HVAC Controls 26408-23 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

1. The recommended installed height for a thermostat is

A. 3 ft

B. 5 ft

C. 4 ft

D. 6 ft

2. Which scenario typically triggers recommissioning of HVAC controls?

A. After significant changes to occupancy, usage patterns, or equipment, requiring re-evaluation.

B. Immediately after initial commissioning is complete.

C. Only when there is a minor maintenance issue.

D. Annually regardless of usage.

3. What is the primary objective of alarm management in a building automation system (BAS)?

A. Silence alarms during off hours to reduce nuisance.

B. Automatically fix faults without human intervention.

C. Detect abnormal conditions, alert operators, log events, and support quick remediation.

D. Optimize only energy use without regard to safety.

4. What is the purpose of a lockout relay in a comfort cooling control circuit?

A. An Automatic Restart Of The HVAC Equipment

B. Overheating Condition Protection

C. Reverse Cycle Prevention

D. Short Circuit Protection

5. The differential in an automatic-changeover thermostat is _____.

A. the time interval between cycles

B. the maximum temperature deviation allowed

C. the difference between the cut-in and cut-out points of the thermostat

D. the range between heating and cooling setpoints

6. What distinguishes commissioning from recommissioning in HVAC controls?

A. Commissioning and recommissioning are terms for equipment replacement.

B. Commissioning verifies design intent and system performance at startup; recommissioning re-evaluates after changes or occupancy shifts.

C. Commissioning is for existing buildings; recommissioning is for new buildings.

D. Commissioning only focuses on energy efficiency; recommissioning only on comfort.

7. Which fossil fuel is most widely used?

A. Coal

B. Oil

C. Natural gas

D. Propane

8. Which thermostat terminal is most commonly used to energize the reversing valve in a heat pump?

A. Y

B. A

C. C

D. O

9. In the electrical control circuit of a cooling-only system, the outdoor fan motor _____.

A. runs whenever the thermostat calls for heat

B. runs whenever the compressor is on

C. runs only when outdoor sensor is high

D. never runs during cooling mode

10. If the IFR operates and the fan starts when the thermostat fan switch is set to On, and the relay operates when the switch is set to Auto, the most likely cause is a defective _____.

A. thermostat

B. blower motor

C. capacitor

D. relay

Answers

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

Explanations

1. The recommended installed height for a thermostat is

A. 3 ft

B. 5 ft

C. 4 ft

D. 6 ft

Placing the thermostat at about five feet above the floor balances reading representative room temperature with ease of use. At this height the sensor is less affected by floor-level drafts or radiant heat from nearby vents or sunlight hitting the wall, so the thermostat responds to the overall space rather than a localized spot. It also keeps the unit within comfortable reach for most occupants to read and adjust without uncomfortable strain. If it's placed much lower, floor air currents or proximity to warm surfaces can make readings unrepresentative and cause unnecessary cycling. If it's placed too high, readability and manual access suffer, which can lead to less frequent or inconsistent adjustments. That's why five feet is the standard height for a thermostat.

2. Which scenario typically triggers recommissioning of HVAC controls?

A. After significant changes to occupancy, usage patterns, or equipment, requiring re-evaluation.

B. Immediately after initial commissioning is complete.

C. Only when there is a minor maintenance issue.

D. Annually regardless of usage.

Recommissioning is prompted when the way a space is used or the equipment in the system changes enough that the existing control setup no longer matches actual needs. After significant changes to occupancy, usage patterns, or equipment, a re-evaluation and adjustment of control sequences, sensor calibrations, and setpoints helps restore the intended performance, comfort, and energy efficiency. For example, adding or repurposing spaces, shifting work hours, or installing new HVAC hardware can alter loads and peak demands, so tuning the controls ensures they respond correctly to the new conditions. This isn't the same as the initial commissioning (which is the first-time setup), nor is it only for minor maintenance, nor is it an automatic annual requirement without regard to actual changes.

3. What is the primary objective of alarm management in a building automation system (BAS)?

A. Silence alarms during off hours to reduce nuisance.

B. Automatically fix faults without human intervention.

C. Detect abnormal conditions, alert operators, log events, and support quick remediation.

D. Optimize only energy use without regard to safety.

Alarm management in a BAS is about promptly detecting abnormal conditions, alerting the right operators with clear, actionable information, logging events for traceability, and supporting rapid remediation. This combination ensures safety, reduces downtime, and provides data for troubleshooting and performance analysis. Silencing alarms or trying to fix faults automatically without human review can hide real issues or lead to improper actions, and focusing solely on energy optimization overlooks safety and reliability concerns. The best approach is to have timely detection, clear communication, thorough documentation, and assistance that helps responders fix issues quickly.

4. What is the purpose of a lockout relay in a comfort cooling control circuit?

A. An Automatic Restart Of The HVAC Equipment

B. Overheating Condition Protection

C. Reverse Cycle Prevention

D. Short Circuit Protection

The lockout relay acts as a safety gate in the control circuit, preventing the compressor from starting when a fault or unsafe condition exists. When a fault occurs, the relay locks out the start circuit so the equipment cannot energize. Once the fault is cleared or the control resets, the relay releases and the system can start automatically in response to a cooling call. This automatic restart capability is what the relay is designed to provide, ensuring the equipment comes back on without manual intervention once it's safe. This isn't primarily about protecting against overheating (that's handled by thermal sensors and cutoffs), nor about preventing a heat pump from cycling into a reverse cycle, nor about protecting against a short circuit (that's handled by fuses or breakers). The lockout relay's main role is to gate starts and allow automatic restart when conditions return to safe.

5. The differential in an automatic-changeover thermostat is _____.

A. the time interval between cycles

B. the maximum temperature deviation allowed

C. the difference between the cut-in and cut-out points of the thermostat

D. the range between heating and cooling setpoints

In automatic-changeover controls, the thermostat uses a small temperature hysteresis to decide when to switch between heating and cooling. This hysteresis, called the differential, is the difference between the two switching temperatures—the cut-in point when the system turns on, and the cut-out point when it turns off. This gap sets how far the temperature must swing before the thermostat changes state, preventing rapid cycling. So the differential is specifically the difference between the cut-in and cut-out temperatures. The other ideas—cycle time, a maximum deviation, or the gap between the heating and cooling setpoints (the deadband)—describe related aspects but not this switching-range definition.

6. What distinguishes commissioning from recommissioning in HVAC controls?

A. Commissioning and recommissioning are terms for equipment replacement.

B. Commissioning verifies design intent and system performance at startup; recommissioning re-evaluates after changes or occupancy shifts.

C. Commissioning is for existing buildings; recommissioning is for new buildings.

D. Commissioning only focuses on energy efficiency; recommissioning only on comfort.

Understanding the difference between commissioning and recommissioning comes down to timing and purpose. Commissioning is the process of ensuring that a building's HVAC controls deliver what was designed during initial startup. It involves validating the control logic, sequences of operation, sensor accuracy, setpoints, and how equipment coordinate together to meet both comfort and energy goals as the system first operates. Recommissioning, on the other hand, happens after changes or shifts in how a space is used. When occupancy patterns change, new equipment or retrofits are added, or performance issues arise, recommissioning re-evaluates and tunes the controls to the current conditions. This helps restore or improve performance and energy efficiency in the existing building. So the distinction is that commissioning verifies design intent at startup, while recommissioning re-evaluates and adjusts after changes or shifts in usage.

7. Which fossil fuel is most widely used?

A. Coal

B. Oil

C. Natural gas

D. Propane

Natural gas is used most widely because it combines broad availability with easy distribution, high efficiency, and relatively clean combustion. It can be delivered through an extensive network of pipelines to homes, businesses, and power plants, making it convenient for heating, cooking, and generating electricity. Modern gas-fired power plants, especially combined-cycle designs, extract a lot of energy from the fuel efficiently, which helps keep costs down and usage high. In HVAC, gas furnaces and boilers are common for their fast heat response and good efficiency, contributing to widespread adoption. Propane serves areas without natural gas service but doesn't match the reach of a large pipeline network. Coal and oil remain important in certain applications, but they face higher emissions and infrastructure limitations, which reduces their overall use compared with natural gas.

8. Which thermostat terminal is most commonly used to energize the reversing valve in a heat pump?

A. Y

B. A

C. C

D. O

The reversing valve in a heat pump is controlled by a dedicated thermostat terminal that supplies 24 VAC to energize the valve. On most systems, that terminal is the O terminal. When cooling is requested, applying power to O energizes the valve and shifts refrigerant flow to the cooling position. In some brands, the valve is energized in heating using the B terminal, but that setup is less common. The C terminal is just the common power return for the thermostat, not used to energize the valve, and Y only controls the compressor contactor. So the terminal most commonly used to energize the reversing valve is O.

9. In the electrical control circuit of a cooling-only system, the outdoor fan motor _____.

A. runs whenever the thermostat calls for heat

B. runs whenever the compressor is on

C. runs only when outdoor sensor is high

D. never runs during cooling mode

In cooling, the condenser outdoor unit must reject heat from the refrigerant. The outdoor fan moves ambient air across the condenser coil to remove that heat, enabling the refrigerant to condense properly. Because this heat rejection is required for the cooling cycle, the outdoor fan is wired to run whenever the compressor relay is energized. So when cooling is commanded, the compressor runs and the fan runs at the same time, and both stop when the compressor stops. This is why the best description is that the outdoor fan runs whenever the compressor is on.

10. If the IFR operates and the fan starts when the thermostat fan switch is set to On, and the relay operates when the switch is set to Auto, the most likely cause is a defective _____.

A. thermostat

B. blower motor

C. capacitor

D. relay

In this scenario, you're testing how the fan is commanded in two different thermostat settings. When the thermostat fan switch is set to On, the blower starts, which shows the blower motor, wiring, and the relay circuit for the blower are functioning. When the switch is set to Auto, the thermostat must energize the blower relay only when there's a heating or cooling call. If the relay does engage in Auto but the fan still doesn't run, the problem is in the thermostat's Auto fan control or its wiring, not in the blower circuit itself. Other components—like a bad blower motor or a failing capacitor—would typically cause the fan to fail in both On and Auto modes, and a faulty relay would affect both modes or the control path to the relay. Since On works but Auto doesn't point to a defective thermostat.

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://hvaccont2640823.examzify.com

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