Construction Health and Safety Technician (CHST) Practice Test (Sample)

Study Guide

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Questions

1. Which statement about burns is typically NOT true?

A. A third-degree burn usually has the most pain of the three types

B. First-degree burns involve only the epidermis

C. Second-degree burns can cause blisters

D. Burns can result in loss of skin function

2. What will be the speed of a 4-inch diameter grinding wheel operating at 12,000 rpm?

A. 12,000 surface feet per minute

B. 12,566 surface feet per minute

C. 11,000 surface feet per minute

D. 13,000 surface feet per minute

3. For accident investigation, which of the following is typically the first step?

A. Identifying potential witness statements

B. Determining the cause of the accident

C. Securing the accident scene

D. Reviewing safety protocols

4. What document outlines the requirements for chemical hazard communication?

A. OSHA 1910.1200

B. NIOSH 3000

C. ANSI Z535

D. ASTM E841

5. Total case incident rate (TCIR) is calculated via which of the following?

A. (Number of recordable injuries per year x 200,000) Divided by (Total hours worked)

B. (Total injuries x 1,000,000) Divided by (Total hours worked)

C. (Recordable incidents x 100) Divided by (Total workforce)

D. (Total incidents x 100,000) Divided by (Total hours worked)

6. Statistical "variance" provides quantitative information about which of the following?

A. The average value of a data set

B. The degree to which a set of data values is spread apart

C. The total number of data points in a set

D. The median value in a data set

7. Raynaud's Phenomenon would likely be encountered during which operation?

A. Operating a jack hammer by hand

B. Welding in cold environments

C. Using a concrete mixer

D. Handling heavy materials

8. During which type of job should Lyme Disease be considered as a potential occupational illness?

A. Roofing work

B. Land surveying, clearing, and grubbing

C. Underground mining

D. Heavy machinery operation

9. The domain of "worksite sanitation" does NOT typically include which of the following?

A. Waste management

B. Personal hygiene facilities

C. Worker training

D. Garbage disposal

10. What is the required height-to-depth ratio for trenching in Type B materials?

A. 1:2

B. 1:3

C. 1:1

D. 2:1

Answers

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

Explanations

1. Which statement about burns is typically NOT true?

A. A third-degree burn usually has the most pain of the three types

B. First-degree burns involve only the epidermis

C. Second-degree burns can cause blisters

D. Burns can result in loss of skin function

A third-degree burn actually tends to be the least painful type of burn because it destroys nerve endings within the skin. These burns penetrate through the epidermis and dermis into the underlying tissues, leading to a loss of sensation in the area. Although third-degree burns are severe and may require extensive medical treatment and skin grafting, they can result in significant tissue damage without the pain that is characteristic of first-degree and second-degree burns. In contrast, first-degree burns are painful and involve only the outer layer of skin, the epidermis, leading to redness and minor swelling. Second-degree burns affect both the epidermis and the underlying dermis, causing blisters and a significant amount of pain as the nerve endings remain intact. Lastly, burns of any degree can lead to loss of skin function, which includes protection against infection and regulation of body temperature. Understanding the nature of different burn degrees is crucial for effective first aid and treatment decisions.

2. What will be the speed of a 4-inch diameter grinding wheel operating at 12,000 rpm?

A. 12,000 surface feet per minute

B. 12,566 surface feet per minute

C. 11,000 surface feet per minute

D. 13,000 surface feet per minute

To determine the speed of a 4-inch diameter grinding wheel operating at 12,000 rpm in surface feet per minute (SFM), you can use the following formula: SFM = (Diameter in inches × π × RPM) / 12 Here, the diameter of the wheel is 4 inches, and π is approximately 3.14159. First, we calculate the circumference of the wheel: Circumference = Diameter × π = 4 inches × 3.14159 = 12.56636 inches. Next, to convert this measurement to feet, since there are 12 inches in a foot, we divide by 12: Circumference in feet = 12.56636 inches / 12 = 1.0472 feet. Now, we multiply the circumference in feet by the rpm: SFM = 1.0472 feet × 12,000 rpm = 12,566.4 surface feet per minute. Rounding to the nearest whole number gives us approximately 12,566 surface feet per minute. This calculation confirms that the speed of the grinding wheel is indeed 12,566 surface feet per minute, making the choice that states this value accurate. Understanding the relationship between diameter,

3. For accident investigation, which of the following is typically the first step?

A. Identifying potential witness statements

B. Determining the cause of the accident

C. Securing the accident scene

D. Reviewing safety protocols

The first step in an accident investigation is securing the accident scene. This is critical because securing the scene helps to preserve evidence that can provide insights into the accident's circumstances and contributing factors. By ensuring that the area is safe and that no individuals are at risk of further injury, the investigation can proceed effectively. This step prevents additional hazards from arising and preserves any physical evidence and environmental factors that may be essential for understanding what happened. Following this initial step, steps like identifying potential witnesses, determining the cause of the accident, and reviewing safety protocols can take place. Each of these tasks relies on a secure scene to ensure that the information collected is accurate and relevant, making the securing of the scene the foundational step in the investigation process.

4. What document outlines the requirements for chemical hazard communication?

A. OSHA 1910.1200

B. NIOSH 3000

C. ANSI Z535

D. ASTM E841

The OSHA 1910.1200 standard is crucial because it mandates the Hazard Communication Program, also known as the "Right to Know" law. This document sets forth the requirements for communicating chemical hazards to ensure that employees are aware of the risks associated with the chemicals they may encounter in the workplace. It outlines that manufacturers and importers must provide Safety Data Sheets (SDS) for their chemicals and that these sheets must include specific information about the hazards, handling, storage, and emergency measures related to chemical substances. Additionally, employers are required to develop a written hazard communication program to inform and train employees about hazardous chemicals. This includes labeling requirements, ensuring that proper signage is displayed, and employee training on how to comprehend and respond to hazards. These comprehensive guidelines are essential in promoting safety in workplaces where hazardous chemicals are used, making OSHA 1910.1200 the definitive document for chemical hazard communication.

5. Total case incident rate (TCIR) is calculated via which of the following?

A. (Number of recordable injuries per year x 200,000) Divided by (Total hours worked)

B. (Total injuries x 1,000,000) Divided by (Total hours worked)

C. (Recordable incidents x 100) Divided by (Total workforce)

D. (Total incidents x 100,000) Divided by (Total hours worked)

Total case incident rate (TCIR) is a critical metric used in occupational safety to provide a standardized way to measure the incidence of work-related injuries. The formulation of TCIR is designed to reflect the number of recordable injuries in relation to the hours worked, allowing for comparisons across differing work environments and scales. The correct formula involves multiplying the number of recordable injuries by a factor (200,000) to standardize the metric, which is representative of the total hours 100 individuals would work in a year, assuming a standard 40-hour work week over 50 weeks. This number (200,000) acts as a normalization factor to yield a rate that is more meaningful in terms of risk assessment. The total hours worked provides the denominator, ensuring that the rate is proportional to the actual exposure or activity level of the workforce. In summary, the calculation for TCIR effectively accounts for the frequency of injuries per a standardized number of hours worked, making it a useful tool for comparing safety performance across different workplaces and industries.

6. Statistical "variance" provides quantitative information about which of the following?

A. The average value of a data set

B. The degree to which a set of data values is spread apart

C. The total number of data points in a set

D. The median value in a data set

The concept of statistical "variance" is a crucial measurement in understanding the distribution of data points within a dataset. Variance quantifies the degree to which individual data values differ from the mean (average) value. Specifically, it provides insights into how much the values are dispersed or spread out across the average, making it a vital statistic for comprehending data variability. When variance is calculated, it reflects the average of the squared differences between each data point and the mean. This means that a high variance indicates a wide spread of values, while a low variance suggests that the data points are more clustered around the mean. This quantitative measure is essential in fields like construction health and safety, where variations in data can have significant implications for risk assessment and management practices. In contrast, the other options focus on different statistical measures. The average value of a dataset identifies a central tendency but does not convey how spread out the data points are. The total number of data points simply counts the observations without indicating any variation between them, and the median provides the middle value but does not measure variability. Thus, understanding variance is fundamental for analyzing data spread effectively.

7. Raynaud's Phenomenon would likely be encountered during which operation?

A. Operating a jack hammer by hand

B. Welding in cold environments

C. Using a concrete mixer

D. Handling heavy materials

Raynaud's Phenomenon is a condition that affects blood flow to certain parts of the body, often triggered by cold temperatures or emotional stress. It is characterized by episodes of reduced blood flow, typically in the fingers and toes, leading to symptoms such as color changes, numbness, and a tingling sensation. Operating a jackhammer by hand is particularly relevant because this activity not only subjects the hands to vibrations from the machinery but also often occurs in environments that can be chilly, especially if proper protective measures against cold conditions are not taken. The combination of the vibration from the tool and exposure to cold can exacerbate the symptoms of Raynaud's Phenomenon, making it more likely for an operator to experience an episode. Other choices, while they might involve some physical strain or exposure to elements, do not have the same direct connection to both vibration and cold exposure as operating a jackhammer does. Welding in cold environments could pose some risk as well, but the primary trigger linked to Raynaud's in the context of construction activities is the combination of hand vibration and cold, making the operation of a jackhammer the most likely scenario.

8. During which type of job should Lyme Disease be considered as a potential occupational illness?

A. Roofing work

B. Land surveying, clearing, and grubbing

C. Underground mining

D. Heavy machinery operation

Lyme disease is primarily transmitted through the bite of infected black-legged ticks, commonly found in grassy, wooded, and bushy areas. Jobs that involve working in such environments increase the risk of tick exposure, making the consideration of Lyme disease pertinent when assessing occupational illnesses. Land surveying, clearing, and grubbing often take place in outdoor settings that can include dense vegetation, shrubbery, and forests—all locations where ticks thrive. Workers in these roles may spend extended periods in close contact with tick habitats, elevating the likelihood of tick bites and potential Lyme disease infection. In contrast, roofing work, underground mining, and heavy machinery operation typically occur in environments that are less conducive to tick presence, such as elevated areas, subterranean spaces, or well-maintained industrial sites where vegetation is limited. Therefore, these jobs do not present the same level of risk for encountering ticks and subsequently developing Lyme disease as land surveying and related activities do.

9. The domain of "worksite sanitation" does NOT typically include which of the following?

A. Waste management

B. Personal hygiene facilities

C. Worker training

D. Garbage disposal

The domain of "worksite sanitation" primarily encompasses elements that ensure a clean and safe environment for workers. This includes waste management, personal hygiene facilities, and worker training, all of which play crucial roles in maintaining health and hygiene standards at a worksite. Waste management involves the proper handling and disposal of potentially harmful waste materials, while personal hygiene facilities are essential for providing workers with the means to maintain their cleanliness, such as restrooms and handwashing stations. Worker training is also vital, as it informs employees about the importance of sanitation practices and procedures to follow. Garbage disposal, while related to sanitation, is often considered under the broader category of waste management. However, worksite sanitation does not typically focus specifically on the act of garbage disposal itself. Instead, it emphasizes the overall strategies that ensure a sanitary work environment. Therefore, garbage disposal is less associated with the holistic domain of worksite sanitation compared to the other options, making it the best choice for what is not typically included.

10. What is the required height-to-depth ratio for trenching in Type B materials?

A. 1:2

B. 1:3

C. 1:1

D. 2:1

The required height-to-depth ratio for trenching in Type B materials is 1:1. This means that for every foot of depth, the trench walls can safely rise one foot high without the need for additional support systems. Type B materials generally include cohesive soils that exhibit some strength, like clay, which can hold its shape better than less stable materials. A 1:1 ratio indicates that these soils can provide a higher level of stability under these conditions than looser or less cohesive materials. Options presenting ratios like 1:2, 1:3, or 2:1 suggest greater slopes than are permissible. Such ratios would be more applicable to Type C materials or other conditions where additional stability measures would be necessary to prevent cave-ins. Therefore, the 1:1 ratio accurately reflects the safety precautions required when trenching in Type B materials, balancing safety without unnecessary support infrastructure.