

SSI SCIENCE OF DIVING PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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THE FULL VERSION STUDY GUIDE

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Table of Contents

Copyright	1
Table of Contents	2
Introduction	3
How to Use This Guide	4
Questions	5
Answers	8
Explanations	10
Next Steps	16

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

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- 1. What are the bubbles detected by Doppler ultrasound equipment that precede DCS called?**
 - A. Air bubbles
 - B. Silent bubbles
 - C. Noisy bubbles
 - D. Visible bubbles
- 2. Why is understanding "scuba oceanography" important for divers?**
 - A. Equipment set up
 - B. Trip planning
 - C. Emergency ascents
 - D. Dive planning and dive mastering
- 3. What occurs when the outside pressure on a closed air space is greater than the internal pressure?**
 - A. The pressure on the inside of an air space is increasing to equalize with the external pressure
 - B. The pressure on the outside of a closed air space is greater than the internal pressure
 - C. The pressure on the inside of an air space is greater than the external pressure
 - D. None of the answers are correct
- 4. Which type of suit offers a diver the best flexibility to regulate body temperature?**
 - A. Wetsuit
 - B. Dry Suit
 - C. Shorty with hood
 - D. Farmer John
- 5. What is the percentage of oxygen required in a gas mixture for a diver to maintain consciousness at sea level?**
 - A. 20%
 - B. 10%
 - C. 16%
 - D. 5%

- 6. What equipment is essential for underwater navigation?**
- A. A GPS device
 - B. A depth gauge
 - C. A compass and navigation training
 - D. A dive computer
- 7. Which type of dive buoyancy control device is commonly used by recreational divers?**
- A. Dry suit
 - B. Wing system
 - C. Weight belt
 - D. Buoyancy Control Device (BCD)
- 8. What is the term for the percentage of oxygen in the air we breathe?**
- A. Molar concentration
 - B. Fractional concentration
 - C. Partial pressure
 - D. Atmospheric density
- 9. What is the primary function of a dive computer?**
- A. To enhance underwater visibility
 - B. To track depth, time, and ascent rate
 - C. To maintain a logbook of all dives
 - D. To provide underwater navigation aid
- 10. What best describes the role of the dive computer in a diver's safety?**
- A. Detecting bubbles
 - B. Monitoring ascent rate
 - C. Providing temperature readings
 - D. Calculating dive time solely

Answers

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

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Explanations

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1. What are the bubbles detected by Doppler ultrasound equipment that precede DCS called?

- A. Air bubbles
- B. Silent bubbles**
- C. Noisy bubbles
- D. Visible bubbles

The bubbles detected by Doppler ultrasound equipment that precede decompression sickness (DCS) are referred to as silent bubbles. These are small nitrogen bubbles that can form in the bloodstream following a dive, especially if a diver ascends too quickly. Silent bubbles are typically undetectable to the diver and may not produce any immediate symptoms, which is why they are termed "silent." Doppler ultrasound equipment is utilized to identify these bubbles in order to assess the risk of DCS. The presence of silent bubbles can indicate a problem that may lead to decompression sickness if not properly managed. Understanding the nature of these bubbles is crucial for divers, as it emphasizes the importance of adhering to safe diving practices and ascent rates to minimize their formation.

2. Why is understanding "scuba oceanography" important for divers?

- A. Equipment set up
- B. Trip planning
- C. Emergency ascents
- D. Dive planning and dive mastering**

Understanding "scuba oceanography" is crucial for divers as it plays a significant role in dive planning and mastering. Oceanography encompasses various aspects of the ocean environment, including water conditions, currents, tides, and marine life. By grasping these concepts, divers can make informed decisions about when and where to dive, ensuring safety and enhancing the overall experience. In terms of dive planning, knowledge of oceanographic factors allows divers to anticipate potential hazards such as strong currents or low visibility conditions. It also aids in selecting optimal dive sites that align with the dive objectives and the capabilities of the divers involved. Furthermore, understanding the dynamics of the underwater environment contributes to dive mastering by helping divers develop better skills in navigating those conditions, managing buoyancy effectively, and interacting safely with the marine ecosystem. Overall, a solid foundation in scuba oceanography enhances a diver's competency, promoting both safety and enjoyment during dives.

3. What occurs when the outside pressure on a closed air space is greater than the internal pressure?

- A. The pressure on the inside of an air space is increasing to equalize with the external pressure
- B. The pressure on the outside of a closed air space is greater than the internal pressure**
- C. The pressure on the inside of an air space is greater than the external pressure
- D. None of the answers are correct

When outside pressure on a closed air space exceeds the internal pressure, a fundamental principle of physics comes into play. This situation results in a pressure differential that drives the air inside the closed space to compress. Thus, the air pressure inside cannot exceed the outside pressure without some form of intervention, such as an escape route for the internal air. In this context, as external pressure rises, the internal air is effectively pushed against the walls of that closed space. This can lead to a variety of consequences depending on the scenario, such as a physical deformation of the closed space or a potential risk for harm if the pressure difference becomes too great. Recognizing this, when we say that the pressure on the outside of a closed air space is greater than the internal pressure, it accurately reflects the condition being described. The other options do not adequately represent the physical realities of pressure differentials that occur in such scenarios.

4. Which type of suit offers a diver the best flexibility to regulate body temperature?

- A. Wetsuit
- B. Dry Suit**
- C. Shorty with hood
- D. Farmer John

A dry suit is designed to provide excellent thermal insulation by keeping the diver completely dry, which allows for the use of various undergarments to manage warmth based on the dive environment. This versatility means that divers can adjust their thermal protection according to the water temperature, their own comfort level, and the duration of the dive. Unlike wetsuits, which use a layer of water that warms up against the body and can limit flexibility in extremely cold water, dry suits prevent water entry altogether, thereby providing much greater control over body temperature. This is particularly beneficial in colder conditions where maintaining warmth is essential to prevent hypothermia. In addition to the thermal regulation benefits, dry suits also allow for greater freedom of movement compared to some thicker wetsuits or less form-fitting styles like farmer johns, enabling divers to maneuver easily while remaining protected from the cold. Shorty wetsuits and farmer johns may provide some insulation, but they do not offer the same level of dryness and flexibility in temperature regulation that a dry suit can provide.

5. What is the percentage of oxygen required in a gas mixture for a diver to maintain consciousness at sea level?

- A. 20%
- B. 10%**
- C. 16%
- D. 5%

To maintain consciousness at sea level, a gas mixture must contain at least 16% oxygen. This percentage is critical because it is the minimum concentration of oxygen in the air that supports human life and prevents unconsciousness due to hypoxia. At sea level, the atmosphere is composed of approximately 21% oxygen, which is more than sufficient for sustaining consciousness. When the oxygen concentration drops below about 16%, the risk of losing consciousness increases significantly. As ambient pressure changes, such as during descent in diving, maintaining an appropriate oxygen level becomes essential for the diver's safety and operational effectiveness. A mixture with only 10%, 5%, or any percentage lower than the critical threshold would not provide enough oxygen for the sustaining metabolic functions necessary for consciousness, leading to potential dangers including disorientation or loss of consciousness. This context highlights the importance of understanding oxygen levels in gas mixtures and their impact on diver safety and physiology.

6. What equipment is essential for underwater navigation?

- A. A GPS device
- B. A depth gauge
- C. A compass and navigation training**
- D. A dive computer

In underwater navigation, having a compass and navigation training is essential because these tools and knowledge allow divers to determine their direction and orientation while exploring underwater environments. A compass helps divers to maintain a specific heading, which is crucial when visibility is low, or when the underwater landscape lacks distinctive features. Navigation training equips divers with the skills to interpret compass readings, plan routes, and execute safe and efficient dives, ensuring they can navigate back to their entry point or specific dive sites without getting lost. While GPS devices can be useful in certain situations, they are not reliable underwater due to limited satellite signals. A depth gauge is important for monitoring depth during dives, and a dive computer is invaluable for tracking dive time and managing nitrogen levels, but neither specifically aids in navigation in the same way that a compass and navigational knowledge do. Therefore, having both a compass and the associated training is fundamental for effective underwater navigation.

7. Which type of dive buoyancy control device is commonly used by recreational divers?

- A. Dry suit
- B. Wing system
- C. Weight belt

D. Buoyancy Control Device (BCD)

The Buoyancy Control Device (BCD) is the most commonly used dive buoyancy control device among recreational divers because it serves multiple essential functions. A BCD allows divers to control their buoyancy underwater and at the surface, making it easier to achieve neutral buoyancy, which is critical for energy conservation and safety while diving. A BCD is equipped with an air bladder that can be inflated or deflated, allowing divers to adjust their buoyancy as needed. This adaptiveness is particularly important for navigating different depths, ascending, and descending in the water column. Additionally, a BCD often includes features such as attachment points for gear, integrated weights, and safety features like reflectors, which are advantageous for divers. In contrast, while a dry suit can provide buoyancy control and insulation in cold water, it is not as universally used among recreational divers. A wing system, typically favored in technical diving, offers a different design and function specific to that type of diving rather than recreational diving. A weight belt, while an older and simpler method of controlling buoyancy, does not provide the same level of buoyancy adjustment or safety features that a BCD does. Therefore, the BCD is the most comprehensive and widely utilized option in recreational diving environments.

8. What is the term for the percentage of oxygen in the air we breathe?

- A. Molar concentration

B. Fractional concentration

- C. Partial pressure
- D. Atmospheric density

The term that accurately describes the percentage of oxygen in the air we breathe is known as fractional concentration. This term specifically refers to the ratio of the volume of a particular gas—in this case, oxygen—compared to the total volume of the mixture of gases in the atmosphere. Since the air we breathe is composed primarily of nitrogen, oxygen, and trace amounts of other gases, the fractional concentration helps in understanding the composition of air and is crucial in various fields, particularly in diving, where understanding the levels of oxygen can impact physiological responses and safety. For instance, the fractional concentration of oxygen in Earth's atmosphere is approximately 21%, reflecting the proportion of oxygen relative to other atmospheric gases. This concept is essential for divers to ensure they are aware of the amount of oxygen they are breathing and to manage their gas mix effectively during dives.

9. What is the primary function of a dive computer?

- A. To enhance underwater visibility
- B. To track depth, time, and ascent rate**
- C. To maintain a logbook of all dives
- D. To provide underwater navigation aid

The primary function of a dive computer is to track depth, time, and ascent rate. It serves as a crucial tool for divers by continuously monitoring their underwater environment and providing real-time data. By displaying these key metrics, the dive computer helps divers avoid dangerous situations such as exceeding no-decompression limits and managing ascent rates to prevent decompression sickness. This tracking capability allows divers to make informed decisions during their dive and enhances safety by providing immediate feedback. While maintaining a logbook is essential for documenting dive experiences, and navigational aids can assist in finding locations underwater, these functionalities are secondary compared to the fundamental role of monitoring and ensuring diver safety by keeping track of depth and time.

10. What best describes the role of the dive computer in a diver's safety?

- A. Detecting bubbles
- B. Monitoring ascent rate**
- C. Providing temperature readings
- D. Calculating dive time solely

The role of the dive computer in a diver's safety is significantly highlighted by its ability to monitor ascent rate. This is crucial because ascending too quickly can lead to decompression sickness, often referred to as 'the bends.' The dive computer continuously tracks the diver's depth and time spent at that depth, using this data to calculate the appropriate ascent rate to prevent excessive nitrogen from coming out of solution in the body during ascent. By providing real-time feedback and warnings about ascent rates, the dive computer acts as a vital safety tool, ensuring that divers adhere to safe diving practices. While other options, such as detecting bubbles or providing temperature readings, are relevant to diving, they do not play the same critical role in managing the inherent risks related to changes in pressure during a dive. Similarly, while calculating dive time is important for various logistical reasons, it does not relate as directly to safety as the monitoring of ascent rate does.

Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

<https://ssiscienceofdiving.examzify.com>

We wish you the very best on your exam journey. You've got this!

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