Journeyman Plumber Practice Exam (Sample)

Study Guide

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Questions

1. **In a multi-story building, how often must the waste and vent stacks reconnect with a yoke vent?**

   A. Every 5 branch intervals

   B. Every 10 branch intervals

   C. Every floor level

   D. Every 12 branch intervals

2. **For a pipe of 2" diameter, how often should cleanouts be located?**

   A. 25 feet

   B. 50 feet

   C. 75 feet

   D. 100 feet

3. **What size pipe is required for a building drain with a 1/16th slope and allowed 2,700 fixture units?**

   A. 10"

   B. 12"

   C. 14"

   D. 16"

4. **What is the maximum volume of water allowed to flush a water closet, according to the Energy Policy Act of 1992?**

   A. 2.5 gallons

   B. 1.6 gallons

   C. 3.3 gallons

   D. 4.0 gallons

5. **What is the maximum design operation pressure for piping systems located inside buildings?**

   A. 1 psi

   B. 1/2 psi

   C. 2 psi

   D. 10 psi

6. What are the size requirements for a loop vent?

A. Equal to the size of the main drain pipe

B. Half the size of the building drain

C. Twice the size of the building drain

D. Based on the fixture being served

7. Which standard must marble vanity tops with an integral laboratory conform to?

A. CSA B45.5

B. ANSI A117.1

C. ASTM C1272

D. CSA Z317.2

8. Which gas utilization equipment clearance from the roof edge is required at a minimum?

A. 3 ft

B. 4 ft

C. 5 ft

D. 6 ft

9. What is the maximum size vent connector allowed in plumbing?

A. 12 inches

B. 15 inches

C. 18 inches

D. 24 inches

10. What slope is represented by a 2% grade?

A. 1/4" per foot

B. 1/8" per foot

C. 1/2" per foot

D. 1/3" per foot

Answers

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

Explanations

1. In a multi-story building, how often must the waste and vent stacks reconnect with a yoke vent?

A. Every 5 branch intervals

B. Every 10 branch intervals

C. Every floor level

D. Every 12 branch intervals

For a multi-story building, connecting waste and vent stacks with a yoke vent is essential for maintaining proper drainage and venting. The requirement to reconnect every 5 branch intervals is based on plumbing codes designed to prevent sewer gas accumulation and ensure effective air pressure equalization within the plumbing system. This configuration helps to minimize the risk of siphoning water from traps, which can lead to odor problems and potential health hazards. The specification of every 5 branch intervals provides a balance between adequate venting and the structural considerations of the system, ensuring that the venting is comprehensive enough to handle the anticipated flow of wastewater without compromising the system's integrity. While reconnecting at every floor level and other intervals may appear beneficial, doing so could lead to unnecessary complexity, increased installation costs, and potential challenges with compliance to code. Therefore, the established standard of every 5 branch intervals serves as a practical guideline for maintaining optimal performance and compliance in plumbing systems.

2. For a pipe of 2" diameter, how often should cleanouts be located?

A. 25 feet

B. 50 feet

C. 75 feet

D. 100 feet

For a pipe of 2" diameter, cleanouts should be located every 50 feet. This requirement is based on plumbing codes and practices designed to ensure that sewage and waste systems remain accessible for maintenance and cleaning. The placement of cleanouts is crucial for effective plumbing maintenance, as they allow for easy access to the interior of pipes. This can facilitate the removal of blockages, inspections, and overall care of the plumbing system. The 50-foot interval is a standard measure that helps prevent long stretches of pipe without access points, which could lead to difficulties in maintenance or emergencies. The choice of 50 feet reflects a balance between accessibility and practical installation considerations for smaller diameter pipes like 2 inches. Understanding these standards is a vital part of plumbing design and installation, ensuring systems function efficiently and remain manageable over time.

3. What size pipe is required for a building drain with a 1/16th slope and allowed 2,700 fixture units?

A. 10"

B. 12"

C. 14"

D. 16"

To determine the appropriate size of a pipe for a building drain, it's essential to consider both the slope of the drain and the number of fixture units it must accommodate. In this scenario, the drain has a slope of 1/16 inch per foot, which is a standard slope for drainage systems, facilitating effective flow and reducing the potential for clogs. The specified capacity of 2,700 fixture units indicates the demand on the drainage system. Plumbing codes and standards provide tables that specify the pipe sizes required based on the number of fixture units and the slope of the piping. For a drainage system that must handle 2,700 fixture units, a 12-inch diameter pipe is typically needed according to these tables. Choosing a pipe size that is too small would increase the risk of backflow and inadequate drainage, while opting for a pipe that is excessively large could lead to increased costs and potential problems with maintaining proper flow velocities. Therefore, a 12-inch pipe is the correct choice because it ensures that the drain can effectively manage the volume of wastewater generated by 2,700 fixture units, taking into account the slope that enhances drainage efficiency.

4. What is the maximum volume of water allowed to flush a water closet, according to the Energy Policy Act of 1992?

A. 2.5 gallons

B. 1.6 gallons

C. 3.3 gallons

D. 4.0 gallons

The maximum volume of water allowed to flush a water closet, according to the Energy Policy Act of 1992, is 1.6 gallons. This legislation was enacted to promote water conservation in plumbing fixtures, particularly toilets, which are a significant source of water use in residential and commercial buildings. By limiting the flush volume to 1.6 gallons, the Act encourages the adoption of more efficient plumbing technologies, ultimately reducing overall water consumption and aiding in environmental conservation efforts. To give you additional context, prior to this legislation, toilets often used up to 3.5 to 7 gallons per flush, contributing to excessive water waste. The change to 1.6 gallons was a significant step in promoting more sustainable plumbing practices. Therefore, this specific regulation not only affects plumbing installation but also aligns with broader environmental goals.

5. What is the maximum design operation pressure for piping systems located inside buildings?

A. 1 psi

B. 1/2 psi

C. 2 psi

D. 10 psi

The maximum design operation pressure for piping systems located inside buildings is indeed set at a very low level to ensure safety and minimize potential risks associated with pressurized systems. Specifically, for most residential and commercial applications involving natural gas and other utility piping systems, the threshold is typically set at 2 psi. This lower pressure range is sufficient for the necessary functionality of appliances and fixtures while also adhering to safety codes. In contrast to the other options, piping systems operating at pressures higher than 2 psi risk structural failures due to stress, leaks, and safety hazards. Therefore, maintaining the design pressure within the prescribed limit is crucial. Adhering to these standards helps to prevent issues like gas leaks, which can have serious and potentially dangerous consequences in occupied buildings. In summary, the correct design pressure is determined by code requirements that balance operational needs with safety considerations, establishing 2 psi as the accepted standard for building systems.

6. What are the size requirements for a loop vent?

A. Equal to the size of the main drain pipe

B. Half the size of the building drain

C. Twice the size of the building drain

D. Based on the fixture being served

The appropriate size requirement for a loop vent is based on the principle that the vent should be at least half the size of the building drain it serves. This sizing allows for effective ventilation of gases, which is essential for the proper functioning of the drainage system. A loop vent is designed to provide additional airflow to prevent siphoning and ensure that wastewater can flow smoothly without creating negative pressure that could lead to sewage gases escaping into the building. In plumbing codes, there are specific guidelines that dictate vent sizing relative to the drain sizes to maintain optimal performance and safety. By having the loop vent sized at half the diameter of the building drain, it ensures that there is adequate airflow to balance the pressure in the system, which prevents issues like trap siphonage and buildup of odor. This sizing is particularly important in maintaining the overall balance of the plumbing system, thereby contributing to effective drainage and minimizing possible plumbing hazards. While it is crucial to follow local plumbing codes for specific situations, the general rule of half the size of the building drain is a fundamental principle that applies to loop vents.

7. Which standard must marble vanity tops with an integral laboratory conform to?

A. CSA B45.5

B. ANSI A117.1

C. ASTM C1272

D. CSA Z317.2

Marble vanity tops with an integral laboratory must conform to the CSA B45.5 standard. This standard addresses the requirements for ceramic plumbing fixtures, including materials, performance, and testing for various fixtures such as sinks and lavatories. The intention behind this standard is to ensure that the materials and designs used in these fixtures are safe, durable, and meet specific performance criteria. By adhering to CSA B45.5, manufacturers can assure consumers and contractors that their marble vanity tops will possess the necessary qualities, such as resistance to impacts, scratches, and stains, which are essential for fixtures that see frequent use in bathrooms. This standard also encompasses the integral lavatory design aspects, ensuring that the vanity tops function effectively as intended within a plumbing system. The other standards listed, while important in their contexts, do not specifically apply to the requirements for marble vanity tops. ANSI A117.1 focuses on accessibility standards, ASTM C1272 pertains to the specification of natural stone for building construction, and CSA Z317.2 deals with plumbing fixtures and materials but is more related to health care facilities. Therefore, CSA B45.5 is explicitly appropriate for the specifications of marble vanity tops with integral lavatories.

8. Which gas utilization equipment clearance from the roof edge is required at a minimum?

A. 3 ft

B. 4 ft

C. 5 ft

D. 6 ft

The minimum clearance required for gas utilization equipment from the roof edge is crucial to ensure safety and compliance with building codes. A clearance distance of 3 feet provides adequate separation to prevent any potential hazards that may arise from gas emissions or combustible materials. This distance helps to mitigate the risk of gas pooling or accumulation in areas where it could be ignited, particularly near open flames or heat sources. Additionally, maintaining this clearance helps in the proper functioning of venting systems, as it ensures that exhaust gases can disperse safely away from the building and prevents any obstruction that could lead to backdraft or other malfunctions. Above this minimum clearance, building codes and manufacturer specifications may dictate further space for safety, but 3 feet represents the basic requirement recognized in many applicable plumbing and gas installation standards. Understanding such requirements is essential for ensuring the safety and reliability of gas-utilization appliances and adherence to local and national codes.

9. What is the maximum size vent connector allowed in plumbing?

A. 12 inches

B. 15 inches

C. 18 inches

D. 24 inches

The maximum size vent connector allowed in plumbing systems is 18 inches. This is important to understand because vent connectors play a crucial role in maintaining proper airflow and preventing the buildup of harmful gases in plumbing systems. Overly large vent connectors can lead to inefficient venting, resulting in poor performance of appliances and potentially hazardous conditions. Adhering to the maximum size ensures that the system maintains effective circulation and function while adhering to local codes and standards designed to keep plumbing systems safe and efficient.

10. What slope is represented by a 2% grade?

A. 1/4" per foot

B. 1/8" per foot

C. 1/2" per foot

D. 1/3" per foot

A 2% grade indicates a slope where for every 100 units of horizontal distance, the elevation changes by 2 units. To convert this grade to an inch-per-foot measurement, we can perform the following calculation. Since there are 12 inches in a foot, 2% can be expressed as 2 inches rise over 100 inches of run. This translates to a rise of 2 inches for every 100 inches (or 8.33 feet). To find the rise per foot, we can set up the ratio: 2 inches / 100 inches = x inches / 12 inches Solving for x gives us: x = (2 inches * 12 inches) / 100 inches = 0.24 inches This is roughly 1/4 inch per foot when expressed as a fraction, which correlates with a slope of 2%. Therefore, the correct understanding of a 2% grade corresponds to a rise of 1/4 inch per foot of horizontal distance, aligning with the provided answer.