



**UNIVERSITI KUALA LUMPUR  
Malaysia France Institute**

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**FINAL EXAMINATION  
JANUARY 2011 SESSION**

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**SUBJECT CODE** : FVD 30102  
**SUBJECT TITLE** : NGV INSTALLATION AND MAINTENANCE  
**LEVEL** : DIPLOMA  
**TIME / DURATION** : 2.00pm – 4.00pm  
( 2 Hours )  
**DATE** : 03 MAY 2011

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**INSTRUCTIONS TO CANDIDATES**

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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) question only.
6. Answer all questions in English.

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THERE ARE 4 PRINTED PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

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**SECTION A (Total: 60 marks)****INSTRUCTION: Answer ALL questions.****Please use the answer booklet provided.****Question 1**

- (a) Draw the NGV fuel system flow-line circuit and list all the components  
(10 marks)
- (b) Explain the function of any **FIVE** of the components  
(5 marks)
- (c) Explain the reasons why you should have loops at certain points along the fuel pipeline.  
(4 marks)

**Question 2**

- (a) Explain how does the safety feature works if the gas pressure in the NGV cylinder increases more than the predetermined safe level.  
(5 marks)
- (b) As a qualified installer, where would you locate the position of the NGV Regulator in relation to the MS:1096 – 1997 Standard?  
(8 marks)

**Question 3**

- a) Explain the importance of having a pre-conversion check on the vehicles that to be installed with NGV equipment.

(10 marks)

- b) Give **three** probable causes of each of the following condition:

i. Engine can be started on Petrol, but not on NGV

ii. Engine runs on petrol but dies when switched to NGV

iii. Engine runs erratically at idling speed on both Petrol and NGV

(10 marks)

- (c) List **four** factors to be considered when determining the location of NGV Filler Valve.

(8 marks)

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

(a) With an aid of a diagram, explain how you would connect the change-over-switch.

(10 marks)

(b) Explain the function of the following components:

- i. Master shut-off valve
- ii. Hermetically sealed container
- iii. Loops on the high pressure pipe
- iv. Emergency cork fitted on petrol solenoid valve

(8 marks)

(c) Explain why is it mandatory for the NGV decals to be affixed in front and at the back of the vehicle?

(2 marks)

**Question 2**

(a) Name **two** characteristics of NGV that cause a loss of engine's power when used in a bi-fuel vehicle and explain the reasons.

(10 marks)

(b) Give **three** advantages of NGV over Gasoline when is used as a fuel.

(6 marks)

(c) Give **two** reasons why are the ignition timing of a bi-fuel (NGV and Gasoline) has to be set more advanced than the original setting.

(4 marks)

**Question 3**

(a) Give **three** characteristics of NGV that make it a safer fuel than Gasoline.

(3 marks)

(b) Explain how each of the characteristics mentioned in (a) contributes to a safer fuel.

(9marks)

(c) Explain clearly why in a bi-fuel (NGV and Gasoline) vehicle the spark plugs are prone to fouling, pre-ignition and valve-burning whenever NGV is subjected to a prolonged heavy duty use?

(8 marks)

**END OF QUESTION**