



UNIVERSITI KUALA LUMPUR
Malaysia France Institute

FINAL EXAMINATION
JULY 2010 SESSION

SUBJECT CODE : FVD 20203
SUBJECT TITLE : ENGINE TECHNOLOGY
LEVEL : DIPLOMA
TIME/DURATION : 12.30 pm – 2.30 pm
(2 HOURS)
DATE : 15 NOVEMBER 2010

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 **ONE (1) question only**.
 6. Answer all questions in English.
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THERE ARE 3 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total: 65 marks)

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

ANSWER ALL THE QUESTION**Question 1**Engine Performance:

- a) Explain **2 (TWO)** method of increasing an engine displacement. (4 marks)
- b) List 6 (SIX) measuring unit to indicate the power of an engine performance. (6 marks)
- c) Thermal efficiency is important in engine performance, name two factors that can contribute to the lost of engine energy. (4 marks)
- d) Name three factor that prevent the engine from achieving the good volumetric efficiency (80%). (6 marks)

Question 2Engine Measurement:

- a) What is engine stroke? Can the stroke change the engine displacement? Explain. (8 marks)
- b) **Calculate** the engine displacement (4 cylinders) in **cubic inch**, and **litres** if the engine uses 3.0 inch (bore) and 3.0 inch (stroke). (8 marks)
- c) **Calculate** the compression ratio if the engine is installed with 3.1 cu inch of cylinder head and 0.02 cu inch of gasket. Assume that the deck clearance is zero. (4 marks)
- d) Name type of the above engine (square or under square or over square) and explain the advantages of the above engine. (5 marks)
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Question 3

Diesel Engine

Explain the procedure of diesel bleeding process (low pressure and high pressure) and sketch the diagram to differentiate the main components between low pressure and high pressure lines.

(10 marks)

Question 4

In forced Induction Engine,

a) What is the meaning of "turbo lag" and give two solutions to reduce the lag.

(6 marks)

b) What is the difference between "super-charged" and "turbo-charged"?

(4 marks)

SECTION B (Total: 35 marks)**INSTRUCTION: Answer ONE (1) question only.****Please use the answer booklet provided.****Question 1**

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 (to produce table result for dry & wet test) and give solution to solve the complaint.

Question 2

Customer was complaint that his/ her engine produces "some noise" during climbing a mountain at low gear.

From the above complaint, please give possible reasons, explain the cause and solution to solve the customer complaint.

Question 3

What does **blue, black and white** smoke indicate regarding engine trouble? Suggest the best diagnostic tool to diagnose the above problem and explain the operating procedures of the said tool.

END OF QUESTION