

Texas Registered Sanitarian Practice Exam (Sample)

Study Guide



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SAMPLE

Questions

- 1. Upon hearing an order for evacuation, what should an individual do first?**
 - A. Contact emergency services**
 - B. Turn off utility services to the building**
 - C. Secure important documents**
 - D. Evacuate immediately**
- 2. What does a mottled brown and red soil typically indicate?**
 - A. Excessive moisture**
 - B. Inadequate aeration methods**
 - C. Nutrient-rich composition**
 - D. Low pH levels**
- 3. A young lake is considered to be:**
 - A. Eutrophic**
 - B. Mesotrophic**
 - C. Oligotrophic**
 - D. Hypereutrophic**
- 4. Which federal agency is responsible for regulating food additives?**
 - A. USDA - United States Department of Agriculture**
 - B. EPA - Environmental Protection Agency**
 - C. FDA - Food and Drug Administration**
 - D. NIA - National Institute of Agriculture**
- 5. What is measured in nephelometric turbidity units (NTU)?**
 - A. The amount of light absorption in water**
 - B. The clarity of drinking water**
 - C. The amount of light scattered by suspended particles**
 - D. The concentration of dissolved solids in water**
- 6. What is one of the long-term effects of lead poisoning?**
 - A. Bone fractures**
 - B. Learning disabilities**
 - C. Cardiovascular diseases**
 - D. Skin infections**

- 7. Which type of swimming facility is generally prohibited from a public health perspective?**
- A. Infinity pool**
 - B. Natural swimming pond**
 - C. Fill and Draw pool**
 - D. Hydrotherapy pool**
- 8. The roentgen is a measure of ionization in air produced by exposure to which types of radiation?**
- A. Alpha particles**
 - B. Beta particles**
 - C. X rays or gamma rays**
 - D. Neutrons**
- 9. What is the minimum percentage of total pool water that gutters or skimmers should receive due to the presence of floating organisms and materials?**
- A. 30%**
 - B. 50%**
 - C. 60%**
 - D. 70%**
- 10. Which of the following statements about ozone as a disinfectant is NOT true?**
- A. Long lasting residual**
 - B. Source of dissolved oxygen**
 - C. Excellent air purifying agent**
 - D. Non-toxic to aquatic organisms**

Answers

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

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Explanations

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1. Upon hearing an order for evacuation, what should an individual do first?

- A. Contact emergency services**
- B. Turn off utility services to the building**
- C. Secure important documents**
- D. Evacuate immediately**

The most appropriate first action upon hearing an order for evacuation is to evacuate immediately. The rationale behind this action is that evacuation orders are typically issued during emergencies to ensure the safety of individuals, often in response to imminent dangers such as natural disasters, hazardous material spills, or other urgent threats to life and health. The priority during such situations is to leave the area as quickly and safely as possible. Delaying evacuation to turn off utility services can pose a significant risk, as it may expose individuals to further hazards or reduce the time available for safe evacuation. Similarly, while securing important documents is important, it should not take precedence over ensuring one's immediate safety. In emergency management, the focus is on protecting lives first and foremost, and following an evacuation order promptly is crucial for personal safety and the well-being of all individuals affected by the situation. Therefore, the correct action is to evacuate immediately in response to an evacuation order.

2. What does a mottled brown and red soil typically indicate?

- A. Excessive moisture**
- B. Inadequate aeration methods**
- C. Nutrient-rich composition**
- D. Low pH levels**

Mottled brown and red soil typically indicates inadequate aeration methods. This mottling occurs when there are fluctuations between saturated and unsaturated conditions in the soil, often a sign of poor drainage or limited air movement within the soil structure. In poorly aerated soils, microbial activity decreases, affecting the overall health of the soil and plant life. Additionally, mottled soils can reveal that certain areas of the soil are experiencing anaerobic conditions (lack of oxygen), which is often linked to insufficient aeration. These conditions make it difficult for roots to access necessary nutrients and moisture effectively, leading to poorer growth and crop yields. Proper aeration is essential for maintaining the balance of water and air in the soil, promoting healthy root development, and supporting overall soil health. In contrast, while excessive moisture can lead to soil problems, it does not specifically result in the mottled appearance associated with inadequate aeration. Nutrient-rich soil or low pH levels do not typically show such mottling; these attributes would manifest differently in the soil's physical and chemical characteristics.

3. A young lake is considered to be:

- A. Eutrophic**
- B. Mesotrophic**
- C. Oligotrophic**
- D. Hypereutrophic**

A young lake is considered to be oligotrophic due to its characteristics during the early stages of development. Oligotrophic lakes typically have clear water, low nutrient levels (especially nitrogen and phosphorus), and high oxygen concentrations throughout the water column. These conditions are favorable for specific types of aquatic life, such as cold-water fish, which thrive in cooler, well-oxygenated waters. In the early stage of a lake's development, it accumulates minimal organic matter and sediments, which contributes to its clarity and low nutrient availability. This nutrient-poor condition fosters a limited primary production, meaning that there are fewer phytoplankton and aquatic plants compared to more mature lakes. As a lake ages, it can transition to a more nutrient-rich state—such as mesotrophic or eutrophic—depending on external influences like nutrient runoff, but a young lake is distinctly characterized by its oligotrophic status. This is in contrast to the other classifications, which indicate different stages and nutrient levels in lake ecosystems.

4. Which federal agency is responsible for regulating food additives?

- A. USDA - United States Department of Agriculture**
- B. EPA - Environmental Protection Agency**
- C. FDA - Food and Drug Administration**
- D. NIA - National Institute of Agriculture**

The Food and Drug Administration (FDA) is the federal agency responsible for regulating food additives. The FDA's role includes ensuring that food additives are safe for consumption and effective for their intended use. The agency evaluates scientific data and research provided by manufacturers before approving the additives for use in food products. This regulatory function is critical in protecting public health by ensuring that substances added to food do not pose any danger to consumers. The FDA also oversees compliance with established regulations concerning labeling and safety standards. This includes the review processes for both new food additives and those that are already in use, ensuring ongoing monitoring for any potential health risks that may arise as more research is conducted. This regulatory authority is distinct from that of the USDA, which focuses more on the agricultural side of food production and animal health, the EPA, which regulates environmental pollutants and chemicals, and the NIA, which does not specifically regulate food additives. The unique responsibility of the FDA in this area underscores its critical role in the food safety system in the United States.

5. What is measured in nephelometric turbidity units (NTU)?

- A. The amount of light absorption in water**
- B. The clarity of drinking water**
- C. The amount of light scattered by suspended particles**
- D. The concentration of dissolved solids in water**

The measurement expressed in nephelometric turbidity units (NTU) quantifies the amount of light scattered by suspended particles in a liquid, particularly water. When light passes through a sample of water, the presence of these suspended particles causes scattering, and this scattering is a direct indicator of how clear or murky the water is. Therefore, NTU values are particularly useful for assessing water clarity; lower NTU values indicate clearer water, while higher values signal increased turbidity due to particles such as sediments, microorganisms, or pollutants. While the clarity of drinking water is relevant to turbidity, it is the scattering of light caused by suspended particles that is the actual physical phenomenon being measured. Hence, the clarity of drinking water is not directly measured, but inferred through the NTU readings. Measurements of light absorption pertain to different properties of water quality and do not directly relate to turbidity. Additionally, the concentration of dissolved solids might impact the overall clarity but is not what NTU specifically quantifies, since dissolved solids do not scatter light in the same manner as suspended particles do.

6. What is one of the long-term effects of lead poisoning?

- A. Bone fractures**
- B. Learning disabilities**
- C. Cardiovascular diseases**
- D. Skin infections**

One of the long-term effects of lead poisoning is learning disabilities. Lead exposure, especially in young children, can significantly disrupt normal brain development, leading to challenges in cognitive function, attention, and overall learning ability. This toxic exposure affects the nervous system, hindering the brain's capacity to process information and learn effectively, which can result in difficulties with reading, math, and other academic skills. While bone fractures, cardiovascular diseases, and skin infections are health concerns, they are not directly associated with the defining long-term cognitive impacts of lead poisoning. Instead, the primary concern for those affected by lead is the potential for impaired cognitive development and learning challenges, making it an essential issue in public health and child development.

7. Which type of swimming facility is generally prohibited from a public health perspective?

- A. Infinity pool**
- B. Natural swimming pond**
- C. Fill and Draw pool**
- D. Hydrotherapy pool**

The fill and draw pool is generally prohibited from a public health perspective due to significant concerns regarding water quality and safety. These pools operate by filling the basin with water and then draining it after use, which can complicate efforts to maintain disinfectant levels and overall water sanitation. This intermittent operation makes it challenging to ensure consistent water quality, which is essential in preventing the spread of waterborne illnesses and ensuring a safe environment for users. In contrast, infinity pools, natural swimming ponds, and hydrotherapy pools can be designed and maintained in ways that meet public health standards. Infinity pools typically utilize continuous circulation and advanced filtration systems. Natural swimming ponds can be designed with biofiltration that effectively cleans water without the need for harsh chemicals. Hydrotherapy pools may also have rigorous sanitation protocols in place. Consequently, the unique operational challenges and potential health risks associated with fill and draw pools lead to their prohibition in many jurisdictions.

8. The roentgen is a measure of ionization in air produced by exposure to which types of radiation?

- A. Alpha particles**
- B. Beta particles**
- C. X rays or gamma rays**
- D. Neutrons**

The roentgen is specifically defined as a unit that measures the exposure to ionizing radiation, particularly the ionization of air. It quantifies the amount of ionization produced in air when it is subjected to X-rays or gamma rays, which are forms of electromagnetic radiation. When X-rays or gamma rays pass through air, they interact with air molecules, causing ionization, which is what the roentgen measures. This makes the selection of X rays or gamma rays as the correct answer appropriate, as the roentgen quantifies the effects of these types of radiation on air. In contrast, while alpha and beta particles can also produce ionization, they do so in different contexts and are not measured in roentgens, as this unit specifically relates to air ionization caused by high-energy photons such as X-rays and gamma rays. Neutrons, although capable of causing ionization through secondary processes, do not fit the definition as strictly as X rays or gamma rays do when it comes to measuring in roentgens.

9. What is the minimum percentage of total pool water that gutters or skimmers should receive due to the presence of floating organisms and materials?

- A. 30%
- B. 50%
- C. 60%**
- D. 70%

The requirement that gutters or skimmers should receive a minimum of 60% of the total pool water is based on effective pool hygiene and sanitation practices. This percentage is essential because it ensures the removal of floating debris, microorganisms, and organic matter such as algae and bacteria. When a skimming system operates effectively, it prevents contaminants from settling at the bottom of the pool, thereby helping to maintain water clarity and quality. A skimming system that can achieve or exceed this minimum percentage is more effective at promoting circulation throughout the pool, enhancing the overall efficiency of chemical treatments, and contributing to better disinfection. Adequate water circulation is crucial in pools, as stagnant water can lead to the proliferation of harmful pathogens. This threshold effectively supports proper water management, making it an integral element of pool design and maintenance regulations.

10. Which of the following statements about ozone as a disinfectant is NOT true?

- A. Long lasting residual**
- B. Source of dissolved oxygen
- C. Excellent air purifying agent
- D. Non-toxic to aquatic organisms

Ozone is known for its effectiveness as a disinfectant, particularly in water treatment processes and air purification systems. However, its properties include a very short half-life, which means that it does not have a long-lasting residual effect once it has been applied. As ozone decomposes back into oxygen relatively quickly, it loses its disinfecting capabilities shortly after application. Therefore, the statement regarding its long-lasting residual is not true. In contrast, ozone does contribute to increased levels of dissolved oxygen in water, an important characteristic for aquatic ecosystems. It is widely recognized for its efficacy in purifying the air by breaking down pollutants and harmful microorganisms, making it an excellent air purifying agent. While ozone is generally considered harmful to aquatic life in high concentrations, under controlled and proper use during disinfection processes, it can be managed to minimize toxicity, although stating it is non-toxic can be misleading without context. This distinction about ozone's properties is crucial for understanding its application and limitations in sanitation practices.