



UNIVERSITI KUALA LUMPUR
Malaysia France Institute

FINAL EXAMINATION
JANUARY 2011 SEMESTER

SUBJECT CODE : FVD 20702
SUBJECT TITLE : AUTOMOTIVE AIR CONDITIONING SYSTEM
LEVEL : DIPLOMA
TIME/DURATION : 9.00 am – 11.00 am
(2 HOURS)
DATE : 08 MAY 2011

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. Answer all questions in English.
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THERE ARE 2 PRINTED PAGES OF QUESTIONS EXCLUDING THIS PAGE

Answer ALL questions.

Question 1

- (a) Convert the following temperature scale:
- i. $25\text{ }^{\circ}\text{C} \rightarrow\text{ }^{\circ}\text{F} =$
 - ii. $59\text{ }^{\circ}\text{F} \rightarrow\text{ }^{\circ}\text{C} =$
 - iii. $159\text{ }^{\circ}\text{F} \rightarrow\text{ }^{\circ}\text{K} =$
 - iv. $20\text{ }^{\circ}\text{C} \rightarrow\text{ }^{\circ}\text{K} =$
 - v. $560\text{ }^{\circ}\text{K} \rightarrow\text{ }^{\circ}\text{F} =$
- (10 marks)
- (b) Heat can be transferred by three methods. Name and explain each method.
- (6 marks)
- (c) Explain the following terms:-
- i. Latent heat
- (2 marks)
- ii. Sensible heat
- (2 marks)
- iii. Super heating
- (2 marks)
- (d) Heat is a form of energy; this means it cannot be destroyed. True or false?
Explain your answer.
- (3 marks)

Question 2

Explain how to carry out the following tasks on a vehicle: -

- (a) To discharge the air conditioning system using manifold gauge.
- (5 marks)
- (b) To evacuate the air conditioning system.
- (13 marks)
- (c) To recharge the air conditioning system
- (7 marks)

Question 3

- (a) Sketch an expansion valve and name the components. (10 marks)
- (b) State the operation of the expansion valve: -
- i. When interior temperature in the vehicle is high. (5 marks)
 - ii. When interior temperature in the vehicle is low. (5 marks)
- (c) Some vehicle does not use an expansion valve, but they use a fix orifice tube. State the differences between these two systems. (5 marks)

Question 4

- (a) Explain what is the function of a magnetic clutch? (3 marks)
- (b) In a refrigerant circuit, high pressure switch and low pressure switch are necessary. What are the functions of these pressure switches in Air Conditioning system? (4 marks)
- (c) You are given magnetic clutch, high pressure switch, low pressure switch, thermostatic switch Air Conditioning relay and Air Conditioning switch. Draw a wiring diagram shows connection of all of these components. (10 marks)
- (d) Explain the checking procedure using a manifold gauge to troubleshoot the compressor that is not functioning. (**Consider that the wiring system is in good condition**) (8 marks)

END OF QUESTION