CONFIDENTIAL

UNIVERSITI KUALA LUMPUR
Malaysian Institute of Marine Engineering Technology

FINAL EXAMINATION
FEBRUARY 2025 SEMESTER SESSION

SUBJECT CODE	:	**(LMB31803)/ LMB31003**
SUBJECT TITLE	:	**MARINE AUXILIARIES 2**
PROGRAMME NAME (FOR MPU: PROGRAMME LEVEL)	:	**BACHELOR OF MARINE ENGINEERING TECHNOLOGY WITH HONOURS**
TIME / DURATION	:	**09.00 AM - 12.00 PM (3 HOURS)**
DATE	:	**1 JULY 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 ONLY.
4. Consists of FIVE (5) questions. Answer **FOUR (4)** questions ONLY.
5. Please write your answers on this answer booklet provided.
6. Answer **ALL** questions in English language **ONLY**.

THERE ARE 3 PAGES OF QUESTIONS, INCLUDING THIS PAGE.

INSTRUCTION: Answer FOUR (4) questions only.

Please use the answer booklet provided.

Question 1 (CLO2)

With reference to shipboard air compressor:

a) State FOUR (4) function of compressed air.

(4 marks)

b) Explain FOUR (4) effects of high oil and water content in compressed air system

(8 marks)

c) Sketch and label FOUR (4) horizontal model of an air receiver

(5 marks)

d) Explain FOUR (4) things to be done during visual inspection of an air receiver

(8 marks)

Question 2 (CLO2)

With reference to shipboard refrigeration system:

a) Sketch and label vapor compression cycle.

(5 marks)

b) Explain the fundamental operation of your sketch in (a)

(12 marks)

c) Sketch and label pressure-enthalpy diagram

(4 marks)

d) State FOUR (4) common problem for refrigeration system

(4 marks)

Question 3 (CLO2)

With reference to shipboard Oily Water Separator (OWS):

a) State FOUR (4) requirement for ship before discharging oily mixture to sea.

(4 marks)

b) Sketch a process flow diagram of an OWS and label FIVE (5) of its main components.

(18 marks)

c) Explain ONE (1) factor influencing the separation process quality if an OWS.

(3 marks)

Question 4 (CLO2)

With reference to fuel and lubricating oil analysis:

a) Explain FIVE (5) methods of testing the fuel and lubricating oil.

(5 marks)

b) Analyze how integrating laboratory test results influences decision-making in marine maintenance planning.

(9 marks)

c) Propose a method of removing contaminating water in engine lubricating oil system.

(9 marks)

d) Discuss the consequences of having water in engine lubricating oil systems.

(2 marks)

Question 5 (CLO2)

With reference to shipboard pumps:

a) Explain the fundamental operation of a centrifugal pump.

(4 marks)

b) Sketch and label a cross section of a Volute Type centrifugal pump.

(6 marks)

c) Evaluate the potential mechanical and operational factors that could lead to the problem below:

I. Decrease Pump Discharge Pressure
II. High Vibration of Pump
III. Reduced Flow Rate
IV. Motor Overheating

(10 marks)

d) Discuss things to be observed during visual inspection of a pump.

(5 marks)

END OF QUESTION PAPER