

## **CERTIFICATES OF COMPETENCY FOR ENGINEERS (YACHT)**

EXAMINATIONS ADMINISTERED BY THE  
**SCOTTISH QUALIFICATIONS AUTHORITY**  
ON BEHALF OF THE  
**MARITIME AND COASTGUARD AGENCY**

**STCW 95 CHIEF ENGINEER (REG. III/2) – “YACHT 2”**  
**STCW 95 CHIEF ENGINEER (REG. III/2) – “YACHT 3”**

**054-02 ADVANCED HOTEL SERVICES AND SHIP CONSTRUCTION**

**FRIDAY, 4 JULY 2008**

**1400 - 1600 hrs**

Examination paper inserts:

Notes for the guidance of candidates:

1. Non-programmable calculators may be used.
  2. All formulae used must be stated and the method of working and ALL intermediate steps must be made clear in the answer.

Materials to be supplied by examination centres:

Candidate's examination workbook

## ADVANCED HOTEL SERVICES AND SHIP CONSTRUCTION

Attempt ALL questions

Marks for each question are shown in brackets

1. (a) State the THREE basic laws on which practical mechanical or absorption refrigeration depends. (3)  
(b) Explain how the laws in Q1(a) are employed in practical refrigeration systems. (7)
2. (a) Describe FOUR danger areas identified within an air conditioning system where Legionella Bacteria may exist. (8)  
(b) State the counter-measures to be taken to reduce the risk of Legionella Bacteria in the areas identified in Q2(a). (2)
3. Describe the operation of EACH of the following domestic water sterilization systems:
  - (a) Ultra-Violet; (5)
  - (b) Silver Ion. (5)
4. State the fire safety requirements for enclosed spaces, designated for the carriage of craft containing petrol in their tanks. (10)
5. Describe, with the aid of a sketch, the operation of a Marine Sanitation Device (MSD). (10)
6. (a) State the frequency of EACH of the following:
  - (i) thorough examination of lifting appliances; (1)
  - (ii) thorough examination of lifting gear; (1)
  - (iii) proof load test and examination. (2)  
(b) Describe what is meant by a competent person to examine lifting plant. (4)  
(c) State the title of the document where the results of the examination are recorded. (2)

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7. (a) Describe, with the aid of a block diagram, the operation of an four stage air compressor labelling the MAIN components and showing the direction of the air flow. (8)
- (b) State the safety features of the compressor. (2)
8. (a) With reference to Activated Fin Stabiliser systems, describe, with the aid of a sketch, the hydrodynamic forces generated on the fin in the upward tilt position. (5)
- (b) Describe the positioning of a non-retractable fin installation in a yacht, to minimise damage to the fins or hull. (5)
9. (a) Describe, with the aid of a sketch, EACH of the following:
- (i) racking; (2)
- (ii) pounding; (2)
- (iii) panting. (2)
- (b) Explain the measures taken to combat EACH of the stresses described in Q9(a). (4)
10. Outline the preparation and procedures for dry docking a vessel, to the point where the dock is fully drained. (10)