Document No : UniKL MFI_SD_AC41
Revision No: 02
Effective Date: 01 December 2008

CONFIDENTIAL

SET A

UNIVERSITI KUALA LUMPUR
Malaysia France Institute

FINAL EXAMINATION
JANUARY 2010 SESSION

SUBJECT CODE	:	**FGB 30103**
SUBJECT TITLE	:	**MACHINE TOOL VERIFICATION AND MAINTENANCE**
LEVEL	:	**BACHELOR**
TIME / DURATION	:	**9.00am – 11.30am (2.5 HOURS)**
DATE	:	**08 MAY 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 questions paper consists of FIVE (5) questions. Answer FOUR (4) questions only.
6. Answer ALL questions in English.

THERE ARE 3 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

INSTRUCTION: Answer any FOUR questions.
Please use the answer booklet provided.

Question 1

(a) Define maintenance and its function . Explain the main components of maintenance system.

(9 marks)

(b) What is preventive maintenance ? Explain different preventive maintenance tasks.

(8 marks)

(c) What is ***TEROTECHNOLOGY***? Explain its relationship with machine tool maintenance. Use appropriate examples.

(8 marks)

Question 2

(a) What is condition based maintenance? What are the benefits obtained by implementing a condition based maintenance system in any machine tool maintenance?

(9 marks)

(b) Briefly describe the concept of reliability, maintainability and availability.

(8 marks)

(c) What is ***BATH –TUB*** curve? How can it be used in practice?

(8 marks)

Question 3

(a) Why machine tool alignment tests are very important? Explain.

(5 marks)

(b) Differentiate geometric and practical tests on machine tools.

(5 marks)

(c) Describe how would you perform the following alignment tests. Also state the permissible error in each case:

i) Parallelism of lathe machine main spindle to saddle movement

ii) Parallelism of milling machine table face between the axis of the main spindle

iii) True running of spindle taper for radial drilling machine

(15 marks)

Question 4

Below are the items that needed to be check when servicing the X-Y axis for CNC milling :

- Checking ball screw binding
- Checking ball screw bearing
- Ball screw maintenance
- Checking for lost motion

Describe in details the components that need to be checked for each items and also the corrective action needed to overcome the situations.

(25 marks)

Question 5

(a) Why cleaning is considered as a prime important activity in machine tool maintenance, although many operators and supervisor give least importance to such activities ?

(8 marks)

(b) What are the component need to be checked when conducting pneumatic maintenance? Also state how to service the components.

(9 marks)

(c) Describe the different types of preventive maintenance programs for CNC machine tools.

(8 marks)

END OF QUESTION