



**UNIVERSITI KUALA LUMPUR
MALAYSIAN INSTITUTE OF MARINE ENGINEERING TECHNOLOGY**

**FINAL EXAMINATION
SEPTEMBER 2016 SEMESTER (QUESTION SET 1)**

COURSE CODE : LMB 20603
COURSE NAME : MARINE DIESEL ENGINE 1
PROGRAMME NAME : BACHELOR MARINE ENGINEERING TECHNOLOGY
(FOR MPU: PROGRAMME LEVEL)
DATE : SEPTEMBER 2016
TIME :
DURATION : 2.5 HOURS

INSTRUCTIONS TO CANDIDATES

1. Please **CAREFULLY** read 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 B, answer **TWO (2)** questions only
5. Please write your answers on the OMR answer script and answer booklet provided.
6. Answer all questions in English language **ONLY**.

THERE ARE 4 PAGES OF QUESTIONS, INCLUDING THIS PAGE.

SEPTEMBER 2016

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SECTION A (Total: 40 marks)

INSTRUCTION: Answer ALL questions.

Please use the answer booklet provided.

Question 1

With reference to the main engine propulsion system,

- a) Sketch a fuel oil injector which is used in a two stroke marine engines. (8 marks)
- b) Explain the function of each of the part of the components and its operation. (8 marks)
- c) Identify the critical areas with regards to fuel oil injector nozzle. (4 marks)

Question 2

With reference to the 2 stroke engines propulsion system performance. With the aids of sketch power diagram, explain for the following faults.

- a) Partially obstructed air supply (5 marks)
- b) Partially choked nozzle (5 marks)
- c) Badly worn of piston rings (5 marks)
- d) Partially obstructed exhaust (5 marks)

SECTION B (60 MARKS)

INSTRUCTION: Answer only THREE questions.

Please use the answer booklet provided.

Question 3

With reference to the main propulsion machinery,

a) Sketch and explain the function of main engine crankcase relief valve.

(10 marks)

b) Sketch and describe the function of the oil mist detector.

(10 marks)

Question 4

a) Describe how it is determined whether lubricating oil deterioration is due to contamination by:

i) Air

(2 marks)

ii) Fuel oil

(2 marks)

iii) Microbial problem

(2 marks)

b) Explain two processes of which lubricating oil is treated for re-usage.

(2 marks)

c) Sketch and explain the schematic diagram for the main engine lubricating oil system

(12 marks)

Question 5

- a) Sketch and label the main engine starting air system which is largely used in the marine two-stroke engine.

(10 marks)

- b) Explain the system functions of the interlock devices fitted to the starting air system.

(10 marks)

Question 6

With reference to main propulsion machineries,

- a) Explain variable injection timing (VIT) which is widely used in marine engines and kindly sketch a sample of:

- i. Sulzer engine (VIT) which commonly used on RTA type of engine

OR

- ii. MAN-B & W (VIT)?

(10 marks)

- b) With reference to scavenging system, kindly list down factors contributing to scavenge fire and actions need to be taken in case of scavenge fire.

(10 marks)

END OF QUESTION