

# Alabama Journeyman Gas Fitter Practice Exam (Sample)

## Study Guide



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**SAMPLE**

## **Questions**

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- 1. Which equipment is necessary to perform a gas line pressure test?**
  - A. A pressure gauge and proper fittings to seal the line**
  - B. Only a adjustable wrench**
  - C. Just a standard thermometer**
  - D. Pressure relief valves only**
- 2. What does a gas appliance's input rating indicate?**
  - A. The maximum temperature the appliance can reach**
  - B. The total volume of gas that can be stored**
  - C. The maximum BTU input the appliance is designed to use**
  - D. The efficiency rating of the appliance**
- 3. What is the role of the gas meter in a home?**
  - A. To control the flow of gas to appliances**
  - B. To measure the quantity of gas consumed for billing purposes**
  - C. To filter impurities from the gas**
  - D. To convert gas into another form of energy**
- 4. How many BTUs are in one therm?**
  - A. 100,000 BTUs**
  - B. 1,000 BTUs**
  - C. 10,000 BTUs**
  - D. 50,000 BTUs**
- 5. In which scenario are trenchless installation methods used for gas piping?**
  - A. Where space is abundant**
  - B. Where traditional trenching is impractical**
  - C. Where cost is the main concern**
  - D. Where pipes need replacement**

- 6. What is the primary energy measurement used to define the performance of gas appliances?**
- A. Cubic feet per minute**
  - B. BTU (British Thermal Unit)**
  - C. Watt-hour**
  - D. Pascals**
- 7. What should you do if you suspect a gas leak?**
- A. Turn off all appliances**
  - B. Leave the area immediately and call for help**
  - C. Ventilate the area**
  - D. Check the gas meter for readings**
- 8. What unique characteristic does propane have compared to natural gas?**
- A. Lower BTU content**
  - B. Higher density**
  - C. Requires the same fittings**
  - D. Less flammable**
- 9. What should you check if a gas appliance fails to ignite?**
- A. The warranty status**
  - B. The power supply and gas supply**
  - C. The brand of the appliance**
  - D. The location of the appliance**
- 10. What is the minimum dimension for an outdoor combustion air opening?**
- A. 2 inches**
  - B. 3 inches**
  - C. 4 inches**
  - D. 5 inches**

## **Answers**

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

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## **Explanations**

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**1. Which equipment is necessary to perform a gas line pressure test?**

- A. A pressure gauge and proper fittings to seal the line**
- B. Only a adjustable wrench**
- C. Just a standard thermometer**
- D. Pressure relief valves only**

To perform a gas line pressure test, it is essential to have a pressure gauge and proper fittings to ensure that the gas line is securely sealed. The pressure gauge measures the pressure in the line, allowing you to determine if there are any leaks present. Proper fittings are critical for creating a complete seal at the connection points of the gas line, which is necessary to accurately assess the system's integrity under pressure. Without these components, the test could yield unreliable results, and risks could arise from undetected leaks. The other options lack the necessary tools and equipment. An adjustable wrench is useful for tightening connections but does not measure pressure or seal the line. A standard thermometer is not relevant for a pressure test since it does not relate to measuring or maintaining pressure. Lastly, pressure relief valves play a different role in the system, primarily in safety and preventing overpressure, and are not used directly in performing the pressure test itself.

**2. What does a gas appliance's input rating indicate?**

- A. The maximum temperature the appliance can reach**
- B. The total volume of gas that can be stored**
- C. The maximum BTU input the appliance is designed to use**
- D. The efficiency rating of the appliance**

The input rating of a gas appliance is a critical specification that indicates the maximum British Thermal Units (BTUs) of gas that the appliance is designed to use at any given time. This rating reflects the energy consumption of the appliance when it is operating at its peak performance. Understanding the input rating helps consumers and professionals determine whether the appliance is adequately sized for its intended heating or energy function in a given application. BTUs are a measurement of energy used to describe the amount of heat produced by the appliance; thus, having a clear understanding of the input rating is essential for proper selection, installation, and efficiency evaluation of gas appliances. This rating plays a vital role in ensuring the appliance operates safely and efficiently, preventing issues such as overheating or insufficient heating. The other options do not accurately describe the function of the input rating. The temperature the appliance can reach relates more to its operational capabilities rather than its input energy consumption. Similarly, the volume of gas storage pertains to tank capacity rather than the rate of gas use. Finally, while efficiency ratings give insight into energy use over time, they are separate from the input specification, which focuses on immediate energy use during operation.

### 3. What is the role of the gas meter in a home?

- A. To control the flow of gas to appliances
- B. To measure the quantity of gas consumed for billing purposes**
- C. To filter impurities from the gas
- D. To convert gas into another form of energy

The gas meter serves a critical function in a home by accurately measuring the quantity of gas consumed over a specific period. This measurement is essential for billing purposes, as gas companies rely on this data to issue accurate statements to customers. The meter typically tracks the volume of gas that passes through it, which is then converted into a billing figure based on the local utility's rates. This ensures that customers pay only for the gas they have actually used, making it an essential component of the gas supply system. While controlling gas flow to appliances, filtering impurities, or converting gases into different forms may seem related to gas systems, these functions are not the primary role of a gas meter. The accuracy and reliability of the meter directly impact the billing process, establishing it as a vital instrument for both users and suppliers in the gas distribution network.

### 4. How many BTUs are in one therm?

- A. 100,000 BTUs**
- B. 1,000 BTUs
- C. 10,000 BTUs
- D. 50,000 BTUs

One therm is equal to 100,000 BTUs (British Thermal Units). This unit of measurement is commonly used in the natural gas industry to express energy content. Understanding this conversion is crucial for gas fitters because it allows them to calculate energy consumption, efficiency of appliances, and the cost of energy usage based on therms. The therm is a standardized unit that helps in comparing the energy content of gas supply services, making it easier for both consumers and professionals in the gas fitting field to assess energy needs and make informed decisions regarding installations and energy management. Having a clear grasp of this conversion also supports compliance with regulations and standards in heating and energy applications.

**5. In which scenario are trenchless installation methods used for gas piping?**

- A. Where space is abundant**
- B. Where traditional trenching is impractical**
- C. Where cost is the main concern**
- D. Where pipes need replacement**

Trenchless installation methods for gas piping are primarily utilized in scenarios where traditional trenching is impractical. This method is advantageous in urban areas where existing infrastructure, such as buildings, roads, and other utilities, complicates traditional digging techniques. By utilizing trenchless methods, installers can minimize surface disruption, reduce the need for large excavation sites, and avoid damaging existing utilities or landscapes. In situations where there are physical constraints or environmental considerations, trenchless technology provides a more efficient and less invasive solution. For example, when installing or repairing gas lines under roads or near sensitive areas, trenchless methods allow for the installation of piping with minimal impact on the surrounding area, thereby maintaining the integrity of existing structures and reducing restoration costs. While factors such as cost and the need for replacement might influence the decision to use trenchless methods, the core reason these techniques are chosen is the impracticality of traditional trenching methods in certain environments.

**6. What is the primary energy measurement used to define the performance of gas appliances?**

- A. Cubic feet per minute**
- B. BTU (British Thermal Unit)**
- C. Watt-hour**
- D. Pascals**

The primary energy measurement used to define the performance of gas appliances is the British Thermal Unit (BTU). BTU is a unit that quantifies the amount of energy required to raise the temperature of one pound of water by one degree Fahrenheit at sea level. It serves as a standard measurement for the energy output of gas appliances, such as water heaters, furnaces, and stoves, allowing consumers and professionals to compare the heating capabilities of different devices. Using BTUs provides a clear and consistent way to evaluate the effectiveness and efficiency of gas appliances in terms of their heating output. When looking for performance metrics, BTUs offer a direct relationship to the appliance's ability to generate heat and therefore its performance in practical applications. Other options, such as cubic feet per minute, measure airflow and are not directly related to thermal output. Watt-hours pertain to electrical energy consumption rather than gas performance. Pascals measure pressure and do not provide insight into the heating efficiency of appliances, highlighting why BTUs are the most relevant and widely used measurement in the context of gas appliances.

**7. What should you do if you suspect a gas leak?**

- A. Turn off all appliances**
- B. Leave the area immediately and call for help**
- C. Ventilate the area**
- D. Check the gas meter for readings**

If you suspect a gas leak, the appropriate action is to leave the area immediately and call for help. This response prioritizes safety, as gas leaks can lead to serious dangers such as explosions or asphyxiation. By evacuating the area first, you reduce the risk of harm to yourself and others nearby, as well as avoid igniting the gas. While checking the gas meter for readings or turning off appliances may seem like logical steps, they could expose individuals to the risk of an ignitable environment. Ventilating the area could also pose a danger if there's an explosive concentration of gas present. It is essential to alert professionals who are trained to handle gas leaks safely rather than attempting to manage the situation on your own. This ensures that the leak can be assessed and corrected properly by someone with the requisite expertise.

**8. What unique characteristic does propane have compared to natural gas?**

- A. Lower BTU content**
- B. Higher density**
- C. Requires the same fittings**
- D. Less flammable**

Propane has a unique characteristic compared to natural gas in that it has a higher density. This means that propane is heavier than air, while natural gas is lighter than air. This density difference impacts how each gas behaves when released into the atmosphere; propane tends to accumulate in low-lying areas, while natural gas disperses upwards. This fundamental difference is crucial for safety and installation practices in gas fitting and appliance design. The higher density of propane also contributes to its energy content, allowing for more BTUs (British Thermal Units) per volume compared to natural gas, although discussing BTU content brings us back to the context of their energy characteristics rather than a direct comparison of density.

**9. What should you check if a gas appliance fails to ignite?**

- A. The warranty status
- B. The power supply and gas supply**
- C. The brand of the appliance
- D. The location of the appliance

When a gas appliance fails to ignite, it is essential to check both the power supply and the gas supply. The power supply is critical because many gas appliances rely on electrical components to initiate the ignition process. A disruption in the power supply could prevent igniters from working correctly. Simultaneously, the gas supply must be verified to ensure that gas is flowing to the appliance. If there is an interruption in the gas line, issues such as closed valves, leaks, or obstructions can prevent the gas from reaching the appliance, making ignition impossible. Ensuring that both supplies are functioning allows you to rule out two of the most common causes of ignition failure, leading to a more efficient troubleshooting process. Other options, while potentially relevant in broader contexts, do not directly address the immediate problem of ignition failure. The warranty status is not a direct factor in the appliance's operational state, the brand does not influence ignition issues specifically, and the location may be relevant in terms of installation but does not typically affect whether the appliance will ignite or not.

**10. What is the minimum dimension for an outdoor combustion air opening?**

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

The minimum dimension for an outdoor combustion air opening is correctly identified as 3 inches. This specification is crucial because it ensures adequate airflow to appliances that require combustion air. A proper air supply is essential for efficient combustion, which not only supports optimal appliance performance but also helps prevent the buildup of potentially harmful gases indoors. An opening that is too small might restrict the necessary airflow, leading to incomplete combustion, increased emissions of carbon monoxide, and other safety hazards. The three-inch minimum dimension strikes a balance between ensuring sufficient air exchange while preventing debris and blockage that could occur with larger openings. Compliance with this standard is critical for both safety and functionality when installing and maintaining gas appliances.