



UNIVERSITI KUALA LUMPUR
Malaysia France Institute

FINAL EXAMINATION
SEPTEMBER 2014 SESSION

SUBJECT CODE : FGD12102
SUBJECT TITLE : METROLOGY
LEVEL : DIPLOMA
TIME / DURATION : 9.00 AM – 11.00 AM
(2.0 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 **TWO (2)** questions only.
 6. Answer all questions in English.
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THERE ARE 5 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

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

- (a) Name the **THREE (3)** fields of Metrology (3 marks)
- (b) Categorize **SIX (6)** measurement activities. (6 marks)
- (c) Justify the methods of direct and indirect measurement. (6 marks)
- (d) What are measurement errors? Give **ONE (1)** example. (5 marks)

Question 2

- (a) Explain the Cosine error in measurement. (4 marks)
- (b) List **FOUR (4)** general care and handling of Metrological equipment. (4 marks)
- (c) Referring to the diagram in figure(s) below writes the readings of the followings Instruments.

(i)

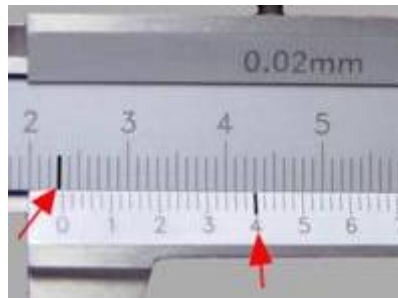


Figure 1: Vernier caliper

(4 marks)

(ii)

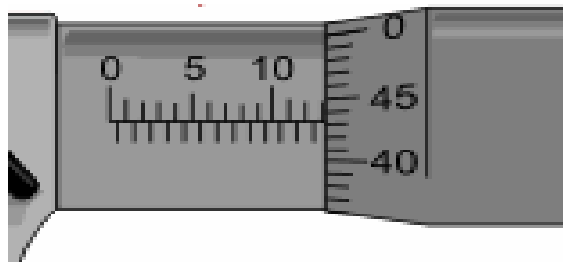


Figure 2: Micrometer

(4 marks)

(iii)



Figure 3: Universal Bevel Protractor

(4 marks)

SECTION B (Total: 40 marks)

INSTRUCTION: Answer TWO (2) questions only.

Please use the answer booklet provided.

Question 3

Referring to the drawing in Figure 4 below interpret the Feature Control Frame (FCP) accordingly.

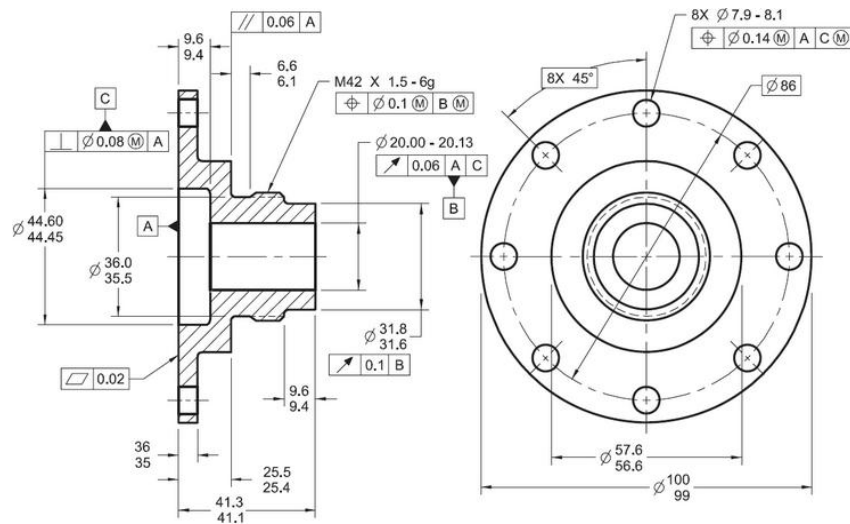


Figure 4: Feature Control Frame (FCP)

- (a)
- (b)
- (c)
- (d)
- (e)

(20 marks)

Question 4

Referring to the drawing in Figure 5 below identify and describe briefly the types of fits for A, B and C.

(a)

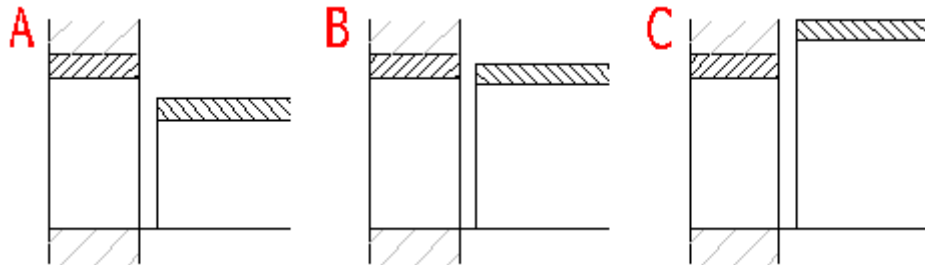


Figure 5 : Limits and Fits

(12 marks)

(b) Describe the importance of tolerance.

(8 marks)

Question 5

The type of surface finish that results from a machining process determines how well that surface looks, feels, wears, give off heat and accept coatings.

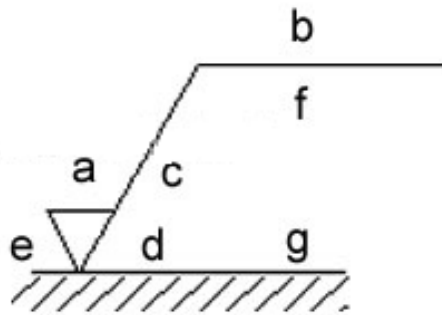
- (a) Describe the dynamic surfaces and give **ONE (1)** example

(3 marks)

- (b) Describe the static surfaces and give **ONE (1)** example

(3 marks)

- (c) List out all indicating alphabet for surfaces finish symbols accordingly.



(14 marks)

END OF QUESTION