



**UNIVERSITI KUALA LUMPUR  
MALAYSIA FRANCE INSTITUTE**

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**FINAL EXAMINATION  
JANUARY 2014 SESSION**

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**SUBJECT CODE : FWB 22303**  
**SUBJECT TITLE : JOINING TECHNOLOGY**  
**LEVEL : BACHELOR**  
**TIME / DURATION : 3.0 HOURS**  
**DATE :**

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**INSTRUCTIONS TO CANDIDATES**

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- 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 FIVE (5) questions. Answer FOUR (4) questions only.**
  - 6. Answer all questions in English.**
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**THERE ARE 2 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.**

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**(Total: 100 Marks)**

**INSTRUCTION: Answer four (4) questions only.**

**Please use the answer booklet provided.**

**Question 1**

- (a) A fastener used to hold or **FASTEN** two or more engineering components together. List **THREE (3)** specific requirements for the developing of the fastening system. (9 marks)
- (b) Stainless steel fasteners are available in a variety alloys with an ultimate strengths. Recognize **TWO (2)** categories of stainless steel and explain the major advantages of stainless steel fasteners over the alloy steel. (9 marks)
- (c) Differentiate between the ways in which rivets and bolts accomplish joining. (6 marks)

**Question 2**

- (a) Write **THREE (3)** function of flux in brazing. (6 Marks)
- (b) Describe methods of removing flux residue or excess flux in brazing. (9 Marks)
- (c) Define brazing alloy and its criteria to be a brazing alloy (9 Marks)

**Question 3**

- (a) Define soldering process. (4 Marks)
- (b) Identify an essential features and the mechanical integrity of soldered joints (9 Marks)
- (c) Base materials are usually selected for the specific property requirements that are needed for the components' or assemblies intended function. Explain how we enhance base material solderability and wettability in soldering process. (12 Marks)

**Question 4**

- (a) The process of adhesive bonding is actually quite old, using naturally occurring agents such as tree saps and pitch, tar, and various other plant and animal extracts or excretions. Discuss how this process began to gain serious technical credibility and appreciation more recently and where it is used.  
(6 Marks)
- (b) List **TWO (2)** types of adhesive and explain their differences.  
(9 arks)
- (c) List and explain **TWO (2)** predominant mechanisms of failure in adhesively bonded joints.  
(9 Marks)

**Question 5**

- (a.) Define Polymers  
(5 Marks)
- (b.) Fundamentally, there are **TWO (2)** types of polymers. List and differentiate between these **TWO (2)** types of polymers.  
(10 Marks)
- (c.) Explain rivet bonding as a method of joining metals.  
(10 Marks)

**END OF QUESTION**