



**UNIVERSITI KUALA LUMPUR
Malaysia France Institute**

**FINAL EXAMINATION
SEPTEMBER 2014 SESSION**

SUBJECT CODE : FTB43203
SUBJECT TITLE : FAILURE ANALYSIS
LEVEL : BACHELOR
**TIME / DURATION : 9.00 AM – 11.30 AM
(2.5 HOURS)**
DATE : 5 JANUARY 2015

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) questions only.**
- 6. Answer all questions in English.**

THERE ARE 2 PRINTED PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total: 60 marks)

**INSTRUCTION: Answer ALL questions.
Please use the answer booklet provided.**

Question 1

- a. Give a definition for failure analysis. (5 marks)
- b. Briefly discuss **Five (5)** sources of failures. (5 marks)

Question 2

- a. Identify the macroscopic and microscopic features of the following:
 - i) Ductile failure. (5 marks)
 - ii) Fatigue failure (5 marks)

Question 3

- a. Identify **Five (5)** types of corrosion typically occurs in industries. (5 marks)
- b. For each of them identify the causes and its prevention. (5 marks)

Question 4

- a. Identify and briefly describe **Five (5)** types of testing to determine mechanical properties of material. (10 marks)

SECTION B (Total: 40 marks)

INSTRUCTION: Answer any THREE (3) questions.

Please use the answer booklet provided.

Question 1

Describe in detail what are the general practices or procedures in Failure Analysis.

(20 marks)

Question 2

Describe in detail the mechanism of crevice corrosion.

(20 marks)

Question 3

What is creep? Describe in detail the stages of creep.

(20 marks)

Question 4

What is fatigue failure? Describe in detail the stages of fatigue. **(Sketches are recommended to assist the explanation)**

(20 marks)

END OF QUESTION