



**UNIVERSITI KUALA LUMPUR  
Malaysia France Institute**

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**FINAL EXAMINATION  
SEPTEMBER 2013 SESSION**

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**SUBJECT CODE** : FFD 12402  
**SUBJECT TITLE** : FUNDAMENTAL OF METAL FABRICATION  
PROCESSES  
**LEVEL** : DIPLOMA  
**TIME / DURATION** :  
( 2 HOURS )  
**DATE** :

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**INSTRUCTIONS TO CANDIDATES**

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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 6 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.**

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**SECTION A (Total: 60 marks)**

**INSTRUCTION: Answer ALL questions.**  
**Please use the answer booklet provided.**

**Question 1**

- (a) Explain briefly what does metal fabrication mean?  
 (5 marks)
- (b) According to Figure 1 below, explain briefly the tasks of Metal Fabrication Technician.

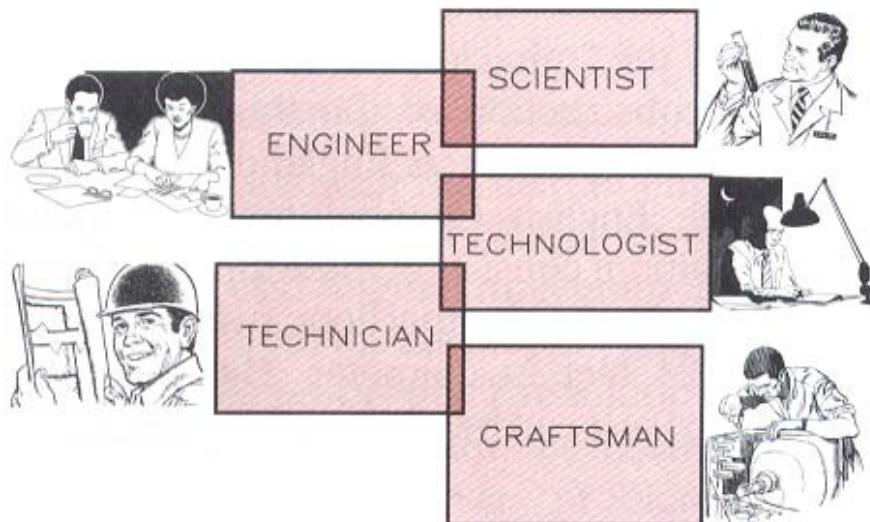


Figure 1: Occupational Level

(5 marks)

**Question 2**

- (a) Give **FOUR (4)** types of personnel protective equipment while arc welding work is performed.  
 (4 marks)
- (b) There are several types of behavior at working area, state **FIVE (5)** of them.  
 (5 marks)

- (c) State **ONE (1)** safety precaution while using the following tools:
1. Adjustable Wrench
  2. F- Clamp
  3. Power Hand Drill
  4. Angle Grinder
- (8 marks)
- (d) Give **ONE (1)** safety precaution while operating the following machines:
1. Shearing Guillotine Machine
  2. Band Sawing Machine
  3. Notching Machine
  4. Punching Machine
- (8 marks)
- (e) List **FOUR (4)** safety procedures during carrying out the Press Brake Bending Machine.
- (4 marks)
- (f) Give **FIVE (5)** safety procedures while operating the Plate Rolling Machine.
- (5 marks)

### Question 3

- (a) In the Fabrication and Joining Warehouse, there are several types of material forms are stocked. Name and sketch **FIVE (5)** of them.
- (10 marks)
- (b) The Figure 2 is the second stage of making iron to steel ingots. Iron will be melted by the furnaces before it becomes steel ingots. Name each type of furnaces.

# FROM IRON TO STEEL INGOTS

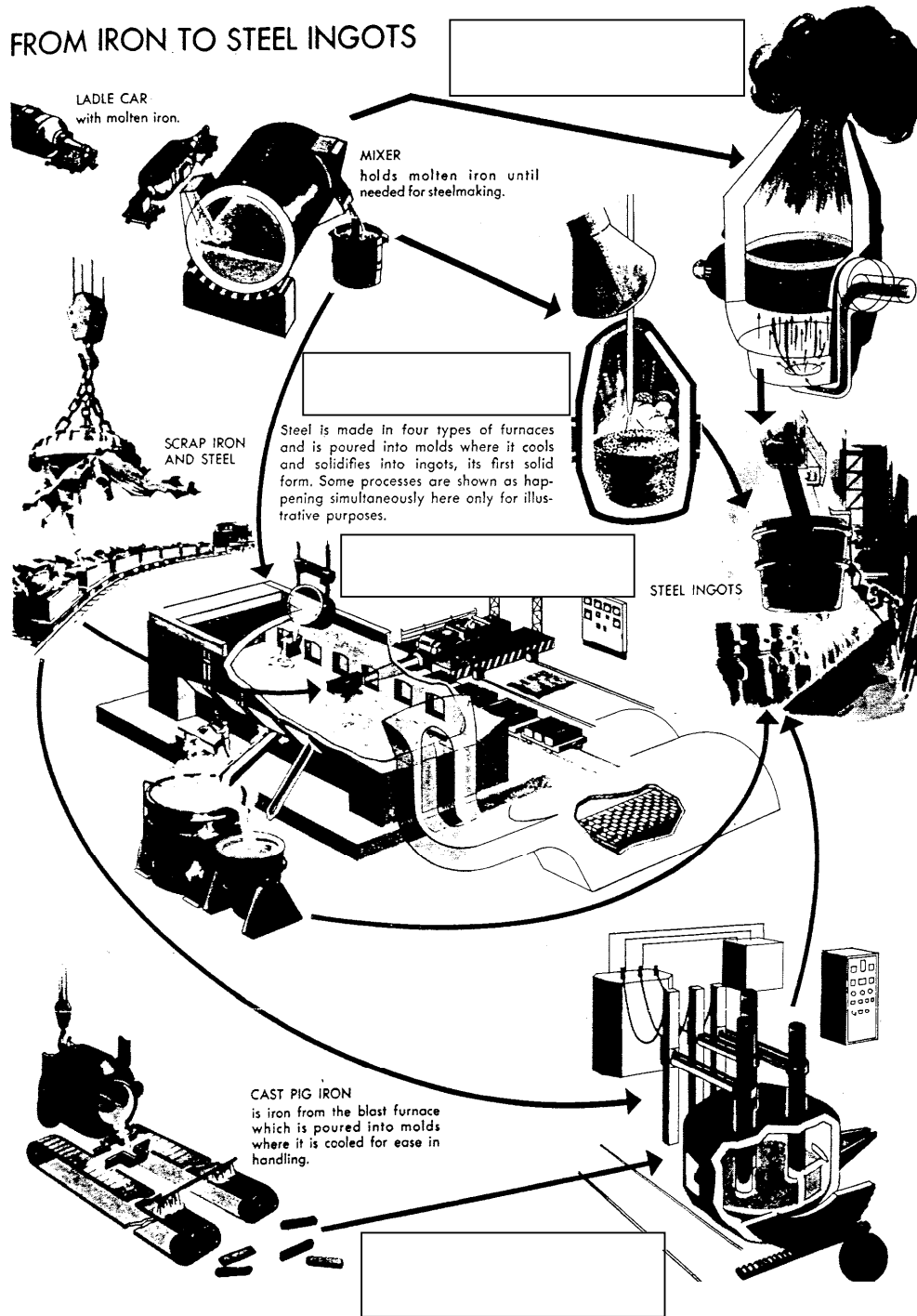


Figure 2: Production of Steel

(6 marks)

**SECTION B (Total: 40 marks)**

**INSTRUCTION: Answer TWO (2) questions only.**

**Please use the answer booklet provided.**

**Question 1**

Referring to Figure 3, answer the following questions:

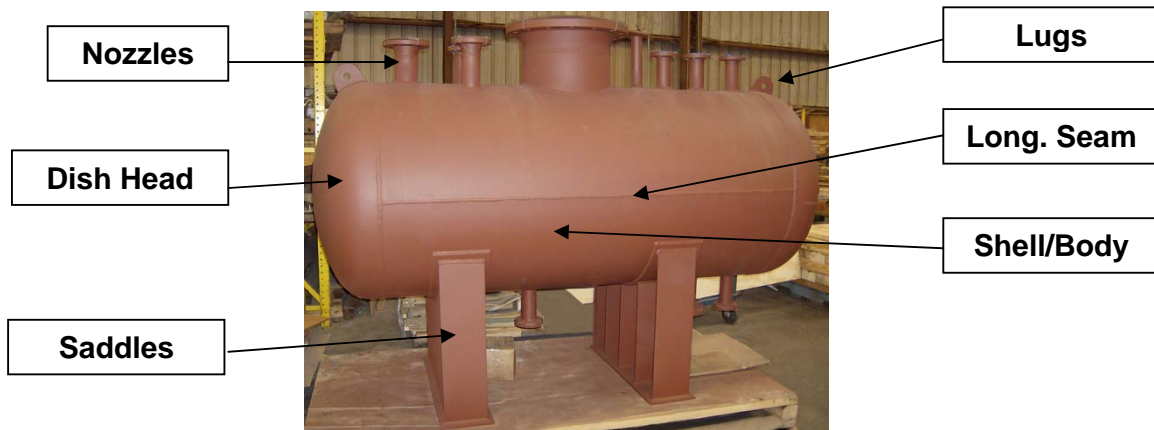


Figure 3: Pressure Vessel (PV)

- (a) List down **TWO (2)** types of cutting processes that involved in fabricating this product and define their terms briefly. (6 marks)
- (b) Explain briefly what should a fabricator do before a Pressure Vessel Shell is rolled? (3 marks)
- (c) Explain briefly how to ensure that the Pressure Vessel is exactly formed in round shape? (3 marks)
- (d) Name and sketch **TWO (2)** types of devices used in order to hold base plate and avoid distortion occur during welding the Pressure Vessel joint (**Long. Seam**). (6 marks)
- (e) Explain briefly the principle of Submerged Arc Welding (SAW). (2 marks)

## Question 2

Refer to Figure 4 and answer all the questions:

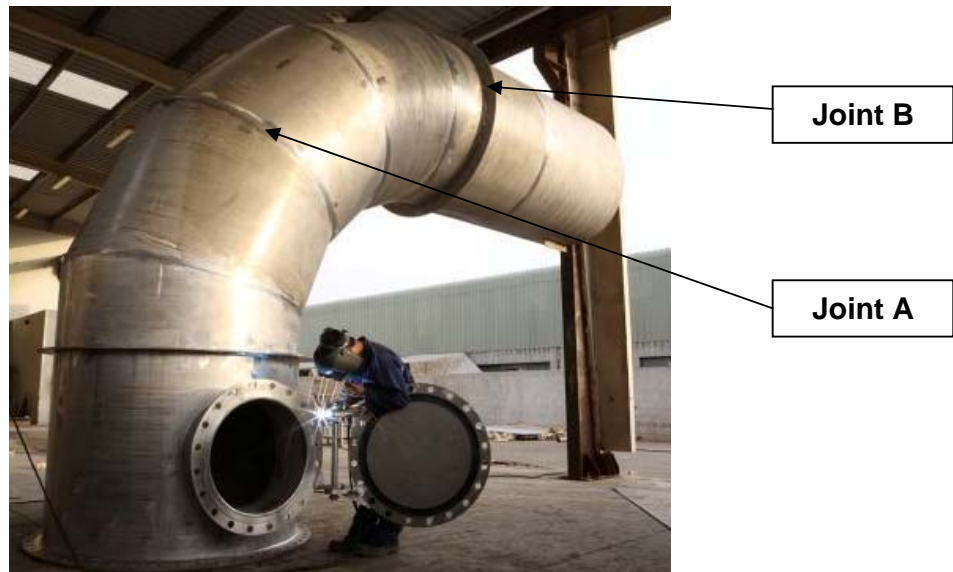


Figure 4: Pipeline Elbow (Lobster Back Typical)

- (a) State **TWO (2)** types of cutting processes that involved in edge preparation prior jointing each joints for the pipeline elbow 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 A**. (6 marks)
- (c) Explain briefly the principle of Gas Tungsten Arc Welding (GTAW). (2 marks)
- (d) Explain briefly the principle of Shielded Metal Arc Welding (SMAW). (2 marks)
- (e) Propose **ONE (1)** type of joint and its shielding gas for **Joint B** if it uses stainless steel. Explain briefly the principle of Gas Metal Arc Welding (GMAW). (4 marks)

**Question 3**

- (a) Illustrate and explain briefly the basic principle of stiffening. (5 marks)
- (b) State the methods of imparting stiffness to sheet metal. (3 marks)
- (c) According to Figure 5, identify and explain briefly the type of stiffener that is applied on the body of the drum.

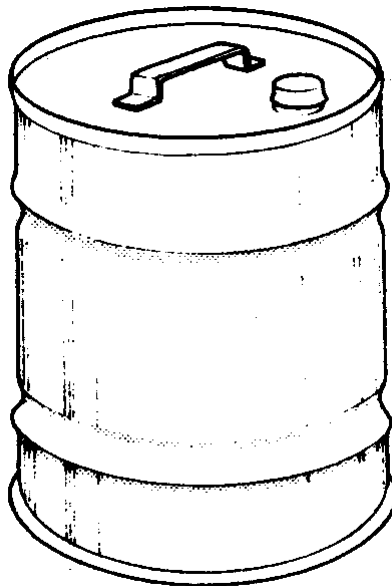


Figure 5: Drum

- (d) Sketch the Single Hem and Double Hem and explain briefly the greatest impact between both of them and their applications. (7 marks)

**END OF QUESTION**