



**UNIVERSITI KUALA LUMPUR**  
**Malaysia France Institute**

---

**FINAL EXAMINATION**  
**JULY 2010 SESSION**

---

**SUBJECT CODE** : FVB 20603  
**SUBJECT TITLE** : AUTO AIR CONDITIONING AND CLIMATE CONTROL SYSTEM  
**LEVEL** : BACHELOR  
**TIME / DURATION** : 9.00am – 11.30am  
( 2.5 HOURS )  
**DATE** : 08 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 two (2) question only.
6. Answer all questions in English.

---

THERE ARE 4 PAGES OF QUESTIONS AND 1 PAGE OF APPENDIX, EXCLUDING THIS PAGE.

---

**SECTION A (Total: 50 marks)****INSTRUCTION: Answer all the question.****Please use the answer booklet provided.****Question 1**

- a) Explain the term of air-conditioning briefly as related to car air-conditioning system.  
(5 marks)
- b) States the difference between the conventional and a climatic control automotive air-conditioning system.  
(5 marks)

**Question 2**

Sketch the main components of a car air-conditioning system showing the:

- (i) name and functions of each component
- (ii) refrigerant flow direction
- (iii) low and high side of the system
- (iv) the condition of the refrigerant in the system.

(12 marks)

**Question 3**

- a) How to determine the correct amount of oil in the compressor.  
(3 marks)
- b) Why there is compressor oil accumulated at the condenser when the system is switch off.  
(3 marks)
- c) How frequent do we replace the compressor oil.  
(2marks)

**Question 4**

- a) List FIVE most common areas where leak is detected in most transport air-conditioning system.

(5 marks)

- b) Explain TWO methods of preventing a leakage in the system.

(5 marks)

**Question 5**

- a) State the difference between a filter drier and an accumulator plus the location in an actual system.

(5 marks)

- b) How to determine the correct amount of refrigerant in the system for a filter drier with no sight glass and without using the manifold gauge.

(5 marks)

**SECTION B (50 marks)****INSTRUCTION:** Answer any TWO (2) questions only**Question 1**

- a) What are the uses of a Mollier Diagram in an air-conditioning system?  
(5 marks)
- b) From the given R-22 Mollier Chart, you are required to plot the refrigeration cycle based on the following readings:
- (i) Low Pressure = 5 bar
  - (ii) Temp. at high side = 30 C
  - (iii) Temp. at TXV = 25 C
  - (iv) Pressure entering Compressor = 6.1 bar
- (10 marks)
- c) From the chart determine the following values:
- (i) Refrigerating Effect
  - (ii) Compression work
  - (iii) Condenser work
  - (iv) Coefficient of Performance
  - (v) Superheat for the cycle
- (10 marks)

**Question 2**

Explain the process of servicing a car air-conditioning system which includes:

- (i) the safety procedures  
(2 marks)
- (ii) all the required tools and equipments  
(3 marks)
- (iii) the cleaning process  
(8 marks)
- (iv) the charging process  
(12 marks)

**Question 3**

A Customer complains that her car air conditioning system is not functioning. After making a check you found that the compressor is jammed and a leakage condenser. As a service advisor how would you explain the follows:

- a) condition and possible causes of the air-conditioning system (5 marks)
- b) the functions and the required components to be change (5 marks)
- c) the detail works and process that need to be done the time taken. (15 marks)

END OF QUESTION

