



**UNIVERSITI KUALA LUMPUR
Malaysia France Institute**

**FINAL EXAMINATION
SEPTEMBER 2014 SESSION**

SUBJECT CODE	:	FVD11103
SUBJECT TITLE	:	ENGINE FUNDAMENTAL
LEVEL	:	DIPLOMA
TIME / DURATION	:	3.00 PM – 6.00 PM (3 HOURS)
DATE	:	2 JANUARY 2015

INSTRUCTIONS TO CANDIDATES

1. Please read the instructions given in the question paper CAREFULLY.
2. This question paper is printed on one 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.
7. Answer all questions in English
8. All question paper should be returned back to the invigilator

THERE ARE 4 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total: 60 marks)**INSTRUCTION: Answer ALL questions.****Question 1**

- a) Explain what is an engine?
(2 marks)
- b) Describe the terms below:
- i. two stroke cycle engine.
(3 marks)
 - ii. four stroke cycle engine.
(3 marks)
 - iii. internal combustion engine.
(3 marks)
- c) Name two types of engine piston and briefly explain their differences.
(5 marks)
- d) Explain the main functions of connecting rod.
(4 marks)

Question 2

- a) Write down the differences between two stroke diesel and two stroke petrol engine.
(5 marks)
- b) Explain scavenging process and clearly explain the scavenging process that happens in two stroke diesel engine.
(5 marks)

c) List the types of bearing that are usually used for engine bearing. (5 marks)

d) Explain the operation of power stroke in diesel engine. (5 marks)

Question 3

a) Explain what will happen to the engine if the engine running is at too high temperature operation? (5 marks)

b) Clearly explain the TWO (2) subsystems that are used in order to complete the automotive fuel system. (5 marks)

c) Name TWO (2) types of engine oil filtration systems and state the differences between these two systems. (5 marks)

d) Identify the factors that determine when the spark should begin (how much degree before TDC) in petrol engine. (5 marks)

SECTION B (Total: 40 marks)**INSTRUCTION: Answer TWO questions only.****Question 1**

a)

- i) Sketch the complete valve timing diagram to show the overlap region.

(4 marks)

- ii) Explain the basic operation of the engine valve based on the diagram that is sketched.

(6 marks)

b)

- i) Define "Valve Overlap"?

(2 marks)

- ii) Determine the condition/performance of the engine if the engine is set with **lower** amount of valve overlap.

(4 marks)

- iii) Determine the condition/performance of the engine if the engine is set with **greater** amount of valve overlap.

(4 marks)

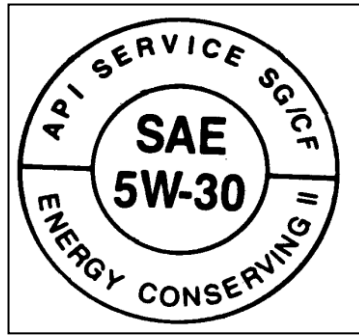
Question 2

Figure 1 automotive engine oil label

- a) Referring to figure 1, describe the entire technical terms stated.

(10 marks)

- b) Explain the **FIVE (5)** purposes of lubricating oil.

(10 marks)

Question 3

- a) Customer claims that his vehicle consumes high amount of engine oil during operation and produce blue smoke.

- i) Explain the blue smoke regarding to engine problem.

(2 marks)

- ii) Identify the possible causes of this problem.

(4 marks)

- iii) Explain the solution for the problem.

(4 marks)

- b) Explain the complete procedures to replace engine oil and engine oil filter.

(10 marks)

END OF QUESTION