

# **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, 15 FEBRUARY 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"><li>1. Non-programmable calculators may be used.</li><li>2. All formulae used must be stated and the method of working and ALL intermediate steps must be made clear in the answer.</li></ol> |
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Materials to be supplied by examination centres

Candidate's examination workbook
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## OPERATIONAL PROCEDURES AND BASIC HOTEL SERVICES

Attempt ALL questions

Marks for each question are shown in brackets

1. Outline the FOUR duties of workers as laid down in the Code of Safe Working Practices for Merchant Seamen. (10)  
Are to keep others safe and himself risk assessment
  
2. With reference to watchkeeping duties:
  - (a) list the documentation to be referred to for details of watchkeeping duties and responsibilities; is stw95 documents sms procedures status board and logbook (3)
  - (b) when he is not uncap able to do watch and transfer bunker (2)
  - (c) state TWO cases in which a watch should not be handed over to a relieving engineer; (2)
  
  - (c) list FIVE alarms which should be tested on a regular basis. (5)  
Bilge alarm smoke detectors fire alarms low lub oil pressure sludge tank steering gear
  
3. With reference to maintenance and maintenance systems:
  - (a) state SIX reasons for keeping records; inefficacies down time reduce cost to make sea operation more safe to reduce fraid cost by preplanning to allow financial preplanning to order spares (4)
  
  - (b) explain the advantages of an approved maintenance system. May harmonize with class and systems on board to reduce insurance. (6)
  
4. With reference to Oil Record Books carried on yachts:
  - (a) list the operations which require an entry in the *Oil Record Book (part 1) Machinery Space Operations*; any time feul transfer, pump oliewatersep. Bilgepumping ,sludge tank .balasting. (9)
  
  - (b) state the size of vessel which have to carry an Oil Record Book. (1)  
150 ton if tanker. Or bulk chemicals or any vessel over 400 tons UK over 80 tons

5. (a) State the MARPOL Annex number which deals with the disposal of sewage. (1)  
Annex 4
- (b) With reference to the Annex stated in Q5(a), state the rules for EACH of the following:
- (i) when the sewage is untreated; (2)  
12 miles from the coast
- (ii) when the sewage is comminuted and disinfected. (2)  
Between 4 and 12 miles and 4 knots underway
- (c) Explain why the final discharge from an approved sewage treatment plant is chlorinated before discharge. (2)  
Reduce any harmful bacteria
- (d) Explain how chlorination is carried out and monitored. (2)  
It is injected using a reconstituted chlorine system
- (e) State the correct chlorine content of the final discharge. (1)  
2% chlorine 50 ppm
6. Sketch an indirect expansion, chilled water air conditioning plant, labelling the MAIN components. (10)
7. With reference to spirally wound membrane reverse osmosis plants:
- (a) describe the sea water pre-treatment process before the water enters the membrane modules; (6)  
sea strainer sand filter oil water carbon filter micron filters high pressure membranes
- (b) describe how the purity of the permeate is measured, where the measurement is obtained and what happens if the purity falls below the acceptable level; (3)  
salinometer if too high discharge overboard
- (c) state the limits of impurity in the permeate when produced to World Health Organisation Standards. (1)  
No more than 500 ppm
8. Sketch a passive tank stabilisation system, explaining how it works. (10)
9. With reference to LPG installations:
- (a) explain the risks associated with its use; (4)  
it is very flammable gas and it is heavier than air (2)
- (b) state where the cylinders should be stowed; (4)  
outdoor compartment with the drain going overboard
- (c) state the safety device which must be fitted in a compartment containing an LPG burning device, describing its position in the compartment.
- (d) Sniffer alarm and a bubble tester

10. (a) State the meaning of EACH of the following terms in relation to a vessel's size:
- (i) Gross Tonnage; (2)
  - (ii) Net Tonnage; (1)
  - (iii) Lightweight; (2)
  - (iv) Deadweight; (2)
  - (v) Displacement. (2)
- (b) State the relationship between Lightweight, Deadweight and Displacement. (1)