



**UNIVERSITI KUALA LUMPUR
Malaysia France Institute**

**FINAL EXAMINATION
SEPTEMBER 2014 SESSION**

SUBJECT CODE : FWB22303
SUBJECT TITLE : JOINING TECHNOLOGY
LEVEL : BACHELOR
TIME / DURATION : 2.00 PM – 4.00 PM
(2 HOURS)
DATE : 29 DECEMBER 2014

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 **ONE (1) section**. Answer four (4) questions only in the Section.
 6. Answer all questions in English.
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THERE ARE 3 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

Section A: (100 Marks)**INSTRUCTION: Answer four (4) questions only.****Please use the answer booklet provided.****Question 1**

- (a.) The most commonly used protective metal coatings for steel fasteners are zinc, cadmium, and aluminum. Explain why aluminium coating is the best protection being used on steel fasteners. (6 marks)
- (b.) Differentiate between a screw and a bolt in their technical usage. (10 marks)
- (c.) A washer is a hardware component often used with threaded fasteners to ensure tightness of the mechanical joint. List **THREE (3)** functions of Washers. (9 marks)

Question 2

- (a.) Differentiate the major role of capillary action and wetting in brazing (6 Marks)
- (b.) Brazing processes are customarily designated according to the source or method of heating. Describe in details the process of furnace brazing which is the method currently of most industrial significance. (10 Marks)
- (c.) Besides brazing filler metals, fluxes also being used in brazing. Explain in general what are the uses of flux in brazing? (9 Marks)

Question 3

- (a.) An unclean surface will prevent the molten solder from wetting and spreading, making soldering difficult or impossible and contributing to poor joint properties. Identify why precleaning is necessary and what is the goal of precleaning.
(10 Marks)
- (b.) Iron soldering is a traditional manual process that uses a copper tip that is heated by electric resistance, gas, or oil. Write the important functions of the tip in iron soldering.
(9 Marks)
- (c.) Identify the reason for using fluxless soldering and soldering atmosphere in the soldering process.
(6 Marks)

Question 4

- (a.) Two predominant mechanisms of failure in adhesively bonded joints are adhesive failure and cohesive failure. Differentiate the occurrence of adhesive and cohesive failure.
(16 Marks)
- (b.) Describe the occurrence of peel loading on an adhesive bonded Joint.
(9 Marks)

Question 5

- (a.) Fundamentally, there are **TWO (2)** types of polymers. List and differentiate between these **TWO (2)** types of polymers.
(8 marks)
- (b.) Describe the process of hot plate welding in welding of thermoplastic polymers
(9 marks)
- (c.) Explain the general description of Hybrid Joining Processes and list **THREE (3)** examples of hybrid processes.
(8 marks)

END OF QUESTION