



UNIVERSITI KUALA LUMPUR
Malaysia France Institute

FINAL EXAMINATION
JANUARY 2011 SESSION

SUBJECT CODE : FRD 20602
SUBJECT TITLE : THERMAL STORAGE
LEVEL : DIPLOMA
TIME / DURATION : 8.00pm - 10.00pm
(2 HOURS)
DATE : 05 MAY 2011

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, EXCLUDING THIS PAGE.

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

- (a) What is a definition of Thermal Energy storage or Energy storage?
(5 marks)
- (b) What is the definition of active system for Thermal Storage?
(5 marks)
- (c) State two (2) names of equipment used to operate in active systems.
(4 marks)
- (d) List two (2) building in Malaysia using Thermal storage system for Heating Ventilation Air – Conditioning application
(6 marks)

Question 2

- (a) List five (5) benefits of Thermal energy storage
(10 marks)
- (b) From the five (5) benefits in question Q2a further elaborate on how two can be effected with respect to Thermal Storage System.
(10 marks)

Question 3

- (a) What is the definition of ice storage?

(4 marks)

- (b) Give three (3) type of ice storage.

(6 marks)

- (c) Give five (5) benefits of ice storage.

(10 marks)

SECTION B (Total: 40 marks)**INSTRUCTION: Answer only TWO questions.****Please use the answer booklet provided.****Question 4**

- (a) What is the encapsulated ice?

(8 marks)

- (b) Give three (3) advantages and three (3) disadvantages of using encapsulated ice storage tank.

(12 marks)

Question 5

- (a) What is the glycol?

(2 marks)

- (b) Give three (3) advantages and three (3) disadvantages by using glycol for Thermal storage system?

(6 marks)

- (c) What is the definition of full storage system?

(6 marks)

- (d) What is the definition of partial storage system?

(6 marks)

Question 6

- (a) From the list of equipment below sketch and state in detail the schematic diagram of the Thermal Storage system employing ice cell.

- i. Cooling tower
- ii. Heat exchanger
- iii. Chillers
- iv. Condenser water pump
- v. PEGP pump
- vi. Ice cell
- vii. Fan coil unit

(20 marks)

END OF QUESTION