

# *Knowledge Review Chapter 1*

Complete this review to be turned in to your instructor.

1. A growing number of dive operations have staff dress codes. How does this benefit the perceptions customers have of the operation in general, and staff members in particular?

*A dress code makes the staff look professional. This benefits customer perceptions of the operation and the staff because it gives them credibility.*

2. List at least five characteristics of a good role-model PADI Divemaster.

- |                                                       |                                                     |
|-------------------------------------------------------|-----------------------------------------------------|
| 1. <b><i>Have excellent dive skills</i></b>           | 4. <b><i>Equipped with well-maintained gear</i></b> |
| 2. <b><i>Practice safe, responsible diving</i></b>    | 5. <b><i>Easily build rapport with divers</i></b>   |
| 3. <b><i>Demonstrate care for the environment</i></b> |                                                     |

*Answers may vary.*

3. Certified divers are responsible for following the safe diving practices they've been trained to use. However, if they see a "professional" disregarding them, how may that affect their perceptions?

*Depending upon the situation, seeing a "professional" disregard safe diving practices may cause questions about the practices, or raise questions about the professionalism and credibility of the individual violating the practices.*

4. List five benefits of being a PADI Divemaster and a PADI Member.

- |                                                      |                                                   |
|------------------------------------------------------|---------------------------------------------------|
| 1. <b><i>PADI's brand recognition</i></b>            | 4. <b><i>Support of environmental efforts</i></b> |
| 2. <b><i>Ability to conduct certain programs</i></b> | 5. <b><i>PADI publications and Pros' Site</i></b> |
| 3. <b><i>Access to PADI services</i></b>             |                                                   |

*Answers may vary.*

5. List five responsibilities of being a PADI Divemaster.

- |                                                                               |                                          |
|-------------------------------------------------------------------------------|------------------------------------------|
| 1. <b><i>Adhere to PADI Standards</i></b>                                     | 4. <b><i>Renew annual membership</i></b> |
| 2. <b><i>Meet Code of Practice</i></b>                                        | 5. <b><i></i></b>                        |
| 3. <b><i>Fulfill listed divemaster duties (multiple answers possible)</i></b> |                                          |

*Answers may vary.*

6. Explain how you expect your relationship with your instructor in the PADI Divemaster course to differ from the relationship with your instructor in previous PADI courses.
- In previous courses, my instructor relationship has been primarily a student-teacher relationship. During the PADI Divemaster course, the instructor will, ideally, become more of a mentor and coach who treats me as a junior peer. The instructor will share thinking and explain judgment calls. The instructor will want to know how I think and why.*
7. How does having a dive reference library relate to your ability to solve problems as a diving expert?
- Experts in a given field are better able to solve problems than nonexperts because they have a large knowledge and experience base to draw upon. This allows them to better recognize the relationships of factors involved and better define a problem. A dive reference library helps develop my knowledge base and puts the resources at my fingertips.*
8. List at least five types of additional training you may want and how each may benefit you.

1. Training **Specialty Diver courses**

**Answers may vary.**

Benefit **Expand knowledge and skill**

2. Training **Specialty Instructor courses**

Benefit **Teach popular courses**

3. Training **PADI TecRec courses**

Benefit **Expand knowledge and skill**

4. Training **Other dive-related or business courses**

Benefit **Help reach career goals**

5. Training **Discover Scuba Diving Leader**

Benefit **Introduce people to diving**

Candidate Statement: I've completed this Knowledge Review to the best of my ability and any questions I answered incorrectly or incompletely I've had explained to me, and I now understand anything I may have missed.

Signature \_\_\_\_\_ Date \_\_\_\_\_

# *Knowledge Review* Chapter 2

Complete this review to be turned in to your instructor.

1. As a divemaster, your role is generally to provide broad planning that other divers use to plan their individual buddy team dives within.
  
2. List three ways that wind can affect dive conditions.
  1. Wind can cause upwelling that affects water
  2. Wind can cause upwelling that affects water temperature and visibility
  3. Wind can generate waves and surge
  
3. The rule of thumb is that it is best to dive at slack high tide, but this is a general rule.
  
4. List three broad considerations when planning dives for remote areas.
  1. Cover broad logistics - air fills, sleeping arrangements, food, etc.
  2. Emergencies – more medical supplies, transport. etc.
  3. Self-sufficiency - communications, etc.
  
5. The primary reason for having and using accounting procedures is to be sure every diver returns from the dive. Incident reports indicate that problems with this usually result from
  - using an inaccurate accounting procedure.
  - divers refusing to participate in roll calls.
  - failure to use an accounting procedure at all.
  
6. List six characteristics of responsible diver behavior.

|                                                 |                                                      |
|-------------------------------------------------|------------------------------------------------------|
| 1. <u>Plan dives within training/experience</u> | 4. <u>Check air frequently and end with reserve</u>  |
| 2. <u>Properly equipped</u>                     | 5. <u>Stays well within no stop limits</u>           |
| 3. <u>Maintains equipment and checks it</u>     | 6. <u>Avoids contact with sensitive aquatic life</u> |

7. What are four ways you can encourage responsible diver behavior?
1. Be a good role-model
2. Remind about responsible behavior
3. Make responsible behavior easy
4. Reward responsible behavior
8. Paying attention to a diver's behavior may help you assess for apprehension or stress related to the dive.
9. Signs and symptoms of psychological stress include (choose all that apply)
- a. being uncharacteristically withdrawn.
- b. talkativeness.
- c. irritability.
- d. distraction.
- e. perceptual narrowing.
10. Before a dive along a wall that drops into extremely deep water, you notice a diver seems preoccupied and withdrawn. You talk to the diver and learn the person doesn't feel adequately skilled with buoyancy control and fears descending out of control. Give an example of helping this diver by *removing the stressor*.

***Move the boat to a new dive site.***

***Guide the diver to a part of the site that is away from deep water.***

***Answers may vary.***

11. List the four aspects of supervision in managing dives and identify what each consists of.
1. Planning - make/act on dive plan
2. Communication - inform divers
3. Vantage point - choose where to supervise
4. Recognition – anticipate problems
12. List eight types of equipment that can assist in supervising certified divers.
1. Clipboard and dive roster
2. Binoculars
3. Dive site map
4. Emergency oxygen and first aid kit
5. Rescue float or life ring
6. Marine radio or cellular phone
7. Tool kit and spare equipment
8. Dive specific equipment

13. List two advantages and two disadvantages of inwater supervision.

Advantages

1. **Close to divers**      2. **Guide divers and point out aquatic life**

Disadvantages

1. **Only watch one group**      2. **Limits ability to explore independently**

14. List two advantages and two disadvantages of out of water supervision.

Advantages

1. **Close to emergency-related equipment**      2. **Give buddies more individual options**

Disadvantages

1. **Can't remind divers of procedures**      2. **Unable to show points of interest**

15. List the 10 points a dive briefing usually includes.

1. **Dive site name**      2. **Site description**      3. **Your role**  
4. **Entry & exit techniques**      5. **Dive procedures**      6. **Emergency procedures**  
7. **Signal review**      8. **Roster/buddy check**      9. **Environmental orientation**  
10. **Predive safety check**

16. List three ways you can prepare to handle novel problems at a dive site.

1. **Increase your knowledge, skill and experience**  
2. **Pay attention to steps required to deal with familiar and unfamiliar situations**  
3. **Gather physical resources**

17. It is important to include an environmental orientation in dive briefings because it helps divers dive so that they minimize effects to the environment and familiarizes those with little or no experience with the specifics of the environment.

- True  
 False

18. To help divers interact responsibly with the environment, you should suggest that they:  
(choose all that apply):

- Dive carefully to protect the ecosystem.  
 Secure gauges or alternate air sources so they don't drag and damage aquatic life.  
 Only touch or pick up creatures that seem docile.  
 Respect underwater life and be a role model for others.

19. You develop good judgment through **experience**. When making decisions that involve doubt, or when making decisions in areas with which you have less experience, err on the **conservative** side.
20. You're leading a group on a 12 metre/40 foot charter dive boat. The captain tells you that water is rising slowly in the bilge. There's no imminent danger, because the bilge pumps are keeping up with it, but action is required. Following the problem-solving steps, you and the captain examine below the decks and discover that a cooling hose leading outboard has ruptured. What would you do next?

***Answers may vary.***

***Inventory resources.***

***Create several possible solutions.***

***Choose the best and devote energy to that solution.***

***Assess and revise solution as you go.***

21. When managing an emergency situation, when delegating tasks one advantage you have as a divemaster is that
- you always have lots of Rescue Divers on hand.
  - your training lets you handle anything.
  - people expect you to take charge, and will do what you ask if they're able.

Candidate Statement: I've completed this Knowledge Review to the best of my ability and any questions I answered incorrectly or incompletely I've had explained to me, and I now understand anything I may have missed.

Signature \_\_\_\_\_ Date \_\_\_\_\_

# *Knowledge Review Chapter 3*

Complete this review to be turned in to your instructor.

1. As a PADI Divemaster assisting in training, your primary role is handling logistics and assisting with student diver supervision.
  
2. Of the following, identify what your functions may include. (Choose all that apply.)
  - a. supervising the pre-dive equipment distribution to student divers, post dive equipment collection, and handling equipment difficulties.
  - b. supervising student divers not being immediately watched by the instructor.
  - c. handling logistics, such as coordinating student diver flow to keep things moving during training.
  - d. conducting the tour for experience portion of dives.
  - e. providing the instructor with additional information about student diver performance.
  - f. checking divers in and out of the water at a training site.
  - g. helping student divers with learning difficulties on an individual basis.
  
3. Students may feel more comfortable confiding concerns and fears with you rather than the instructor. Why?
  - a. They see you as being at the same level as they are.
  - b. Most instructors are not interested in concerns and fears.
  - c. You may seem like a member of the instructional team who is closer to their level.
  
4. On an open water training dive for PADI Open Water Diver students, the bottom is very silty and easily stirred up. Of the student arrangements listed, which one would you probably pick if the instructor asked you for a recommendation?
  - a. students in a line with you at one end and the instructor at the other; students rotate position after each skill
  - b. students in a line with the instructor in the center and you centered above and behind the line; students rotate position after each skill
  - c. students in a line with the instructor in the center and you centered above and behind the line; the instructor goes from one student to the next for each skill

5. Depending upon circumstances, if you must make direct contact with a student, holding the BCD at the shoulder or low on the outside is a good general method.  
 True  
 False
6. Which of the following are duties normally expect of a PADI Divemaster when assisting with PADI Open Water Diver students in training? (Choose all that apply.)  
 a. supervising the group while the instructor focuses on a single student  
 b. leading the group with the instructor taking up the rear, or vice versa  
 c. performing final skill mastery evaluations of students having skill learning difficulties  
 d. assisting with paperwork  
 e. enforcing facility safety rules  
 f. handling equipment and assisting students with it
7. Why would you demonstrate a skill? (Choose all that apply.)  
 a. when the instructor can't do the skill well  
 b. when the skill requires two people (you're the instructor's buddy)  
 c. to redemonstrate while working with a student having learning difficulties
8. Watching role model demonstrations and videos can help you develop demonstration-quality skills, but there is no substitute for practice.
9. The 20 basic dive skills from the PADI Open Water Diver course and the four skills from the PADI Skin Diver course are the only skills you need to be able to perform at the demonstration quality level.  
 True  
 False
10. A student is having difficulty with regulator recovery and clearing. The instructor asks you to assist the diver with learning the skill. What would your first step probably be in helping the student?  
 a. redemonstrate the skill  
 b. have the student attempt the skill  
 c. point out what the student is doing wrong

**11. Specific requirements and obligations that apply to working with children may be found**

- a. in the Professional Membership Guide of the PADI *Instructor Manual*
- b. in the Child Protection Guidelines for PADI Dive Centers and Resorts on Pro's Site
- c. Both a and b.

**12. When helping a student, it is often best to let the student handle a problem to benefit from learning, unless you must handle it for safety or logistical reasons.**

- True
- False

**13. When helping a student diver with a physical challenge accomplish a skill, focus on what the student can do.**

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Signature \_\_\_\_\_ Date \_\_\_\_\_

# *Knowledge Review Chapter 4*

Complete this review to be turned in to your instructor.

1. The *primary* goal of risk management is **diver safety**.
2. **Duty of care** means that you are expected to act as a reasonably prudent divemaster would act under the same or similar circumstances to help protect less knowledgeable divers from harm. Most legal systems define failing to do this as **negligence**, which can lead to a lawsuit.
3. During a lawsuit, it is shown that divemaster Pat failed to properly use accounting procedures, so the dive boat left with two divers still in the water. They were picked up several hours later, but had mild hypothermia. The suit is seeking damages to compensate the two divers for the costs of the medical care. The defense is able to show that Pat normally uses a very accurate accounting procedure and intended to do so the day of the incident, but got distracted helping another diver. In most legal systems, which statement likely reflects the bearing of this on the case?
  - a. By demonstrating that Pat is normally a competent, responsible divemaster, the suit will likely fail and Pat will win.
  - b. Demonstrating what Pat intended to do will not help much, if at all, because the court primarily considers what actually happened.
4. Divemaster Carl does not exercise regularly to any significant degree, he does not eat a reasonably balanced diet, and he routinely pushes his dive computer's no stop limits. He has not taken a diving course nor practiced or reviewed his dive skills in years. He may be increasing, depending upon the situation, the risk to
  - a. himself.
  - b. his buddies.
  - c. the divers he supervises.
  - d. All of the above.
5. Diving can cause elevated physical stress that can strain the heart and cardiovascular system. This can cause a heart attack, stroke or other heart/circulation-related event in predisposed individuals.
  - True
  - False

6. The first, and most important way you reduce risk by adhering to PADI Standards is that you reduce the risk of a(n) **accident or incident** in the first place.
7. Should an accident occur despite your best efforts, and you can demonstrate you were following PADI Standards, you reduce your legal risk by showing that you acted credibly as a professional and met that expected duty of care.
- True  
 False
8. Local dive community and industry practices and regulations aren't typically part of PADI Standards,
- a. but you should follow them conservatively as well as follow PADI Standards.  
 b. so you should disregard them.  
 c. and therefore have no legal merit.
9. The fact you were within PADI Standards alone is sufficient to defend your actions in the event of a dive accident.
- True  
 False
10. Divemaster Dawn is escorting several PADI Advanced Open Water Diver course students on the AWARE, Fish Identification Adventure Dive. PADI Standards allow adult students to dive as deep as 30 metres/100 feet on this dive, but there is a substantial thermocline and visibility reduction at 12 metres/40 feet. Of the following choices, which is likely Dawn's best decision under these circumstances?
- a. Allow the divers to go as deep as standards allow.  
 b. Cancel the dive entirely.  
 c. Limit the dive to 12 metres/40 feet and shallower.
11. When applying a PADI Standard, consider the \_\_\_\_\_ **intent** \_\_\_\_\_ of the standard and then use good, conservative \_\_\_\_\_ **judgment** \_\_\_\_\_.
12. The PADI Member Code of Practice and the Youth Leader's Commitment
- a. are suggestions that you should usually follow.  
 b. are part of PADI Standards that all PADI Members must always follow.

- 13. The first and most important role of paperwork is to inform divers and student divers about the risks of diving, to confirm that they accept those risks, to confirm that they're medically fit to participate in diving and to remind them that it's important to follow safe diving practices.**
- True  
 False
- 14. Enrolling in a PADI program, Lars checks "yes" to a condition listed on the medical history form. At this point**
- a. Lars needs a physician's approval before being eligible to dive.  
 b. the instructor or divemaster should ask Lars for more information to see if it is really a problem.  
 c. Lars should have the option to complete a new medical form and indicate "no" if he wants.  
 d. All of the above may be correct, depending upon circumstances.
- 15. At the scene of a dive accident in which she was involved, divemaster Alexandra is cooperating with authorities to find out what happened. Based on her extensive experience in diving, she tells them that the victim likely panicked and lost consciousness, though she didn't actually see it happen. What is the most likely result of Alexandra offering her expertise?**
- a. Authorities will probably determine the accident's cause more quickly.  
 b. The situation will get confused, because Alexandra's opinion is not based on observed facts.  
 c. It is not likely to help or hinder the investigation.
- 16. PADI Standards require you to report all PADI Standards violations that you personally witness or hear about.**
- True  
 False

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Signature \_\_\_\_\_ Date \_\_\_\_\_

# *Knowledge Review* Chapter 5

Complete this review to be turned in to your instructor.

1. To find standards that apply to all PADI programs, your primary reference is \_\_\_\_\_ in the PADI Instructor Manual.  
 a. PADI's *Guide to Teaching*  
 b. the General Standards and Procedures  
 c. the Discover Local Diving Program Guide  
 d. the PADI Skin Diver Course Guide
  
2. If you're looking for tips, suggestions and reminders for organizing training sessions, selecting dive sites, etc., you want to look in  
 a. PADI's *Guide to Teaching*.  
 b. the General Standards and Procedures Guide of the PADI Instructor Manual.  
 c. individual program guides in the PADI Instructor Manual.  
 d. All of the above list tips, suggestions and reminders for organizing training sessions, selecting dive sites, etc.
  
3. Participants in Scuba Review cover their knowledge development by reviewing their Open Water Diver course materials, by completing Scuba Tune-up online or by completing the **Scuba Tune-up Guidebook**
  
4. If feasible, it is recommended you offer **Discover Local Diving** as part of Scuba Review.
  
5. The number of divers you can take on a Discover Local Diving tour is based on your judgment regarding environmental conditions, logistics, diver training and experience levels, ages and other similar factors.  
 True  
 False

6. A couple tells you that they want to explore the underwater world, but that they don't want to deal with scuba gear. They have a 9 year old daughter whom they want to participate with them. You would probably recommend
- a. Discover Scuba Diving.
  - b. Discover Local Diving.
  - c. the PADI Skin Diver Course.
  - d. Scuba Review.
7. After which of the following would you complete the PIC process for successful participants?
- a. Discover Scuba Diving
  - b. Discover Local Diving
  - c. the PADI Skin Diver Course
  - d. Scuba Review
8. As a PADI Divemaster who has completed the DSD Internship, you can take Discover Scuba Diving participants on their first open water dive.
- True
  - False
9. As a PADI Divemaster who is assisting an instructor with a Discover Scuba Diving experience or as a DSD Leader, you must position yourself so you can make immediate contact or render immediate assistance for participants at all times, and only look away from them briefly as needed to lead the dive.
- True
  - False

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Signature \_\_\_\_\_ Date \_\_\_\_\_

# *Knowledge Review Chapter 6*

Complete this review to be turned in to your instructor.

1. You and your buddy are planning to map a dive site that is 100 metres/330 feet by 100 metres/330 feet. You need a useable map that has reasonable accuracy, but the map will be used for dive briefings, not archaeology or anything scientific. What measurement method(s) would be appropriate?  
 a. arm spans  
 b. timed swim  
 c. measured tape or line  
 d. kick cycles
2. Which of the following patterns would generally be the preferred pattern for mapping?  
 a. circular pattern  
 b. U-pattern  
 c. semicircular pattern  
 d. random path pattern
3. You have to anchor a float that will be used by Open Water Diver students on their first dive. You find a very small sand patch right next to a beautiful coral stand. Which statement mostly likely represents what you would do:  
 a. You would anchor the float in the coral.  
 b. You would anchor the float in the sand patch.  
 c. You would look for a better place to anchor the float.  
 d. You would tie the float to the coral.
4. Identify the statement that is *not* true regarding towing a float or DSMB.  
 a. Keep tension on the line to reduce the risk of entanglement.  
 b. Clip the line to your gear to keep your hands free.  
 c. Be cautious that the line does not harm aquatic life.  
 d. Pull down on the line to make a DSMB stand in the water.
5. The goal with any search pattern is to cover the search area as quickly as possible without leaving \_\_\_\_\_ **gaps** \_\_\_\_\_.

6. Identify the characteristics of an *expanding square* search pattern.
- a. well suited to looking for something lost in the immediate area
  - b. best choice for finding a small object in a large area
  - c. requires no special equipment
  - d. difficult to apply over obstructed bottom
  - e. use to search a large area for a medium to large object
  - f. requires a line and reel
7. Identify the characteristics of a *circular or semicircular* search pattern.
- a. well suited to looking for something lost in the immediate area
  - b. best choice for finding a small object in a large area
  - c. requires no special equipment
  - d. difficult to apply over obstructed bottom
  - e. use to search a large area for a medium to large object
  - f. requires a line and reel
8. Identify the characteristics of a *U-pattern* search.
- a. well suited to looking for something lost in the immediate area
  - b. best choice for finding a small object in a large area
  - c. requires no special equipment
  - d. difficult to apply over obstructed bottom
  - e. use to search a large area for a medium to large object
  - f. requires a line and reel
9. Identify the characteristics of a *jackstay* search pattern.
- a. well suited to looking for something lost in the immediate area
  - b. best choice for finding a small object in a large area
  - c. requires no special equipment
  - d. difficult to apply over obstructed bottom
  - e. use to search a large area for a medium to large object
  - f. requires a line and reel
10. You're ascending with a lift bag and it starts to runaway from you. You should \_\_\_\_\_ *let it go* \_\_\_\_\_.

11. A team of recreational divers wants you to supervise a dive to 24 metres/80 feet to map a wreck's wheelhouse, photograph the telegraph, locate a moray eel known to live there and photograph the eel. Which of the following would probably be the most appropriate response?
- a. Agree, but tell the divers to leave the eel alone.
  - b. Agree, but tell the divers they need to pick one or at most two, of those objectives.
  - c. Decline, no explanation.
  - d. Decline, but explain that when they're all tec divers, you'll reconsider.
12. When feasible, when deep diving it is good to practice to have spare weights and a spare cylinder with regulator hanging at 5 metres/15 feet.
- True
  - False
13. If divers appear uncomfortable while leading a deep dive underwater, at many dive sites an appropriate action is to
- a. share air for easier breathing.
  - b. take them deeper so they enjoy the experience more.
  - c. ascend rapidly.
  - d. lead the group to a shallower level and continue the dive.
14. One reason for altitude diving procedures is that most decompression models were developed for use at sea level.
15. It is common for groups of inexperienced drift divers to ascend as a group, whereas experienced drift divers commonly ascend as individual buddy teams.
- True
  - False
16. When surf diving, divers should move slowly through the surf zone so they remain stable and sure-footed.
- True
  - False
17. The minimum number of lights per diver on a night dive is 1, though the recommended number is at least 2.

**18. Symptoms of hypothermia include (choose all that apply)**

- a. uncontrollable shivering.
- b. loss of dexterity in fingers.
- c. impaired mental processes.
- d. skin itch.

**19. In cold water diving, sufficient time should be planned between dives so divers can rewarm.**

**20. It is acceptable for EANx divers to use any EANx cylinder available.**

- True
- False

**21. Tec divers usually need you to set up their gear for them and remind them how to kit up.**

- True
- False

**22. Do not touch a tec diver's gear unless asked to do so by the diver.**

- True
- False

Candidate Statement: I've completed this Knowledge Review to the best of my ability and any questions I answered incorrectly or incompletely I've had explained to me, and I now understand anything I may have missed.

Signature \_\_\_\_\_ Date \_\_\_\_\_

# *Knowledge Review Chapter 7*

Complete this review to be turned in to your instructor.

1. Two divers come into the PADI Dive Center or Resort with which you're affiliated as part of the instructional staff, but not as an actual sales person. The divers ask you for guidance in selecting dive computers. Assuming it doesn't conflict with the store's policies, your best response is probably to
  - a. politely decline and suggest the divers speak with a salesperson.
  - b. agree because you have the best computer made and the store doesn't stock it.
  - c. help the divers choose the computer that has the features and benefits they want.
2. The four Es of diving are
  1. Equipment
  2. Education
  3. Experience
  4. Environment
3. A diver asks for a wet suit with thigh pockets because they are ideal for storing slates and other accessories the person uses during tec dives and photography. The dive center has a single suit in stock with thigh pockets that the customer could probably make work, but you know that next week a shipment is due that has wet suits exactly like the diver has described. Following a customer-centric business philosophy while supporting the dive center's business needs, your best option is probably to
  - a. say nothing about the suits coming in and sell the diver the suit you have in stock.
  - b. tell the diver to come back next week because there will be more suits to choose from.
  - c. explain that the suits due next week sound exactly right and encourage the diver to put down a refundable deposit on one.
  - d. ask the store manager what to do.
4. Customers choose to do business with you over the long term when they know you have their best interests in mind.
5. There are more opportunities for PADI Instructors than for any other professional in the dive industry.

6. Which of the following skills/qualifications are likely to make you more valuable in the dive industry? (Choose all that apply.)
- licensed boat captain
  - web/media production
  - retail sales training
  - compressor repair
  - scuba equipment technician
7. If you forget to renew your PADI Membership
- a. you are no longer qualified as a certified assistant for PADI programs.
  - b. you may assist, but you aren't authorized to conduct PADI Divemaster-conducted programs.
  - c. you may assist, but do not have access to any other PADI benefits.
  - d. nothing happens because renewal is only required at the PADI Instructor level.

Candidate Statement: I've completed this Knowledge Review to the best of my ability and any questions I answered incorrectly or incompletely I've had explained to me, and I now understand anything I may have missed.

Signature \_\_\_\_\_ Date \_\_\_\_\_

# *Knowledge Review* Chapter 8

Complete this review to be turned in to your instructor.

1. Being knowledgeable about the biological and physical properties of the underwater world is important because it helps you with dive planning. It's also important because divers are curious about the organisms they've seen and discovered and expect you to be reasonably knowledgeable about the local aquatic habitat.
  
2. You can learn a great deal about the underwater environment in the Project AWARE Specialty Diver courses, as well as the PADI Underwater Naturalist course.
  
3. Diving in an environmentally responsible manner is important so you role-model this behavior. It's also important because
  - a. divers are a significant threat to the underwater environment.
  - b. anything else is actually unsafe.
  - c. your buddy probably will not do so.
  - d. it's part of the credibility needed to be environmental ambassadors.
  
4. Water covers approximately 71 percent of the Earth's surface.
  
5. The "oceans" are actually one big connected ocean. Beyond this, the hydrologic cycle is thought to ultimately connect all water on Earth.
  
6. The ocean provides oxygen and heat distribution, both of which are vital to life on Earth.
  
7. Phytoplankton are the base of the marine food chain.
  
8. Many scientists think the coral reef is the most diverse ecosystem on Earth.  
 True  
 False

9. Because they are highly productive, coral reefs require water that is high in nutrients.
- True  
 False
10. Mangrove forests are important to the survival of adjacent coral reef ecosystems.
11. To support sustainable fisheries, be an educated consumer who only buys sustainable, managed species and support the establishment of Marine Protected Areas (MPAs).
12. Heat can be a pollutant.
- True  
 False
13. Efforts to counter alien (invasive) species are very effective, especially the practice of introducing alien (invasive) counter species that act as predators.
- True  
 False
14. A good rule of thumb is that if you don't recognize an aquatic organism you should
- a. kill it.  
 b. end the dive.  
 c. notify the local environmental authorities.  
 d. None of the above.
15. Currents that affect divers are most commonly caused by the Earth's rotation, waves, tides and wind.
16. Generally, the recommendation when diving in a current is to swim \_\_\_\_\_ the current at the start of the dive.
- a. into  
 b. with  
 c. perpendicular to  
 d. away from
17. Drift diving is a common practice where strong, unabated currents exist.

18. Most upwellings and downwellings result from the \_\_\_\_\_ ***wind***.
19. Depending upon how they affect conditions, dive planning may need to account for the tides and tidal currents, or the tides may have so little effect that you don't need to consider them.
- True  
 False
20. A wave breaks in water that is **1.3** times its height.
21. The most common disturbing force that causes waves is ***wind***, though passing vessels can also cause waves large enough to topple divers and equipment on a nearby dive boat.
22. Waves can affect divers by
- a. requiring the use of surf diving procedures.  
 b. making it difficult to stand on a boat deck.  
 c. causing seasickness.  
 d. All of the above.
23. The Project AWARE Foundation is a government-funded international organization that involves divers and water enthusiasts in projects, activities and efforts that protect and conserve underwater environments.
- True  
 False

Candidate Statement: I've completed this Knowledge Review to the best of my ability and any questions I answered incorrectly or incompletely I've had explained to me, and I now understand anything I may have missed.

Signature \_\_\_\_\_ Date \_\_\_\_\_

# *Knowledge Review Chapter 9*

Complete this review to be turned in to your instructor.

1. Water absorbs more heat than air does because it is denser, and because
  - a. it is thinner.
  - b. water molecules form weak bonds between themselves.
  - c. water transmits light well.
  - d. None of the above.
2. The tendency for water to cool you because water in contact with your skin warms, becomes less dense and rises, being replaced by cooler water, is called
  - a. elasticity.
  - b. conduction.
  - c. convection.
  - d. induction.
3. Eventually, you chill even with an exposure suit on, unless you have on very heavy exposure in relatively warm water.  
 True  
 False
4. When light passes from one material to another, such as from water into air, it changes speed, which causes it to alter direction slightly.
5. Loosely, we say that sound travels faster through water than in air because water is denser than air. But, more precisely, it is because water has more elasticity than air does.
6. At the surface at sea level, the absolute pressure is
  - a. 0 bar/0 ata
  - b. 1 bar/1 ata
  - c. 2 bar/2 ata
  - d. None of the above.

7. At the surface at sea level, the ambient pressure is
- a. 0 bar/0 ata
  - b. 1 bar/1 ata
  - c. 2 bar/2 ata
  - d. None of the above.
8. If you take a volume of air in a flexible container from 0 metres/feet to 10 metres/33 feet in seawater, the volume will be \_\_\_\_\_ what it was at the surface.
- a. 33 times
  - b. 10 times
  - c. 2 times
  - d. one half
9. To lift an object in 20 metres/66 feet of seawater, you must fill an open bottomed lift bag halfway full of air. Assuming you don't vent air from a valve on the way up, will expanding air start bubbling out the bottom of the bag before you reach the surface?
- Yes
  - No
  - There's not enough information to answer the question.
10. If a given cylinder of air lasts 20 minutes at 20 metres/66 feet, it will last 30 minutes at 10 metres/33 feet, all else being the same.
11. One method of increasing your buoyancy is by increasing your displacement. How would you do this?
- a. by dropping your weights
  - b. by inflating your BCD
  - c. by both dropping your weights and inflating your BCD
  - d. None of the above.
12. A PADI Enriched Air Diver is planning a dive to 10 metres/33 feet using EANx32. The diver would calculate oxygen exposure based on a PO<sub>2</sub> of .64 bar/ata.
13. When gas in contact with a liquid has dissolved into the liquid to the point of equilibrium, no more gas can go into solution. This is called
- a. supersaturation.
  - b. saturation.
  - c. desaturation.
  - d. M-value.

14. Arteries are blood vessels that carry blood away from the heart.  
Veins are blood vessels that carry blood toward the heart.
15. Long, slow deep breathing helps avoid concerns related to dead air spaces.
16. Excessive hyperventilation prior to a breathhold dive risks shallow water blackout, which is caused by significantly depleting body carbon dioxide and excessively delaying the urge to breathe.  
 True  
 False
17. The primary way to avoid CNS oxygen toxicity is to stay within the time-exposure limits of the "CNS clock."  
 True  
 False
18. A patient who has recovered from near drowning feels fine, seems perfectly recovered and asks to go home. What would you recommend?  
 a. No problem, drive safely.  
 b. Go home, but stay near the telephone and call a doctor if you feel ill.  
 c. Go home, but keep breathing oxygen for at least four hours.  
 d. Don't go home; medical examination and care are still necessary.
19. A buddy team is planning a dive to 40 metres/130 feet and tells you that nitrogen narcosis won't be a concern because they're using EANx28. Is their thinking valid?  
 Yes  
 No
20. Dissolved gases in the tissues exert pressure, even though they're in solution.  
 True  
 False
21. A diver surfaces and shortly after gearing down, begins to complain about pain in the right elbow and shoulder. Although you're not a doctor and there's no need to diagnosis to provide first aid for suspected DCI, the specific type of DCI is probably  
 a. AGE.  
 b. Type I DCS.  
 c. Type II DCS.  
 d. subcutaneous emphysema.

- 22. Do physiologists think strenuous exercise makes you more or less at risk of DCS?**
- a. More at risk.
  - b. Less at risk.
  - c. More immediately before or after a dive, but less several hours before.
  - d. There are no data to answer this question.
- 23. A diver in a dry suit in very hot weather is delayed entering the water. The diver was sweating profusely, but now is not sweating. The diver's skin is hot and flushed, and the diver has a strong, rapid pulse. You would suspect**
- a. heat stroke.
  - b. heat exhaustion.
  - c. hypothermia.
  - d. overexertion.
- 24. When severe, life-threatening hypothermia sets in, the victim often stops shivering, feels warm and becomes drowsy.**
- True
  - False
- 25. What is the serious ear injury that can result from a long, forceful equalization?**
- a. middle ear squeeze
  - b. round window rupture
  - c. reverse squeeze
  - d. pneumothorax
- 26. Arterial gas embolism is an injury characterized by air overexpanding in the lungs and**
- a. entering the arterial bloodstream.
  - b. collapsing a lung.
  - c. accumulating in the center of the chest.
  - d. accumulating under the skin at the base of the neck.
- 27. Mediastinal emphysema is an injury characterized by air overexpanding in the lungs and**
- a. entering the arterial bloodstream.
  - b. collapsing a lung.
  - c. accumulating in the center of the chest.
  - d. accumulating under the skin at the base of the neck.
- 28. A burst disk will burst at approximately 140 percent of a cylinder's working pressure.**

29. A hydrostatic test checks for metal fatigue by comparing cylinder \_\_\_\_\_ before and after filling it to test pressure.
- a. displacement
  - b. color
  - c. weight
  - d. buoyancy
30. During a pre-dive safety check, a diver's SPG needle swings to almost zero then, rises back to full pressure, with each test breath. You would suspect
- a. the SPG is near failure.
  - b. the regulator is out of tune.
  - c. the cylinder needs to be filled.
  - d. the valve is only partially open.
31. If a regulator freeflow persists, the regulator requires \_\_\_\_\_ ***servicing***.
32. A mechanical SPG has a curved tube in it that flexes when pressure is put into it. The degree of flex is what moves the SPG needle.
- True
  - False
33. The first step in dive computer use is to read the instructions for use manual.
- True
  - False
34. The dive community guideline is that standard regulators, BCDs, SPGs and alternate air sources may be used with EANx blends with up to 40 percent oxygen, though manufacturer guidelines and local regulations should be followed.
35. A diver's computer fails between dives, and the person has not been diving with a backup. The recorded depth and time limits are outside table limits. What should the diver do?
- a. Rent or borrow a computer and continue diving.
  - b. Discontinue diving for 12 to 24 hours before resuming with another computer.
36. To account for the fact that the body doesn't absorb and release inert gas on a single time scale, Haldanean models have theoretical \_\_\_\_\_ ***tissues***, also called "compartments."
37. Each compartment in a Haldanean model is assigned and named for a \_\_\_\_\_ ***halftime***, which represents how fast it absorbs and releases inert gas.

38. The “fast” tissues have \_\_\_\_ M-values compared to “slow” tissues.

- a. higher
- b. lower
- c. either higher or lower

39. Dr. Raymond Rogers created the RDP for

- a. recreational divers.
- b. special forces.
- c. Commercial divers.
- d. All of the above.

40. The RDP concepts were tested with more than 1000 individual hyperbaric and inwater dives.

These included multilevel and repetitive dives.

- True
- False

41. Dive computers offer divers considerably more no stop dive time than do tables because computers use decompression models that differ substantially in their validity and reliability.

- True
- False

Candidate Statement: I've completed this Knowledge Review to the best of my ability and any questions I answered incorrectly or incompletely I've had explained to me, and I now understand anything I may have missed.

Signature \_\_\_\_\_ Date \_\_\_\_\_