

UA SERVICE, TRAINING, AND RECOGNITION (STAR) PRACTICE TEST (SAMPLE) STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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. If you want to replace a defective capacitor but the replacements you find do not have enough capacitance, you can increase their capacitance by:**
 - A. connecting two or more capacitors in series
 - B. connecting two or more capacitors in parallel
 - C. increasing the voltage with a potential relay
 - D. reducing the motor current with a current relay
- 2. The boiling point of refrigerant is the same as which temperature?**
 - A. Condenser pressure
 - B. Compressor suction pressure
 - C. Condensing temperature
 - D. Evaporator pressure
- 3. In the relationship between horsepower and watts, which option is correct?**
 - A. 3.413 watts
 - B. 1,000 watts
 - C. 3,143 watts
 - D. 746 watts
- 4. The external equalizer line used with a thermostatic expansion valve is to compensate for which phenomenon?**
 - A. Air friction over the evaporator
 - B. Refrigerant pressure drop across the valve orifice
 - C. Refrigerant friction through the evaporator
 - D. Superheat
- 5. A refrigeration system has a hand-operated needle valve for the refrigerant expansion device. If refrigeration load and suction pressure remain constant, a decrease in condensing temperature will:**
 - A. Be automatically compensated for
 - B. Result in reduced refrigerant flow unless the valve is opened
 - C. Increase available pressure difference
 - D. Result in greater refrigerant flow

- 6. During defrost cycles in heat pump operation, which component is energized to aid heating?**
- A. Progressive fan speed control
 - B. Defrost timer
 - C. Strip heaters
 - D. Compressor off switch
- 7. Name two types of bearings used in centrifugal pumps.**
- A. Sleeve bearings and Bronze bearings
 - B. Sleeve bearings and Bushings
 - C. Sleeve bearings and Ball bearings
 - D. Ball bearings and Bushings
- 8. For leak testing piping that carries ammonia, which test method is mentioned?**
- A. Ammonia sniffer
 - B. Halogen torch
 - C. Soap bubbles
 - D. Electronic leak detector
- 9. One watt is equivalent to**
- A. 1,000 Btu
 - B. 3,413 Btu
 - C. 3.413 Btu
 - D. 746 Btu
- 10. What device protects a vacuum steam heating system's vacuum pump from creating too deep a vacuum?**
- A. Relief valve
 - B. Control line
 - C. Vacuum switch
 - D. Vacuum breaker

Answers

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

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Explanations

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1. If you want to replace a defective capacitor but the replacements you find do not have enough capacitance, you can increase their capacitance by:

- A. connecting two or more capacitors in series
- B. connecting two or more capacitors in parallel**
- C. increasing the voltage with a potential relay
- D. reducing the motor current with a current relay

Capacitances add when you connect capacitors in parallel, so the total capacitance becomes the sum of the individual values. This lets you compensate for not having a single capacitor with enough capacitance by combining several capacitors to reach or exceed the required value, while still across the same supply voltage. If you connected them in series, the effective capacitance would actually decrease, which would not help here. The other ideas about increasing voltage or modifying current don't change the capacitance at all. So parallel connections are the practical way to raise the total capacitance.

2. The boiling point of refrigerant is the same as which temperature?

- A. Condenser pressure
- B. Compressor suction pressure
- C. Condensing temperature**
- D. Evaporator pressure

At the heart of this is the idea of saturation temperature: for a given pressure, liquid and vapor are in equilibrium at a single temperature. That temperature is what you call the boiling point when the liquid is boiling, and the condensing temperature when the vapor is condensing. In a refrigeration cycle, the evaporator pressure sets the boiling (evaporation) temperature, while the condenser pressure sets the condensing temperature. Since both are the same saturation temperature on the pressure-temperature curve for the refrigerant, the boiling point is the same as the condensing temperature.

3. In the relationship between horsepower and watts, which option is correct?

- A. 3.413 watts
- B. 1,000 watts
- C. 3,143 watts
- D. 746 watts**

Power is the rate of doing work, and horsepower is a traditional unit used for engines, while watts are the SI unit. The mechanical definition ties horsepower to a precise rate of work: 1 horsepower equals 550 foot-pounds of work every second. When you convert that to watts, you get about 745.7 watts, which is commonly rounded to 746 watts. So the correct choice reflects this standard conversion: 1 hp $\approx$ 746 W. The other numbers don't match the conversion (1,000 W is about 1.34 hp, and the others are around 4 hp), so they're not the right equivalent.

4. The external equalizer line used with a thermostatic expansion valve is to compensate for which phenomenon?

- A. Air friction over the evaporator
- B. Refrigerant pressure drop across the valve orifice
- C. Refrigerant friction through the evaporator**
- D. Superheat

The external equalizer line is used to account for pressure losses inside the evaporator caused by refrigerant flowing through it. As the refrigerant moves along the evaporator coils, friction creates a pressure drop from the inlet to the outlet. If the valve sensed pressure upstream, it would meter refrigerant based on a higher pressure than actually present at the evaporator outlet, leading to improper flow and unstable superheat. By delivering the evaporator outlet pressure through the external equalizer, the TXV responds to the true evaporating pressure where the refrigerant exits the coil, allowing it to meter more accurately and maintain the desired superheat.

5. A refrigeration system has a hand-operated needle valve for the refrigerant expansion device. If refrigeration load and suction pressure remain constant, a decrease in condensing temperature will:

- A. Be automatically compensated for
- B. Result in reduced refrigerant flow unless the valve is opened**
- C. Increase available pressure difference
- D. Result in greater refrigerant flow

The key idea is how the expansion device gets its driving force. Flow through a hand-operated needle valve depends on the pressure difference between the high-pressure side (condenser) and the low-pressure side (evaporator), plus how open the valve is. If the condensing (high-side) temperature falls while the suction pressure stays the same, the high-side pressure drops. That reduces the pressure difference across the valve. With a fixed valve setting, this smaller driving force means less refrigerant can flow through the valve. Since the load and suction conditions aren't changing, the system won't automatically increase flow—you'd need to open the valve more to allow more refrigerant to pass. So, refrigerant flow will be reduced unless the valve is opened.

6. During defrost cycles in heat pump operation, which component is energized to aid heating?

- A. Progressive fan speed control
- B. Defrost timer
- C. Strip heaters**
- D. Compressor off switch

Electric strip heaters provide supplemental heat during defrost. When a heat pump goes into defrost, the outdoor coil is heated by reversing the refrigerant flow, which reduces the heat available to warm the indoor space. The electric strip heaters in the indoor air handler are energized to add heat to the airflow, helping maintain comfortable indoor temperatures while frost is being melted on the outdoor coil. The other components don't supply heat: fan speed control only adjusts airflow, the defrost timer manages defrost cycles, and the compressor off switch simply stops the compressor.

7. Name two types of bearings used in centrifugal pumps.

- A. Sleeve bearings and Bronze bearings
- B. Sleeve bearings and Bushings
- C. Sleeve bearings and Ball bearings**
- D. Ball bearings and Bushings

Bearings in centrifugal pumps fall into two broad families: sleeve bearings, which are plain bearings that rely on a lubricating film to separate surfaces and absorb radial loads, and ball bearings, which are rolling-element bearings that dramatically reduce friction and handle higher speeds with better precision. Sleeve bearings provide durable, quiet operation at moderate speeds and loads, while ball bearings enable higher rotational speeds, tighter alignment, and longer life under demanding conditions. Many pump designs use both types to support the rotor effectively—sleeve bearings for main radial support and ball bearings at the ends to take thrust and improve overall efficiency. This combination covers a wide range of operating conditions you're likely to encounter in centrifugal pumps.

8. For leak testing piping that carries ammonia, which test method is mentioned?

- A. Ammonia sniffer
- B. Halogen torch
- C. Soap bubbles**
- D. Electronic leak detector

The test method being described is a visual leak test using soap bubbles. In this approach, the piping is pressurized to a specified test pressure and a soap solution is brushed onto joints, flanges, and welds. If there is any leak, escaping gas creates bubbles at the leak site, providing an obvious, localized indication of where a seal or connection is failing. This method is practical for ammonia piping because it is simple, inexpensive, and doesn't rely on specialized sensors or calibration. It also gives immediate, site-specific feedback, which helps you identify and fix leaks quickly. Ammonia sniffers detect ammonia in the surrounding air and aren't a direct test of the pipe's integrity; they indicate presence of gas in the area rather than pinpointing a leak path in a system. A halogen torch is intended for detecting leaks in halogenated compounds and isn't suitable for ammonia. An electronic leak detector may sense ammonia, but it can be less reliable for localized pipe leaks and requires proper calibration and sensor maintenance. The soap bubble method provides a clear, direct indication of leaks in the piping itself, making it the best fit for this scenario.

9. One watt is equivalent to

- A. 1,000 Btu
- B. 3,413 Btu
- C. 3.413 Btu**
- D. 746 Btu

The main idea here is converting between power units. A watt measures how much energy is transferred per second, while a Btu is a unit of energy. To compare them you convert to Btu per hour, which is a power unit in the British system. Calculate it step by step: 1 watt = 1 joule per second. One Btu is about 1055.06 joules. So 1 watt equals $(1 \text{ J/s}) \div (1055.06 \text{ J}) \approx 0.0009478 \text{ Btu per second}$. Multiply by 3600 seconds per hour to get Btu per hour: $0.0009478 \times 3600 \approx 3.412 \text{ Btu/h}$, which is typically written as about 3.413 Btu/h. So the value 3.413 Btu (interpreted as Btu per hour) is the correct match for one watt. The other options represent different quantities: they're either too large or refer to energy amounts rather than a rate.

10. What device protects a vacuum steam heating system's vacuum pump from creating too deep a vacuum?

- A. Relief valve
- B. Control line
- C. Vacuum switch
- D. Vacuum breaker**

In vacuum steam heating systems, guarding against creating a vacuum that's too deep is essential to prevent damage to piping and the pump. A vacuum breaker serves this role by venting air into the system automatically when the vacuum level becomes too strong. This limits how low the pressure can drop, protecting the pump from excessive suction, reducing the risk of implosion, and keeping the system operating safely. A relief valve handles overpressure, not deep vacuum. A control line is part of the signaling or control circuitry and doesn't by itself limit vacuum. A vacuum switch detects how deep the vacuum is and may trigger actions, but it doesn't automatically vent the system. So the device that best protects the vacuum pump from too deep a vacuum is the vacuum breaker.

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://uastar.examzify.com>

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

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