

NOCTI HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) PRACTICE TEST (SAMPLE) STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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. After brazing a joint in a very tight location, which instrument would be used to determine if the joint is properly brazed?**
 - A. Magnifying Glass
 - B. Endoscope
 - C. Inspection Mirror
 - D. Bright Flashlight

- 2. Which tool is used to check the gas pressure in a refrigeration system?**
 - A. Multimeters
 - B. Thermometers
 - C. Manometers
 - D. Oscilloscopes

- 3. Which hydrocarbon constitutes the largest share of natural gas?**
 - A. Ethane
 - B. Propane
 - C. Methane
 - D. Butane

- 4. The type of pipe commonly used for condensation drainage on central air conditioning system is**
 - A. Copper
 - B. Polyvinyl chloride (PVC)
 - C. ABS
 - D. CPVC

- 5. What is the tool used to create internal threads?**
 - A. Die
 - B. Reamer
 - C. Tap
 - D. Chaser

- 6. Which refrigerant is historically associated with older central air systems and is a CFC?**
- A. R-134a
 - B. R-22
 - C. R-12
 - D. R-410A
- 7. In a sealed refrigeration system, which two properties tend to rise and fall together?**
- A. Humidity and Temperature
 - B. Pressure and Temperature
 - C. Volume and Humidity
 - D. Density and Temperature
- 8. What is the cylinder color code for R-502?**
- A. Purple
 - B. Green
 - C. Blue
 - D. Red
- 9. The statement "The exertion of pressure on a substance at constant temperature increases its volume in proportion to the increase in pressure" is:**
- A. True
 - B. False
 - C. It depends
 - D. Cannot be determined
- 10. Connections should be permanently connected with_____ on drainage piping assemblies that uses PVC piping**
- A. Glue specified for PVC pipe
 - B. Tape
 - C. Solder
 - D. Crimp fittings

Answers

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

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Explanations

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1. After brazing a joint in a very tight location, which instrument would be used to determine if the joint is properly brazed?

- A. Magnifying Glass
- B. Endoscope
- C. Inspection Mirror**
- D. Bright Flashlight

Visual inspection of a brazed joint in a tight space relies on seeing the joint without disassembling components. An inspection mirror lets you view the joint from angles you can't directly see, reflecting light and allowing you to check the brazed fillet for proper wetting, even coverage, and the absence of gaps or voids. The other tools aren't as effective for this specific task: a magnifying glass can magnify but won't help you look around corners; an endoscope is more specialized equipment not usually at hand for basic HVAC brazing inspections; a bright flashlight lights the area but doesn't improve your line of sight. So, the inspection mirror is the best choice for verifying a properly brazed joint in a very tight location.

2. Which tool is used to check the gas pressure in a refrigeration system?

- A. Multimeters
- B. Thermometers
- C. Manometers**
- D. Oscilloscopes

Measuring gas pressure in a refrigeration system is done with a device that compares the refrigerant pressure to a fluid column. That device is a manometer. It shows the pressure as a column height of liquid, giving you either gauge pressure (relative to atmospheric pressure) or absolute pressure depending on the type used. In HVAC work, you use it to read suction and discharge pressures to evaluate proper charge and performance. Multimeters measure electrical values, thermometers measure temperature, and oscilloscopes display electrical waveforms—none of these directly measure refrigerant pressure, so they aren't suitable for checking gas pressure in the system.

3. Which hydrocarbon constitutes the largest share of natural gas?

- A. Ethane
- B. Propane
- C. Methane**
- D. Butane

Methane is the largest component of natural gas. As the simplest alkane, CH₄, it stays gaseous under typical surface conditions and is produced in the greatest quantities in natural gas reservoirs, so it dominates the composition. In most natural gas streams, methane makes up the majority of the hydrocarbon content, often well above 70% and commonly reaching around 80–90%. The heavier hydrocarbons—ethane, propane, and butane—occur in much smaller amounts and are frequently separated out during processing to prevent condensation in pipelines and to provide feedstocks for other products. That's why methane is the dominant hydrocarbon in natural gas.

4. The type of pipe commonly used for condensation drainage on central air conditioning system is

- A. Copper
- B. Polyvinyl chloride (PVC)
- C. ABS
- D. CPVC**

Condensation drainage requires a pipe that won't corrode from condensate and can handle the somewhat warm water that forms as the coil operates. CPVC, a chlorinated version of PVC, has a higher temperature rating and strong chemical resistance, which makes it a reliable choice for drain lines in many central air systems. It also allows easy solvent-weld joints for a durable, leak-free run. Copper is more expensive and can suffer from sweating and expansion, ABS is less universally approved for drainage in some codes, and standard PVC would work but CPVC offers added temperature tolerance, which is why it's commonly specified.

5. What is the tool used to create internal threads?

- A. Die
- B. Reamer
- C. Tap**
- D. Chaser

A tap is the tool used to create internal threads because it is designed to cut threads inside a hole. When you insert a tap and turn it, the coaxial cutting flutes remove material as they progress, forming the screw threads that a mating bolt or screw will follow. Different taps are used in sequence: a taper tap to start the threads, then a plug tap to continue, and sometimes a bottoming tap to reach the full depth. Lubrication helps the tap cut smoothly and reduces breakage. A die, by contrast, forms external threads on rods or bolts, not inside holes. A reamer is used to size and smooth a drilled hole but does not cut threads. A thread chaser is for cleaning and lightly repairing threads that already exist, rather than creating new ones from scratch.

6. Which refrigerant is historically associated with older central air systems and is a CFC?

- A. R-134a
- B. R-22
- C. R-12**
- D. R-410A

Older central air systems used refrigerants that contained chlorine, which is a hallmark of chlorofluorocarbons that deplete the ozone layer. R-12 is the classic CFC that was widely used in those older systems. Because of environmental concerns, R-12 was phased out and replaced with refrigerants that do not contain chlorine, such as R-134a. The other refrigerants listed belong to different classes: R-134a is an HFC without chlorine, R-22 is an HCFC with chlorine but not a CFC and is being phased out as well, and R-410A is an HFC blend used in newer equipment.

7. In a sealed refrigeration system, which two properties tend to rise and fall together?

- A. Humidity and Temperature
- B. Pressure and Temperature**
- C. Volume and Humidity
- D. Density and Temperature

In a sealed refrigeration system, the refrigerant is confined with essentially fixed volume and mass, so adding heat raises the refrigerant's temperature. As temperature increases, the molecules move more vigorously and collide more, which raises the pressure inside the closed container. When heat is removed, both temperature and pressure fall together. Humidity isn't a primary factor for the refrigerant in a sealed system, and volume is fixed, so it doesn't rise with temperature. Density tends to decrease when temperature rises (at constant volume), so it doesn't rise in step with temperature. The two properties that move up and down together are pressure and temperature.

8. What is the cylinder color code for R-502?

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

Color coding helps technicians identify refrigerants at a glance to avoid mixing them. R-502 is identified by purple, which is the color assigned to that refrigerant in many standard cylinder labeling schemes. Always double-check the cylinder label for the exact refrigerant name, but the purple color is the conventional marker for R-502.

9. The statement "The exertion of pressure on a substance at constant temperature increases its volume in proportion to the increase in pressure" is:

- A. True
- B. False**
- C. It depends
- D. Cannot be determined

At constant temperature, gases follow Boyle's Law: pressure and volume are inversely related. When you increase the pressure on a fixed amount of gas, the gas is compressed and its volume decreases, not increases. The relationship is $V \propto 1/P$ for a given amount of gas and temperature. So the idea that increasing pressure makes the volume rise contradicts this behavior. A practical example is squeezing a gas in a piston: pushing to raise pressure makes the piston move in and the volume drop. Real gases can deviate a bit at very high pressures, but the basic relationship still means volume goes down as pressure goes up.

10. Connections should be permanently connected with_____ on drainage piping assemblies that uses PVC piping

A. Glue specified for PVC pipe

B. Tape

C. Solder

D. Crimp fittings

Permanent joints in drainage PVC piping are made with the solvent cement specified for PVC. This cement, often used with a PVC primer, chemically softens the surfaces and fuses the pipe to the fitting, creating a strong, leak-free connection that is designed to be permanent. Tape isn't suitable for PVC drainage joints because it can fail under pressure and won't provide a true bond; solder is for metal piping; crimp fittings aren't the standard method for typical PVC drain systems. Using the PVC-specific glue ensures compatibility and a proper, code-compliant seal.

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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://noctihvac.examzify.com>

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

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