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"

051-02 STATUTORY AND OPERATIONAL REQUIREMENTS

FRIDAY, 14 NOVEMBER 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

STATUTORY AND OPERATIONAL REQUIREMENTS

Attempt ALL questions

Marks for each question are shown in brackets

1. With reference to the United Kingdom regulations regarding machinery watchkeeping procedures:

   (a) state the off-duty time to which a watchkeeper is legally entitled:

   (i) in any twenty-four hour period; (3)

   (ii) accumulatively over the period of one week; (1)

   (b) list SIX circumstances under which it may be necessary to increase the watchkeeping manning of the machinery spaces. (6)

2. With reference to the combustion of hydrocarbons in air:

   (a) draw a diagram showing EACH of the following features:

   - the point at which the atmosphere becomes inert
   - the variation in the upper and lower explosive limits
   - the inflammable zone (7)

   (b) state the device that would be used to test the combustion potential of an atmosphere, giving a typical *safe* reading obtained from the instrument. (3)

3. (a) Define the term *harmonisation system of survey and certification*. (5)

   (b) List FIVE statutory certificates that would be required to be carried by a commercially operated motor yacht of 500 gross tonnes and carrying no more than 12 passengers. (5)

4. (a) A vessel with an operating displacement of 1200 tonnes has a fuel coefficient of 51,000.

   Calculate the fuel required for a voyage of 3000nm at a speed of 18 knots, making an appropriate safety allowance. (8)

   (b) State TWO other factors that would be taken into consideration when calculating the fuel safety allowance for a particular voyage. (2)

5. (a) List SIX examples of *condition monitoring* that could be applied as part of a planned maintenance system. (6)

(b) Explain how condition monitoring can assist in expediting classification survey requirements. (4)

6. With reference to the periodical dry-docking of a vessel:

(a) state FIVE items of information that may be obtained from a *docking plan*; (5)

(b) state FIVE services that must be made available in order to maintain the safety of the vessel. (5)

7. Pipelines on vessels are usually colour coded for ease of identification; state the recommended colours for the following pipelines as indicated in the Code of Safe Working Practices for Merchant Seamen:

(a) sea water; (2)

(b) fresh water; (2)

(c) fire main; (2)

(d) diesel oil; (2)

(e) compressed air. (2)

8. With reference to transverse watertight bulkheads, state EACH of the following:

(a) FOUR reasons why these are an important part of the vessels structure; (4)

(b) the positions of each of the FOUR most important watertight bulkheads; (4)

(c) the reason why the foremost bulkhead is of a stronger construction. (2)

9. With reference to the International MARPOL Convention 73/78 Annex IV – Sewage pollution:

(a) state the differences between *grey water* and *black water,* giving typical sources of EACH; (4)

(b) describe the THREE sewage handling options that will allow compliance with the convention. (6)

10. (a) Define the term *flag state control.* (3)

(b) Define the term *port state control.* (3)

(c) List FOUR reasons why a vessel may be targeted by port state inspectors. (4)