



**UNIVERSITI KUALA LUMPUR
Malaysia France Institute**

**FINAL EXAMINATION
SEPTEMBER 2013 SESSION**

SUBJECT CODE : FVB 20603
SUBJECT TITLE : AUTO AIR CONDITIONING AND CLIMATE CONTROL SYSTEM
LEVEL : BACHELOR
TIME / DURATION : 2 ½ HOURS
DATE :

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

THERE ARE 4 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total: 40 marks)**INSTRUCTION: Answer all the question.****Please use the answer booklet provided.****Question 1 (10 marks)**

- a) State **SIX (6)** purposes of having a climatic vehicle air-conditioning system..
(6 marks)
- b) List **FOUR (4)** functions of the carbon and pollen filter that are installed at the evaporator.
(4 marks)

Question 2 (10 marks)

- a) Explain briefly the purposes and main components of two channel air-conditioning system.
(5 marks)
- b) List the procedures in performing trouble shooting for this type of system?
(5 marks)

Question 3 (10 marks)

Explain briefly the function and operation of the followings:

- a) cabin temperature sensor,
(5 marks)
- b) outside temperature sensor.
(5 marks)

Question 4 (10 marks)

- a) Briefly explain the procedures for system overhaul in air-conditioning system.
(6 marks)
- b) How do the refrigerant gases contribute to global warming?
(4 marks)

SECTION B (60 marks)

INSTRUCTION: Answer any THREE (3) questions only

Question 5 (20 marks)

- a) List **TEN (10)** main procedures in servicing an air-conditioning system. (10 marks)
- b) When is the most suitable time to do a servicing? (4 marks)
- c) What are the components that are normally replace during servicing and why? (6 marks)

Question 6 (20 marks)

- a) What are the estimated surface temperatures for components as shown in the table below:

Component	Temperature
Compressor	
High pressure connection	
Condenser	
Receiver dryer	
Evaporator	
Low pressure connection	

(6 marks)

- b) What are the possible causes for the following common problems: (14 marks)
- i. warm air blown from air-vent (4 marks)
 - ii. temperature did not match desired setting (4 marks)
 - iii. nothing happen when turn on the automatic climate control system. (6 marks)

Question 7 (20 marks)

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

- a) the safety procedures (2 marks)
- b) servicing tools and equipments. (5 marks)
- b) the components to be chemical cleaning. (5 marks)
- d) oil adding, leak testing and charging. (8 marks)

Question 8 (20 marks)

- a) State the purposes of a Pressure Enthalpy chart of an air-conditioning system? (3 marks)
- b) The pressure and temperature were taken from a Peugeot 406 climatic systems as follows:

Low Pressure	= 3.34 bar
High Pressure	= 14.79
Temp entering compressor	= 30.4C
Temp leaving compressor	= 77.4C

TXV temp. = 28.6C

Based on the readings you are required to plot the system on the attached Pressure Enthalpy chart.

(7 marks)

c) From the chart determine the following values:

- (i) Refrigerating Effect (2 marks)
- (ii) Compression work. (2 marks)
- (iii) Condenser work. (2 marks)
- (iv) Coefficient of Performance. (4 marks)

(10 marks)

END OF QUESTION

Appendix 1

