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CONFIDENTIAL

SET A

UNIVERSITI KUALA LUMPUR
Malaysia France Institute

FINAL EXAMINATION

SEPTEMBER 2014 SESSION

SUBJECT CODE	:	**FFD12402**
SUBJECT TITLE	:	**FUNDAMENTAL OF METAL FABRICATION PROCESSES**
LEVEL	:	**DIPLOMA**
TIME / DURATION	:	**12.45 PM – 2.45 PM (2 HOURS)**
DATE	:	**31 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 7 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 **TWO (2)** examples of work that are classified in "**HEAVY**" fabrication category.

(2 marks)

(b) Name **TWO (2)** examples of work that are categorized in "**LIGHT**" fabrication category.

(2 marks)

(c) According to Figure 1 below, explain briefly the tasks of Metal Fabrication Technician.

(2 marks)

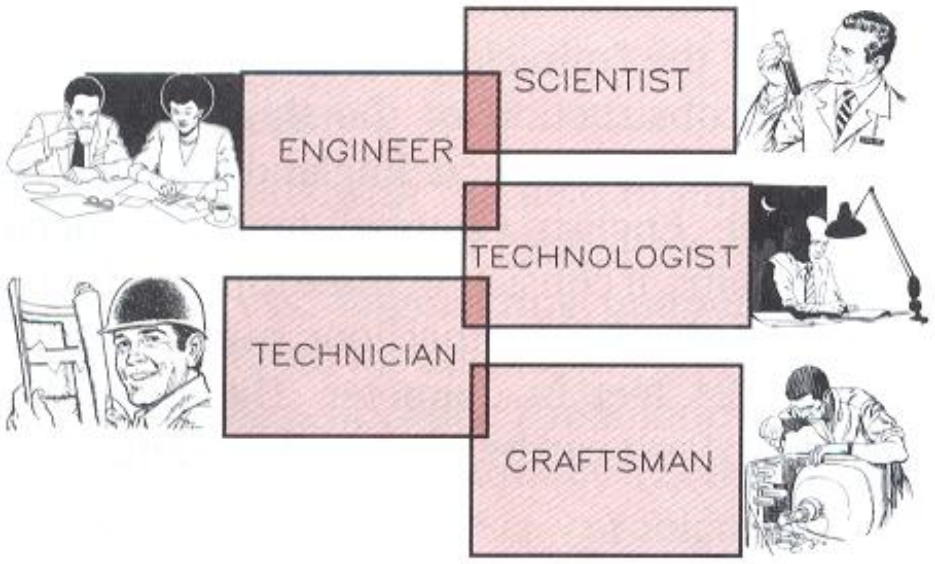


Figure 1: Occupational Level

(d) State **TWO (2)** duties of a "Boilermaker".

(4 marks)

Question 2

(a) Name **FOUR (4)** types of personal protective equipment (PPE) while arc welding task is performed.

(4 marks)

(b) One of the heavy materials handling method used in Fabrication & Joining Warehouse is Overhead crane. Explain briefly the safety precautions of Overhead Crane while transporting heavy materials.

(5 marks)

(c) Give **TWO (2)** types of equipments used while transporting light material such as sheet metal from Fabrication & Joining Warehouse to Metal Fabrication Workshop.

(4 marks)

(d) List **FOUR (4)** safety precautions during operating the Guillotine Shear Machine.

(4 marks)

(e) State **FOUR (4)** safety precautions during executing the Press Brake Bending Machine.

(4 marks)

(f) Give **FIVE (5)** safety precautions while operating the Plate Rolling Machine.

(5 marks)

Question 3

(a) In Fabrication and Joining Warehouse, there are several types of material forms are stocked. Name and sketch **TWO (2)** of them.

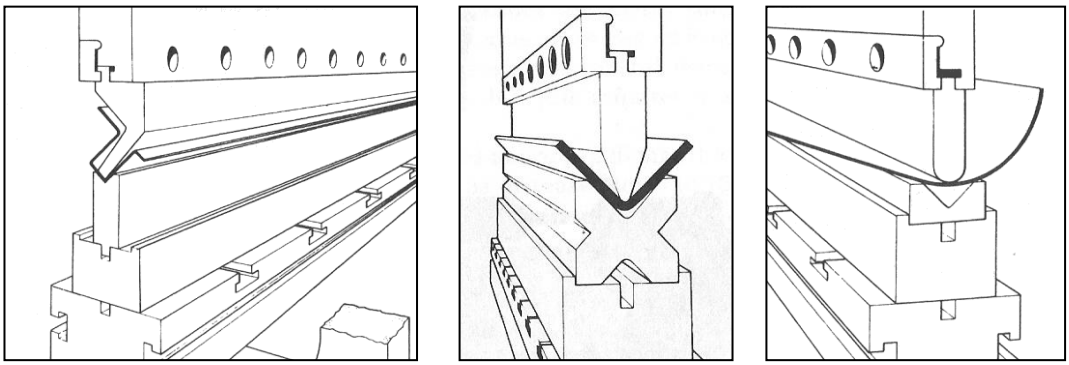
(4 marks)

(b) Press Brake can be operated by “DOWN-STROKING” or “UP-STROKING” methods. Explain both of them briefly.

(4 marks)

(c) Name the tools style that are applicable in Press Brake Machine as Figure 2.

(3 marks)



(a) (b) (c)

Figure 2: Tools Style of Press Brake Machine

(d) Complete the label 1 to 6 as indicated in Figure 3 for a GMAW process.

(6 marks)

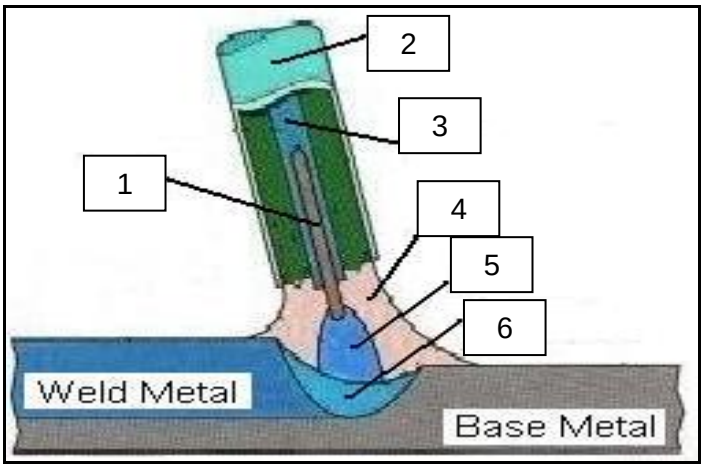


Figure 3: Gas Metal Arc Welding (GMAW)

(e) Name the numbers 1 to 7 as provided in Figure 4 for a GTAW process.

(7 marks)

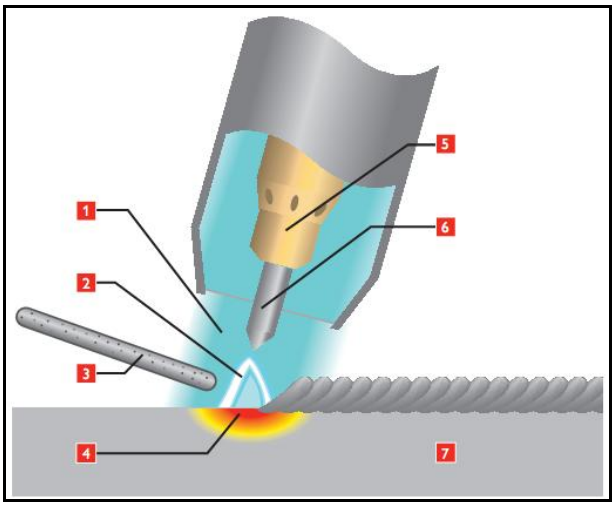


Figure 4: Gas Tungsten Arc Welding (GTAW)

SECTION B (Total: 40 marks)

INSTRUCTION: Answer TWO (2) questions only.
Please use the answer booklet provided.

Question 1

Referring to the Figure 5 for Plate Forming, answer the following questions:

Figure 5: Plate Forming

(a) List down **TWO (2)** types of cutting processes that involved in cutting the "**Edges**" of the product and please specify their terms briefly.

(6 marks)

(b) State **TWO (2)** types of forming processes that can be applied in forming the "**Bend**" of the above plate and specify their terms briefly.

(6 marks)

(c) Explain briefly what should the fabricator do prior bending the above plate?

(3 marks)

(d) Explain briefly how to ensure the roundness of a plate "**Bend**"?

(2 marks)

(e) Propose **ONE (1)** type of arc welding process that can be applied in jointing the "**Edge**" of carbon steel plate from one to another and explain its definition briefly.

(3 marks)

Question 2

Refer to Figure 6 and answer the following questions:

Figure 6: Steel Structure Connections

(a) State **TWO (2)** types of cutting processes that involved in preparing a Baseplate and define their terms briefly.

(6 marks)

(b) Name and sketch **TWO (2)** types of devices that are commonly used in holding parts for fitting up the Joint B.

(6 marks)

(c) State the types of joins for Joint A and Joint B.

(2 marks)

(d) Name and sketch **ONE (1)** type of device that is commonly used in aligning holes and holding parts for fitting up the Joint A.

(3 marks)

(e) If the Steel Structure Connection is made by low carbon steel, propose **ONE (1)** type of arc welding process and its shielding gas used for jointing the Joint B.

(3 marks)

Question 3

Refer to Figure 7 and answer the following questions:

Figure 7: Duct

(a) Give **TWO (2)** types of cutting processes that involved in preparing a Duct and define their terms briefly.

(6 marks)

(b) Identify **ONE (1)** type of joining process that is applied along “JOINT A” and define its term briefly.

(3 marks)

(c) Propose **THREE (3)** types of joining processes that can be applied along “JOINT A”.

(3 marks)

(d) Identify the type of forming process that is applied at “BENDS” and explain its term briefly.

(3 marks)

(e) Sketch the Single Hem and Double Hem and explain briefly the function of hemming.

(4 marks)

Question 4

(a) Explain briefly the following cutting processes.

1. Punching
2. Blanking
3. Piercing
4. Lancing

(8 marks)

(b) Distinguish the Blanking and Punching processes by sketching methods.

(2 marks)

(c) Mechanical properties are of great importance in the design, fabrication and maintenance of structure and machines. Various mechanical tests provide immense value to the engineer, metallurgist, technologist, technician and tradesmen. Name **FOUR (4)** types of mechanical properties and describe briefly any **TWO (2)** of the mechanical properties.

(10 marks)

END OF QUESTIONS