SSI Decompression Diving Practice Test (Sample)

Study Guide

Everything you need from our exam experts!

Questions

1. **What is the main difference between a reel and a spool?**
   - A. Reels are larger and used for deep dives
   - B. Spools are typically smaller, making them easier to store
   - C. Reels have automatic retrieval systems
   - D. Spools are used for underwater photography

2. **What is the calculated time-to-surface for a dive to 125 feet, with a 23-minute bottom time and a runtime of 42 minutes?**
   - A. 15 minutes
   - B. 19 minutes
   - C. 23 minutes
   - D. 28 minutes

3. **What condition results from increased exposures to elevated partial pressure of oxygen levels?**
   - A. Decompression sickness
   - B. Oxygen toxicity
   - C. Barotrauma
   - D. Hypoxia

4. **At approximately what depth does nitrogen narcosis generally begin to affect a diver?**
   - A. 33 feet
   - B. 60 feet
   - C. 99 feet
   - D. 130 feet

5. **What action should a diver take when the time-to-surface limit is reached?**
   - A. Stay at the current depth
   - B. Begin the ascent
   - C. Start to descend
   - D. Signal for help

6. Which of the following factors can increase the risks of decompression illness?

   A. Environmental pressure changes

   B. All answers are correct

   C. Length of dive

   D. Temperature fluctuations

7. How can divers increase the accuracy of their surface air consumption (SAC) rate?

   A. Use real-time monitoring devices

   B. Determine the average SAC rate

   C. Reduce dive time

   D. Conduct dives at greater depths

8. What is an important aspect of planning a decompression dive?

   A. Estimating air consumption

   B. Using outdated charts

   C. Disregarding equipment checks

   D. Improvising dive profiles

9. If a diver remains at a constant depth long enough, what will their body saturate with?

   A. Oxygen

   B. Helium

   C. Nitrogen

   D. Carbon dioxide

10. What is the cylinder capacity of an 580 cylinder filled to 3000 psi?

   A. 60 cuft

   B. 80 cuft

   C. 100 cuft

   D. 120 cuft

Answers

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

Explanations

1. What is the main difference between a reel and a spool?

A. Reels are larger and used for deep dives

B. Spools are typically smaller, making them easier to store

C. Reels have automatic retrieval systems

D. Spools are used for underwater photography

The primary distinction between a reel and a spool lies in their size and usability. Spools are indeed generally smaller than reels, which allows for easier storage and transport. This compact size makes spools particularly convenient for divers who need to manage their equipment effectively in restricted spaces or during dives where minimizing bulk is advantageous. While reels can be utilized for various diving purposes, their larger size can make them less practical for situations that require a lightweight setup. Moreover, spools are often preferred for deploying guide lines or lifts in scenarios where ease of handling and storage play significant roles, such as in cave diving or when managing entanglement risks. The other statements do touch on characteristics of diving equipment but do not capture the essential differences regarding size and storage practicality between the two, which is foundational in selecting the appropriate tool based on the dive's requirements.

2. What is the calculated time-to-surface for a dive to 125 feet, with a 23-minute bottom time and a runtime of 42 minutes?

A. 15 minutes

B. 19 minutes

C. 23 minutes

D. 28 minutes

To determine the correct time-to-surface for a dive, we must consider factors such as the depth of the dive, the time spent at the bottom, and any necessary safety stops while ascending. In this scenario, the dive depth is 125 feet with a bottom time of 23 minutes and a total runtime of 42 minutes. The initial ascent from depth to the surface is typically calculated based on the depth and time spent at that depth. Given the general guidelines for diving, when ascending from a depth of 125 feet, a diver will often include safety stops, which allow for the safe elimination of inert gases absorbed by the body while at depth. The total runtime of 42 minutes indicates that the diver has a combination of bottom time and ascent time included in that total. The calculated time-to-surface being 19 minutes recognizes the need for a controlled ascent and safety stops to ensure that the diver is effectively metabolizing the absorbed nitrogen. Considering this information and standard dive planning protocols, the time-to-surface being 19 minutes is a comprehensive estimate that appropriately factors in the required ascent rate along with recommended safety stops to enhance safety during decompression.

3. What condition results from increased exposures to elevated partial pressure of oxygen levels?

- A. Decompression sickness
- B. Oxygen toxicity
- C. Barotrauma
- D. Hypoxia

Oxygen toxicity occurs when there is an excessive exposure to elevated partial pressures of oxygen, particularly when divers breathe oxygen at pressures greater than what is normally found at sea level. Increased partial pressure of oxygen can lead to harmful physiological effects on the body, primarily affecting the central nervous system and lungs. Under normal conditions, the body can tolerate certain amounts of oxygen; however, when divers use pure oxygen or are exposed to increased depth, the amount of oxygen that the body absorbs can become detrimental. Symptoms of oxygen toxicity can include visual disturbances, nausea, twitching, seizures, and other neurological impairments. This is particularly relevant in environments such as deep diving or when using enriched oxygen mixes, where the partial pressure of oxygen exceeds safe limits. Understanding this condition is crucial for divers, as managing exposure to elevated oxygen levels is a key component of dive planning to avoid serious health issues.

4. At approximately what depth does nitrogen narcosis generally begin to affect a diver?

- A. 33 feet
- B. 60 feet
- C. 99 feet
- D. 130 feet

Nitrogen narcosis is a condition that can affect divers due to the increased partial pressure of nitrogen at deeper depths. As a diver descends, the ambient pressure increases, causing a greater amount of nitrogen to dissolve in the body's tissues and bloodstream. Generally, nitrogen narcosis symptoms begin to manifest at depths around 100 feet, with many divers reporting noticeable effects around that depth. This is attributed to the physiological changes that occur as pressure increases, which can lead to impairments in judgment, coordination, and reaction time. While some divers may start to feel symptoms of narcosis at shallower depths, the threshold recognized for more pronounced effects and increased risk of impairment tends to be closer to 100 feet. As a result, identifying 99 feet as the depth where nitrogen narcosis typically begins to have a significant impact aligns with accepted diving practices and experiences reported by divers.

5. What action should a diver take when the time-to-surface limit is reached?

A. Stay at the current depth

B. Begin the ascent

C. Start to descend

D. Signal for help

When the time-to-surface limit is reached, it is crucial for a diver to begin the ascent. This limit is established to prevent decompression sickness, which can occur if a diver surfaces too quickly after spending time at depth. By ascending, the diver allows their body to safely eliminate excess nitrogen that has been absorbed during the dive. Slow and controlled ascents, often with stops to allow for the necessary decompression, are essential practices in diving to ensure that the body can safely adjust to the changes in pressure. The ascent should be managed according to specific guidelines—such as a maximum ascent rate and any required safety stops—depending on the depth and duration of the dive. Adhering to these practices helps minimize the risks associated with diving, including those caused by surpassing time-to-surface limits.

6. Which of the following factors can increase the risks of decompression illness?

A. Environmental pressure changes

B. All answers are correct

C. Length of dive

D. Temperature fluctuations

The accurate selection reflects the understanding that various factors can collectively elevate the risks associated with decompression illness. Each factor listed plays a role in increasing the likelihood of this condition, which occurs due to the formation of nitrogen bubbles in the body when a diver ascends too quickly or improperly. Environmental pressure changes can significantly impact a diver's risk by altering the nitrogen absorption in the body. When descending or ascending, the pressure around a diver fluctuates, which can affect how nitrogen is off-gassed or absorbed. The length of the dive is another crucial factor, as longer dives increase the amount of nitrogen that can accumulate in a diver's tissues. Extended exposure at depths can make it more challenging for the body to safely eliminate this nitrogen when ascending. Temperature fluctuations can also influence decompression risk. Cold temperatures can constrict blood vessels, potentially limiting the body's ability to circulate blood efficiently and thus, to off-gas nitrogen effectively. Warm temperatures tend to promote vasodilation and possibly lead to increased nitrogen absorption, making both extremes potentially hazardous. Given that all of these factors contribute to the complexities of decompression theory, the choice acknowledges that the interplay of these various elements can compound the risks associated with diving, leading to a greater potential for decompression illness if not managed

7. How can divers increase the accuracy of their surface air consumption (SAC) rate?

A. Use real-time monitoring devices

B. Determine the average SAC rate

C. Reduce dive time

D. Conduct dives at greater depths

Determining the average surface air consumption (SAC) rate is essential for divers when planning future dives, as it helps in predicting how much air they will use at different depths and durations. To accurately establish this average, divers typically collect data over multiple dives, measuring their air consumption under various conditions. By calculating the average SAC rate, divers gain insights into their personal consumption patterns, which can help them in managing their air supply effectively and ensuring safe diving practices. This method involves logging the amount of air used and the time spent at depth across several dives, which allows for a comprehensive understanding of individual air consumption behavior. Consequently, this accumulated data can be utilized for better planning and decision-making in future dives, enhancing overall dive safety and efficiency.

8. What is an important aspect of planning a decompression dive?

A. Estimating air consumption

B. Using outdated charts

C. Disregarding equipment checks

D. Improvising dive profiles

Estimating air consumption is a fundamental aspect of planning a decompression dive. This involves calculating how much air you will need throughout the dive based on factors such as the dive depth, duration, individual breathing rates, and the number of divers in the water. Proper air management is crucial as it ensures that divers have adequate breathing gas for both the descent and ascent stages, including the necessary decompression stops. Effective planning requires anticipating air needs to prevent running low on air before the dive is completed safely. This consideration not only enhances diver safety by reducing the risk of hypoxia (lack of oxygen) but also allows for more effective descent and ascent management. Planning should also take into account contingencies for potential emergencies that could require additional air. Other choices present risks or are contrary to safe diving practices. It's vital for divers to use current and accurate charts for depth and no-decompression limits, perform thorough equipment checks before dives to ensure functionality, and adhere to predetermined dive profiles to avoid unnecessary risks associated with improvisation. These practices are established to promote safety and reduce the likelihood of accidents and incidents during dives.

9. If a diver remains at a constant depth long enough, what will their body saturate with?

A. Oxygen

B. Helium

C. Nitrogen

D. Carbon dioxide

When a diver remains at a constant depth for an extended period, their body absorbs various gases from the breathing mixture due to the increased pressure underwater. At greater depths, the partial pressure of gases such as nitrogen increases, leading to a more significant absorption of nitrogen into the body's tissues. Nitrogen is present in the air we breathe and is one of the primary gases that divers take in during their dives. As the diver descends and remains at depth, the body's tissues, including muscles and fats, will eventually reach a state of saturation with nitrogen. This saturation occurs because the body equilibrates with the environment, and given the long duration at a constant depth, the nitrogen levels in the tissues can rise, which is critical to understanding the principles of decompression. Other gases, like oxygen and helium, can also be absorbed, depending on the breathing mixture used; however, nitrogen is the dominant gas associated with saturation during recreational diving since it's the most abundant gas in normal air and represents the greatest risk for potential issues like decompression sickness. Understanding this process is essential for safe diving practices and managing ascent rates.

10. What is the cylinder capacity of an 580 cylinder filled to 3000 psi?

A. 60 cuft

B. 80 cuft

C. 100 cuft

D. 120 cuft

To determine the cylinder capacity of a 580 cylinder filled to 3000 psi, it's important to recognize that a common standard for dive cylinders is the "580" designation, which typically refers to a cylinder that can hold 80 cubic feet of gas when filled to its full rated pressure, which is often 3000 psi for many aluminum cylinders used in scuba diving. The correct answer being 80 cuft aligns with the standard specifications for this type of cylinder. In practical diving terms, an 80 cuft cylinder filled to 3000 psi has sufficient volume to provide adequate breathing gas for the diver for recreational dives while allowing for safe ascent and possible safety stops. In essence, knowing the standard capacity helps divers make informed decisions while planning their dives—particularly in relation to the duration and the amount of gas needed for safe returns to the surface.