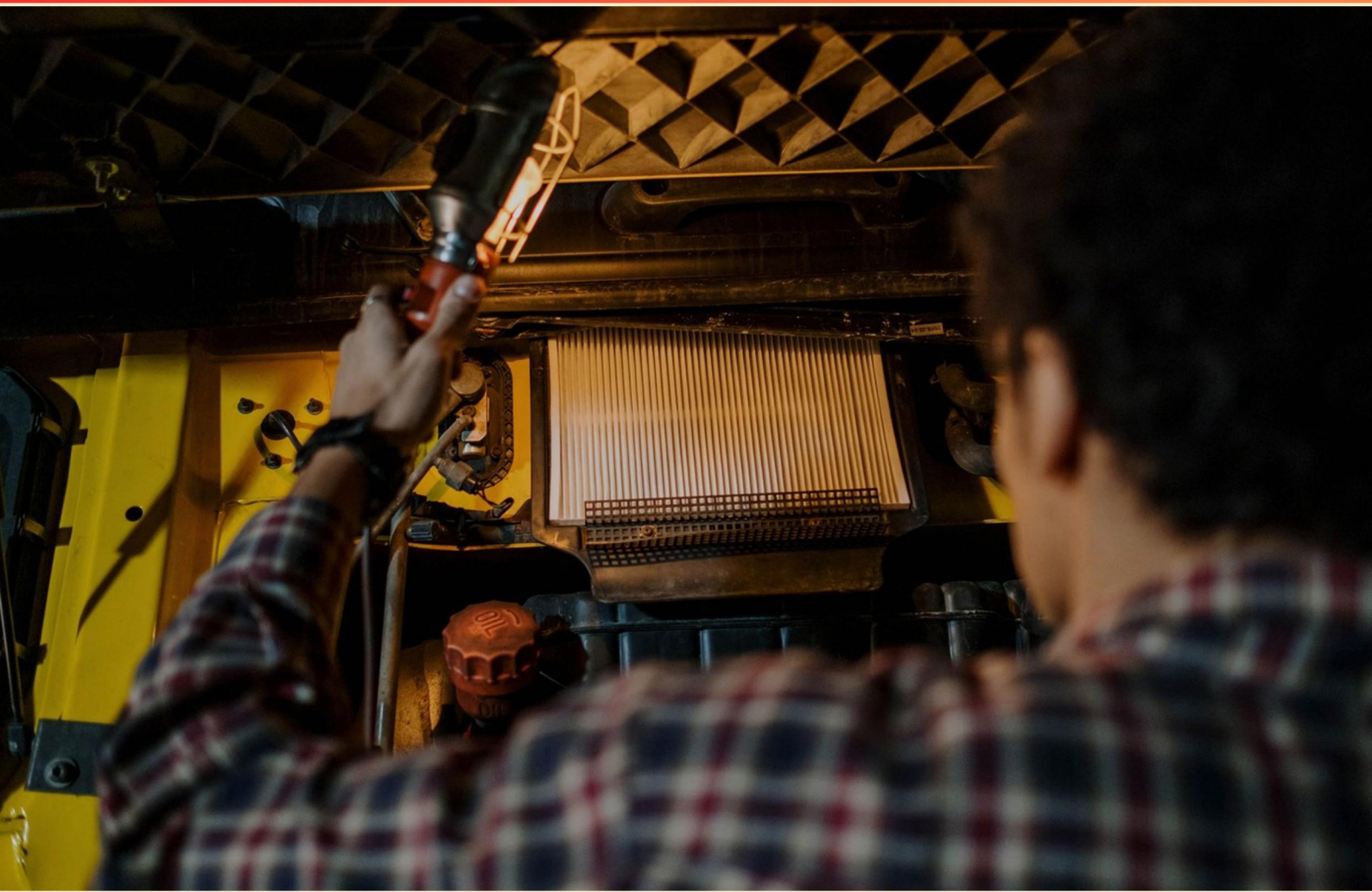


AIR CONDITIONING CERTIFICATION (A-02) PRACTICE EXAM (SAMPLE)

STUDY GUIDE



**SAMPLE STUDY GUIDE
WITH LIMITED QUESTIONS**

**VISIT US ONLINE FOR
THE FULL VERSION STUDY GUIDE**

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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 is the primary function of a condenser coil in an air conditioning system?**
 - A. To distribute cool air throughout the building
 - B. To release heat absorbed by the refrigerant
 - C. To filter air before it enters the system
 - D. To compress refrigerant into a liquid state
- 2. How does shading a home impact air conditioning effectiveness?**
 - A. It increases heat gain
 - B. It has no effect on efficiency
 - C. It reduces cooling loads
 - D. It increases energy consumption
- 3. At what temperature will water vaporize in a 28 in hg vacuum?**
 - A. 0 degrees Fahrenheit
 - B. 10 degrees Fahrenheit
 - C. 20 degrees Fahrenheit
 - D. 30 degrees Fahrenheit
- 4. What is a common sign of a low refrigerant charge in a system?**
 - A. Increased system pressure
 - B. Frost build-up on evaporator coils
 - C. Bubbles in the sight glass
 - D. Cooling inefficiency
- 5. Which of the following statements about an evaporator is NOT true?**
 - A. It removes heat from the air passing over the coils.
 - B. It de-humidifies the air passing over the coil.
 - C. It may require defrosting when operating below 32 F.
 - D. It is not affected by dirt or frost build-up.
- 6. What is subcooling in relation to refrigerant in an air conditioning system?**
 - A. Heating the refrigerant above its saturation temperature
 - B. Cooling the refrigerant below its saturation temperature after condensation
 - C. A method to compress the refrigerant
 - D. The level of refrigerant present in the system

- 7. Which type of gauge is used to measure a vacuum of 500 microns?**
- A. Mechanical vacuum gauge
 - B. Liquid column manometer
 - C. Electronic vacuum gauge
 - D. Bourdon gauge
- 8. What is one of the primary reasons for leak checking a refrigeration system?**
- A. To ensure it meets industry standards.
 - B. To prevent contamination.
 - C. To guarantee it holds refrigerant effectively.
 - D. To optimize energy consumption.
- 9. What should be done to ensure proper operation when mounting a thermostatic expansion valve sensor bulb?**
- A. It should be left uninsulated
 - B. It should be tightly clamped
 - C. It should be twice the size of the suction line
 - D. It should be insulated from ambient temperature
- 10. If a 30-pound cylinder of reclaimed R-12 refrigerant has been stored overnight at 70°F, what should the pressure in the cylinder be approximately?**
- A. 50.3 Psig
 - B. 70.2 Psig
 - C. 80.5 Psig
 - D. 90.1 Psig

Answers

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

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Explanations

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1. What is the primary function of a condenser coil in an air conditioning system?

- A. To distribute cool air throughout the building
- B. To release heat absorbed by the refrigerant**
- C. To filter air before it enters the system
- D. To compress refrigerant into a liquid state

The primary function of a condenser coil in an air conditioning system is to release heat absorbed by the refrigerant. During the refrigeration cycle, the refrigerant absorbs heat from the indoor environment and carries it to the condenser coil, which is located outside. As the hot refrigerant gas enters the condenser coil, it passes through a series of fins and tubes, where it is cooled by the outside air being blown over the coil, typically by a fan. This process causes the refrigerant to release its heat to the outside environment and change its state from a gas to a liquid. This heat exchange is essential for the system's cooling process to be effective; it allows the refrigerant to prepare for re-entry into the evaporator coil, where it will absorb heat from the indoor air again. The other options reflect different functions that components in an air conditioning system serve but do not describe the role of the condenser coil. For example, distributing cool air refers to the function of ducts and air handlers, filtering air involves air filters and other purification equipment, and compressing refrigerant relates to the compressor's task, which is distinct from the condenser's heat release function.

2. How does shading a home impact air conditioning effectiveness?

- A. It increases heat gain
- B. It has no effect on efficiency
- C. It reduces cooling loads**
- D. It increases energy consumption

Shading a home plays a critical role in the effectiveness of air conditioning by reducing the cooling loads. When shade is provided, whether through vegetation, awnings, or architectural elements, it limits the amount of direct sunlight that penetrates into the home. This reduction in sunlight decreases the indoor temperature, which in turn alleviates the workload on the air conditioning system. With less heat entering the home, the air conditioning unit does not have to work as hard to maintain a comfortable indoor environment. This leads to a more efficient cooling process, allowing for lower energy consumption and increased overall efficiency of the system. By minimizing the heat gain inside the building, shading directly contributes to a decrease in cooling requirements, making it an effective strategy in managing indoor temperatures and enhancing air conditioning performance.

3. At what temperature will water vaporize in a 28 in hg vacuum?

- A. 0 degrees Fahrenheit
- B. 10 degrees Fahrenheit**
- C. 20 degrees Fahrenheit
- D. 30 degrees Fahrenheit

To understand at what temperature water will vaporize in a 28 inHg vacuum, it's essential to consider the relationship between pressure and boiling point. As atmospheric pressure decreases, the boiling point of water also decreases. At standard atmospheric pressure (about 29.92 inHg), water boils at 212 degrees Fahrenheit. However, in a vacuum of 28 inHg, the pressure is lower than standard atmospheric conditions. This reduction in pressure causes water to vaporize at a much lower temperature. At 28 inHg, the boiling point of water is approximately 10 degrees Fahrenheit. This is because the lower pressure allows water molecules to escape into the vapor phase at a lower kinetic energy, which corresponds to a lower temperature. Therefore, in a vacuum of 28 inHg, water will vaporize at around 10 degrees Fahrenheit. Understanding these principles of vaporization in relation to pressure is crucial for anyone involved in fields such as HVAC or refrigeration, where gas laws and phase changes of substances are fundamental.

4. What is a common sign of a low refrigerant charge in a system?

- A. Increased system pressure
- B. Frost build-up on evaporator coils
- C. Bubbles in the sight glass**
- D. Cooling inefficiency

A common sign of a low refrigerant charge in an air conditioning system is the presence of bubbles in the sight glass. The sight glass is a visual inspection point where the technician can observe the flow of refrigerant. When the refrigerant level is low, the refrigerant may not fully condense back into a liquid state in the sight glass, leading to the formation of bubbles. A steady stream of bubbles indicates that the system is not adequately charged with refrigerant, which can impair the cooling process and affect system performance. In a fully charged system, the sight glass should ideally show a clear, uninterrupted view of liquid refrigerant. The presence of bubbles serves as a crucial diagnostic tool that helps technicians quickly identify refrigerant issues, allowing for prompt maintenance or repairs to restore system efficiency.

5. Which of the following statements about an evaporator is NOT true?

- A. It removes heat from the air passing over the coils.
- B. It de-humidifies the air passing over the coil.
- C. It may require defrosting when operating below 32 F.
- D. It is not affected by dirt or frost build-up.**

The statement that an evaporator is not affected by dirt or frost build-up is not true. In reality, evaporators can be adversely affected by dirt and frost accumulation. Dirt can block the airflow over the coils, which diminishes the efficiency of heat transfer and can cause the system to work harder, potentially leading to failure or increased energy costs. Similarly, frost build-up, particularly when the evaporator operates in low-temperature conditions, can also impede airflow and reduce the evaporator's ability to effectively absorb heat. Regular maintenance, including cleaning and checking for frost, is essential to ensure optimal performance of the evaporator. The other statements accurately reflect the functions and limitations of an evaporator: it indeed removes heat from the air, it de-humidifies the air by cooling it below its dew point, and it may require defrosting in low-temperature conditions to maintain efficiency.

6. What is subcooling in relation to refrigerant in an air conditioning system?

- A. Heating the refrigerant above its saturation temperature
- B. Cooling the refrigerant below its saturation temperature after condensation**
- C. A method to compress the refrigerant
- D. The level of refrigerant present in the system

Subcooling refers to the process where the refrigerant in an air conditioning system is cooled below its saturation temperature after it has undergone condensation. When refrigerant vapor is condensed into liquid form, it exists at a specific saturation temperature under certain pressure conditions. By further cooling this liquid refrigerant, it becomes subcooled, which increases the efficiency of the air conditioning system. Subcooling is important because it helps ensure that only liquid refrigerant enters the expansion valve, preventing any vapor from potentially disrupting the system's operation. A higher degree of subcooling can improve system performance, enhance compressor efficiency, and provide more reliable operation as it reduces the chances of refrigerant flash gas entering the evaporator. The other choices do not accurately describe subcooling. Heating the refrigerant above its saturation temperature pertains to superheating, not subcooling. Compression refers to the phase where the refrigerant is pressurized to change its pressure and temperature characteristics, which is distinct from cooling. The level of refrigerant present in the system does not define subcooling; instead, it relates to the system's refrigerant charge. Thus, the chosen answer accurately encapsulates the concept of subcooling in an air conditioning context.

7. Which type of gauge is used to measure a vacuum of 500 microns?

- A. Mechanical vacuum gauge
- B. Liquid column manometer
- C. Electronic vacuum gauge**
- D. Bourdon gauge

The correct answer is the electronic vacuum gauge. This type of gauge is specifically designed to measure very low pressures, often down to single-digit microns, making it suitable for vacuum applications in systems where ultra-high vacuum needs to be assessed. At 500 microns, the vacuum is considered high vacuum, which requires precise measurement for various processes, such as when evacuating air conditioning systems or performing advanced laboratory experiments. Electronic vacuum gauges use sensors that can detect minute pressure changes and convert these readings into electrical signals that are easily interpreted. Their accuracy and sensitivity make them ideal for applications where reliable vacuum measurement is crucial. Mechanical vacuum gauges and liquid column manometers are typically not suitable for measuring such low vacuum levels. Mechanical gauges can become less accurate at lower pressures, and liquid column manometers are limited by the physical properties of the fluid used, which may not accurately measure in the low micron range. Bourdon gauges are primarily used for measuring higher pressures and would not perform adequately in the sub-atmospheric range. Thus, for accurate measurements at 500 microns, an electronic vacuum gauge is the preferred choice.

8. What is one of the primary reasons for leak checking a refrigeration system?

- A. To ensure it meets industry standards.
- B. To prevent contamination.
- C. To guarantee it holds refrigerant effectively.**
- D. To optimize energy consumption.

One of the primary reasons for leak checking a refrigeration system is to guarantee it holds refrigerant effectively. Refrigerants are essential for the cooling process, and any leaks can lead to a loss of refrigerant, which not only affects the performance of the system but can also compromise its efficiency and increase operational costs. Ensuring that the refrigeration system is airtight allows it to function optimally, maintaining the desired temperature and reducing the need for frequent servicing or refrigerant refills. Effective leak checking helps to ensure that the system remains charged with the correct amount of refrigerant, which is crucial for effective cooling and energy efficiency.

9. What should be done to ensure proper operation when mounting a thermostatic expansion valve sensor bulb?

- A. It should be left uninsulated
- B. It should be tightly clamped
- C. It should be twice the size of the suction line
- D. It should be insulated from ambient temperature**

When mounting a thermostatic expansion valve (TXV) sensor bulb, it is essential to insulate it from ambient temperature to ensure accurate temperature readings and proper system operation. The TXV sensor bulb is designed to respond to the temperature of the refrigerant in the suction line. If it is exposed to external temperatures, such as room air or other heat sources, it may not accurately sense the refrigerant temperature, leading to improper regulation of the refrigerant flow. This misreading could cause inefficient cooling, compressor issues, or even system failure due to improper pressure levels being maintained. Insulating the sensor bulb creates a controlled environment that allows the bulb to effectively monitor the temperature of the refrigerant without interference from outside thermal influences. This precise temperature measurement is crucial for the TXV to function correctly and maintain the desired set point for cooling efficiency.

10. If a 30-pound cylinder of reclaimed R-12 refrigerant has been stored overnight at 70°F, what should the pressure in the cylinder be approximately?

- A. 50.3 Psig
- B. 70.2 Psig**
- C. 80.5 Psig
- D. 90.1 Psig

When dealing with refrigerants like R-12, it is essential to understand the relationship between temperature and pressure, as outlined in refrigerant pressure-temperature charts. For R-12 refrigerant, at a storage temperature of around 70°F, the corresponding pressure of the refrigerant in a cylinder can be determined. At 70°F, the saturated vapor pressure of R-12 is approximately 70.2 Psig. This pressure reflects the equilibrium pressure of the vapor in the cylinder when the refrigerant is in a stable state at that temperature. Therefore, if the cylinder has stabilized overnight at this temperature, the pressure inside should closely match this expected value. This understanding is crucial for technicians when handling refrigerants, as incorrect pressure readings may indicate issues like overcharging or improper storage conditions, which can compromise system performance or safety.

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://airconditioninga02.examzify.com>

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

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