

CWEA Collections Grade 2 Journey/Analyst Practice Test (Sample)

Study Guide



Everything you need from our exam experts!

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SAMPLE

Questions

- 1. Which of these factors can help improve the longevity of sewer pipes?**
 - A. Regular cleaning**
 - B. Increased pressure testing**
 - C. Seal tightness evaluations**
 - D. All of the above**
- 2. How many types of common shoring are there?**
 - A. 4**
 - B. 5**
 - C. 6**
 - D. 7**
- 3. When calculating volume, which formula is used for a right circular cylinder?**
 - A. $V = \text{Length} \times \text{Width} \times \text{Height}$**
 - B. $V = \pi \times \text{Radius}^2 \times \text{Height}$**
 - C. $V = 2 \times \text{Length} \times \text{Diameter}$**
 - D. $V = \text{Diameter} \times \text{Diameter} \times \text{Length of Pipe}$**
- 4. What is a key benefit of using floats in pump operations?**
 - A. They enhance the pump's longevity**
 - B. They help maintain proper fluid levels**
 - C. They maximize energy efficiency**
 - D. They are cost-effective over time**
- 5. What is the primary purpose of sewer line inspections?**
 - A. To locate potential customers for water services**
 - B. To identify clogs and minimize service disruptions**
 - C. To determine the best landscaping solutions**
 - D. To evaluate employee performance on-site**
- 6. Why is proper design important for a collection system?**
 - A. To reduce the number of employees needed**
 - B. To ensure it can handle peak flow conditions without overflow**
 - C. To minimize construction costs**
 - D. To improve energy efficiency in treatment**

- 7. What is the correct conversion factor to convert cubic feet to gallons?**
- A. 1 cu ft = 5.34 gal**
 - B. 1 cu ft = 7.48 gal**
 - C. 1 cu ft = 10 gal**
 - D. 1 cu ft = 3.785 L**
- 8. What does a "collection system master plan" typically include?**
- A. Immediate crisis management strategies**
 - B. Future growth strategies and funding sources**
 - C. Daily operational procedures and protocols**
 - D. Cost-cutting measures and layoffs**
- 9. Is it true that infiltration can be caused by cracked pipes?**
- A. True**
 - B. False**
 - C. Only in certain circumstances**
 - D. Not at all**
- 10. What role do pumps play in a collection system?**
- A. They filter solid waste from liquids**
 - B. They help move wastewater from one point to another against gravity**
 - C. They treat water for safe discharge**
 - D. They monitor water quality continuously**

Answers

SAMPLE

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

SAMPLE

Explanations

1. Which of these factors can help improve the longevity of sewer pipes?

- A. Regular cleaning**
- B. Increased pressure testing**
- C. Seal tightness evaluations**
- D. All of the above**

Regular cleaning of sewer pipes helps to remove buildup of debris, sediments, and grease that can lead to blockages and deterioration over time. By maintaining clear pipes, you minimize the risk of backflow and infrastructural strain, contributing to the overall lifespan of the sewer system. Increased pressure testing assesses the integrity of the pipes by identifying leaks and weaknesses that may not be visible otherwise. By subjecting the pipes to pressure testing, any potential issues can be detected early, allowing for timely maintenance and repairs, which ultimately extends the life of the sewer pipes. Seal tightness evaluations are crucial for ensuring that joints between pipes are correctly sealed, preventing leaks and infiltration of groundwater, which can damage the pipes and lead to structural failures. Regular evaluations help maintain the system's efficiency and prevent water loss, further enhancing the longevity of the infrastructure. Each of these factors plays a vital role in maintaining sewer pipe integrity, making the combined approach of regular cleaning, pressure testing, and seal evaluations essential for prolonging the life of sewer systems.

2. How many types of common shoring are there?

- A. 4**
- B. 5**
- C. 6**
- D. 7**

The correct answer highlights that there are six types of common shoring techniques typically recognized in construction and engineering contexts. Shoring is a process used to provide temporary support to structures during construction or repair. The six common types often include: 1. ****Vertical Shoring**** - This is used to support vertical loads and may involve posts or columns. 2. ****Inclined Shoring**** - This type supports structures at an angle, often utilized when vertical shoring can't be applied effectively. 3. ****Dead Shoring**** - A more permanent type of shoring that involves heavier and more stable supports, intended for longer durations. 4. ****Flying Shoring**** - Used to support upper levels of structures when the lower sections are not yet complete. 5. ****Raking Shoring**** - This applies angled supports from a fixed point to the soil or structure being supported. 6. ****Soft Shoring**** - Generally involves lighter, more flexible materials used to provide temporary support under less severe conditions. Recognizing these six types is essential for understanding how each technique serves specific needs in shoring applications, providing structural stability and safety in various construction scenarios. The knowledge of these variations also helps professionals choose the most appropriate method based on site-specific conditions and structural requirements.

3. When calculating volume, which formula is used for a right circular cylinder?

A. $V = \text{Length} \times \text{Width} \times \text{Height}$

B. $V = \pi \times \text{Radius}^2 \times \text{Height}$

C. $V = 2 \times \text{Length} \times \text{Diameter}$

D. $V = \text{Diameter} \times \text{Diameter} \times \text{Length of Pipe}$

The formula for calculating the volume of a right circular cylinder is $V = \pi \times \text{Radius}^2 \times \text{Height}$. This formula derives from the geometric principles underlying the shape of the cylinder. In this case, the volume is found by multiplying the area of the circular base (which is calculated as $\pi \times \text{Radius}^2$) by the height of the cylinder. The reason this formula is used specifically for cylinders is that it accurately accounts for the circular cross-section, and it integrates the height to establish the three-dimensional space the cylinder occupies. The presence of π is crucial as it reflects the relationship between the diameter and the radius of the circular base. When calculating, the radius must be squared to find the total area of the base before multiplying by the height to extend that area into the third dimension. Other options do not accurately represent the formula required for a right circular cylinder. For instance, using length, width, and height as in the first option pertains to rectangular prisms rather than circular shapes. The others focus on dimensions and relationships that do not apply to the circular cross-section of a cylinder, leading to incorrect methods of calculating volume.

4. What is a key benefit of using floats in pump operations?

A. They enhance the pump's longevity

B. They help maintain proper fluid levels

C. They maximize energy efficiency

D. They are cost-effective over time

Using floats in pump operations is essential for maintaining proper fluid levels. A float is a device that rises and falls with the fluid level, providing a continuous measurement of that level. This real-time feedback enables the pump control system to respond appropriately, such as activating or deactivating the pump based on the fluid's status. By ensuring that fluid levels remain within designated thresholds, floats help prevent issues like overflows, dry running of pumps, or insufficient fluid levels that could disrupt processes. Maintaining optimal fluid levels not only supports operational efficiency but also contributes to the overall safety and reliability of the system.

5. What is the primary purpose of sewer line inspections?

- A. To locate potential customers for water services**
- B. To identify clogs and minimize service disruptions**
- C. To determine the best landscaping solutions**
- D. To evaluate employee performance on-site**

The primary purpose of sewer line inspections is to identify clogs and minimize service disruptions. This is essential because clogs in sewer lines can lead to significant problems, including backups, overflows, and potential health hazards due to exposure to wastewater. Regular inspections help in detecting any blockages or deteriorations within the sewer system before they escalate into major issues that could disrupt service to the community. By proactively identifying these problems, maintenance can be scheduled and executed, ensuring the sewer system functions efficiently and effectively without interruptions. This approach not only maintains public health and safety but also protects the infrastructure and prevents costly repairs from emergency situations.

6. Why is proper design important for a collection system?

- A. To reduce the number of employees needed**
- B. To ensure it can handle peak flow conditions without overflow**
- C. To minimize construction costs**
- D. To improve energy efficiency in treatment**

Proper design is crucial for a collection system primarily to ensure it can handle peak flow conditions without overflow. During periods of high rainfall, snowmelt, or other peak flow events, a well-designed system accommodates increased water flow effectively. This prevents situations where the system might exceed its capacity, which can lead to overflows and subsequent environmental issues, such as pollution or damage to public health by contaminating surrounding areas with untreated wastewater. Furthermore, a robust design helps maintain appropriate hydraulic performance, ensuring that all components of the system, such as pipes and pumps, function optimally under varying conditions. This not only ensures compliance with regulatory requirements but also prolongs the lifespan of the infrastructure by avoiding excessive stress that could lead to failures or costly repairs in the future. Proper design ultimately safeguards public health and environmental integrity by proactively managing flow conditions.

7. What is the correct conversion factor to convert cubic feet to gallons?

A. 1 cu ft = 5.34 gal

B. 1 cu ft = 7.48 gal

C. 1 cu ft = 10 gal

D. 1 cu ft = 3.785 L

The correct conversion factor to convert cubic feet to gallons is 7.48 gallons per cubic foot. This conversion is based on the established relationship between these two units of volume. One cubic foot is equivalent to the volume of a cube with each side measuring one foot, which translates to approximately 7.48 gallons when converted to gallons. This makes it essential for applications where volume measurements in cubic feet need to be expressed in gallons, such as in water management and collection systems.

Understanding this conversion is vital for professionals working in environmental services, especially in fields dealing with wastewater management or water distribution, as accurate volume measurements are crucial for efficient system operations and calculations.

8. What does a "collection system master plan" typically include?

A. Immediate crisis management strategies

B. Future growth strategies and funding sources

C. Daily operational procedures and protocols

D. Cost-cutting measures and layoffs

A "collection system master plan" is a strategic document that outlines the long-term vision and framework for managing a collection system. It typically includes future growth strategies and funding sources, which are crucial for ensuring that the system can accommodate anticipated increases in demand, adapt to regulatory changes, and incorporate technological advancements. This plan takes into account population growth, urban development, and potential environmental impacts that may require infrastructure expansion or upgrades. It also addresses funding sources necessary for these developments, including potential grants, public-private partnerships, or other financial mechanisms. This foresight enables effective planning and allocation of resources to ensure the collection system remains robust, efficient, and sustainable over time.

9. Is it true that infiltration can be caused by cracked pipes?

- A. True**
- B. False**
- C. Only in certain circumstances**
- D. Not at all**

Infiltration refers to the unwanted entry of groundwater into a sewer system, which can significantly impact the system's performance and lead to issues such as overloading treatment facilities during wet weather events. Cracked pipes can indeed be a source of this infiltration. When pipes crack, gaps or openings can form that allow groundwater to seep into the sewer line. This infiltration can create additional flow that the wastewater treatment system is not designed to handle, potentially leading to overflows and other operational challenges. Therefore, recognizing that cracked pipes can contribute to infiltration is crucial for maintaining the integrity and functionality of the sewer system.

10. What role do pumps play in a collection system?

- A. They filter solid waste from liquids**
- B. They help move wastewater from one point to another against gravity**
- C. They treat water for safe discharge**
- D. They monitor water quality continuously**

Pumps are essential components in a collection system primarily because they facilitate the movement of wastewater from one location to another, particularly when faced with gravitational challenges. In many sewer systems, wastewater must travel uphill or through various infrastructure that does not allow it to flow solely via gravity. By using pumps, operators can ensure the consistent and efficient transportation of wastewater to treatment facilities or to specific destinations within the system, overcoming elevations and other obstacles. The necessity of pumping within wastewater collection systems is a critical factor in maintaining the overall effectiveness and reliability of waste management operations. By employing pumps, facilities can prevent potential backups and overflow situations, which can lead to environmental hazards and health risks. This operational capability not only enhances the functionality of the collection system but also supports compliance with regulatory standards regarding wastewater handling.