CONFIDENTIAL

UNIVERSITI KUALA LUMPUR
Malaysian Institute of Marine Engineering Technology

FINAL EXAMINATION
JULY 2025 SEMESTER SESSION

SUBJECT CODE	:	**LMB41003**
SUBJECT TITLE	:	**MARINE CONTROL SYSTEM**
PROGRAMME NAME (FOR MPU: PROGRAMME LEVEL)	:	**BACHELOR OF MARINE ENGINEERING TECHNOLOGY WITH HONOURS**
TIME / DURATION	:	**09.00 AM - 11.30 AM (2 HOURS 30 MINUTES)**
DATE	:	**23 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 Section A. For Section, answer **THREE (3)** questions **ONLY**.
5. Please write your answers on this answer booklet provided.
6. Answer **ALL** questions in English language **ONLY**.
7. Answer should be written in blue or black ink except for sketching, graphic and illustration.

THERE ARE 4 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

INSTRUCTION:

Section A consists of TWO (2) QUESTION

Answer ALL QUESTION **(Total: 40 marks)**

Please use the answer booklet provided.

Question 1

With reference to the marine control system.

(a) Determine FOUR (4) requirements to apply for achieving a good control system

(4 marks)

(b) Explain FOUR (4) advantages of automation control.

(8 marks)

(c) Sketch and label FOUR (4) a single and double port globe valve.

(8 marks)

Question 2

With reference to hydraulic transmitters of the steering gear control systems.

(a) Sketch and label FIVE (5) the hydraulic transmitter steering gear control system.

(10 marks)

(b) Explain the application of hydraulic systems in the marine steering gear control and their operation. Refer to the sketch answer (a).

(10 marks)

Section B consists of FOUR (4) QUESTION

Answer THREE (3) QUESTION **(Total: 60 marks)**

Question 3

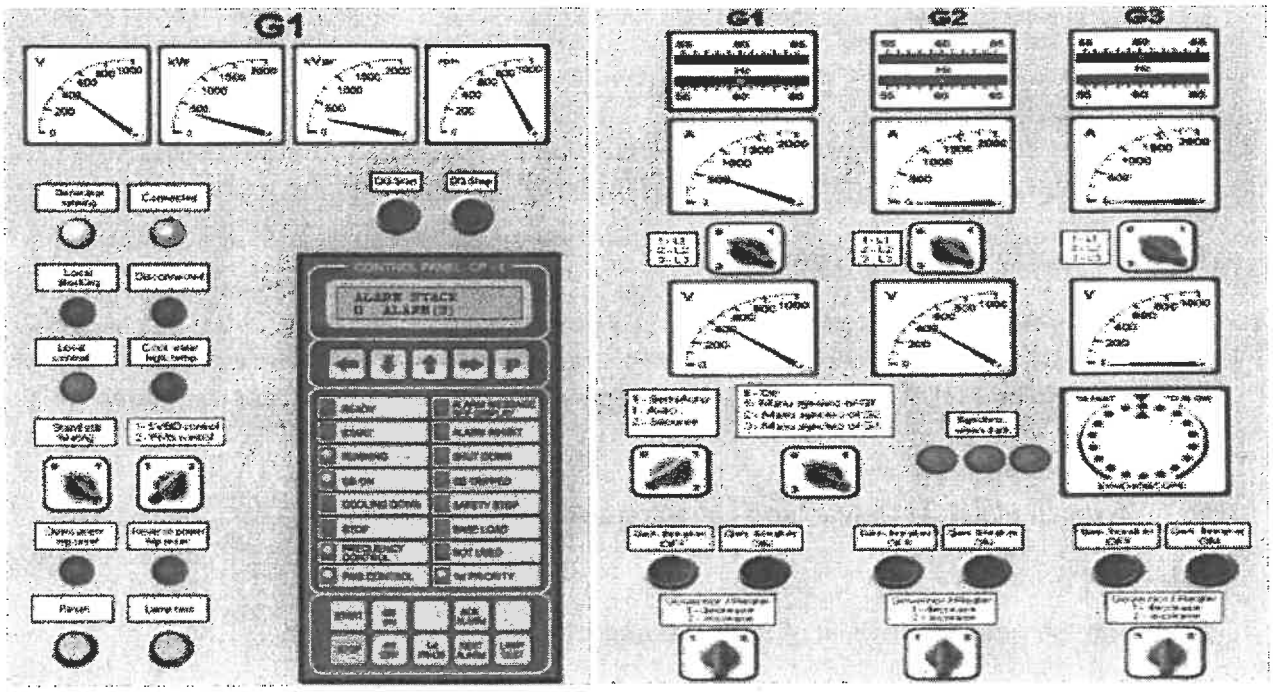

Figure Q3: Generator control Panel and Synchronizing Panel

With reference to shipboard electrical supply power control system shown in Figure Q3.

(a) Identified generator engine starting mode option process before switching ON the breaker.
(6 marks)

(b) Analyses the causes of synchronise failure between incoming generator with the currently running generator.
(14 marks)

Question 4

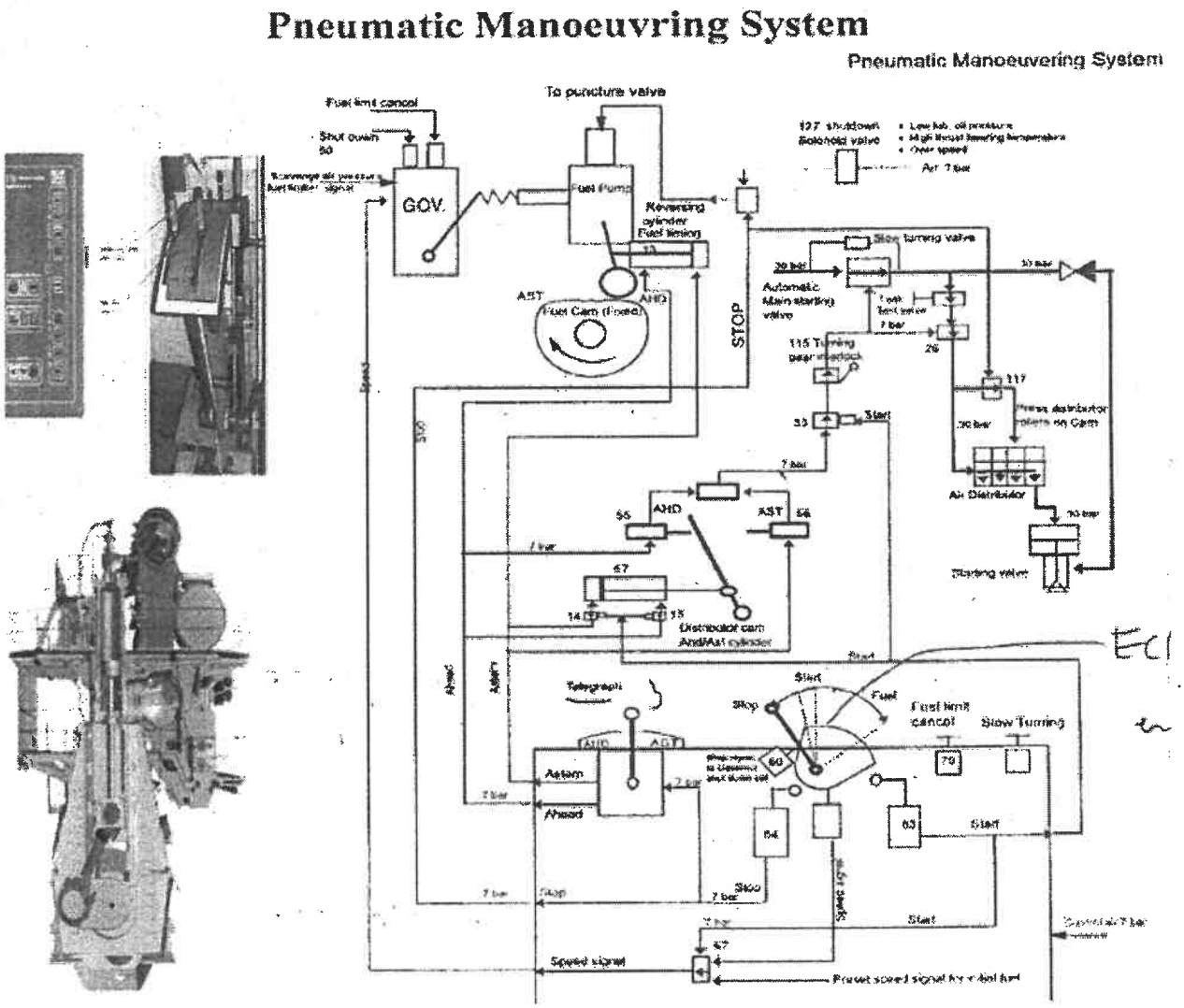

Figure Q4: starting air control system diagram

The engine uses a pneumatically operated starting air control system diagram shown in figure Q4.

(a) Analyse possible causes for the engine's failure to run, focusing on the control system components and safety interlocks.

(12 marks)

(b) Explain the standard troubleshooting procedure to applied.

(8 marks)

Question 5

With reference to the marine propulsion steam turbine control system.

(a) Sketch and label FIVE (5) the basic marine propulsion steam turbine control system.

(8 marks)

(b) Analyse possible causes for the turbine rpm failure to increase, focusing on the control system components and safety interlocks

(12 marks)

Question 6

CLO1, PLO2: Problem analysis, C4-Analysing. SP1(SK5 & SK6), SP4 & SP7

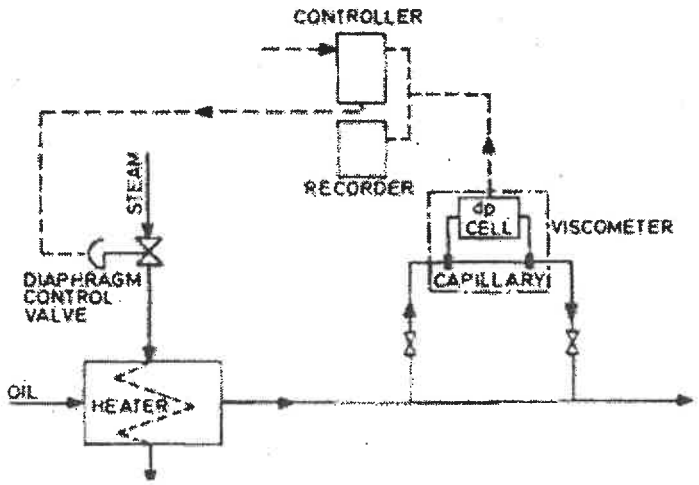

Figure Q6; Diesel engine fuel viscosity monitoring control system

With referent to the marine diesel engine fuel viscosity monitoring control system in figure Q6

(a) Identify FIVE (5) root cause of the fuel viscosity monitoring failure.

(10 marks)

(b) Explain FIVE (5) corrective actions to resolve the issue and restore the fuel viscosity monitoring system.

(10 marks)

END OF QUESTION