

CERTIFICATES OF COMPETENCY FOR ENGINEERS (YACHT)

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

SMALL VESSEL SECOND ENGINEER

060-02 - OPERATIONAL PROCEDURES, BASIC HOTEL SERVICES AND SHIP CONSTRUCTION

FRIDAY, 28 August 2020

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. Candidates should note that 100 marks are allocated to this paper. To pass candidates must achieve 50 marks.2. Non-programmable calculators may be used3. 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, BASIC HOTEL SERVICES AND SHIP CONSTRUCTION

Attempt ALL questions

Marks for each part question are shown in brackets

1. With reference to risk assessment and the Code of Safe Working Practices for Merchant Seamen:
 - (a) explain the purpose of a risk assessment; (4)
 - (b) state the person responsible for carrying out the risk assessment; (3)
 - (c) outline what should be considered when carrying out a risk assessment. (3)

2. List FIVE statutory items that the relieving officer shall be informed of by the officer in charge of the engineering watch prior to taking over the engineering watch. (10)

3. With reference to maintenance and maintenance systems:
 - (a) state SIX reasons for keeping records; (6)
 - (b) explain the advantages of an approved maintenance system. (4)

4. With reference to the use of Oily Water Bilge Separators:
 - (a) state, with reasons, the type of pump which should be used; (3)
 - (b) explain the effect of the bilge water feed rate on the performance; (3)
 - (c) explain the purpose of EACH of the following:
 - (i) a bilge holding tank; (2)
 - (ii) an oil content discharge monitor. (2)

5.
 - (a) State FOUR possible contaminants that may be present in marine gas oil. (4)
 - (b) Describe a means of dealing with THREE of the contaminants listed in part (a). (6)

6. Describe the operation of a Biological Sewage Treatment Plant. (10)

7. With reference to refrigeration plants, describe the effects of EACH of the following, stating remedial actions to be taken in EACH case:
- (a) undercharge of refrigerant; (3)
 - (b) air in the system; (3)
 - (c) water or moisture in the system. (4)
8. (a) State TWO methods of producing fresh water on board an ocean going vessel. (2)
- (b) State TWO methods of killing the bacteria which may be present in the water. (2)
- (c) Explain the reasons for adding hydrated lime to water produced on board an ocean going vessel. (3)
- (d) Outline the procedure to be followed before a fresh water tank is brought back into service. (3)
9. Describe, with the aid of a sketch, a multiple bottle CO₂ gas system suitable for the protection of machinery spaces. (10)
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)