New Mexico State License Pipe Fitter Practice Test (Sample)

Study Guide

Everything you need from our exam experts!

Questions

1. **What types of valve end connections are generally recognized?**

   A. Welded, threaded, and flanged

   B. Welded, bolted, and soldered

   C. Flanged, screwed, and riveted

   D. Welded, compression, and slip

2. **The end to center of a 45-degree long radius elbow is what measurement?**

   A. 1/2

   B. 5/8

   C. 3/4

   D. 7/8

3. **What is the difference in lengths for a 45 degree equal spread offset given a run of 32 inches and a spread distance of 8 inches?**

   A. 4 1/8

   B. 2 3/8

   C. 3 5/16

   D. 5 1/4

4. **Which item should always be worn to protect the eyes when welding?**

   A. Safety glasses

   B. Face shield

   C. Prescription glasses

   D. Sun glasses

5. **What is the actual OD of an 8-inch steel pipe?**

   A. 8.0 inches

   B. 8.5 inches

   C. 8.625 inches

   D. 9 inches

6. What is the composition of plastic metal pipe?

A. Plastic outer layer only

B. Metal core surrounded by plastic layers

C. Only metal

D. Plastic and rubber layers

7. How many welding hazards are the responsibility of the welder to protect him/herself?

A. None

B. Some

C. All

D. Only specific ones

8. What type of shirt pocket is recommended for welders?

A. Flaps

B. Buttons

C. Open

D. Deep

9. Why does friction wear occur on a split wedge or double disc valve?

A. Because the valve is improperly installed

B. Because the seat and disc contact only in the closed position

C. Because of corrosion in the pipeline

D. Because it is made from inferior materials

10. Is it true that Argon gas, being lighter than air, does not cause respiratory problems in confined spaces?

A. True

B. False

C. Sometimes true

D. Not enough information

Answers

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

Explanations

1. What types of valve end connections are generally recognized?

A. Welded, threaded, and flanged

B. Welded, bolted, and soldered

C. Flanged, screwed, and riveted

D. Welded, compression, and slip

The recognized types of valve end connections include welded, threaded, and flanged connections, which are widely used across various applications in piping systems. Welded connections involve physically fusing the valve to the pipe, providing a strong and permanent joint that is ideal for high-pressure applications where leakage is a significant concern. This method ensures a robust seal and is often used in situations requiring high integrity and minimal maintenance. Threaded connections utilize threads on both the valve and the pipe, allowing them to be screwed together. This type is convenient for smaller diameter pipes and allows for easy disassembly, making it common in low-pressure and smaller scale applications. Flanged connections consist of two flanged ends that are bolted together, providing accessibility for maintenance and replacement. Flanged valves are particularly advantageous when frequent disassembly is required, as they allow for quick removal without cutting the piping. The other options present types of connections that are either less common or not typically standardized for valves. For example, bolted connections are not classically recognized in the same category as the more traditional methods, and soldered connections are usually associated with plumbing fixtures rather than valve installations. Riveted connections are uncommon in modern piping applications due to the availability of more effective methods. Compression and slip

2. The end to center of a 45-degree long radius elbow is what measurement?

A. 1/2

B. 5/8

C. 3/4

D. 7/8

The measurement from the end to the center of a 45-degree long radius elbow is specifically designed to accommodate the flow of fluids or gases while maintaining efficient directional changes in piping. For a long radius elbow, the radius is typically defined as being one and a half times the nominal pipe diameter. In this case, the end to center measurement corresponds to the standard dimensional tolerances for piping components. For a 45-degree long radius elbow, the end to center measurement is generally considered to be 5/8 of an inch. This value aligns with the standard specifications established for such components in piping systems, ensuring compatibility and functionality within various installations. Recognizing this standard is essential for pipe fitters when calculating the space required for installation and ensuring proper connections in the piping layout. Understanding these dimensions and how they relate to different types of elbows enhances the pipe fitter's ability to work effectively and accurately in their tasks.

3. What is the difference in lengths for a 45 degree equal spread offset given a run of 32 inches and a spread distance of 8 inches?

A. 4 1/8

B. 2 3/8

C. 3 5/16

D. 5 1/4

To determine the difference in lengths for a 45-degree equal spread offset, it is essential to understand the geometry involved in creating an offset in piping. The length of the offset can be calculated using trigonometric principles, particularly focusing on the right triangle formed by the horizontal run, the vertical rise (spread), and the angle of the offset. When dealing with a 45-degree angle, the lengths of the sides of the triangle are equal when looking for the difference in lengths. For a run of 32 inches and a spread of 8 inches, one can set up the following relationships. Since the angle is 45 degrees, the lengths down from the vertical and across horizontally can be calculated using the Pythagorean theorem or by recognizing that in a 45-degree triangle, both legs are the same when measuring the offset. You'll be looking for the lengths as you extend around the bend and then subtract any overlap in the run. When calculating based on these parameters, we find that the correct difference in lengths for the offset becomes 3 5/16 inches. This result reflects the application of trigonometry in the pipe fitting context, specifically how angles can impact the lengths and measurements required to achieve a proper fit in a piping system.

4. Which item should always be worn to protect the eyes when welding?

A. Safety glasses

B. Face shield

C. Prescription glasses

D. Sun glasses

When welding, a face shield is essential for protecting the eyes due to the intense brightness and harmful radiation produced by the welding arc. Unlike safety glasses, which may not provide complete coverage, or prescription glasses that lack the necessary protection against harmful UV and IR rays, a face shield offers a broader shield against these hazards. Welding can produce sparks and molten metal that can easily cause serious eye injuries, so the face shield acts as a crucial barrier. Additionally, many face shields come equipped with dark lenses specifically designed to filter out harmful light, providing the welder with necessary visibility while ensuring eye safety. Using sunglasses, while they may provide some reduction in visible light, are not designed for the specific hazards of welding and therefore do not offer adequate protection. The comprehensive shielding provided by a face shield not only safeguards the eyes from immediate danger but also reduces the risk of long-term eye damage from repeated exposure to welding operations.

5. What is the actual OD of an 8-inch steel pipe?

A. 8.0 inches

B. 8.5 inches

C. 8.625 inches

D. 9 inches

The actual outer diameter (OD) of an 8-inch steel pipe, specifically when referring to schedule pipes, is 8.625 inches. This measurement is standardized in the industry and reflects the nominal pipe size, which can often lead to confusion among those new to piping systems. The nominal size does not always correlate directly with the actual dimensions due to the way pipes are categorized. The nominal designation of 8 inches is simply a naming convention that helps to identify the pipe size. However, in reality, steel pipes are manufactured with specific dimensions to fit together properly in piping systems. The reason for the actual OD of 8-inch pipe being 8.625 inches relates to the standardized dimensions set by organizations like the American National Standards Institute (ANSI) and the American Society for Testing and Materials (ASTM), which provide uniformity across different manufacturers and applications. Understanding these specifications is critical for various activities in pipe fitting, such as ensuring proper fittings and insulation work, meeting code requirements, and maintaining pressure ratings in systems. Thus, knowing the actual outer diameter allows for better planning and execution of pipe fitting tasks in construction and maintenance projects.

6. What is the composition of plastic metal pipe?

A. Plastic outer layer only

B. Metal core surrounded by plastic layers

C. Only metal

D. Plastic and rubber layers

The composition of plastic metal pipe, also known as metal-clad or composite pipe, is characterized by a metal core that provides structural integrity, surrounded by layers of plastic. This design combines the advantages of both materials: the strength and durability of metal along with the corrosion resistance and lightweight properties of plastic. This construction enables the pipe to be used in various applications, particularly where a combination of flexibility and sturdiness is required, such as in plumbing and HVAC systems. The metal core allows for high-pressure applications and helps mitigate wear and tear from external forces, while the plastic layers prevent corrosion, thereby extending the life of the pipe. This particular configuration is crucial in environments where moisture or harsh chemicals may be present, offering improved reliability compared to pipes made from a single material. The other choices provide incomplete or incorrect representations of plastic metal pipe. One suggests a plastic outer layer only, which neglects the central metal core that defines this type of pipe. Another option indicating only metal is incorrect, as it fails to account for the protective and insulating plastic layers. Finally, the choice mentioning plastic and rubber does not reflect the true composition since rubber is not a standard material used in plastic metal pipes.

7. How many welding hazards are the responsibility of the welder to protect him/herself?

A. None

B. Some

C. All

D. Only specific ones

The responsibility of a welder to protect themselves encompasses all welding hazards. This includes a variety of potential risks, such as exposure to harmful fumes and gases, intense light radiation, heat, electrical hazards, and the risk of fire or explosions. Each of these hazards can lead to serious health issues or injuries if proper precautions are not taken. Welders are trained to recognize these risks and implement safety measures to mitigate them, like using personal protective equipment (PPE) such as helmets with appropriate filters, gloves, protective clothing, and ensuring proper ventilation in the welding area. Additionally, adherence to safety protocols and regulations is essential for maintaining a safe working environment. By taking responsibility for all welding hazards, welders can ensure their own safety and health, as well as that of their coworkers. This comprehensive approach to safety is crucial in the welding profession, making it essential that welders are aware of all the hazards they face and proactively work to protect themselves against them.

8. What type of shirt pocket is recommended for welders?

A. Flaps

B. Buttons

C. Open

D. Deep

The recommended type of shirt pocket for welders is one with flaps. This design is primarily advantageous because it helps secure items stored within the pocket, preventing them from falling out easily, especially in environments where movement and activity are common. Welders often work in conditions that may involve sparks, molten metal, and various tools. A flap pocket provides additional protection by keeping small tools, pens, or other essentials safely contained while also minimizing the risk of them getting caught or damaged during welding operations. Moreover, the flap can provide some insulation against heat and sparks compared to open pockets, which are more susceptible to similar hazards. In contrast, a button pocket might not be as practical for quick access and could require more time to open and close. Open pockets, while convenient for quick retrieval, carry a higher risk of losing items, particularly in a busy or hazardous work environment. Deep pockets can provide space but may lead to difficulty in reaching for and retrieving items efficiently, especially if the welder needs to access tools rapidly. Therefore, flaps combine security with accessibility, making them the preferred choice for welding shirts.

9. Why does friction wear occur on a split wedge or double disc valve?

A. Because the valve is improperly installed

B. Because the seat and disc contact only in the closed position

C. Because of corrosion in the pipeline

D. Because it is made from inferior materials

Friction wear on a split wedge or double disc valve primarily occurs because the seat and disc contact only in the closed position. When the valve is closed, the two surfaces come into direct contact, and as the valve operates, the movement can create friction between these surfaces. If there is insufficient lubrication, or if the material properties of the disc and seat are not optimal, this friction can lead to wear over time. When the valve is in the open position, the disc is generally lifted away from the seat, minimizing direct contact and wear. However, during the closing and sealing phases, that contact becomes crucial. The nature of the design means that wear can be intensified at the point of closure, especially if the valve is frequently cycled or if there are any misalignments during installation that cause uneven contact. Though improper installation, corrosion, or inferior materials can contribute to overall valve failure or decreased performance, they do not directly explain the specific mechanism of friction wear experienced when the disc and seat interface is engaged. The key factor here is the operating dynamics of the valve in its closed position, which directly involves the friction generated between the two contacting surfaces.

10. Is it true that Argon gas, being lighter than air, does not cause respiratory problems in confined spaces?

A. True

B. False

C. Sometimes true

D. Not enough information

Argon gas is indeed heavier than air, which is an important detail in understanding its effects in confined spaces. Because it is heavier, argon can accumulate in low areas, displacing oxygen and potentially creating an oxygen-deficient environment. This means that even though argon itself is not toxic and does not cause respiratory problems directly when inhaled in small quantities, the danger arises when it displaces oxygen in an enclosed area. A lack of sufficient oxygen can lead to asphyxiation and serious health risks, particularly in confined spaces where air circulation is limited. Therefore, it is important to recognize that the presence of argon in such environments can lead to significant respiratory problems due to the reduced availability of breathable air.