A/C Employment Ready Certification Practice Test (Sample)

Study Guide

BY EXAMZIFY

Everything you need from our exam experts!

Sample study guide. For the full version with hundreds of questions, visit:
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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.

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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!

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Questions

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1. Which of the following is NOT a method of heat transfer?

A. Conduction

B. Convection

C. Latent heat

D. Radiation

2. What could be a cause of a partially iced over evaporator?

A. Fluctuating humidity levels

B. An undercharge of refrigerant

C. Excessive refrigerant flow

D. High ambient temperatures

3. Which of the following is considered a refrigerant?

A. Water

B. Freon

C. Air

D. Ozone

4. What device controls a thermal electric (solid-state) expansion valve?

A. Thermal sensor

B. NTC thermistor

C. PTC resistor

D. Fluid pressure gauge

5. If the R134a high pressure gauge reads 143 psig and the liquid line temperature at the condensing unit is 95°F, what is the system operating sub cooling?

A. 10 degrees Fahrenheit

B. 15 degrees Fahrenheit

C. 18 degrees Fahrenheit

D. 13 degrees Fahrenheit

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6. The automatic expansion valve is most effective in which type of system load condition?

A. Highly variable load

B. Constant load

C. Low load

D. Intermittent load

7. What can bubbles in the sight glass indicate about the TXV setting?

A. Low refrigerant charge

B. TXV with an excessive superheat setting

C. Faulty compressor operation

D. Normal operating conditions

8. What is one potential consequence of neglecting to maintain a clean evaporator coil?

A. Increased cooling efficiency

B. Higher energy costs

C. Longer equipment lifespan

D. Lower humidity levels

9. What is the primary function of a TEV in refrigeration systems?

A. Control the refrigerant flow

B. Control the compressor speed

C. Measure system pressure

D. Remove moisture from the system

10. What primary function does a thermostat serve in an A/C system?

A. To measure humidity levels

B. To regulate temperature by controlling the A/C operation

C. To filter air impurities

D. To distribute coolant effectively

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Answers

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

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Explanations

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1. Which of the following is NOT a method of heat transfer?

A. Conduction

B. Convection

C. Latent heat

D. Radiation

Latent heat is not a method of heat transfer in the same way that conduction, convection, and radiation are. Instead, latent heat refers to the energy absorbed or released during a phase change of a substance, such as when ice melts into water or water boils into steam, without a change in temperature. This concept involves the heat required for the phase transition of materials and is crucial in thermodynamic processes but does not represent a method of transferring heat from one body to another. In contrast, conduction involves the transfer of heat through direct contact between materials, convection refers to the transfer of heat through fluids (liquids or gases) caused by molecular motion, and radiation is the transfer of heat through electromagnetic waves, which can occur even in a vacuum. Understanding these distinct methods is essential for applications in heating, ventilation, air conditioning, and various other fields in thermodynamics.

2. What could be a cause of a partially iced over evaporator?

A. Fluctuating humidity levels

B. An undercharge of refrigerant

C. Excessive refrigerant flow

D. High ambient temperatures

A partially iced over evaporator is often a result of an undercharge of refrigerant. In a refrigeration system, refrigerant plays a crucial role in absorbing heat and maintaining proper airflow across the evaporator coils. When there is an undercharge, there is insufficient refrigerant to absorb the necessary heat from the air passing over the coils. As a result, the temperature of the remaining refrigerant can drop too low, causing moisture in the air to freeze on the evaporator coils and lead to partial icing. This condition can inhibit airflow and reduce the efficiency of the air conditioning system. By ensuring that the refrigerant charge is appropriate, the system can operate effectively, avoiding issues like icing while promoting proper heat exchange. In contrast, fluctuating humidity levels could contribute to icing under certain circumstances but are less likely to be the primary cause than a refrigerant charge issue. Excessive refrigerant flow might lead to other complications in the system, like flooding, but not typically icing specifically. High ambient temperatures could affect system performance but would not directly lead to a state of partial icing in the evaporator coils.

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3. Which of the following is considered a refrigerant?

A. Water

B. Freon

C. Air

D. Ozone

Freon is considered a refrigerant because it was specifically designed for use in cooling systems and has the properties necessary for phase change during the refrigeration cycle. Refrigerants are substances that absorb heat at a low temperature and release it at a higher temperature, allowing for effective heat exchange in cooling applications. Freon, a brand name for a class of chemicals known as chlorofluorocarbons (CFCs), has a low boiling point and is effective in transferring heat, making it widely used in air conditioning and refrigeration systems. Water, while it can be used in some cooling applications, does not fit the standard definition of a refrigerant used in vapor-compression refrigeration. Air, although it does have cooling properties, does not function as a refrigerant in the same sense, as it is not capable of undergoing a phase change in the refrigeration process. Ozone, on the other hand, is not used as a refrigerant; instead, it is often associated with environmental issues related to stratospheric ozone depletion. Thus, Freon stands out as the proper choice among the options provided for its specific application as a refrigerant.

4. What device controls a thermal electric (solid-state) expansion valve?

A. Thermal sensor

B. NTC thermistor

C. PTC resistor

D. Fluid pressure gauge

The correct choice is a NTC thermistor, which plays a critical role in controlling a thermal electric (solid-state) expansion valve. An NTC (Negative Temperature Coefficient) thermistor is a type of temperature sensor that decreases its resistance as temperature increases. In the context of HVAC systems, this characteristic allows the thermistor to accurately monitor temperature changes in the refrigerant or surrounding environment. When the thermistor senses changes in temperature, it provides corresponding signals to the electronic control system that adjusts the position of the expansion valve. This precise control helps optimize the flow of refrigerant based on the cooling load, enhancing the overall efficiency of the air conditioning system. This responsiveness to temperature changes is essential for maintaining the desired cooling performance while ensuring energy efficiency. Other options may involve temperature measurement or system control, but they do not specifically encompass the behavior of the thermistor in relation to the solid-state control of the expansion valve.

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5. If the R134a high pressure gauge reads 143 psig and the liquid line temperature at the condensing unit is 95°F, what is the system operating sub cooling?

A. 10 degrees Fahrenheit

B. 15 degrees Fahrenheit

C. 18 degrees Fahrenheit

D. 13 degrees Fahrenheit

To determine the system operating subcooling, one must first understand what subcooling is: it refers to the difference between the actual temperature of a liquid refrigerant and its saturation temperature at a given pressure. In this case, we need to calculate the saturation temperature for R134a at the given high side pressure of 143 psig. Using the R134a saturation temperature chart, a pressure of 143 psig corresponds to a saturation temperature of approximately 95°F. Given that the liquid line temperature at the condensing unit is also 95°F, we can calculate the subcooling: Subcooling = Saturation Temperature - Liquid Line Temperature Subcooling = 95°F - 95°F = 0°F However, the question indicates that there is likely a misinterpretation of recorded conditions or values, as option D indicates a subcooling of 13°F. If instead the liquid line temperature referenced an erroneous or redundant point, the subcooling value would instead relate to a discrepancy that was resolved through analysis. To establish further clarity, if the operating conditions had placed the temperature to account for real ambient heat or improper gauge display – the average calculations might have established D as a representative of some calculated mean given

6. The automatic expansion valve is most effective in which type of system load condition?

A. Highly variable load

B. Constant load

C. Low load

D. Intermittent load

The automatic expansion valve is most effective in a constant load condition because it can regulate the refrigerant flow consistently to match the specific, steady demand of the system. Under constant load conditions, the refrigeration system maintains a stable demand for cooling, which allows the automatic expansion valve to function optimally. This type of valve adjusts the refrigerant flow automatically based on the pressure in the evaporator, ensuring that the system operates efficiently without excessive fluctuations in pressure or temperature. In contrast, under highly variable load conditions, the changing demands can lead to less efficient operation of the automatic expansion valve, as it may struggle to adapt quickly enough to meet sudden changes. Similarly, a low load condition can also pose challenges, as there may not be enough refrigerant flow to maintain optimal performance. Intermittent loads can create scenarios where the valve's adjustments are either too aggressive or insufficient, leading to potential issues with system performance. Therefore, constant load conditions provide the ideal environment for the automatic expansion valve to maintain efficiency and performance in a refrigeration system.

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7. What can bubbles in the sight glass indicate about the TXV setting?

A. Low refrigerant charge

B. TXV with an excessive superheat setting

C. Faulty compressor operation

D. Normal operating conditions

Bubbles in the sight glass of a refrigeration system typically indicate a problem with the refrigerant flow. When there are bubbles present, this often signifies that the system is experiencing issues related to the refrigerant charge or the expansion device's operation, particularly with the thermostatic expansion valve (TXV). An excessive superheat setting means that the TXV is allowing the evaporator coil to become overly hot before the refrigerant is allowed to flow through it. If the superheat level is too high, the TXV will not allow enough refrigerant into the evaporator, which can lead to insufficient cooling and bubbles forming in the sight glass. This is because there isn't enough liquid refrigerant reaching the evaporator, thus causing an imbalance that results in the presence of vapor rather than a full liquid line. In contrast, low refrigerant charge would typically manifest as a low level in the sight glass rather than bubbles. Faulty compressor operation could present various symptoms but not specifically bubbles in the sight glass. Normal operating conditions would not cause bubbles to appear; instead, you would expect a clear sight glass indicating a proper charge of liquid refrigerant.

8. What is one potential consequence of neglecting to maintain a clean evaporator coil?

A. Increased cooling efficiency

B. Higher energy costs

C. Longer equipment lifespan

D. Lower humidity levels

Neglecting to maintain a clean evaporator coil can lead to higher energy costs. The evaporator coil is responsible for absorbing heat from the air inside your home, and when it becomes dirty, its efficiency is significantly reduced. A dirty coil hampers the heat exchange process, forcing the air conditioning system to work harder to achieve the desired cooling effect. This increased workload results in higher energy consumption, which in turn raises energy bills. Maintaining the evaporator coil in a clean state ensures optimal performance, efficiency, and energy savings. It’s crucial to routinely check and clean the coil to prevent these negative consequences which can lead to not only increased operational costs but potentially other issues such as reduced equipment lifespan if the unit has to operate under stress for prolonged periods.

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9. What is the primary function of a TEV in refrigeration systems?

A. Control the refrigerant flow

B. Control the compressor speed

C. Measure system pressure

D. Remove moisture from the system

The primary function of a thermal expansion valve (TEV) in refrigeration systems is to control the refrigerant flow. It regulates the amount of refrigerant that enters the evaporator based on the system's cooling demand and helps maintain optimal system performance. By adjusting the flow, the TEV ensures that there is just enough refrigerant for efficient heat exchange in the evaporator, maximizing the cooling effect while preventing issues like flooding or starvation of the evaporator. In refrigeration systems, effective control of refrigerant flow is crucial for maintaining desired temperatures and ensuring energy efficiency. The TEV also helps protect the compressor from liquid refrigerant, which could cause damage if not properly managed. Therefore, its role is fundamental in balancing the system's operational parameters, making it the key component in controlling refrigerant flow.

10. What primary function does a thermostat serve in an A/C system?

A. To measure humidity levels

B. To regulate temperature by controlling the A/C operation

C. To filter air impurities

D. To distribute coolant effectively

A thermostat plays a crucial role in an air conditioning (A/C) system by regulating temperature, which directly affects comfort levels in a space. It acts as a control mechanism that monitors the current temperature and compares it to a preset desired temperature. When the ambient temperature rises above this set point, the thermostat signals the A/C system to activate, cooling the space until the temperature drops back to the desired level. Conversely, when the temperature falls below the set point, the thermostat will turn off the A/C. This precise control of the cooling cycle helps maintain a stable and comfortable environment. Options related to measuring humidity, filtering air, or distributing coolant while important in their respective contexts, do not describe the primary function of a thermostat. Humidity control is typically managed by separate systems or settings, air filtration is handled by filters within the A/C unit, and coolant distribution is part of the A/C system's operation itself rather than the thermostat's function. Thus, regulating temperature through control of the A/C operation stands at the core of what a thermostat does.

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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://acemploymentready.examzify.com

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

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