



UNIVERSITI KUALA LUMPUR
Malaysia France Institute

FINAL EXAMINATION
JANUARY 2010 SESSION

SUBJECT CODE	: FGD 21103
SUBJECT TITLE	: MANUFACTURING TECHNOLOGY
LEVEL	: DIPLOMA
TIME / DURATION	: 12.30pm - 2.30pm 1.00pm - 3.00pm (2 HOURS)
DATE	: 29 APRIL 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 questions 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 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) Derive an expression for the mean pressure during direct extrusion. (6 marks)
- b) Briefly describe what effects, if any, the following factors have on the extrusion load;
 Billet temperature,
 Ram speed
 Diameter of the extruded product,
 Surface area of the extruded product. (6 marks)
- c) Sketch the real load-displacement plot for direct extrusion. Mark the THREE (3) critical regions and explain the processes taking place which give rise to the characteristic load-displacement behavior in each of these regions. (8 marks)

Question 2

- a) State the component of Metal Inner Gas (MIG) welding process as shown in figure 1 (8 marks)

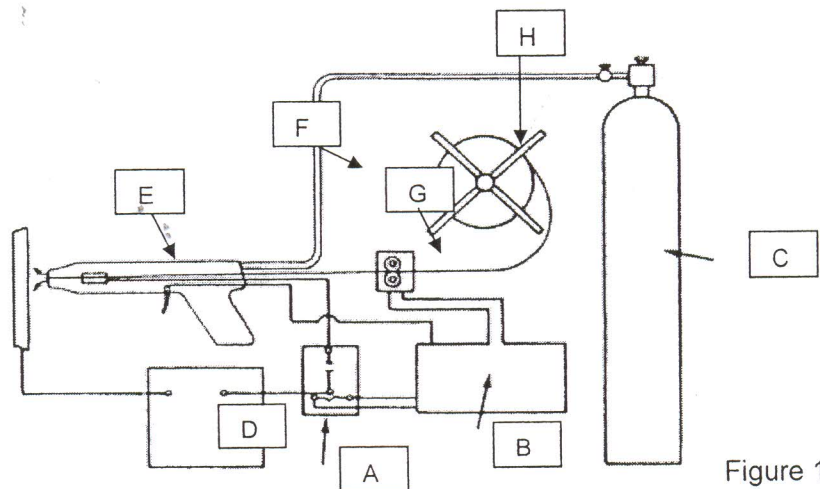


Figure 1

- b) List all the part of MIG touch as show below (figure 2)

(7 marks)

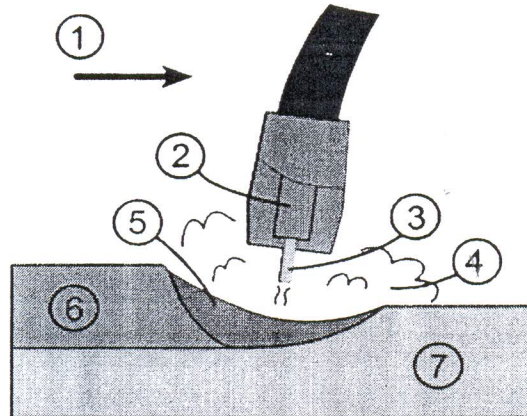


Figure 2

- c) List **FIVE (5)** safety precautions you should know during welding operation.

(5 marks)

Question 3

- a) State all name of the cutting touch as show in figure 3

(6 marks)

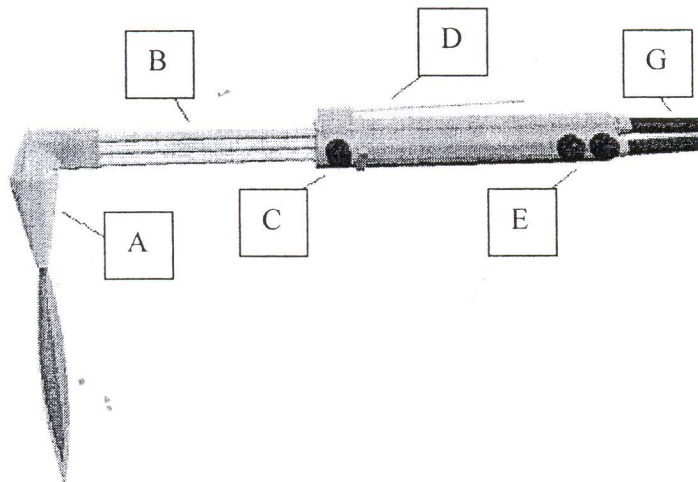


Figure 3

- b) List down all type of welding joint as stated in figure 4 below:

(8 marks)

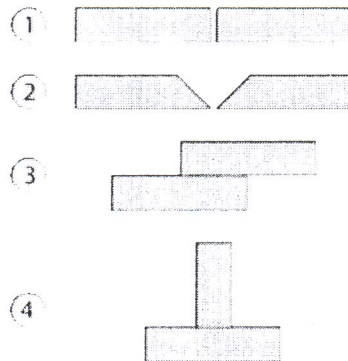


Figure 4

- d) Explain briefly and give the example of the soldering process

(6 marks)

SECTION B (Total: 40 marks)**INSTRUCTION : Answer Two questions**

Please use the answer booklet provided.

Question 4

Many articles are made by routes that begin with metal powder.

- Briefly state the main benefit of making component in such a way
(7 marks)
- Identify the steps involve in the process of shaping metal powder by uniaxial die compaction.
(7 marks)
- Illustrate the pressure distribution in powder compact subjected to the single-action uniaxial die compaction
Write an expression for the variation in pressure through the height of a compact pressed in the above manner.
(8 marks)

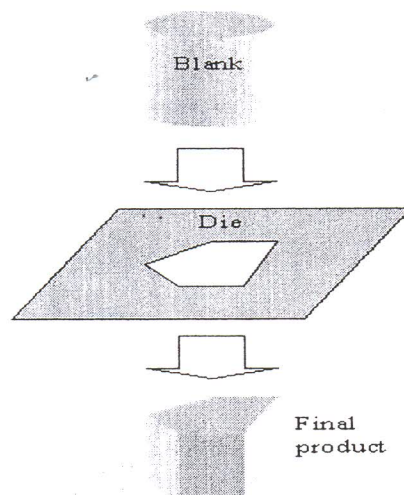
Question 5

Figure 5

As figure 5 above, what is the type of process occurs and explain briefly about this process
(20 marks)

Question 6

- a) Briefly describe what is meant by
- i. Permanent mould
 - ii. Permanent pattern casting processes.

State into which of these two categories sand casting and gravity die casting processes fit.

(6 marks)

- b) What metallurgical, economic and aesthetic factors might dictate whether a casting is made by either a metal die or a sand casting method?

(6 marks)

- c) Inclusions and porosity are two defects that are commonly found in castings. In each case, explain the origins of these defects, the effect, the defect will have on the performance of the casting in service and identify and explain measures that may be taken to eliminate them.

(18 marks)

END OF QUESTION