

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/3) – “YACHT 4”

**057-02 OPERATIONAL PROCEDURES, BASIC HOTEL SERVICES
AND SHIP CONSTRUCTION**

FRIDAY, 24 OCTOBER 2008

1400 - 1600 hrs

Examination paper inserts:

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Notes for the guidance of candidates:

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| <ol style="list-style-type: none">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. |
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Materials to be supplied by examination centres

Candidate's examination workbook

OPERATIONAL PROCEDURES AND BASIC HOTEL SERVICES

Attempt ALL questions

Marks for each question are shown in brackets

1. (a) With reference to STCW:
 - (i) state what the letters STCW represent; (1)
 - (ii) state the meaning of the term *Whitelist*. (4)
- (b) With reference to hours of work and rest:
 - (i) state the organisation which governs the UK requirements; (1)
 - (ii) state the minimum rest periods for a watchkeeper under normal conditions. (4)

2. (a) With reference to the record of defects, list FIVE parameters which can give guidance for future maintenance planning and dry dockings. (5)
- (b) State FIVE details listed in a machinery abstract relating to a main engine. (5)

3. With reference to chlorofluorocarbon (CFC) and hydrochlorofluorocarbon (HCFC) refrigerant gases:
 - (a) explain the difference between the two types of gases; (3)
 - (b) state the Marpol Annex number which prohibits their deliberate emission; (1)
 - (c) state the name of the environmental treaty under which nations agreed to cut consumption and production of chlorofluorocarbons; (1)
 - (d) explain why deliberate emissions are prohibited; (2)
 - (e) explain how deliberate emissions are prevented when removing air from a refrigeration system. (3)

4. With reference to fuel oil bunkering, storage and transfer, explain EACH of the following:
- (a) what is meant by free surface effect in a partially filled tank and why it can be dangerous; (4)
 - (b) why filling a tank completely full so that the fuel rises up the sounding pipe is inadvisable; (3)
 - (c) why an empty tank should be opened before a tank that is being filled is shut off. (3)
5. With reference to sewage treatment plants:
- (a) explain the difference between *black water* and *grey water*; (2)
 - (b) explain the difference between aerobic and anaerobic micro organisms; (3)
 - (c) list THREE dangerous gases produced under anaerobic conditions; (3)
 - (d) explain the dangers of producing the gases listed in Q5(c) in a confined space. (2)
6. With reference to air conditioning systems:
- (a) sketch a section through an Air Handling Unit; (5)
 - (b) state the safety regulations when an air trunking passes through a bulkhead and the safety devices fitted. (5)
7. Explain the action to be taken by the watchkeeping engineer in the event of EACH of the following:
- (a) fire; (6)
 - (b) grounding. (4)
8. Describe, with the aid of a sketch, a vacuum distillation plant. (10)
9. (a) Explain the SIX different classes of fire. (6)
- (b) List the THREE primary extinguishing methods. (3)
 - (c) State the danger associated with using large amounts of water to extinguish a fire on board ship. (1)

10. With reference to the materials used in the construction of hulls:

- (a) state FIVE advantages of using fibre reinforced plastic (FRP); (5)
- (b) state TWO advantages of using aluminium; (2)
- (c) state THREE advantages of using steel. (3)