



GUIDELINES FOR THE DIVER ** EXAMINATION

Dear Diver

Enclosed please find the first draft of a recently compiled sample list of Diver ** theory questions.

These guidelines are aimed at assisting two groups within CFT:

- (a) candidates preparing for the Diver **
- (b) examiners testing candidates for the Diver **

All questions are taken from the Club Diver Student Handbook; therefore All answers can be found in the Club Diver Student Handbook. CFT rules and recommendations are also referred to.

The aim is to provide:

an indicator to candidates of the type of question that might be asked during a test a starting point for revision
for candidates preparing for test a uniform set of questions to which examiners can refer

The aim is not to provide:

an exhaustive/exclusive list of every possible question a candidate might be asked
an indicator of the number of questions a candidate might be asked
a replacement for a structured lecture program within the club setting

As stated in the Courses & Tests book, the oral theory test for the Diver ** should take no longer than fifteen minutes. The standard of answers accepted should reflect Diver ** standard - no more and no less.

Using his/her own discretion, it is intended that the examiner ask a selection of questions from each section, ensuring that each topic is covered satisfactorily.

Irish Underwater Council

PHYSIOLOGY

1. What are the two major functions of the ears?
2. There are three distinct areas in the ear. To which one is the Eustachian tube attached?
3. What is the function of the Eustachian tube?
4. Briefly explain what happens when a diver?
5. What can prevent a diver from clearing his/her ears?
6. Why should a diver never wear earplugs when diving?
7. What are sinuses?
8. How does a blocked sinus affect the diver?
9. Your buddy indicates that s/he cannot descend because of a pain in his/her forehead. What do you suggest?
10. What are the two main gases exchanged in respiration?
11. Where does this exchange take place?
12. What carries the oxygen to every living cell in the body?
13. Trace the pathway of air from the atmosphere to blood
14. Describe briefly the circulatory system
15. Outline the pathway of oxygen from the blood capillaries in the lungs to the brain
16. What is the diaphragm and what is its role in breathing?
17. Describe briefly the heart and how it functions
18. Name at least three pulse points in the body
19. What is the normal resting heart rate of an adult?
20. What is the normal resting breathing rate of an adult?
21. What is the average lung volume in litres in an adult?
22. Explain the term 'residual volume'.
23. What is the difference between hypoxia and anoxia?
24. What are the greatest contributors to hypoxia?
25. How long can the brain last without oxygen?
26. List at least three causes, which may interfere with ventilation.
27. Explain what you understand by shallow water blackout.
28. What is the first aid for near drowning?
29. 100% oxygen should be given in all cases of near drowning. True or false? Explain your answer.
30. What is dry drowning?
31. What is the difference between salt and freshwater drowning?
32. In the case of a near drowning where a casualty appears to recover fully. Is it necessary to bring the casualty to hospital? Why?
33. What is the normal core body temperature?
34. What does the term hypothermia mean?
35. Where is the body core?
36. Where is the temperature control regulator of the body located?
37. When entering cold water many divers experience an urge to urinate. Suggest a physiological reason for this.
38. List the combination of conditions, which can lead to hypothermia.
39. Explain vasoconstriction.
40. What is the treatment for hypothermia?
41. What steps can be taken to avoid hypothermia?
42. Where is the site of greatest heat loss in the body?
43. A diver has just pulled a casualty from the very cold water and cannot detect a pulse. Is it prudent to start CPR? Why?
44. Vigorously rubbing casualty, warming with hot water bottles, and giving alcohol are considered dangerous ways to treat a hypothermic casualty. Discuss.
45. When is a diver sure the casualty has recovered from hypothermia?

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GENERAL KNOWLEDGE

1. List the essential items of dive equipment.
2. What should a diver look for when buying a new mask?
3. How should a diver care for his/her dive equipment after each dive?
4. How should a diver prepare and store his/her dive suit, regulator, and dive cylinder if they are to be unused for an extended period of time?
5. What are the regulations regarding VIPs and Hydro's for dive cylinders?
6. Do these regulations apply to the mini cylinders in buoyancy devices?
7. Is the working pressure for these mini cylinders the same as the main dive cylinders?
8. What is the difference between TP (test pressure) and WP (working pressure)?
9. To what pressure (in bars) should a dive cylinder be filled?
10. In his/her own words, how does a regulator work.
11. How often should a regulator be serviced?
12. Explain the features of a single hose regulator.
13. What is the inter-stage hose air pressure during a dive?
14. Why should oil or grease not be used on a regulator? What should a diver use instead?
15. If the needle deflects while test breathing the contents gauge what should a diver do?
16. What do A.B.L.J. and B.C. stand for?
17. Explain the need for a buoyancy device.
18. What are the C.F. T. recommendations about buoyancy devices?
19. How do we release air from a buoyancy device While ascending normally?
20. Explain the principle of how wetsuits work.
21. After a dive wearing a dry-suit, a diver complains of having red pinch marks on his/her skin where the suit was uncomfortably tight. What could be to relieve this during the dive?
22. Which is generally warmest- wetsuit, semidry suit or a dry-suit?
23. The examiner tests candidate in a variety of hand signals.
24. When buddy gives no signal how should a diver interpret this?
25. How often should a diver and his/her buddy exchange signals during a dive?
26. How often should a diver and his/her buddy check gauges during a dive?
27. How often should a diver check his/her buddy's gauge during a dive?
28. Who checks out a diver before a dive?
29. What should be in a good buddy check?
30. Which is the best entry method for a shore dive in unfamiliar territory?
31. Before a diver enters the water his/her exit should be considered. Why?
32. How should divers in a small boat enter the water?
33. How should resurfacing after a dive take place? Why should this method be used?
34. The most efficient tinning technique has a variety of factors. Explain two of them.
35. Why is there a need to plan a dive?
36. Complete the saying: plan your dive and...
37. Who needs to attend the dive brief?
38. In planning a dive, list the things a diver would need to know.
39. What is the role of the shore marshal?
40. What information should be given to the shore marshal?
41. Where is the nearest recompression chamber?
42. List the good sources of information for a dive site.
43. During the dive (the one with the examiner) where were the oxygen, and the flares located?
44. What was the weather forecast for today?
45. When was high tide?
46. List the things which should be done when a dive is finished and back to shore.
47. When should the diver down flag be flown?
48. Is it a good idea to track divers from a boat by zigzagging over the bubbles? Why?
49. What are the different kinds of boats normally used for diving?
50. Why can a diver find him/herself out of air during a dive?
51. List some ways that a diver could get air, in an out of air situation.
52. What is the first thing he/she should do, if a diver has to do a free ascent?
53. What is the signal for out of air, distress and being on reserve?
54. How often should a diver have a diving medical?
55. With whom may trainees dive and to what depth'?
56. What is an active diver?
57. Does C.F.T. endorse solo diving?

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PHYSICS

1. What is the approximate composition of air?
2. What is atmospheric pressure?
3. What, if any, is the relationship between depth and pressure?
4. What is bar pressure at 20m 40m and 45m?
5. What is the depth at 2 bar, 4 bar and 3.5 bar? 6.
6. What is ambient pressure?
7. Explain your understanding of Boyles law?
8. What body spaces may Boyles Law affect?
9. How does Boyle's Law affect the diver?
10. On ascent from approx. 25m, between what depths does the greatest change in volume occur?
11. A balloon occupying a volume of 6L at the surface will occupy what volume at 10m?
12. Explain your understanding of Dalton's Law, and how it could affect the diver?
13. Explain your understanding of Henry's law and how it could affect the diver?
14. Explain your understanding of Charles' Law, and how it could affect the diver?
15. Explain, giving examples, your understanding of the term 'partial pressure' of a gas?
16. Should a full diving cylinder be left out in the sunshine on a hot day? Why?
17. Why would the pressure in an unopened dive cylinder, drop several hours after filling?
18. What happens when a carbonated drink is shaken and then immediately opened? Why?
19. Why is the bubbling of a gas in a liquid relevant to divers?
20. At approximately what partial pressure does oxygen become toxic?
21. Two factors influence the absorption of gas in the body during a dive, what are they?
22. Blood absorbs and releases nitrogen faster than fat. True or false?
23. Why might a RIB's pontoons slightly deflate in the cool of the evening?
24. What is tooth squeeze?
25. What is mask squeeze? How is it alleviated?
26. Why do divers not wear swimming goggles while diving?
27. What happens to light when it passes from air to water?
28. What effect does light passing from air to water have on the diver's vision?
29. Some coloured objects may appear grey at depth. Why is this so, and how can this be resolved by the diver?
30. Does sound travel faster underwater or on land?
31. Is it easy for a diver to determine distance and direction of sound underwater?
32. Do different body tissues absorb gases at the same rate? Explain your answer
33. What is your understanding of Archimedes Principle?
34. What is positive, negative and neutral buoyancy?
35. What is the ideal state of buoyancy for a diver?
36. Why does a diver wear weights?
37. What factors cause a reduction in buoyancy in a diver?
38. How does a diver compensate for this on descent?
39. What can happen if a diver experiences dramatic loss of buoyancy during a dive?
40. What should a diver do to recover from dramatic buoyancy loss?
41. What can happen if a diver experiences dramatic gain in buoyancy during a dive?
42. What should a diver do to recover from dramatic buoyancy gain
43. What effect does increased depth have on the wet-suited diver?
44. In freshwater, will the diver wear more or less weight than in the sea? Explain your answer.
45. Briefly explain the causes, signs/symptoms of nitrogen narcosis
46. Briefly explain the treatment and prevention of nitrogen narcosis
47. Divers of many years' experience never get narcosis. True or false?
48. Compared to breathing rates at the surface, to what extent does air consumption at 30 m increase?

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DECOMPRESSION

1. Explain your understanding of decompression sickness.
2. What are the symptoms of decompression sickness?
3. What are some of the predisposing factors to decompression sickness?
4. What is the treatment of decompression sickness?
5. How long may it take for 90% of the symptoms to occur?
6. What % of these symptoms occur in the first hour?
7. What gas is generally involved in decompression sickness?
8. What is the only treatment for decompression sickness?
9. What first aid can be given in the case of decompression sickness?
10. A diver has just completed a long deep dive and exceeded his/her correct rate of ascent. His/her buddy complains of a severe headache, is stumbling uncharacteristically and fails to recall the correct details of the dive. What should the diver do?
11. What is pulmonary barotrauma? How is it caused?
12. What is an air embolism? How is it caused?
13. What are the symptoms and first aid of an air embolism?
14. What is pneumothorax?
15. What are the symptoms and first aid of a pneumothorax?
16. Air embolism and pneumothorax: name one other pulmonary barotrauma type.
17. List at least three causes of burst lung.
18. What is the advantage of CPR for a casualty?
19. How would a diver know that a casualty is not breathing?
20. What is the first thing that should be done, immediately after it is established that the casualty is not breathing?
21. What is the correct ratio of compressions to breaths for a single operator?
22. List the things to be done for the casualty in the Recovery Position.
23. What will failure to observe the limits of depth and time during a dive lead to?
24. Define the following terms: Bottom Time, Safety Stop, NDL, Repetitive Dive, Surface Interval; and Repetitive Group.
25. What is the correct rate of ascent?
26. When buddies record different depths and time during their dive what should they do?
27. When buddies dive with dive tables and a computer respectively, which should be followed?#
28. What should a diver do in the event of computer failure during a dive?
29. What are the recommendations for cold working dive?
30. What are the recommendations regarding Intensive and Repetitive diving?
31. During a dive the deepest part should be attempted early or late in the dive?
32. The plan is to make two dives on one day. The proposed depths are 30m and 15m respectively. What is the order of the dives and the surface interval? Why"?
33. Describe briefly the ideal dive profile.
34. What is recommended for decompression diving?
35. How might a diver interpret the time allowed for a particular depth on a computer, if she experiences fatigue during the dive?
36. What is maximum NDL for a 21 m dive? Repetitive group?
37. For a 42m dive with a Repetitive group D, what is the maximum bottom time?
38. What is the max NDL for a dive to 16m? Repetitive: group?
39. For a dive to 25m with a Repetitive group of C, What is the maximum bottom time?
40. What is the repetitive group for a dive to 20m for 33mins?
41. What is the repetitive group for a dive to 10m for 20mins?
42. In March and in Irish waters, what would be the RG for a dive to 20m for 22mins?
43. Fighting a current on a dive to 16m what would be the: max bottom time if the RG was C?
44. What stops should be done on a dive to 34m for 15mins?
45. A diver with a RG of B wishes to dive again in an hour, what is the Residual Group?
46. What is the RNT for a dive to 12m if the previous dive, had a RG of C, and a Surface Interval of 15mins?
47. What is the RNT for a dive to 11 m if the previous dive; had a RG of C, and a Surface Interval of 15mins?
48. What is the max bottom time for a dive to 18m when the RG is A? 52. What is the max bottom time for a dive to 17m when the RG is A?
49. What are the decompression stops, if a diver takes 5mins to ascend from 36m with a 12min bottom time? (hint: slowed ascent)
50. What should be done if a diver only does a 3min safety stop, having had a dive to 30m for 18mins?
51. How soon could a diver fly, if s/he did a lot of shallow intensive diving?