



UNIVERSITI KUALA LUMPUR
Malaysia France Institute

FINAL EXAMINATION
JULY 2010 SESSION

SUBJECT CODE : FGD 21103
SUBJECT TITLE : MANUFACTURING TECHNOLOGY
LEVEL : DIPLOMA
DURATION : 8.00pm – 10.00pm
(2 HOURS)
DATE / TIME : 12 NOVEMBER 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 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.

SECTION A (Total: 60 marks)

INSTRUCTION: Answer ALL questions.

Please use the answer booklet provided.

Question 1

List 5 processes that can be defined as primary shaping process of metal and 5 processes that defined as secondary shaping process in manufacturing.

(20 marks)

Question 2

List 4 elements that being processed in Blast Furnace to produce Pig Iron.?

(10marks)

Question 3

Name the furnace in figure 3 (a) below and describe briefly of its process in the primary process of metal production.

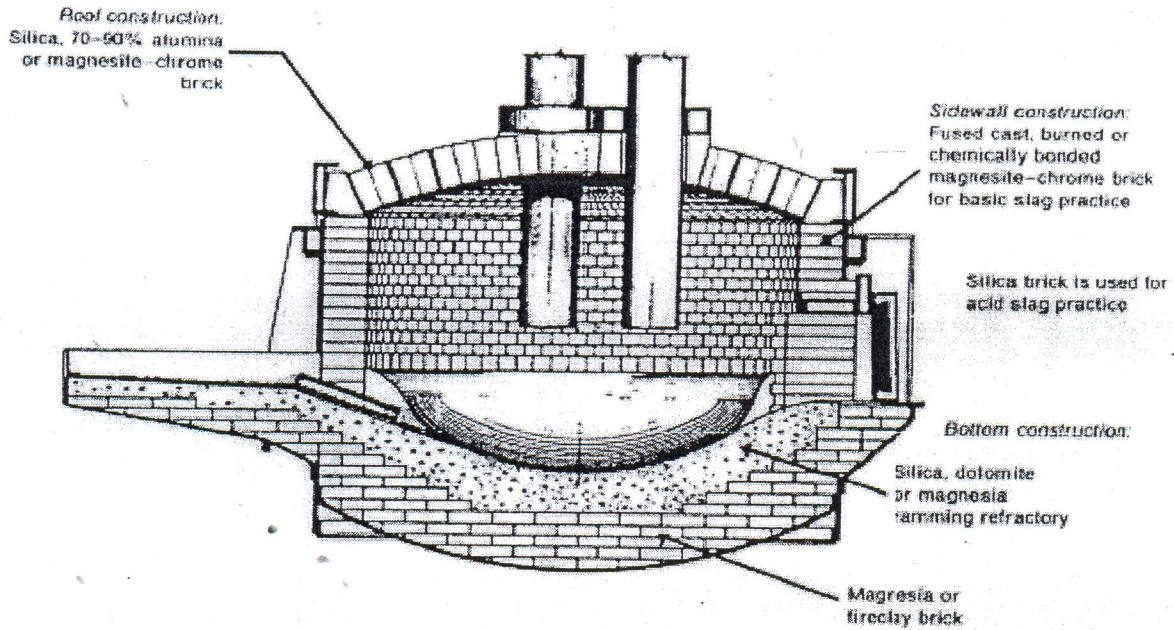


Figure 3 (a)

(10 marks)

Question 4

“Improper clearance will require greater energy for shearing (energy is the area below the force-distance plots) and will cause excessive burring on the cutting edge. Usually the optimum clearance is between 4% and 8 % of the sheet thickness”

Sketch a diagram to display the meaning of shearing clearance that described by the statement above.

(10 marks)

Question 5

Define the differences between "Fusion Welding" and "Non Fusion Welding". Give 2 examples of each term.

(10 marks)

SECTION B (Total: 40 marks)

INSTRUCTION: Answer Two (2) of (3) Questions ONLY.

Please use the answer booklet provided.

Question 6.

A piece of sheet metal is to be bent using a wiping die as shown in Figure 6 (a) below. The metal has a modulus of elasticity of 200GPa, a yield strength of 350MPa and a UTS of 500 MPa. What will be the spring-back radius of curvature and approximately what punch force will be required if the die radius is 10 mm?

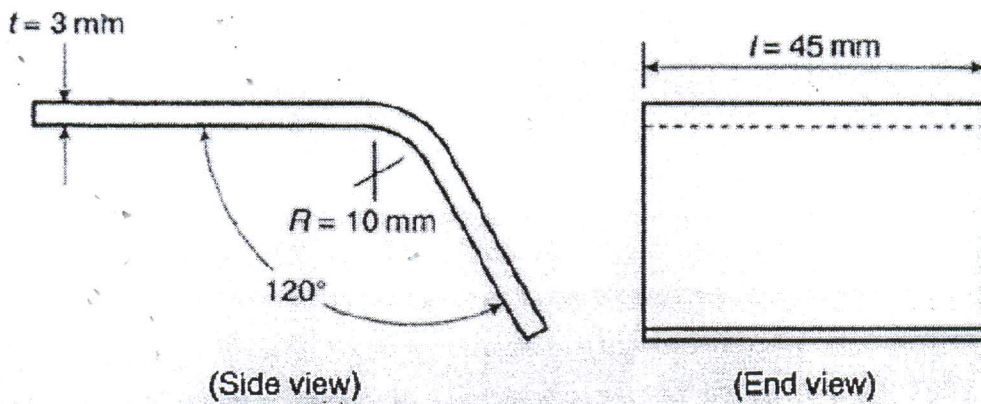


Figure 6(a)

(20 marks)

Question 7.

Figure 7 (a) below is a primary process of metal production furnace. Name the type of the furnace and describe its process briefly.

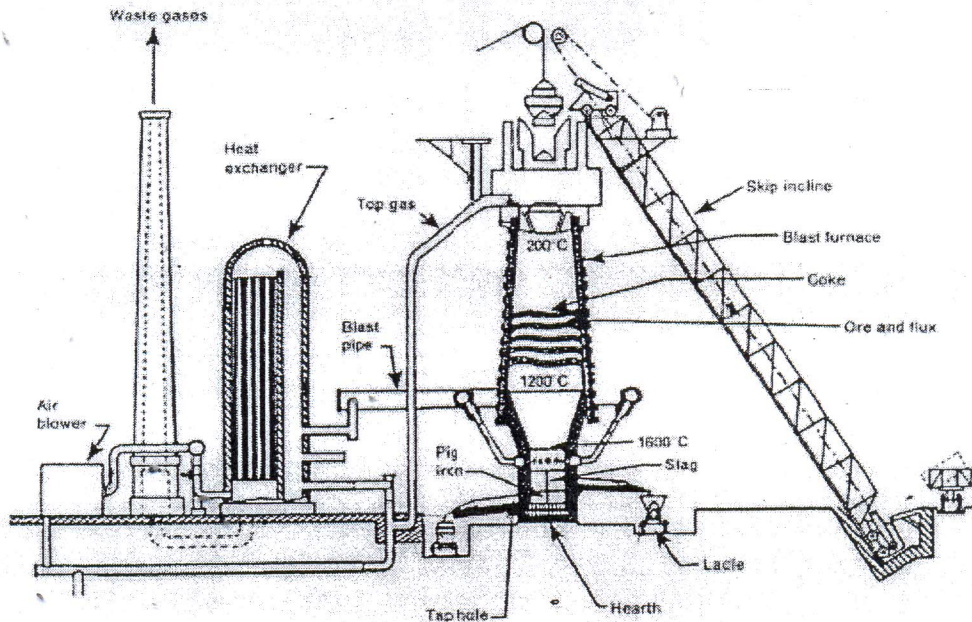


Figure 7(a)

(20 marks)

Question 8.

There are 3 types of Welding Flame.

- i) Neutral Welding Flame.
- ii) Carburizing Welding Flame.
- iii) Oxidizing Welding Flame.

Please give a brief description of 2 listed flames above and differentiate them.

(20 marks)

END OF QUESTION

APPENDICES.

Formulae:

$$\frac{R_b}{R_f} = 4 \left[\frac{R_b \sigma_{0.2}}{t \cdot E} \right]^3 - 3 \left[\frac{R_b \sigma_{0.2}}{t \cdot E} \right] + 1$$

$$F = K \frac{l \cdot t^2 \cdot UTS}{w} \quad \text{where } K = \frac{1}{3}$$

$$\frac{l_f}{l_o} = \frac{R+t}{R+\frac{t}{2}}$$

$$\epsilon_f = \ln \frac{R+t}{R+\frac{t}{2}}$$