

KANSAS MECHANICAL JOURNEYMAN PRACTICE TEST (SAMPLE)

STUDY GUIDE



**SAMPLE STUDY GUIDE
WITH LIMITED QUESTIONS**

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THE FULL VERSION STUDY GUIDE**

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Table of Contents

Copyright	1
Table of Contents	2
Introduction	3
How to Use This Guide	4
Questions	5
Answers	8
Explanations	10
Next Steps	16

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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. What is an important factor to consider when installing an HVAC system?**
 - A. The color of the external units
 - B. Size and layout of the building
 - C. Popularity of the brand
 - D. The number of windows in the building

- 2. In a mechanical room of dimensions 12' x 14' x 8' containing appliances rated at 110,000 BTU/h input, does it have sufficient combustion air?**
 - A. Yes, it does
 - B. No, it does not
 - C. Yes, depending on the ventilation
 - D. It may need additional ventilation

- 3. Above ground gas piping installed outdoors must be elevated above the grade by at least how many inches?**
 - A. 2 inches
 - B. 3 1/2 inches
 - C. 4 inches
 - D. 5 inches

- 4. Why are safety protocols vital when handling refrigerants?**
 - A. To maximize refrigerant efficiency
 - B. To prevent exposure to harmful chemicals and hazardous situations
 - C. To reduce refrigerant consumption
 - D. To ensure competitive pricing for customers

- 5. How many standard round pipes are required to provide combustion air for a 150,000 BTU/h input rated furnace in a confined space?**
 - A. 1 5" pipe
 - B. 1 6" pipe
 - C. 2 7" pipes
 - D. 2 8" pipes

- 6. Is oxygen an approved medium for pressure testing a gas line?**
- A. True
 - B. False
 - C. Only in emergencies
 - D. Only for underground pipes
- 7. What is one of the main benefits of maintaining a clean air filter in an HVAC system?**
- A. It improves aesthetic appearance
 - B. It enhances energy efficiency and air quality
 - C. It reduces operational cost of the unit
 - D. It increases heater lifespan
- 8. What could indicate a malfunctioning blower motor?**
- A. Consistent airflow during operation
 - B. Inconsistent airflow or unusual noises during operation
 - C. Increased energy consumption with no change in airflow
 - D. Periodic maintenance checks
- 9. What common maintenance task can extend the life of an HVAC system?**
- A. Regularly changing filters
 - B. Skipping annual inspections
 - C. Reducing system operating times
 - D. Using higher-grade refrigerant
- 10. What does 'R-value' measure in insulation?**
- A. The insulation's cost-effectiveness
 - B. The insulation's fire resistance
 - C. The insulation's resistance to heat transfer
 - D. The insulation's thickness

Answers

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

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Explanations

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1. What is an important factor to consider when installing an HVAC system?

- A. The color of the external units
- B. Size and layout of the building**
- C. Popularity of the brand
- D. The number of windows in the building

When installing an HVAC system, the size and layout of the building are crucial factors to consider. The HVAC system needs to be appropriately sized to ensure it can effectively heat or cool the entire space. If the system is too small, it will struggle to maintain comfortable temperatures, leading to inefficiency and potential system failure. Conversely, if it's too large, it will cycle on and off frequently, causing unnecessary wear and tear on the system while also resulting in uneven temperature distribution. Additionally, the layout of the building influences how air circulates and where ductwork or vents should be installed. For instance, a building with multiple levels or open spaces may require different considerations for efficient airflow and temperature control. Therefore, understanding the building's specific characteristics helps in selecting and installing the right HVAC system that meets its heating and cooling needs effectively and efficiently.

2. In a mechanical room of dimensions 12' x 14' x 8' containing appliances rated at 110,000 BTU/h input, does it have sufficient combustion air?

- A. Yes, it does
- B. No, it does not**
- C. Yes, depending on the ventilation
- D. It may need additional ventilation

To determine whether the mechanical room has sufficient combustion air for appliances rated at 110,000 BTU/h, it's essential to consider the requirements for combustion air in confined spaces specified by codes and standards such as the National Fuel Gas Code (NFPA 54/ANSI Z223.1). Combustion air is necessary for the proper functioning of gas-fired appliances, as they require a certain volume of air to ensure complete combustion and to prevent dangerous buildup of carbon monoxide and other combustion byproducts. The volume of air required generally depends on the BTU rating of the appliance and the dimensions of the space. In this case, the mechanical room measures 12' x 14' x 8', resulting in a total volume of 1,344 cubic feet. The commonly accepted guideline is to provide around 1 cubic foot of combustion air for every 1,000 BTU/h of input. For appliances rated at 110,000 BTU/h, that translates to a requirement of at least 110 cubic feet of combustion air. Given the total volume of the mechanical room far exceeds the minimum requirement for combustion air, the room actually has enough air available for the appliances. Therefore, it does not meet the criteria to be deemed insufficient for combustion

3. Above ground gas piping installed outdoors must be elevated above the grade by at least how many inches?

- A. 2 inches
- B. 3 1/2 inches**
- C. 4 inches
- D. 5 inches

The correct answer is based on safety regulations and standards for gas piping installations. Above ground gas piping that is installed outdoors must be elevated above the grade by at least 3 1/2 inches to prevent potential issues such as flooding, debris accumulation, and physical damage. This elevation helps ensure that the piping remains clear of surface water, which could cause corrosion or other integrity issues over time. Proper elevation also reduces the risk of the piping being impacted by snow, leaves, or other obstructions that could compromise its function or safety. While there are various requirements for different types of installations and areas, the standard for outdoor gas piping specifically states this minimum elevation to protect both the gas distribution system and the surrounding environment. The emphasis on 3 1/2 inches marks a balance between ensuring adequate clearance while not being excessively high, which could lead to other practical challenges during installation or maintenance.

4. Why are safety protocols vital when handling refrigerants?

- A. To maximize refrigerant efficiency
- B. To prevent exposure to harmful chemicals and hazardous situations**
- C. To reduce refrigerant consumption
- D. To ensure competitive pricing for customers

Safety protocols are essential when handling refrigerants primarily to prevent exposure to harmful chemicals and hazardous situations. Refrigerants can contain toxic or flammable substances, and improper handling can lead to significant health risks for workers, including respiratory issues, skin irritation, or even more severe injuries. Furthermore, some refrigerants can contribute to environmental harm if released into the atmosphere, so adhering to safety guidelines helps mitigate these risks. By implementing robust safety measures, technicians can ensure not only their own safety but also that of their colleagues and the environment. Appropriate training in the safe handling and disposal of refrigerants is critical in minimizing accidents and health hazards, thereby prioritizing the well-being of individuals and compliance with legal regulations concerning hazardous materials. This focus on safety is a top priority in the industry, making it clear why safety protocols are indispensable when dealing with refrigerants.

5. How many standard round pipes are required to provide combustion air for a 150,000 BTU/h input rated furnace in a confined space?

- A. 1 5" pipe
- B. 1 6" pipe
- C. 2 7" pipes**
- D. 2 8" pipes

To determine the amount of combustion air required for a 150,000 BTU/h input rated furnace in a confined space, it's essential to refer to the guidelines set forth in the International Mechanical Code (IMC) or other relevant standards that specify the necessary air requirements for combustion appliances. For a furnace of this size, guidelines typically suggest providing at least 1 square inch of free area for every 1,000 BTUs of input. Therefore, for a furnace rated at 150,000 BTUs, the calculation would require 150 square inches of free area for combustion air. When it comes to standard round pipes, the diameter of the pipes directly correlates to their free area. A 7-inch diameter pipe has a free area of approximately 50 square inches when using standard tables, and since two of these pipes can provide a total of around 100 square inches, they would not meet the requirement needed alone. Therefore, two 7-inch pipes would be adequate to help facilitate the combustion needs of the furnace. On the other hand, considering larger diameter pipes like 8-inch options would provide even more free area than necessary, leading to excess air. Therefore, using two 7-inch pipes strikes a balance, meeting the combustion air requirement

6. Is oxygen an approved medium for pressure testing a gas line?

- A. True
- B. False**
- C. Only in emergencies
- D. Only for underground pipes

Oxygen is not an approved medium for pressure testing a gas line. The primary reason for this is safety. During the pressure testing process, any leaks could potentially mix with combustible materials, leading to a high-risk situation. Oxygen is a highly reactive gas that can support combustion and create hazardous conditions if it comes into contact with flammable materials. Instead, approved mediums for pressure testing gas lines typically include inert gases like nitrogen and, in some cases, water. These options are far safer because they do not present the same combustion risks as oxygen. Therefore, selecting "false" reflects an understanding of the necessary safety protocols and regulations established for testing gas lines in order to prevent potential hazards.

7. What is one of the main benefits of maintaining a clean air filter in an HVAC system?

- A. It improves aesthetic appearance
- B. It enhances energy efficiency and air quality**
- C. It reduces operational cost of the unit
- D. It increases heater lifespan

Maintaining a clean air filter in an HVAC system primarily enhances energy efficiency and air quality. A clean air filter allows for optimum airflow through the system, which is crucial for maintaining the desired temperature and humidity levels in a space. When the filter is clogged with dust, dirt, and other particles, the system has to work harder to circulate air, leading to increased energy consumption. This not only raises energy bills but also puts additional strain on the HVAC system, potentially shortening its lifespan. Improved air quality is equally significant; a clean filter captures dust, pollen, pet dander, and other allergens before they can circulate throughout the living space, making for a healthier indoor environment. Thus, regular maintenance of air filters contributes to both operational efficiency and a healthier atmosphere, underscoring the importance of this practice in HVAC care.

8. What could indicate a malfunctioning blower motor?

- A. Consistent airflow during operation
- B. Inconsistent airflow or unusual noises during operation**
- C. Increased energy consumption with no change in airflow
- D. Periodic maintenance checks

A malfunctioning blower motor can be indicated by inconsistent airflow or unusual noises during operation. When the blower motor is working properly, it should deliver a steady flow of air without variance. If there are fluctuations in airflow—such as the air becoming weak or suddenly stopping altogether—it suggests that something is wrong with the blower motor. Unusual noises, such as grinding or squealing, may also indicate mechanical failure or issues like worn bearings, which can negatively affect its performance. This option highlights clear signs of failure, making it an essential point of observation for maintenance and troubleshooting. The other choices do not reflect signs of distress or malfunction in the same obvious way, focusing instead on stable conditions or routine practices that do not reveal issues with the blower motor.

9. What common maintenance task can extend the life of an HVAC system?

- A. Regularly changing filters**
- B. Skipping annual inspections
- C. Reducing system operating times
- D. Using higher-grade refrigerant

Regularly changing filters is a crucial maintenance task that can significantly extend the life of an HVAC system. When air filters become dirty or clogged, they restrict airflow and reduce the system's efficiency. This can lead to the system working harder to maintain the desired temperature, resulting in increased wear and tear on components, potential overheating, and higher energy costs. By changing the filters on a regular basis, you ensure that the airflow is unobstructed, allowing the system to operate more efficiently and reducing the likelihood of mechanical failures. In contrast, skipping annual inspections can lead to unrevealed issues that, if left unchecked, can cause major problems down the line. Reducing system operating times might seem beneficial, but it's not a sustainable solution and doesn't address underlying inefficiencies. Using higher-grade refrigerant, while potentially beneficial in some contexts, does not directly influence the longevity of the system in the same immediate way that maintaining clean filters does. Regularly changing filters is a proactive approach that supports the overall health and efficiency of the HVAC system.

10. What does 'R-value' measure in insulation?

- A. The insulation's cost-effectiveness
- B. The insulation's fire resistance
- C. The insulation's resistance to heat transfer**
- D. The insulation's thickness

'R-value' measures the insulation's resistance to heat transfer. This measure is essential for understanding how effective an insulation material is at slowing down the transfer of heat between the inside and outside of a building. The higher the R-value, the better the insulation's effectiveness in reducing heat loss during colder months or heat gain during warmer ones. In the context of building energy efficiency, insulation with a high R-value contributes to maintaining a comfortable indoor environment while minimizing energy costs. Factors such as the material type, thickness, and density all influence the R-value, but the measure specifically quantifies thermal resistance rather than cost-effectiveness, fire resistance, or just thickness alone. A focus on R-value supports informed decisions about insulation materials and their performance in energy conservation efforts.

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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://ksmechjourneyman.examzify.com>

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

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