



**UNIVERSITI KUALA LUMPUR
Malaysia France Institute**

**FINAL EXAMINATION
SEPTEMBER 2014 SESSION**

SUBJECT CODE : FGD30102
SUBJECT TITLE : INSTRUMENT CALIBRATION
LEVEL : DIPLOMA
TIME / DURATION : 2.00 PM – 4.00 PM
(2.0 HOURS)
DATE : 29 DECEMBER 2014

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

THERE ARE 3 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

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

- a) Explain the purposes of standards procedure in calibration.
(4 marks)
- b) Describe the calibration tolerance for measuring instrument in accordance to standard procedure.
(8 marks)
- c) Evaluate the requirement for calibration of measuring instrument.
(8 marks)

Question 2

- a) Describe the beam of Vernier caliper.
(5 marks)
- b) Explain the fitting of Vernier scale with main scale.
(5 marks)
- c) Describe deviation of reading in Vernier caliper?
(10 marks)

Question 3

(Please refer Table 1 to answer question 3)

- a) Explain the basic requirement for calibration data (4 marks)

- b) Calculate average readings and measurement error. (6 marks)

- c) Write a report and plot graph showing the measurement average versus measurement error. (10 marks)

Date calibrated:01/12/2014		Item: External Micrometer		Item serial no: MM 22334	
Standard: Gauge Blocks		Standard Serial no: 9468		Report no: C010112/6	
Dry bulb reading: 21.5°C		R.H:68%		Location: Metrology Lab	
Wet bulb reading:17.5°C		Time: 0830 hrs		Calibrated by: Mr. T	
Standard reading in mm	1 st RUN	2 nd run	3 rd run	Average Readings	Measurement error
0	0	0	0.004		
2.5	-0.008	0.006	0.004		
5.8	0.004	0.004	0		
7.2	-0.002	0.002	0.002		
10	0	0.002	0.002		

Table 1: Calibration data

SECTION B (Total: 40 marks)

INSTRUCTION:

Answer TWO (2) questions only.

Please use the answer booklet provided.

Question 4

Write calibration procedures for calibration of Vernier caliper.

(20 marks)

Question 5

Write calibration procedures for testing measuring faces for the anvil and spindle of
a micrometer.

(20 marks)

Question 6

Write calibration procedures for testing dial gauges with 0.01 mm accuracy.

(20 marks)

END OF QUESTION