



UNIVERSITI KUALA LUMPUR
Malaysia France Institute

FINAL EXAMINATION
JULY 2010 SESSION

SUBJECT CODE : FVB 30302
SUBJECT TITLE : DIESEL TECHNOLOGY 2
LEVEL : BACHELOR
TIME / DURATION : 12.30pm – 2.30pm
(2 HOURS)
DATE : 10 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 three (3) questions only.
 6. Answer all questions in English.
-

THERE ARE 4 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (total: 40 marks)

INSTRUCTION: Answer ALL questions.
Please use the answer booklet provided.

Question 1

a) What is the difference between a conventional diesel engine and common rail diesel engine?

(8 marks)

b) Explain what is meant by the input and output circuit in engine management electronics.

(4 marks)

c) Figure 1 shows the operation of a variable capacitance pressure sensor responds to low and high pressure by outputting different return signal. Explain how the signal voltage is changed.

(8 marks)

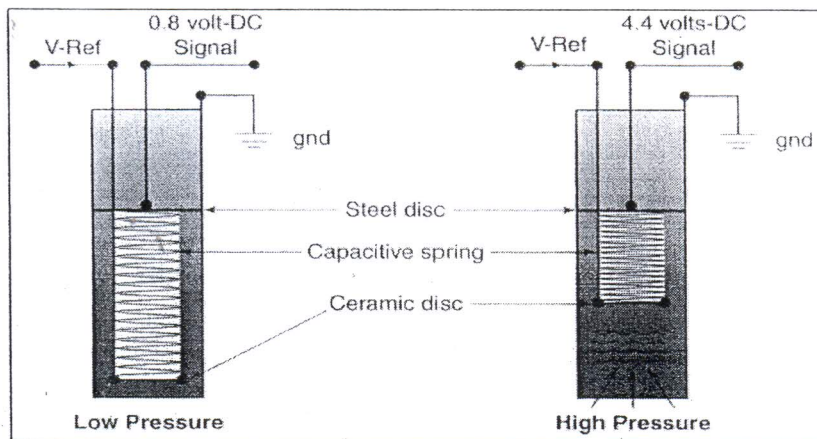


Figure 1: Induction pulse generator shaft speed sensor

Question 2

- a) What is smog and explain **TWO (2)** types of smog. (5 marks)
- b) Photochemical smog also known as photosynthetic and photoelectric smog is produced mainly by vehicle tailpipe gases. After it has been formed, photochemical smog can be seen as yellowish/light brown haze. Discuss effect of Photochemical smog in term of global warming. (10 marks)
- c) What are the factors influencing emissions? (5 marks)

SECTION B (Total: 60 marks)**INSTRUCTION: Answer only THREE questions.****Please use the answer booklet provided.****Question 3**

- a) Explain the operation of single actuator Electronic Unit Injector.
(6 marks)
- b) Compare between the primary and secondary circuit in transfer pump.
(10 marks)
- c) What are advantages of the Dual Actuator Electronic Unit Injectors?
(4 marks)

Question 4

- a) What are the advantages of using Common Rail Fuel System?
(5 marks)
- b) What will happen if the Bosch Rail Pressure Control Valve is energized?
(10 marks)
- c) Explain the operation of Electro-hydraulic Injectors when nozzle is closed.
(5 marks)

Question 5

- a) What will happen if the Bosch Rail Pressure Control Valve is not energized?
(8 marks)
- b) Explain the operation of Electro-hydraulic Injectors when the injector is closed.
(6 marks)
- c) Explain **THREE** (3) general types of Diesel particulate Filters.
(6 marks)

Question 6

a) What are differences between turbocharger and supercharger in term of application, design and lag time?

(10 marks)

b) What are the precautions in handling turbocharger?

(5 marks)

c) What are the common reasons for turbocharger failure?

(5marks)

END OF QUESTION