



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

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**FINAL EXAMINATION**  
**JANUARY 2017 SEMESTER**

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**COURSE CODE** : LMB40303

**COURSE NAME** : MARINE DIESEL ENGINE 2

**PROGRAMME NAME** : BACHELOR OF ENGINEERING TECHNOLOGY (HONS)  
(FOR MPU: PROGRAMME LEVEL) IN MARINE ENGINEERING

**DATE** : 03/07/2017 MON

**TIME** : 9.00 AM - 11.30 PM

**DURATION** : 2 HOURS 30 MINUTES

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**INSTRUCTIONS TO CANDIDATES**

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1. Please read CAREFULLY the instructions given in the question paper.
  2. This question paper has information printed on both sides.
  3. This question paper consists of FIVE (5) questions. Answer FOUR (4) questions only.
  4. Please write yours answers on the answer booklet provided.
  5. Write your answers only in BLACK or BLUE ink.
  6. Answer all questions in English.
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**THERE ARE 3 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.**

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**INSTRUCTION: Answer FOUR (4) questions ONLY.**

**(Total: 100 marks)**

**Please use the answer booklet provided.**

### **Question 1**

With reference to engine components and structures:

- (a) Sketch a two-stroke main engine structure comprising of the bedplate, frame and entablature, showing the tie bolts in position.  
(10 marks)
- (b) Discuss how rigidity is imparted to the whole assembly of your sketch in (a).  
(10 marks)
- (c) Explain the consequences of operating the engine with loose tie bolts.  
(5 marks)

### **Question 2**

With reference to engine lubrication:

- (a) Sketch a typical lubrication system for a large two-stroke diesel engine and show the principal components.  
(15 marks)
- (b) Discuss the functions of the principal components fitted in the lubrication system sketched in (a).  
(5 marks)
- (c) In the event of water being discovered in the main engine lubricating system, explain the possible causes of the contamination and discuss how the cause of the contamination may be located.  
(5 marks)

**Question 3**

With reference to diesel engine starting and reversing:

- (a) Sketch an air start system for a large slow speed diesel engine and show the main components. (15 marks)
- (b) Explain how a leaking air start valve may be detected in each of the following:
- i. With the engine out of service (3 marks)
  - ii. While maneuvering the engine (3 marks)
- (c) Outline an appropriate course of action on discovering a leaking air start valve during maneuvering. (4 marks)

**Question 4**

With reference to scavenging and supercharging:

- (a) Illustrate and discuss the operating principle of the following:
- i. Pulse exhaust system (7 marks)
  - ii. Constant pressure exhaust system (7 marks)
- (b) The scavenge fire alarm was activated and indications of a scavenge fire were noticed while your vessel is underway. As an engineer in-charge of the watch, outline your immediate sequential course of actions to effectively handle the situation. (11 marks)

**Question 5**

With reference to machinery foundation:

- (a) Sketch the foundation supports of the main engine bedplate and discuss how it is installed and secured onboard the ship.

(20 marks)

- (b) Discuss the reasons why regular systematic inspection of the arrangement described in (a) is necessary.

(5 marks)

**END OF EXAMINATION PAPER**