



UNIVERSITI KUALA LUMPUR
Malaysian Institute of Marine Engineering Technology

FINAL EXAMINATION
FEBRUARY 2025 SEMESTER SESSION

SUBJECT CODE : LMB31703

SUBJECT TITLE : MARINE DIESEL ENGINE 2

PROGRAMME NAME : BACHELOR OF MARINE ENGINEERING
(FOR MPU: PROGRAMME LEVEL) TECHNOLOGY WITH HONOURS

TIME / DURATION : 09.00 AM - 11.30 AM
(2 HOURS 30 MINUTES)

DATE : 24 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 **TWO (2)** section. Section A and section B.
4. Answer **ALL** in questions section A. Section B only **THREE (3)** question **ONLY**
5. Please write your answers on this answer booklet provided.
6. Answer **ALL** questions in English language **ONLY**.

THERE ARE 5 PAGES OF QUESTIONS, INCLUDING 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 engine components and structures of a large two stroke diesel engine:

- (a) Explain the application of welding method in fabrication of bedplate and engine frame.
(10 marks)
- (b) Explain FOUR (4) requirements to produce high-quality engine structure weld
(6 marks)
- (c) Describe FOUR (4) advantages of welding method for large engine part
(4 marks)

Question 2

With reference to piston and liner engine of a large two-stroke diesel engine:

- (a) Explain the application of piston ring in a cylinder liner engine.
(6 marks)
- (b) Identify a sign of blow-by between engine piston ring and liner.
(6 marks)
- (c) Sketch and labels FIVE (5) piston ring actions in cylinder while engine running.
(8 marks)

Section B consists of FOUR (4) QUESTION

Answer THREE (3) QUESTION

(Total: 60 marks)

Question 3

With reference to the large two-stroke diesel engine lubrication system.

- (a) The engine bearing temperature increasing high during operation. Analyze this problem and identify the root cause. (8 marks)
- (b) Describe the lubrications oil total base number. (4 marks)
- (c) With the aids of a sketch, explain two-stroke large engine cylinder lubrication. (8 marks)

Question 4

With reference to diesel engine speed and load control system:

- (a) Sketch and labels FOUR (4) diesel engine 'governor 'closed loop control (6 marks)
- (b) Analyze the root cause of the engine control not being able to control engine rpm and engine rpm hunting. (8 marks)
- (c) Explain FOUR (4) function of governor. (6 marks)

Question 5

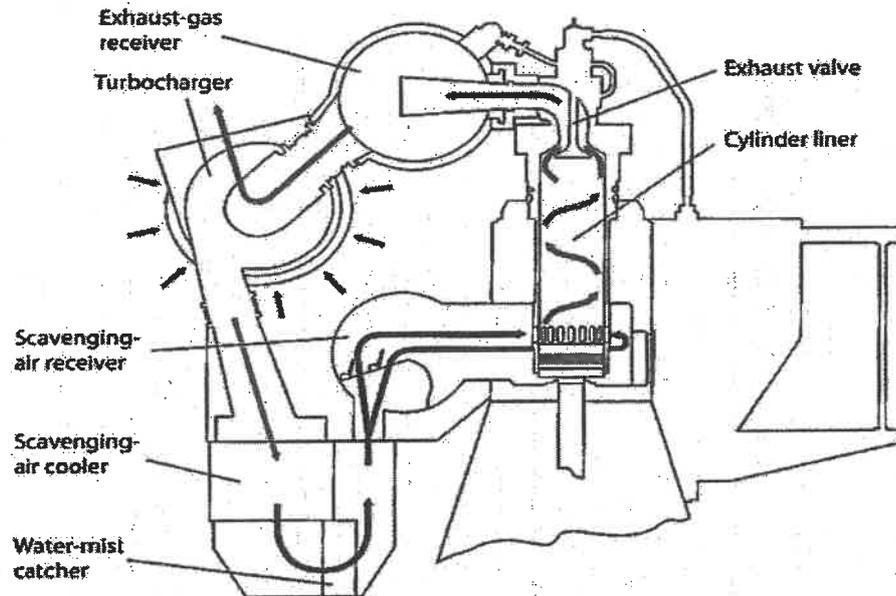


Figure A

With reference to scavenging and supercharging of two-stroke low speed diesel engine shown in Figure A.

- (a) Analyze the root cause of the diesel engine exhaust temperatures being high and black smoke. (12 marks)
- (b) Explain the function of air cooler. (4 marks)
- (c) Explain THREE (3) advantages of turbocharging system. (4 marks)

Question 6

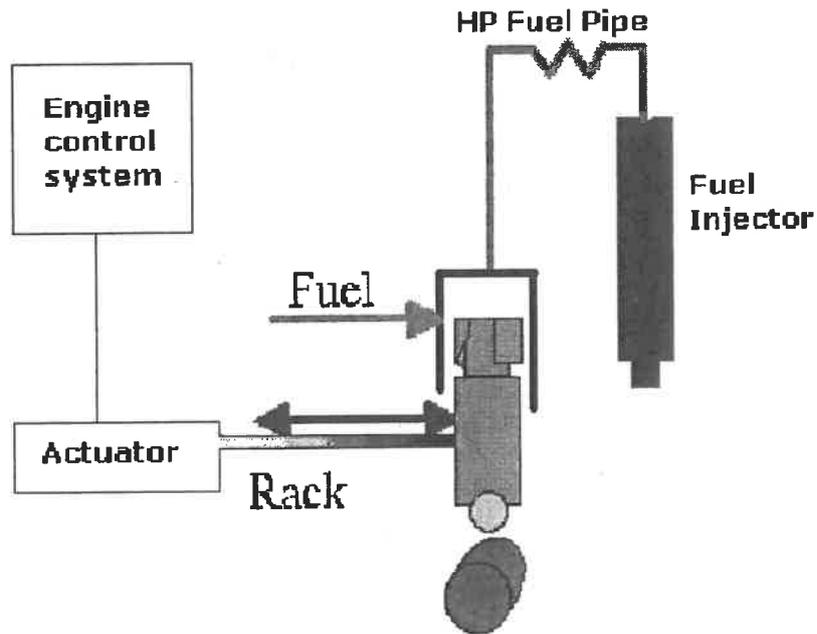


Figure B

With reference to marine diesel engine speed, load and fuel injection control system, shown in Figure B.

- (a) Analyze the operation of fuel pump control system diesel engine governor operation. (8 marks)
- (b) Evaluate the potential consequences of injector malfunction on fuel combustion standards and overall engine performance. (12 marks)

END OF EXAMINATION PAPER