

# **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, 21 May 2021**

**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. Candidates should note that 100 marks are allocated to this paper. To pass candidates must achieve 50 marks.</li><li>2. Non-programmable calculators may be used</li><li>3. 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, BASIC HOTEL SERVICES AND SHIP CONSTRUCTION

Attempt ALL questions

Marks for each part question are shown in brackets

1. Outline the procedures and arrangements to be put into place before a permit to work is issued for entry into a confined space. (10)
  
2. With reference to unmanned machinery spaces:
  - (a) explain why machinery spaces should be visited on a regular basis; (2)
  - (b) explain how the human senses are used to monitor conditions in a machinery space; (4)
  - (c) outline the procedure to be adopted if a person wishes to enter a machinery space outside normal working hours. (4)
  
3.
  - (a) Explain what is meant by the term *Machinery Abstract*. (4)
  - (b) List SIX items which would be recorded in a typical Machinery Abstract. (6)
  
4.
  - (a) State the main pollutant produced when burning a hydrocarbon fuel. (1)
  - (b) Explain how the pollutant referred to in part (a) can be reduced. (2)
  - (c) State what is meant by an ECA. (1)
  - (d) State the current maximum % sulphur content in marine diesel oil in EACH of the following:
    - (i) worldwide; (1)
    - (ii) in a ECA. (1)
  - (e) Describe how  $SO_x$  is produced in the combustion process and the effects oxides of sulphur has on the environment. (4)
  
5. With reference to bunkering of marine diesel oil:
  - (a) explain why the suppliers' tanks should be dipped prior to and after receiving fuel; (4)
  - (b) explain what is meant by a *letter of protest*, and when it must be issued; (4)
  - (c) state the person responsible for issuing the letter of protest. (2)

6. (a) With reference to MARPOL Annex IV, explain what is meant by the term *sewage*. (4)
- (b) State the current regulations for the discharge of *sewage*. (6)
7. (a) State FIVE properties of a refrigeration oil. (5)
- (b) Describe the operation of an Oil Separator in a refrigeration system. (5)
8. With reference to fresh water treatment:
- (a) describe the process for superchlorinating the fresh water system, stating relevant periods, times, and chlorine levels; (6)
- (b) explain what is meant by copper staining and the treatment required to prevent it. (4)
9. With reference to a machinery space carbon dioxide smothering system:
- (a) state the regulation regarding the rate of flooding with respect to time; (4)
- (b) state the precautions to be taken before activating the system. (6)
10. With reference to ocean going vessels, define EACH of the following:
- (a) trim; (1)
- (b) freeboard; (1)
- (c) camber; (1)
- (d) length between perpendiculars; (1)
- (e) length overall; (1)
- (f) sheer; (1)
- (g) stem; (1)
- (h) draft marks; (1)
- (i) draft; (1)
- (j) depth; (1)