



**UNIVERSITI KUALA LUMPUR
Malaysia France Institute**

**FINAL EXAMINATION
SEPTEMBER 2013 SESSION**

SUBJECT CODE : FVD12603
SUBJECT TITLE : ENGINE TECHNOLOGY
LEVEL : DIPLOMA
TIME / DURATION : 2 HOURS 30 MINUTES.
DATE :

INSTRUCTIONS TO CANDIDATES

1. Please read the instructions given in the question paper CAREFULLY.
2. This question paper is printed on both sides of the paper.
3. Please write your answers on the answer booklet provided.
4. Answer should be written in blue or black ink except for sketching, graphic and illustration.
5. This question paper consists of TWO (2) sections. Section A and B. Answer all questions in Section A. For Section B, answer two (2) questions only.
6. Answer all questions in English.

THERE ARE 4 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total: 60 marks)

**INSTRUCTION: Answer ALL questions.
Please use the answer booklet provide.**

ANSWER ALL THE QUESTION**Question 1**

- a) Explain about the friction and give two types of friction in the engine. (5 marks)
- b) Explain about engine torque and the different torque between two valves and four valves in 3000rpm. (5 marks)
- c) Explain about volumetric efficiency and three ways to improve it. (5 marks)

Question 2

- a) Define the terminology as follow: (5 marks)
1. Crank throw
 2. Over square engine
 3. Under square engine
 4. Cylinder bore oval
 5. Cylinder bore tapered
- b) Explain about volumetric efficiency and three way to improve its. (5 marks)

Question 3

- a) Define “detonation” and factor contribute to it. (5 marks)
- b) Name three causes of “pre-ignition”. (5 marks)
- c) Explain about “octane rating” between RON 97 and RON 95. (5 marks)

Question 4

a) Explain combustion cycle in diesel engine.

(5 marks)

b) Sketch a main component of the diesel fuel system.

(5 marks)

Question 5

a) Explain the importance of removing the blow-by gas from engine (crankcase).

(5 marks)

b) Describe operation for draft tube ventilation system operation.

(3 marks)

c) What is sludge in engine?

(2 marks)

SECTION B (Total: 40 marks)**INSTRUCTION: Answer TWO (2) questions only.****Please use the answer booklet provided.****Question 1**

- a) **Calculate** the engine displacement (6 cylinders) in **cubic centimetre** and **litres** if the engine uses 8 cm (bore) and 7.5cm (stroke).

(10 marks)

- b) **Calculate** the compression ratio if the engine is installed with 35 cubic centimetre of cylinder head and 0.3 cm of gasket thickness. Assume that it is zero deck clearance.

(10 marks)

Question 2

Customer complained that his engine consumed engine oil and produced blue smoke, from the complaint, please give a possible reason, justify the cause by using compression test result (dry & wet) and give solution to solve the complaint.

(20 marks)

Question 3

- a) Define the meaning of Naturally Aspirated Engine and Forced Aspirated Engine.

(4 marks)

- b) Explain the function of a Turbocharger and its operation

(10 marks)

- c) What is turbo lag and how it can be reduced? Give two solutions.

(6 marks)

END OF QUESTION