



**UNIVERSITI KUALA LUMPUR
MALAYSIA FRANCE INSTITUTE**

**FINAL EXAMINATION
SEPTEMBER 2013 SESSION**

SUBJECT CODE : FWB 32503
SUBJECT TITLE : ADVANCE WELDING PROCESSES
LEVEL : BACHELOR
TIME /DURATION : 2 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) question only.**
 - 6. Answer all questions in English.**
 - 7. No graph paper is appended.**
-

THERE ARE 3 PRINTED PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total: 40 marks)**INSTRUCTION: Answer ALL questions.****Please use the answer booklet provided.**

1. Define solid-state welding and name five welding processes under this category.
(5 mark)
2. Determine the characteristics of the submerged arc welded joint.
(5 mark)
3. Compare the advantages and disadvantages of the ultrasonic welding process.
(5 mark)
4. Summarize the application of resistance spot welding in the fabrication industry.
(5 mark)
5. Summarize the limitation of the electron beam welding.
(5 mark)
6. Compare the advantages and disadvantages of the high frequency welding process.
(5 mark)
7. Brief the process of friction stir welding. Which industrial application is most suitable?
(5 mark)
8. Determine the characteristics of the termite welded joint.
(5 mark)

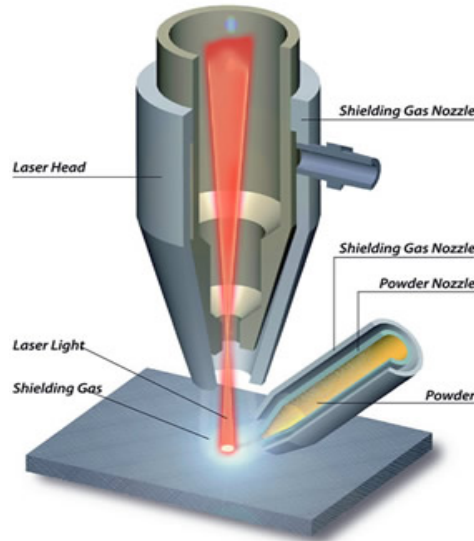
SECTION B (Total: 60 marks)

INSTRUCTION: Answer TWO (2) questions only.

Please use the answer booklet provided.

Question 1

- (a) Identify the welding technique in Figure 1. (5 marks)
- (b) Describe its main application. (10 marks)
- (c) Briefly explain the principle operation of the process. (15 marks)



(Picture: non-coaxial powder feed)

Figure 1

Question 2

- (a) Identify the welding technique in Figure 2. (5 marks)
- (b) Describe its main application. (10 marks)
- (c) Briefly explain the principle operation of the process. (15 marks)

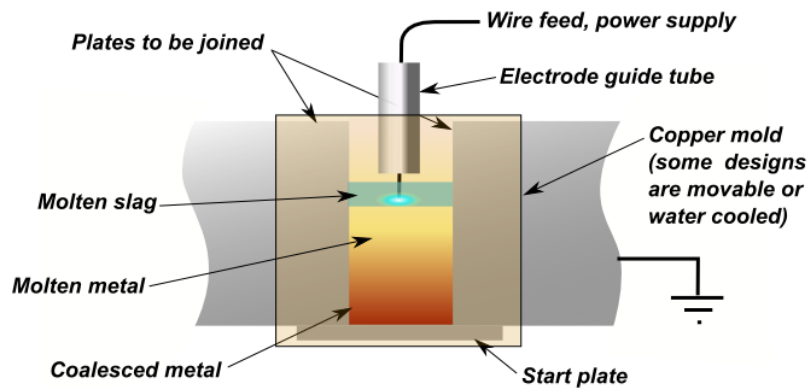


Figure 2

Question 3

- (a) Identify both welding techniques in Figure 3 (a) and Figure 3 (b). (10 marks)
- (b) Compare and explain the principle of each operation of the process. (20 marks)



Figure 3 (a)

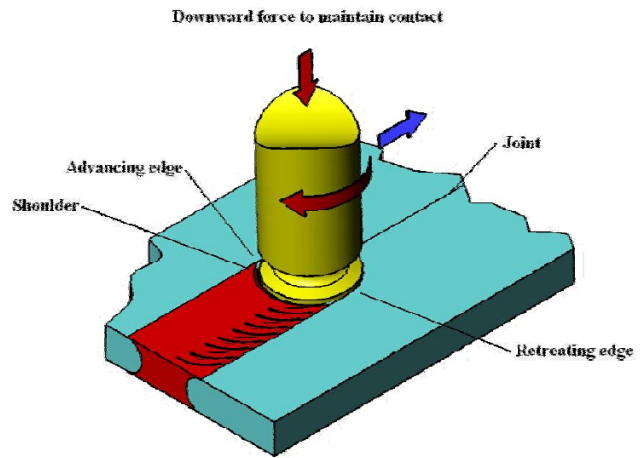


Figure 3 (b)

Question 4

Shielded Metal Arc Welding (SMAW) or Manual Metallic Arc Welding (MMAW) is widely used extensively until today. It is a simple process and most popularly used.

- (a) Describe with a complete labeled schematic of the SMAW process. (12 marks)
- (b) Radiation is emitted by the welding arc. What are the safety precaution to be taken and the rays emitted by the arc? (8 marks)
- (c) The most important function of the electrode coating is to shield the weld metal from the oxygen and nitrogen of the air as it is being transferred across the arc, and while it is in the molten state. Explain the use and function of coated electrodes for SMAW process. (10 marks)

END OF QUESTION