



UNIVERSITI KUALA LUMPUR
Malaysia France Institute

FINAL EXAMINATION
JANUARY 2014 SESSION

SUBJECT CODE : FGD 21103
SUBJECT TITLE : MANUFACTURING TECHNOLOGY
LEVEL : DIPLOMA
TIME / DURATION : 3 HOURS
DATE :

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.
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THERE ARE 5 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total: 60 marks)**INSTRUCTION: Answer ALL questions.****Please use the answer booklet provided.****Question 1**

a) Describe about “concurrent” manufacturing process.

(5 marks)

b) The product sales are at the peak and constant. These explain one of the phases in product life cycle. Name the phase.

(5 marks)

Question 2

a) A blast furnace is used to process the raw iron ingot called “Pig Iron”. This ingot may later be refined by another furnace such as “electric furnace”. Explain briefly about the process of electric furnace.

(6 marks)

b) Describe the main characteristic of “carbon steel”.

(4 marks)

Question 3

- a) Figure 1 below displays the upsetting or flat die forging process. Why the barreling shape formed of the forged component happened?

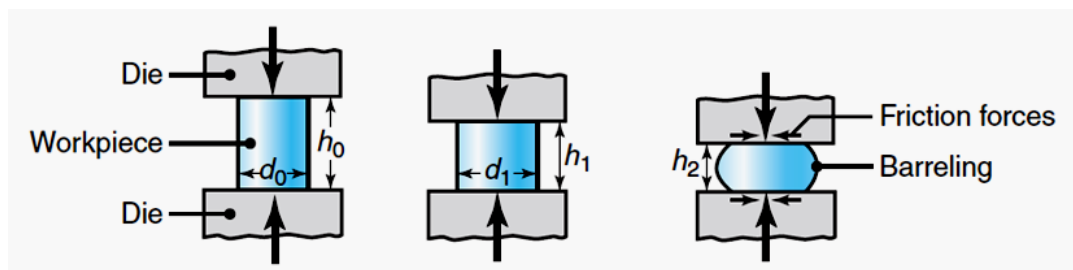


Figure 1: Barreling of component on open die forging

(6 marks)

- b) Gives a method to minimize the “barreling” of the component.

(4 marks)

Question 4

- a) Differentiate between punching and blanking

(6 marks)

- b) Clearance of shearing blade and dies will determine the quality of its sheared edges. The clearance adjustment is depending on several factors. List TWO (2) of the factors.

(4 marks)

Question 5

- a) Blending of metal powder in the powder metallurgy process may be explosive in due to the high ratio of volume to surface area of the metal powder. Suggest TWO (2) of the precautionary methods.

(6 marks)

- b) There are several limitations of powder metallurgy processes. Explain TWO (2) of the limitations.

(4 marks)

Question 6

- a) List TWO (2) of the ingredients for Green Sand mixing to build green sand mold in metal casting.

(4 marks)

- b) Explain about the draft angle on the pattern prepared for metal casting.

(6 marks)

SECTION B (Total: 40 marks)**INSTRUCTION: Answer 2 questions ONLY.****Please use the answer booklet provided****The questions below will relate to your practical activities done.****Question 7**

- a) In the realization of the sheet metal container, the development sketch is made before the raw material is prepared. Explain TWO (2) reasons why is this?
(6 marks)
- b) Before the bending of the container wall, the clearance holes of 3 mm in diameter have to be prepared well in the corners of the bending. Explain the function of this clearance hole.
(4 marks)
- c) What is the adjustment need to be done on the bending machine before the bending can be done?
(5 marks)
- d) Name the suitable mallet used for the bending process in this practical activity.
(5 marks)

Question 8

- a) In preparing the green sand molds, the flask is built to hold the green sand mold. List the TWO (2) components of the flask.
(6 marks)
- b) The green sand has to pass through small sized mesh. Why do we need only fine sand in contact with the pattern during the ramming process?
(4 marks)

c) The preparation of gating system in the casting mold is important. What is the function of the proper gating system?

(5 marks)

d) Riser is one of the components in green sand mold preparation. What is the function of the "Top Riser"?

(5 marks)

Question 9

a) Metal Inert Gas welding has several advantages in comparison with Shielded Metal Arc Welding. List TWO (2) of the advantages.

(6 marks)

b) What is the function of the inert gas in Metal Inert Gas welding?

(4 marks)

c) The current setting for the welding process in Metal Inert Gas welding will influence the quality of the welding. What may happen when the current setting is too high?

(5 marks)

d) The speed of the wire feeding may be too fast and interrupt the welding process. What are the parameters should be referred in adjusting the speed of the feeding wire?

(5 marks)

END OF QUESTIONS