



UNIVERSITI KUALA LUMPUR
Malaysia France Institute

FINAL EXAMINATION
JULY 2010 SESSION

SUBJECT CODE : FCB 31002
SUBJECT TITLE : TRANSPORTATION AIR CONDITIONING
LEVEL : DEGREE
TIME / DURATION : 4.00pm - 6.00pm
(2 HOURS)
DATE : 09 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 FOUR (4) questions. Answer ALL questions.
 6. Answer all questions in English.
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THERE ARE 4 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

INSTRUCTION: Answer ALL questions.

Please use the answer booklet provided.

Question 1

- (a) Predicted Mean Vote (PMV) and Predicted Percentage of Dissatisfied (PPD) analysis can be used to study customers' expectations on the air conditioning systems in a building. But these also can be applied to transportation air conditioning system. As a transport air-conditioner designer, what are the customers' expectations that you need to fulfill in order to meet their requirement?
- (10 Marks)
- (b) What is PMV and PPD analysis?
- (10 Marks)
- (c) Figure Q1(c) shows the instrument being used in PMV and PPD analysis. What parameter is measured by the black ball?

(5 Marks)

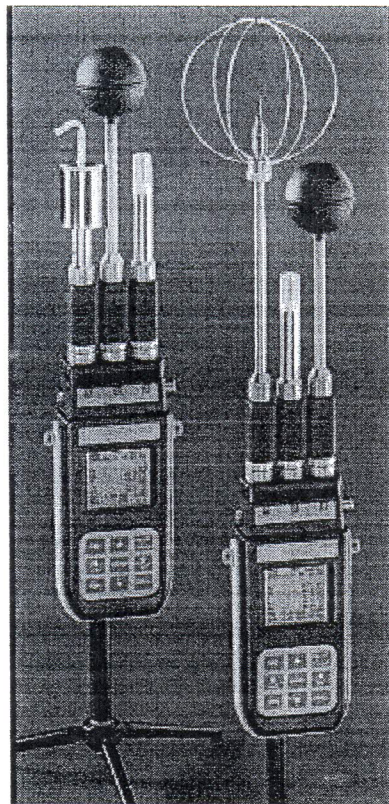


Figure Q1(c): PMV/PPD instrument

Question 2

- (a) Figure Q2 shows Air conditioning system layout for a car. Label components from (1) to (6) and (a) to (c).

(9 Marks)

- (b) Name three (3) different type of condensers that were used or currently being used in the transport air conditioning system.

(6 Marks)

- (c) Nocolok brazing is one of the brazing methods being used to produce condenser. Explain the procedures in flow chart manner.

(10 Marks)

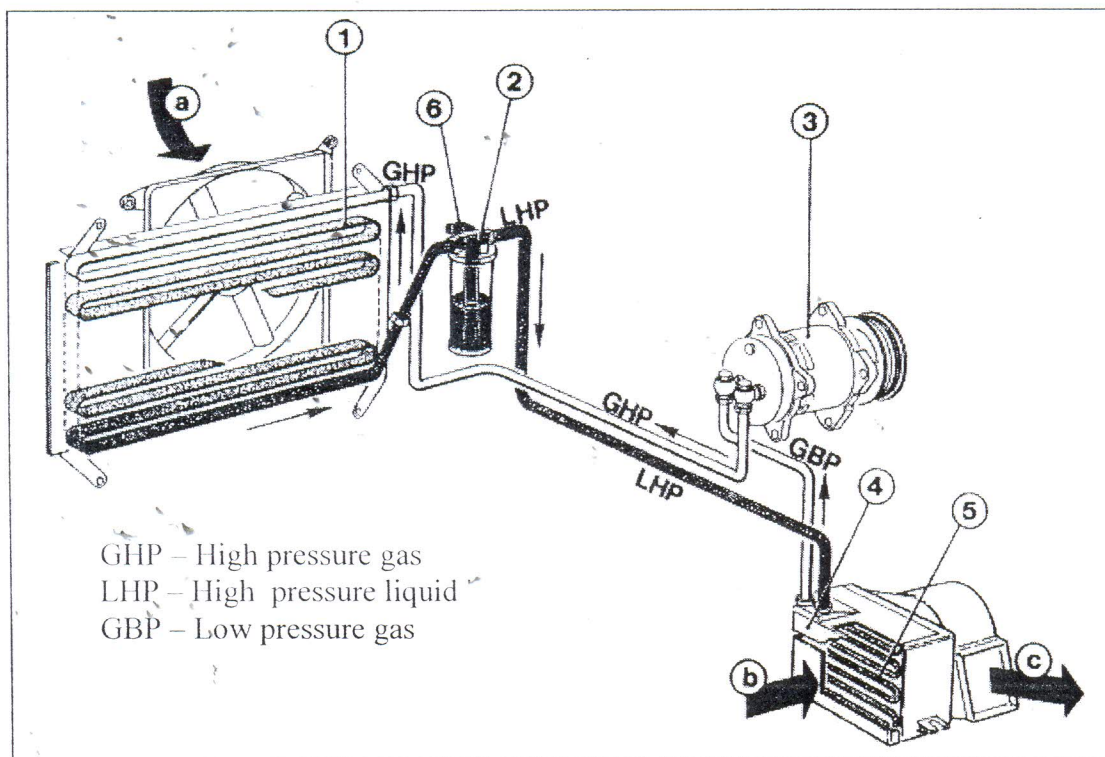


Figure Q2: Air Conditioning Systems Layout

Question 3

According to British Standard BS EN ISO 7730,

- (a) What is the definition of thermal comfort?
(5 Marks)
- (b) Why does thermal comfort important?
(5 Marks)
- (c) What are the six factors that affecting thermal comfort?
(6 Marks)
- (d) Discuss the method to control thermal comfort in the passenger compartment/car cabin.
(9 Marks)

Question 4

As a car owner, when he gets into a car which is soaking under the sun for hours, he would like the pull down for his air conditioning system is short, and could provide comfortable cabin temperature for him.

Based on the statement above, what is the definition of

- (a) soaking (4 Marks)
- (b) pull down (4 Marks)
- (c) cabin temperature (2 Marks)
- (d) Suggest and explain three (3) methods that can minimize heat gain during the soaking process. (15 Marks)

END OF QUESTION