CONFIDENTIAL

UNIVERSITI KUALA LUMPUR
Malaysian Institute of Marine Engineering Technology

FINAL EXAMINATION

JULY 2025 SEMESTER SESSION

SUBJECT CODE	:	**LEB22603**
SUBJECT TITLE	:	**MARITIME PROFESSIONAL ENGLISH**
PROGRAMME NAME (FOR MPU: PROGRAMME LEVEL)	:	**BACHELOR OF ELECTRICAL AND ELECTRONICS ENGINEERING TECHNOLOGY (MARINE) WITH HONOURS**
TIME / DURATION	:	**09.00 AM – 11.30 AM (2 HOURS 30 MINUTES)**
DATE	:	**17 DECEMBER 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 **TWO (2)** sections; Section A and Section B.
4. Answer **ALL** questions in all sections.
5. Please write your answers in this question paper.
6. Answer **ALL** questions in English language **ONLY**.

THERE ARE 5 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total: 40 Marks)

A. Read the passage and answer the questions below. (30 marks)

CONVERTING AC TO DC (ALTERNATING CURRENT TO DIRECT CURRENT)

Electric power is usually generated and transmitted as **alternating current (AC)**, which means the flow of electric charge changes direction periodically. However, many electronic devices, such as computers, smartphones, and LED lights, require **direct current (DC)**, where the electric charge flows in only one direction.

To convert AC to DC, a device called a **rectifier** is used. The most common type of rectifier is the **diode**, a component that allows current to flow in only one direction. When AC current passes through a diode, it blocks the negative part of the AC cycle, resulting in a **pulsating DC.** This process is called **rectification.**

There are two main types of rectifiers:

1. **Half-wave rectifier** – uses a single diode and allows only one half of the AC cycle to pass through.
2. **Full-wave rectifier** – uses multiple diodes (often in a bridge configuration) to allow both halves of the AC cycle to be used, producing a smoother DC output.

Even after rectification, the output still contains some ripples. To smooth out the voltage and make it more stable, a **filter capacitor** is used. Capacitors store and release energy to reduce fluctuations in the voltage, resulting in a more consistent DC output.

In more advanced power supplies, **voltage regulators** are also used after the filtering stage to maintain a constant voltage level, regardless of changes in load or input.

This entire conversion process—rectification, filtering, and regulation—is how AC is transformed into usable DC power for modern electronic devices.

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1) What does AC stand for, and how does it differ from DC?

_____

_____

2) Why is AC commonly used for power transmission instead of DC?

_____

_____

3) What type of current do most electronic devices require to operate?

_____

_____

4) What is the function of a rectifier in an electrical circuit?

_____

_____

5) How does a diode contribute to the rectification process?

_____

_____

6) What is the difference between a half-wave and a full-wave rectifier?

_____

_____

7) Why is the output from a rectifier not a pure DC?

_____

_____

8) What role does a capacitor play after the rectification stage?

_____

_____

9) What is the purpose of a voltage regulator in a DC power supply?

_____

_____

10) List and briefly describe the three main stages involved in converting AC to DC.

_____

_____

_____

B. Fill in the blanks with the words given in the box. (10 marks)

repaired	electronic	electrostatic	GPS	engine
fire	maintenance	direct	satellite	electro-technical

Modern ships rely heavily on (1) _____ systems to ensure safe and efficient navigation, communication, and operation. These systems include a wide range of equipment such as radar, sonar, and (2) _____ systems, which help in determining the ship's position at sea.

The (3) _____ officer (ETO) is responsible for maintaining and troubleshooting all electronic equipment on board. This includes bridge systems, engine room automation, and (4) _____ detection systems that alert the crew in case of emergencies.

One critical component of shipboard electronics is the (5) _____ control system, which monitors and manages engine performance. The ETO must ensure that power distribution, particularly between alternating current (AC) and (6) _____ current (DC) systems, is stable and reliable.

Communication equipment such as VHF radios, satellite systems, and (7) _____ terminals are also maintained by the ETO to ensure continuous connectivity with shore stations and other vessels.

To prevent equipment failure, regular (8) _____ checks and calibrations are performed. Proper grounding and protection against (9) _____ discharge are essential to avoid damage to sensitive electronics.

Safety and compliance with international maritime regulations require that all systems be properly documented, and any faults must be logged and (10) _____ as soon as possible.

SECTION B (Total: 60 Marks)

A. Fill in the empty boxes with the right alphabet codes. (20 marks)

Letter	Code	Letter	Code
A	Alpha	N	11.
B	1.	O	12.
C	2.	P	13.
D	Delta	Q	14.
E	3.	R	Romeo
F	4.	S	15.
G	5.	T	16.
H	6.	U	Uniform
I	7.	V	17.
J	8.	W	18.
K	Kilo	X	X-ray
L	9.	Y	19.
M	10.	Z	20.

B. Fill in the blanks with the range and communication equipment required in the GMDSS – Areas A1, A2, A3 and A4. (10 marks)

AREA	RANGE	EQUIPMENT
A1	20 to 50 M	1.
A2	2.	VHF + MF
A3	3.	VHF + MF + One INMARSAT
A4	4.	5.

C. Based on the given situation, write the complete message, in full Phonetic Alphabets and Figure Code, on:

a) **Initial Distress Call and Message**

b) **Acknowledgement**

c) **Assistance Information Message**

d) **Acknowledge Response**

Provide your answer on the space given on the next page.

(30 marks)

SITUATION

MV Utopia (call sign LXB3, MMSI No. 235 675 211) is on fire. Her position is 60° 21' N, 043° 71.2' E. Fire is detected in the superstructure. Fire cannot be extinguished by vessel's own equipment. There is danger that the vessel will explode. Crew consists of 19 members, 4 of whom were injured and 2 were missing.

MV Hubble (call sign DZVG) received the distress message and able to assist. Her position is position is 61° 45.6' N, 042° 15' E. Her speed is 15 knots and ETA to distress position is 15 minutes.

a) Initial Distress Call and Message
b) Acknowledgement
c) Assistance Information Message
d) Acknowledge Response

END OF EXAMINATION PAPER