

Septic Pumper Practice Test (Sample)

Study Guide



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SAMPLE

Questions

SAMPLE

- 1. Which type of waste is characterized by high organic content and pathogens?**
 - A. Black water**
 - B. Gray water**
 - C. Contaminated water**
 - D. Storm water**
- 2. Which is a disadvantage of a conventional septic system?**
 - A. Low maintenance cost**
 - B. Requires a large area**
 - C. Easily customizable**
 - D. High efficiency**
- 3. If soil contains 35% or more rock fragments but less than 60%, it is classified as what?**
 - A. Gravelly**
 - B. Extremely Gravelly**
 - C. Very Gravelly**
 - D. Clayey**
- 4. How is the volume of a rectangle or circular tank with uniform depth calculated?**
 - A. Velocity / Flow**
 - B. Area * Time**
 - C. Time * Area**
 - D. Depth * Area**
- 5. What is the average daily flow (in gpd) for a system serving 1100 people with a total flow of 80,000 gpd?**
 - A. 50 gpd/cap**
 - B. 73 gpd/cap**
 - C. 90 gpd/cap**
 - D. 101 gpd/cap**

- 6. Which best describes a "Drainfield" in septic systems?**
- A. A soil dispersal component consisting of an excavation with a width greater than 3 feet.**
 - B. A pit receiving untreated sewage and allowing the liquid to seep into the surrounding soil or rock.**
 - C. SSAS and soil dispersal component.**
 - D. Storage area for solid waste before treatment.**
- 7. What is a drain-field primarily considered to be?**
- A. treatment component**
 - B. treatment and collection component**
 - C. treatment and dispersal component**
 - D. disposal component**
- 8. A system that has both treatment and disposal components is known as what?**
- A. Septic system**
 - B. Gray water system**
 - C. Mound system**
 - D. Advanced treatment unit**
- 9. What is the primary function of the drainfield system following a septic tank?**
- A. A. Providing moisture for the soil cover crops**
 - B. B. Dispersing nutrients over a wider area**
 - C. C. Allowing for further waste treatment prior to disposal**
 - D. D. Recharging local groundwaters**
- 10. What is the pH scale range for measuring acidity and alkalinity?**
- A. 1-14**
 - B. 7.5 - 8.5**
 - C. 0 - 14**
 - D. 1 - 9**

Answers

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

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Explanations

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1. Which type of waste is characterized by high organic content and pathogens?

- A. Black water**
- B. Gray water**
- C. Contaminated water**
- D. Storm water**

Black water is characterized by its high organic content and the presence of pathogens, making it distinct from other types of wastewater. It typically originates from toilets and contains human waste, which not only has a significant amount of organic material but also poses health risks due to the potential presence of bacteria, viruses, and other harmful microorganisms. Gray water, in contrast, refers to wastewater generated from sinks, showers, and laundry, and while it may contain some organic matter, it lacks the pathogenic content found in black water. Contaminated water can vary widely in its pollutants and does not specifically refer to high organic content or pathogens. Storm water is runoff from precipitation that may gather dirt and debris but is not typically associated with high organic content or pathogens like black water. Therefore, black water is the correct answer as it directly matches the definition related to high organic content and the risk of pathogens.

2. Which is a disadvantage of a conventional septic system?

- A. Low maintenance cost**
- B. Requires a large area**
- C. Easily customizable**
- D. High efficiency**

A conventional septic system is designed to treat wastewater from individual households, typically requiring a significant amount of land to accommodate both the septic tank and the drain field. The drain field, which is vital for the dispersal and treatment of effluent, needs to be properly sized and located to protect groundwater and ensure effective biological treatment. This requirement for a large area can be a significant disadvantage, especially in densely populated regions or smaller properties where space is limited. In contrast, low maintenance cost, ease of customization, and high efficiency are generally considered advantages of conventional septic systems, depending on the specific installation and care involved. However, the requirement for extensive land usage remains a critical factor in considering the practicality and feasibility of installing a conventional septic system.

3. If soil contains 35% or more rock fragments but less than 60%, it is classified as what?

A. Gravelly

B. Extremely Gravelly

C. Very Gravelly

D. Clayey

Soils that contain between 35% and 60% rock fragments are classified based on the percentage of these fragments. When a soil contains 35% or more but less than 60% rock fragments, it falls into the category of "Very Gravelly." This classification is based on the relative abundance of rock particles, which impacts soil texture, drainage, and overall characteristics. In this context, "Very Gravelly" specifically denotes a proportion where gravel-like particles are significant enough to influence the soil's properties, including its ability to retain moisture or nutrients. This distinction is important for applications like agriculture, landscaping, and septic system design, as the soil's texture can affect water movement and filtration, which are critical considerations for systems relying on soil absorption and treatment. Other classification options exist for different percentages of rock fragments, but only the term "Very Gravelly" accurately describes the specific range mentioned in the question.

4. How is the volume of a rectangle or circular tank with uniform depth calculated?

A. Velocity / Flow

B. Area * Time

C. Time * Area

D. Depth * Area

The volume of a tank, whether it's rectangular or circular and has a uniform depth, is determined by multiplying the depth of the tank by the area of its base. This is because volume is essentially the amount of space that an object occupies, and for a uniform shape like a tank, this can be calculated as the product of the area of the base and the height (or depth) of the tank. In the case of a rectangular tank, the area is calculated by multiplying its length by its width. For a circular tank, the area is determined using the formula for the area of a circle, which is π (pi) multiplied by the radius squared. Regardless of the shape, after calculating that base area, you simply multiply it by the depth of the tank to get the total volume. Understanding this concept is critical for septic pumpers and anyone working with tanks or reservoirs, as it directly relates to how much liquid can be stored or managed within these systems, which is essential for effective operation and management.

5. What is the average daily flow (in gpd) for a system serving 1100 people with a total flow of 80,000 gpd?

A. 50 gpd/cap

B. 73 gpd/cap

C. 90 gpd/cap

D. 101 gpd/cap

To find the average daily flow per capita, you can divide the total flow of the system by the number of people it serves. In this case, the total flow is 80,000 gallons per day (gpd) and the number of people is 1,100. Calculating the per capita flow:
$$\text{Average daily flow per capita} = \frac{\text{Total flow}}{\text{Number of people}} = \frac{80,000 \text{ gpd}}{1,100 \text{ people}}$$
 When you perform that calculation, the result is approximately 72.73 gpd per capita, which can be rounded to 73 gpd per capita. This figure represents the average amount of wastewater generated by each person in the system on a daily basis. This calculation is essential in designing and managing septic systems, as it helps to ensure that the system can adequately handle the load generated by the population it serves. 73 gpd per capita is a realistic estimate often used in wastewater management planning.

6. Which best describes a "Drainfield" in septic systems?

A. A soil dispersal component consisting of an excavation with a width greater than 3 feet.

B. A pit receiving untreated sewage and allowing the liquid to seep into the surrounding soil or rock.

C. SSAS and soil dispersal component.

D. Storage area for solid waste before treatment.

The term "drainfield" refers to a critical component of a septic system, specifically designed for the dispersion and treatment of sewage effluent. It consists of a series of trenches or beds filled with gravel or other permeable material that are interconnected to allow the effluent to seep into the surrounding soil. This process facilitates the natural filtration of the wastewater as it moves through the soil, promoting the removal of pathogens and nutrients, thereby protecting groundwater and the environment. The mention of SSAS, or Subsurface Sewage Absorption Systems, indicates an awareness of the terminology used in modern septic systems, where the drainfield is indeed a type of soil dispersal component. This reinforces the definition of the drainfield as it highlights its function in efficiently absorbing and treating sewage effluent. In contrast, some of the other options describe different components or systems that do not accurately capture the full role and function of a drainfield within the context of septic systems. For instance, a pit receiving untreated sewage primarily describes a cesspool, which is an outdated and less effective method compared to the drainfield in treating and dispersing waste.

7. What is a drain-field primarily considered to be?

- A. treatment component**
- B. treatment and collection component**
- C. treatment and dispersal component**
- D. disposal component**

A drain-field is primarily considered a treatment and dispersal component of a septic system. Its main function is to receive effluent from the septic tank, allowing it to undergo further treatment as it percolates through soil layers. This process also disperses the effluent, allowing it to be absorbed into the surrounding soil. The effluent is treated biologically by soil microorganisms that break down harmful pathogens and contaminants present in the wastewater, thereby reducing pollution and protecting groundwater resources. In this context, the drain-field plays a crucial role in ensuring that treated effluent is safely released into the environment. The characterization of a drain-field as simply a treatment component overlooks its vital role in dispersing the treated effluent into the soil, which is equally important for preventing groundwater contamination. Therefore, it fulfills a dual function that is integral to the effectiveness and safety of a septic system.

8. A system that has both treatment and disposal components is known as what?

- A. Septic system**
- B. Gray water system**
- C. Mound system**
- D. Advanced treatment unit**

The correct answer is a septic system. A septic system is designed to handle both the treatment of wastewater and its subsequent disposal. It typically consists of various components, including a septic tank where solids are settled and partially treated, followed by a drain field or leach field that allows the treated effluent to percolate into the soil for final treatment and dispersal. Understanding the nature of this system is crucial because it operates on the principle of natural processes to treat and manage wastewater safely on-site. This dual function of treating and disposing of waste is what distinguishes a septic system from other options. Other systems mentioned, such as gray water systems or advanced treatment units, primarily focus on specific aspects of wastewater management, like reusing water from sinks or enhancing treatment, but they do not encompass both treatment and disposal functions as integral parts of a singular system. A mound system, while also a form of septic system, refers specifically to a particular design used in areas with site constraints, yet it still ultimately falls under the broader definition of a septic system.

9. What is the primary function of the drainfield system following a septic tank?
- A. A. Providing moisture for the soil cover crops
 - B. B. Dispersing nutrients over a wider area
 - C. C. Allowing for further waste treatment prior to disposal**
 - D. D. Recharging local groundwaters

The primary function of the drainfield system following a septic tank is to allow for further waste treatment prior to disposal. After wastewater flows from the septic tank, it enters the drainfield, where it is further treated as it percolates through the soil. This process involves the natural filtration and biological treatment of the effluent. Soil microorganisms play a crucial role in breaking down organic matter and pathogens in the wastewater, effectively purifying it before it finally reaches the groundwater. The design and construction of the drainfield are specifically intended to enhance this treatment process, ensuring that contaminants are reduced significantly before the water enters the surrounding environment. While other functions might occur, such as nutrient dispersion or groundwater recharge, they are secondary to the main role of providing additional treatment. The drainfield is critical for maintaining environmental safety and protecting public health by ensuring that sewage effluent is handled properly after initial treatment in the septic tank.

10. What is the pH scale range for measuring acidity and alkalinity?
- A. 1-14
 - B. 7.5 - 8.5
 - C. 0 - 14**
 - D. 1 - 9

The pH scale is a logarithmic scale used to quantify the acidity or alkalinity of a solution, and it ranges from 0 to 14. A pH of 7 is considered neutral, indicating a balance between acidity and alkalinity. Values below 7 indicate increasing acidity, while values above 7 indicate increasing alkalinity. This broad scale allows for differentiation between weak acids, strong acids, weak bases, and strong bases, providing a comprehensive understanding of the chemical properties of different substances. Understanding the full scale is vital in various fields, including septic system maintenance, where the pH can influence microbial activity and the overall health of the system.