

UA Service, Training, and Recognition (STAR) 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

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- 1. 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**

- 2. 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**

- 3. For a voltage measurement, the meter is connected to a circuit:**
 - A. In Series**
 - B. In Parallel**
 - C. Open Circuit**
 - D. Closed Circuit**

- 4. A typical maximum evaporator pressure drop is:**
 - A. 0 psig**
 - B. 1 psig**
 - C. 2 psig**
 - D. 4 psig**

- 5. Suction-line filter-driers are fitted with gauge connections to determine what maintenance action?**
 - A. Perform Accurate Superheat Calculations**
 - B. Change the Filter-Drier**
 - C. Prevent Flash Gas in the Drier**
 - D. Avoid Excessive Compressor Load**

- 6. Which of the following would happen if the vent port on a gas regulator is plugged?**
- A. Nothing; this is normal operation**
 - B. Outlet pressure will be reduced**
 - C. Outlet pressure will increase**
 - D. Inlet pressure will be reduced**
- 7. The voltage rating of motor controller holding coils is typically:**
- A. Not important if the control circuit is isolated**
 - B. Not necessarily the same as the motor supply voltage**
 - C. Always less than the motor supply voltage**
 - D. Always the same as the motor supply voltage**
- 8. In starting up a chilled water system, the first piece of equipment to start should be the:**
- A. compressor if it has a built-in oil pump**
 - B. chilled water pump**
 - C. compressor oil pump**
 - D. condenser water pump**
- 9. A vacuum breaker is installed between equipment and a steam trap to**
- A. Prevent condensate from draining after shutdown**
 - B. Allow condensate to drain after shutdown**
 - C. Trip on low pressure cutoff**
 - D. Allow a vacuum to be pulled on the system.**
- 10. The amount of heat removed by evaporating one pound of water in an evaporative cooling tower is approximately:**
- A. 5 btu**
 - B. 1 btu**
 - C. 1000 btu**
 - D. 100 btu**

Answers

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

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Explanations

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1. 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.

2. 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: $1 \text{ hp} \approx 746 \text{ W}$. 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.

3. For a voltage measurement, the meter is connected to a circuit:

- A. In Series
- B. In Parallel**
- C. Open Circuit
- D. Closed Circuit

Voltmeter placement for measuring voltage is across the component or the two points where you want to know the potential difference, so it is connected in parallel. A voltmeter has very high input impedance, meaning it draws almost no current, which keeps the rest of the circuit undisturbed while you read the voltage. If you connected a voltmeter in series, its own resistance would become part of the current path, altering currents and voltages in the circuit and giving an inaccurate reading. An open circuit would break the current path, preventing a meaningful voltage reading, and a closed circuit describes the normal operating state rather than how the measurement device should be connected. Connecting in parallel places the meter across the points of interest and measures the true voltage difference without significantly affecting the circuit.

4. A typical maximum evaporator pressure drop is:

- A. 0 psig**
- B. 1 psig**
- C. 2 psig**
- D. 4 psig**

Pressure drop across the evaporator is the difference in refrigerant pressure from the coil inlet to the coil outlet, caused by friction and flow restrictions as the refrigerant moves through the coil. Keeping this drop small is important because it helps maintain adequate suction pressure for the compressor and ensures even evaporation of the refrigerant across the coil, preserving cooling capacity and efficiency. A typical maximum evaporator pressure drop is about 2 psig. This value reflects a balance: enough flow resistance to ensure proper distribution and heat transfer, but not so much that it significantly reduces refrigerant flow or capacity. An unrealistically zero drop isn't practical because some friction is always present; a much smaller number like 1 psig is possible in some designs but 2 psig is a common target for a practical maximum; a 4 psig drop would be high and could impair performance.

5. Suction-line filter-driers are fitted with gauge connections to determine what maintenance action?

- A. Perform Accurate Superheat Calculations**
- B. Change the Filter-Drier**
- C. Prevent Flash Gas in the Drier**
- D. Avoid Excessive Compressor Load**

Suction-line gauge connections are there to tell you when the filter-drier needs replacement. The filter-drier removes moisture and particulates from refrigerant, and over time the desiccant can become saturated or the element can clog, causing a change in suction pressure or an abnormal pressure differential across the drier. When the readings indicate degraded performance or the moisture indicator shows saturation, it signals that the drier should be changed to maintain proper flow and protect the system. Other readings like superheat calculations, flash-gas prevention, or compressor load aren't directly determined by these suction-line gauges in this maintenance context.

6. Which of the following would happen if the vent port on a gas regulator is plugged?

- A. Nothing; this is normal operation**
- B. Outlet pressure will be reduced**
- C. Outlet pressure will increase**
- D. Inlet pressure will be reduced**

When a regulator operates, the vent path lets the internal chamber pressure escape to the atmosphere so the diaphragm can stay balanced against the spring and regulate the downstream (outlet) pressure at the set point. If the vent port is plugged, the regulator can't relieve pressure from that internal chamber. The trapped pressure pushes the diaphragm toward the spring, narrowing the flow to the outlet and causing the downstream pressure to drop. The inlet (supply) pressure stays effectively the same, but the regulator can't maintain the usual outlet pressure, so it is reduced.

7. The voltage rating of motor controller holding coils is typically:

- A. Not important if the control circuit is isolated**
- B. Not necessarily the same as the motor supply voltage**
- C. Always less than the motor supply voltage**
- D. Always the same as the motor supply voltage**

Holding torque comes from the current flowing through the coil, not from applying a fixed voltage. In motor controllers, the driver often regulates current (with PWM or a current-limiting strategy) rather than simply applying the motor supply voltage. Because of this, the voltage you use to drive the holding coil is chosen to achieve the needed current and torque, while staying within the coil's insulation and design limits. That means the coil's voltage rating does not have to match the motor's supply voltage; it may be different depending on coil resistance, desired hold current, and heat management.

8. In starting up a chilled water system, the first piece of equipment to start should be the:

- A. compressor if it has a built-in oil pump**
- B. chilled water pump**
- C. compressor oil pump**
- D. condenser water pump**

When starting a chilled water system, establishing proper flow on the water side is the priority. The chilled water pump must come on first because it circulates water through the evaporator and through the building coils to absorb heat. If the refrigerant is driven by the compressor without adequate water flow, the evaporator can overheat, the refrigerant may not absorb heat effectively, and the compressor can suffer from high discharge temperatures, potential lubrication problems, or damage from lack of heat transfer. Starting the chilled water pump first ensures there is immediate, continuous cooling in the evaporator once the compressor starts. The other pieces—oil pumping for the compressor, the condenser water pump, and the compressor itself—are important, but without water flow, initiating the refrigeration cycle is unsafe and inefficient. Once water flow is established, you can bring the compressor online and then start the condenser water pump to reject heat.

9. A vacuum breaker is installed between equipment and a steam trap to

- A. Prevent condensate from draining after shutdown**
- B. Allow condensate to drain after shutdown**
- C. Trip on low pressure cutoff**
- D. Allow a vacuum to be pulled on the system.**

The key idea is preventing a vacuum in the condensate line after a steam system shuts down so condensate can drain properly. When the line and equipment cool, the pressure can drop below atmospheric, creating a vacuum that resists or stops drainage. A vacuum breaker opens to the atmosphere when a vacuum starts to form, letting air into the line and breaking that negative pressure. Once the vacuum is broken, condensate can flow out and drain toward the trap or drain, enabling effective drainage after shutdown. It's not about pulling a vacuum or preventing drainage—it's about admitting air to stop vacuum so drainage can occur smoothly.

10. The amount of heat removed by evaporating one pound of water in an evaporative cooling tower is approximately:

- A. 5 btu**
- B. 1 btu**
- C. 1000 btu**
- D. 100 btu**

When water changes from liquid to vapor, it absorbs latent heat without a rise in temperature. In evaporative cooling towers you remove heat as this water evaporates, so the heat removed per pound of water is essentially the latent heat of vaporization. For water this value is about 970 BTU per pound at the usual boiling/evaporation conditions, so it's common to approximate it as 1000 BTU per pound. That's why evaporating one pound of water removes roughly 1000 BTU of heat. The smaller numbers (a few BTU or a hundred BTU) would imply tiny temperature changes or sensible heat only, which doesn't reflect the latent heat involved in evaporation. To estimate total cooling, multiply the mass of water evaporated (in pounds) by about 1000 BTU per pound.

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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://uastar.examzify.com>

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

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