

IMCA Life Support Technician Examination – Recommended Study Material

IMCA is frequently asked for a study guide to help Assistant Life Support Technicians (ALST) candidates prepare for the IMCA Life Support Technician (LST) certification examination.

As part of the recent revision of the IMCA exam system, all IMCA Supervisor and LST exams are now generated from a question bank, ensuring that no two exams are the same. In addition, the exam is now delivered electronically at a nominated exam centre with candidates only viewing one exam question at time. It would therefore be advantageous for anyone planning to sit the LST exam to be comfortable with taking online tests and using online calculators. Where practicable, it would be useful for LST candidates to practice taking online quizzes/tests and using online calculators before sitting the IMCA examination.

The Exam

The current exam is made up of three sections:

1. Diving Physics; 20 Questions
2. Diving Physiology; 20 Questions
3. Chamber and LST Practices; 40 questions

The IMCA LST exam is primarily based around the content of the material contained in IMCA's guidance documents together with the experience gained during the practical phase of an LST's development. [Guidance for diving supervisors](#) (IMCA D 022) is a core text and should be used as the basis for preparation. It is essential that Life Support Technician exam candidates are familiar with all the relevant material this document contains.

Chapter 2 Diving Physics is of particular importance. It contains a series of self-test physics questions. Candidates should be confident answering each of the relevant questions. Failure to do so means it is unlikely that candidates will pass the physics section of the final exam.

Study Guide

In preparation for the exams, candidates are required to have a thorough knowledge of the relevant IMCA documentation. The core documents which all candidates are required to be thoroughly familiar with are the latest revisions of:

- ♦ [IMCA international code of practice for offshore diving](#) (IMCA D 014)
- ♦ [Lost bell survival: Trainers' guide](#) (IMCA D 017)
- ♦ [DESIGN for surface orientated \(air\) diving systems](#) (IMCA D 023)
- ♦ [DESIGN for saturation \(bell\) diving systems](#) (IMCA D 024)
- ♦ [Installation based diving operations and the evacuation of divers from installations](#) (IMCA D 025)
- ♦ [Norway/UK regulatory guidance on offshore diving \(NURGOD\)](#) (IMCA D 034)
- ♦ [Neurological assessment of a diver](#) (IMCA D 036)
- ♦ [Use of battery operated equipment in hyperbaric conditions](#) (IMCA D 041)
- ♦ [Code of practice for the use of high pressure jetting equipment by divers](#) (IMCA D 049)
- ♦ [Minimum quantities of gas required offshore](#) (IMCA 050)

- ◆ Guidance on hyperbaric evacuation systems (IMCA D 052)
- ◆ Guidelines for lifting operations (IMCA D 060)
- ◆ Guidance on health, fitness and medical issues in diving operations (IMCA D 061)
- ◆ Diver and diving supervisor certification (IMCA D 01/18)
- ◆ Aide-mémoire for recording and transmission of medical data to shore (DMAC 01)
- ◆ Flying after diving: Recommendation (DMAC 07)
- ◆ Fitness to return to diving after decompression illness (DMAC 13)
- ◆ Medical equipment to be held at the site of an offshore diving operation (DMAC 15)
- ◆ Proximity to a recompression chamber after surfacing (DMAC 22)
- ◆ Saturation diving chamber hygiene (DMAC 26)
- ◆ The provision of emergency medical care for divers in saturation (DMAC 28)

Other Relevant Information

All published IMCA videos are available to stream online and it would be helpful for LST candidates to review all relevant IMCA videos as part of their preparation for the IMCA examination. A link to the IMCA videos is shown below:

<https://www.youtube.com/user/IMCAint/videos>

Candidates should also be familiar with the latest revision of the US Navy Diving Manual, Volume 3, Section 13 *Saturation Diving* together with the use of Saturation Decompression Tables and Emergency Decompression.

The US Navy Manual is available as a free download from:

https://www.navsea.navy.mil/Portals/103/Documents/SUPSALV/Diving/US%20DIVING%20MANUAL_REV7.pdf?ver=2017-01-11-102354-39

Legislation

Candidates who wish to sit the optional legislation modules should be familiar with the following:

- ◆ UK legislation – Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR 2013) (see INDG 453 <https://www.hse.gov.uk/pubns/indg453.pdf>)
- ◆ HSE Commercial Diving Projects Offshore Approved Code of Practice L103 (<https://www.hse.gov.uk/pubns/books/l103.htm>)
- ◆ The Health and Safety at Work etc Act 1974: Sections 2-9
http://www.legislation.gov.uk/ukpga/1974/37/pdfs/ukpga_19740037_en.pdf

These are available to download for free at <http://www.hse.gov.uk/pubns/books/l103.htm>.

- ◆ Norwegian legislation – NORSOK U – 100 Manned Underwater Operations available to purchase
<https://www.standard.no/en/sectors/energi-og-klima/petroleum/norsok-standard-categories/u-underwater-op/u-1002/>

Preparation

In preparation for the exam it is recommended that candidates who wish to achieve IMCA LST certification should start a programme of disciplined self-study long before they apply to sit the exam.

This is to ensure that they have the best chance of passing the exam at the first attempt, but it is also to ensure that every candidate has a thorough understanding of all the documents and procedures that this safety critical position demands. In addition, consideration should be given to undertaking a review session in the run-up to the exam at one of the IMCA approved training establishments offering the ALST training programme. A list of establishments currently offering IMCA-approved ALST training is available on IMCA's website at:

<https://www.imca-int.com/divisions/diving/personnel/life-support-lst/courses/>

ALST candidates who do not prepare adequately will find the exam a challenge to pass, in particularly the physics and diving operations sections.

Sample questions indicative of the type of questions contained within the IMCA LST exam are contained in Appendix 1 of this Information Note.

The time allowed to sit the LST and legislation exams are:

- ◆ IMCA Life Support Technician – 2 hours
- ◆ Legislation Modules UK/NOR – 30 minutes each

Candidates who do not speak English as a first language or who are not familiar with online examinations and calculators should ensure they are adequately prepared before sitting the exam. In addition, an allowance has been made within the exam timings for candidates working in a second language.

IMCA LST Sample Exam Questions

Please find detailed below a number of sample questions indicative of the type of questions contained within the IMCA LST Exam.

Physics Examples

1. What is the volume of gas needed to pressurise a DDC with a floodable volume of 657 cubic feet to 450 fsw from the surface?
 - a. 8302.09 cubic feet
 - b. 8959.09 cubic feet
 - c. 9413.49 cubic feet
 - d. 9616.09 cubic feet
2. If a DDC is to be pressurised from the surface using a He/O₂ mixture containing 3% O₂, to what would the DDC be pressurised in order to establish PPO₂ of 450 mb?
 - a. 1.5 msw
 - b. 70.0 msw
 - c. 80.0 msw
 - d. 150.0 msw

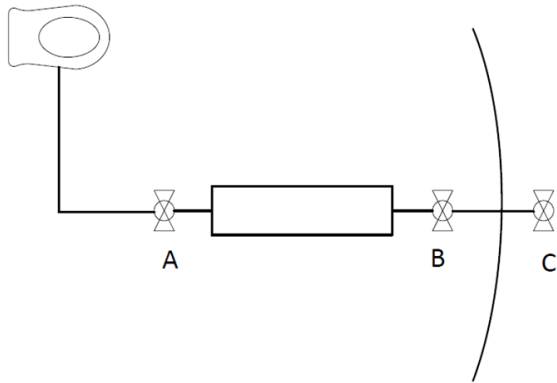
Physiology Examples

1. The greatest volume of air that can be moved in and out of the lungs in a single breath is called:
 - a. Maximum breathing capacity
 - b. Tidal capacity
 - c. Total lung capacity
 - d. Vital capacity
2. Visual disturbance, hearing problems, twitching facial muscles, irritability, dizziness and possible coma are the combined symptoms of:
 - a. Acute oxygen toxicity
 - b. Chronic oxygen toxicity
 - c. Hypoxia
 - d. Vestibular decompression illness

Chamber and LST Practices Examples

1. For operational reasons, two teams living at different storage depths are sharing the sanitary facilities. Assuming valves A, B and C are closed, which one of the following the correct sequence for operating the toilet?

- a. Open A, close A, open B, Open C, close C, open A, close A, close B
- b. Open B, open A, close B, open C, open B, close B, close C, close A
- c. Open C, close C, open A, open B, close A, open C, close C, close B
- d. Open C, open B, close B, open A, close A, open B, close B, close C



2. In the event of sudden pressure loss in the chamber the divers' primary action should be:
 - a. Try to find the source of the leak
 - b. Start breathing from the BIBS supply
 - c. Try to evacuate the chamber and close the door when the last diver is through
 - d. Await instruction from the assistant life support technician (ALST)
3. Before the commencement of a saturation diving project, how much calibration gas and zero gas for the analysers should be on board?
 - a. One weeks' supply
 - b. Two weeks' supply
 - c. 3 weeks' supply
 - d. One month's supply
4. You are transferring gas via a flexible hose. What categories of competent person are qualified to perform a visual inspection of the hose?
 - a. Category 1
 - b. Category 1 and 2
 - c. Category 3 and 4
 - d. Category 1,2,3 or 4