Commercial Food Equipment Service Association (CFESA) Gas Practice Test (Sample)

Study Guide

Everything you need from our exam experts!

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Questions

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1. Why are infrared burners favored for use in broilers?

A. They cook meat at a lower temperature

B. They sear the meat quickly, preserving juices

C. They are quieter than traditional burners

D. They take less time to preheat

2. Under what conditions is a multiple try ignition system allowed before a permanent lockout occurs?

A. When gas pressure is low

B. In designs with no chance of gas pockets building up

C. During initial system startup

D. When the system is undergoing maintenance

3. What overall effect do cracks in the hot surface igniter material have?

A. They improve functionality

B. They can lead to ignition failure

C. They increase energy efficiency

D. They have no effect

4. What differs between a vent and a flue?

A. A vent removes byproducts from the room, while a flue removes byproducts from the combustion chamber

B. A vent decreases air pressure, while a flue increases it

C. A vent provides fuel, while a flue does not

D. A vent controls combustion levels, while a flue exhausts heat

5. The DC voltage generated by a thermocouple or thermopile is directly related to what factor?

A. Measurement of the circuit resistance

B. Temperature difference between junctions

C. Voltage supply to the device

D. Amount of gas flow through the system

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6. How can you reset an ignition module that is in a locked out state?

A. By turning the gas supply on and off

B. By rebooting the system

C. By turning the power on and off

D. By checking all connections

7. What is the maximum allowable dropout voltage for an electric safety valve using a thermocouple?

A. 2 mv

B. 4 mv

C. 6 mv

D. 8 mv

8. Which factor does NOT typically affect the life expectancy of a hot surface igniter?

A. Material composition

B. Operating voltage

C. Ambient temperature

D. The shape of the igniter

9. What is the heating value for LP gas?

A. 1000 Btu/cu. ft.

B. 1500 Btu/cu. ft.

C. 2500 Btu/cu. ft.

D. 3000 Btu/cu. ft.

10. What determines how much carbon dioxide your blood absorbs?

A. Type of activity performed

B. Concentration in air and exposure length

C. Age of the individual

D. Overall health status

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Answers

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

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Explanations

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1. Why are infrared burners favored for use in broilers?

A. They cook meat at a lower temperature

B. They sear the meat quickly, preserving juices

C. They are quieter than traditional burners

D. They take less time to preheat

Infrared burners are favored in broilers because they sear the meat quickly, which is key in preserving the natural juices within the food. The cooking method provided by infrared burners allows for high-heat cooking that effectively seals the surface of the meat, locking in moisture and enhancing flavor. This rapid searing action is particularly important for broiling, as it creates an appealing crust on the meat while keeping the interior tender and juicy. This feature is critical in commercial cooking settings where quality and speed are essential. The remaining choices, while they reflect certain advantages of various cooking methods, do not capture the primary benefit of infrared burners in broilers, which centers on moisture retention and flavor enhancement through quick searing.

2. Under what conditions is a multiple try ignition system allowed before a permanent lockout occurs?

A. When gas pressure is low

B. In designs with no chance of gas pockets building up

C. During initial system startup

D. When the system is undergoing maintenance

A multiple try ignition system is designed to attempt ignition multiple times before a permanent lockout happens, which is a safety feature to prevent unsafe conditions, such as gas accumulation. The key requirement for allowing a multiple try ignition system is that there must be no opportunity for gas pockets to build up, which can occur if the ignition fails repeatedly without the immediate evacuation of unburned gas. In conditions where gas pockets can form, repeated ignition attempts can lead to potentially hazardous situations. Therefore, the system is engineered to avoid these circumstances to ensure safety. In contrast, scenarios such as low gas pressure, maintenance activities, or initial system startup do not inherently prevent the risk of gas accumulation and may compromise the safety aspect that the multiple try ignition system seeks to address. Recognizing this principle is crucial for ensuring the safety and effectiveness of gas-fired equipment in commercial settings.

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3. What overall effect do cracks in the hot surface igniter material have?

A. They improve functionality

B. They can lead to ignition failure

C. They increase energy efficiency

D. They have no effect

Cracks in the hot surface igniter material are detrimental because they compromise the integrity and performance of the igniter. A hot surface igniter functions by reaching a specific temperature to create a glowing surface that ignites the gas-fueled burner. When cracks develop in the igniter, they can disrupt this heating process, leading to inconsistent or insufficient heating of the igniter surface. The result is that the igniter may fail to reach the necessary temperature to ignite the gas efficiently, which can ultimately lead to ignition failure. This failure not only affects the immediate operation of the appliance but can also have broader implications, such as increased safety risks or potential damage to the equipment due to unburned gas. Thus, cracks can significantly hinder the igniter's functionality and reliability, making the understanding of this issue crucial for anyone working with gas appliances.

4. What differs between a vent and a flue?

A. A vent removes byproducts from the room, while a flue removes byproducts from the combustion chamber

B. A vent decreases air pressure, while a flue increases it

C. A vent provides fuel, while a flue does not

D. A vent controls combustion levels, while a flue exhausts heat

The distinction between a vent and a flue centers on their respective roles in managing byproducts of combustion. A vent is primarily responsible for removing byproducts, such as carbon monoxide and other gases, from the space where appliances are located, ensuring that these harmful substances do not accumulate in living or working areas. This aspect of a vent focuses on the safety and air quality in the environment. On the other hand, a flue is designed to facilitate the extraction of these byproducts specifically from the combustion chamber of appliances, allowing for a more efficient means of directing harmful gases outside of the structure. This separation of function is crucial for ensuring that the combustion process operates effectively and safely within the appliance. The understanding of this difference is vital for technicians and operators to ensure that both components work correctly and safely, thus maintaining compliance with safety standards and ensuring the efficient operation of gas appliances in commercial settings.

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5. The DC voltage generated by a thermocouple or thermopile is directly related to what factor?

A. Measurement of the circuit resistance

B. Temperature difference between junctions

C. Voltage supply to the device

D. Amount of gas flow through the system

The DC voltage generated by a thermocouple or thermopile is directly related to the temperature difference between the junctions. A thermocouple consists of two dissimilar metals joined at two points, creating two junctions. When there is a temperature difference between these junctions, it generates a voltage due to the Seebeck effect, which states that a voltage is produced when there is a temperature gradient across two different conductive materials. This voltage is proportional to the temperature difference between the hot junction, which is exposed to the measured temperature, and the cold junction. Therefore, the larger the temperature difference, the higher the voltage output from the thermocouple or thermopile, which is essential for accurately measuring temperature in various applications, including gas equipment. The other options do not directly correlate with the voltage output from a thermocouple or thermopile. Measurement of circuit resistance, voltage supply, or gas flow amount does not influence the fundamental principle of how thermocouples and thermopiles operate regarding voltage generation based on temperature differences.

6. How can you reset an ignition module that is in a locked out state?

A. By turning the gas supply on and off

B. By rebooting the system

C. By turning the power on and off

D. By checking all connections

Resetting an ignition module that is in a locked-out state typically involves cycling the power to the system. This is why turning the power on and off is the correct approach. When power is removed and restored, it allows the ignition module to reset its internal state and clear any fault conditions that may have caused it to enter the locked-out state. In this context, the ignition module is designed to prevent ignition from occurring if it detects a fault or unsafe condition, thus ensuring safety. By cycling the power, you effectively reinitialize the module, which can clear temporary faults or interruptions in the system. Turning the gas supply on and off, rebooting the system, or checking all connections may help in certain circumstances or address other issues, but they do not specifically perform the needed function of resetting the ignition module. Proper power cycling is the direct and intended method to resolve a lockout situation in this context.

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7. What is the maximum allowable dropout voltage for an electric safety valve using a thermocouple?

A. 2 mv

B. 4 mv

C. 6 mv

D. 8 mv

The maximum allowable dropout voltage for an electric safety valve using a thermocouple is identified as 4 mV. In the context of safety systems, this parameter is critical because it ensures responsive operation of the safety valve when monitoring the thermal integrity of the system. The dropout voltage signifies the minimum voltage required for the safety valve to maintain its functional state; if the voltage drops below this level due to loss of signal from the thermocouple, the safety valve may close, potentially leading to unsafe conditions. Setting this limit at 4 mV balances the need for sensitivity while minimizing the risk of nuisance tripping or false closure, as thermocouples convert temperature changes into voltage at precise levels. Therefore, adhering to this specific dropout voltage helps maintain operational safety protocols in commercial cooking equipment, ensuring that faults are detected promptly while not interrupting normal operational functionality unduly.

8. Which factor does NOT typically affect the life expectancy of a hot surface igniter?

A. Material composition

B. Operating voltage

C. Ambient temperature

D. The shape of the igniter

The life expectancy of a hot surface igniter is influenced by several key factors such as material composition, operating voltage, and ambient temperature. Material composition directly affects how well the igniter withstands the heat and thermal cycling it undergoes during operation. Igniters made of certain materials might deteriorate faster than others, impacting their longevity. Operating voltage is also crucial because igniters are designed to operate within specific voltage ranges. If the voltage is too high or too low, it can lead to premature failure. Too high a voltage can cause overheating, while too low may not provide sufficient heat for ignition. Ambient temperature plays a significant role as well. An excessively high ambient temperature can cause thermal stress and degradation of the igniter, while lower temperatures may affect the ignition process but are typically less detrimental than high temperatures. In contrast, the shape of the igniter does not significantly impact its life expectancy. While it may influence the efficiency of ignition or the thermal distribution, the fundamental material properties and operational conditions are far more influential in determining how long the igniter will function effectively. Therefore, it is not considered a typical factor affecting the life expectancy of a hot surface igniter.

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9. What is the heating value for LP gas?

A. 1000 Btu/cu. ft.

B. 1500 Btu/cu. ft.

C. 2500 Btu/cu. ft.

D. 3000 Btu/cu. ft.

The heating value for LP gas is accurately represented as approximately 2500 Btu/cu. ft. This value refers to the amount of heat energy produced per cubic foot of liquefied petroleum gas when it is combusted. LP gas, which is primarily composed of propane and butane, has a higher energy content than some other fuels, making it a popular choice for cooking and heating applications in commercial settings. Understanding the heating value is crucial for technicians and engineers when configuring and troubleshooting gas appliances, as it helps in calculating fuel requirements and ensuring efficient operation. The other figures mentioned fall outside the typical heating values for LP gas. Recognizing the correct heating value is essential for ensuring the safe and effective use of gas equipment in food service environments, emphasizing the importance of accurate knowledge regarding these values in the field of commercial food equipment service.

10. What determines how much carbon dioxide your blood absorbs?

A. Type of activity performed

B. Concentration in air and exposure length

C. Age of the individual

D. Overall health status

The amount of carbon dioxide absorbed by the blood is primarily influenced by the concentration of carbon dioxide in the air and the duration of exposure to those concentrations. When carbon dioxide levels are higher in the environment, more of this gas is available to be absorbed through the lungs and into the bloodstream. Additionally, the longer the duration of exposure to elevated levels of carbon dioxide, the more blood will absorb this gas due to the principles of diffusion, where gas molecules move from areas of higher concentration to areas of lower concentration. While other factors like the type of activity performed, age, and overall health status might affect how efficiently the body utilizes and expels carbon dioxide, the direct mechanism of absorption is dictated by the concentration gradient and exposure time. Therefore, the concentration of carbon dioxide in the air is the key determinant of how much is absorbed into the blood.

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