



UNIVERSITI KUALA LUMPUR
Malaysian Institute of Marine Engineering Technology

FINAL EXAMINATION
MARCH 2025 SEMESTER SESSION

SUBJECT CODE : LOM10303
SUBJECT TITLE : MARINE TECHNOLOGY
PROGRAMME NAME : MASTER OF MARITIME OPERATIONS AND
(FOR MPU: PROGRAMME LEVEL) MANAGEMENT
TIME / DURATION : 9.00AM – 12.00PM
(3 HOURS)
DATE : 23 JUNE 2025

INSTRUCTIONS TO CANDIDATES

1. Please read **CAREFULLY** the instructions given in the question paper.
 2. This question paper has information printed on both sides of the paper.
 3. This question paper consists of **ONE (1)** Section.
 4. Answer **FOUR (4)** questions from total **FIVE (5)** questions.
 5. Please write your answers in the answer booklet provided.
 6. Answer **ALL** questions in English language **ONLY**.
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THERE ARE 2 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

TOTAL: 100 MARKS

INSTRUCTION: ANSWER FOUR (4) QUESTIONS ONLY

Please use the answer sheet provided.

QUESTION 1

- a) With the aid of diagrams, explain the working mechanism of a 4-stroke diesel engine.

(15 marks)

- b) Compare the working cycle of a 2-stroke diesel engine with that of a 4-stroke diesel engine, highlighting at least four major differences in operation.

(10 marks)

QUESTION 2

A marine vessel employs a low-pressure vacuum distillation freshwater generator to provide potable water during extended voyages. Operational efficiency and proactive maintenance are crucial to avoid system failure at sea.

- a) With the aid of a diagram, illustrate the working principle and step-by-step operation of a low-pressure vacuum freshwater generator used on board ships.

(15 marks)

- b) Propose a preventive maintenance program for the freshwater generator and outline common operational issues, including their causes and preventive measures.

(10 marks)

QUESTION 3

A marine vessel is equipped with a D-type boiler manufactured by Alfa Laval, operating at 60 bars. Understanding its operation and maintenance is crucial for safe and efficient performance at sea.

- a) With the aid of a diagram, ascertain the working principle and step-by-step operation of the D-type high-pressure marine boiler at 60 bar used on board ships.
(15 marks)
- b) Propose a preventive maintenance program for the boiler and outline common operational faults, including their causes and preventive actions.
(10 marks)

QUESTION 4

- a) Design a labelled diagram that illustrates the key components of a marine steam turbine engine.
(15 marks)
- b) Establish parts of the steam turbine components and its function.
(10 marks)

QUESTION 5

- a) Provide an overview of the types of pumps typically found on board a vessel
(15 marks)
- b) Explain the operating principles and typical applications of pumps used on board a vessel.
(10 marks)

END OF FINAL EXAMINATION QUESTION