Document No : UniKL MFI_SD_AC41
Revision. No : 02
Effective Date: 1 December 2008

**CONFIDENTIAL**

**SET A**

# UNIVERSITI KUALA LUMPUR
## Malaysia France Institute

## FINAL EXAMINATION

## SEPTEMBER 2014 SESSION

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|---|---|---|
| **SUBJECT CODE** | : | **FFB42403** |
| **SUBJECT TITLE** | : | **FABRICATION AND APPLICATION ENGINEERING** |
| **LEVEL** | : | **BACHELOR** |
| **TIME / DURATION** | : | **9.00 AM – 11.30 AM ( 2.5 HOURS )** |
| **DATE** | : | **5 JANUARY 2015** |

### INSTRUCTION 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 SIX (6) Questions. Answer FOUR (4) Questions only.**
6. **Answer all questions in English.**

**THERE ARE 3 PAGES OF QUESTIONS EXCLUDING THIS PAGE**

**INSTRUCTION: Answer FOUR (4) questions only.**

**(Total 100 Marks)**

**Please use answer booklet provided.**

## Question 1

a). State the difference between the Total Quality Control (TQC) and Quality Control Circle (QC).

(5 Marks)

b). State and describe the essential factors for welding quality. Explain the terms "*qcd*" in fabrication industry.

(10 Marks)

c). For welded constructions to be effective and free from serious problems in production and in service, it is necessary to provide controls. State and describe what are the possible factors that would contribute to the problems.

(10 Marks)

## Question 2

a). Explain why there is a need to unify national standards into an international standard of quality system and quality assurance system common to the world.

(5 Marks)

b). The contents of ISO 9000 are listed as follow;

i). Management responsibility

ii). Resource management

iii). Product realisation

iv). Measurement, analysis and improvement

Please describe the requirements in each of the contents.

(10 Marks)

c). The ISO Quality Management System (QMS) emphasizes functions and responsibilities of top management and advises that the following **EIGHT (8)** principles should be adopted. State and describe the **EIGHT (8)** principles.

(10 Marks)

**Question 3**

ISO 3834 “Quality requirement in welding” specifies the activities and requirements to ensure the welding quality. State and describe **TEN (10)** of the requirements.

(25 Marks)

**Question 4**

a). It is evident that the quality of the final product cannot be ensured if the quality of each in process product is unsatisfactory. A cause-and-effect diagram is widely used in welding fabrication management that must be directly controlled to assure the quality of welded steel structures. Describe the concept of the cause-and-effect diagram.

(5 Marks)

b). In the assurance of weld quality, generally there are **SIX (6)** matters among others that required to be controlled are as follow;

i). Welding Coordination Personnel (Welder, operator, personnel)
ii). Welding facilities
iii). Welding materials
iv). Welding consumables
v). Welding Procedure
vi). Test and Inspection

Using the cause-and-effect diagram show how the elements within the matters are controlled.

(20 Marks)

**Question 5**

a). Describe briefly the formation of cold cracks, porosity and lamellar tearing in welding.

(5 Marks)

b). Explain why Weld defects generally have greater influence on fatigue, brittle fracture, elongation, and corrosion than on static strength. Explain why Repair welding often lowers the total quality of the weld joint.

(10 Marks)

c). State and describe the consideration for weld repair. Give examples to your answer.

(10 Marks)

## Question 6

a). Please describe the planning for Test and Inspection (ITP) and explain why it is important for planning.

(5 Marks)

b). The main matters of welding fabrication planning and management can be categorized by each of the 4M factors as follows: Materials, Machine, Methods and Man. Please explain each of them

(10 Marks)

c). Planning of equipment is one of the essential item in project planning so that allotment of volume of work is balanced in the schedule and between fabrication processes. Please describe what are the essential items to be considered in the planning of equipment.

(10 Marks)

**END OF QUESTION**