



**UNIVERSITI KUALA LUMPUR**  
**Malaysia France Institute**

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**FINAL EXAMINATION**  
**JANUARY 2011 SESSION**

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**SUBJECT CODE** : FMB 15103  
**SUBJECT TITLE** : PRODUCT DESIGN AND DEVELOPMENT  
**LEVEL** : BACHELOR  
**TIME / DURATION** : 9.00am – 11.30am  
( 2.5 HOURS )  
**DATE** : 03 MAY 2011

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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. Answers 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.
  7. Formula sheet is appended.
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THERE ARE 4 PAGES OF QUESTIONS AND 1 PAGE OF APPENDIX, EXCLUDING THIS PAGE.

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**INSTRUCTION: Answer only FOUR questions.**

**Please use the answer booklet provided.**

**Question 1**

- (a) Explain why market research is important before a new product is to be designed?  
(5 marks)
- (b) During market research, what kind of information that you need to know about your competitors?  
(5 marks)
- (c) Define the concept of Quality Function Deployment (QFD). Discuss the benefit of employing QFD in the design stage.  
(5 marks)
- (d) Give one example of using QFD in identifying customer needs. You must support your answer with mock up data and tables. (Hint: identify customers, requirements and constraints)  
(10 marks)

**Question 2**

- (a) Explain how the concept of Design for Manufacture and Assembly can help in reducing manufacturing cost. You may supplement your answers with sketches or diagrams.

(10 marks)

- (b) Mr. Ali has a new product which can be either manufactured via automated process, cellular manufacturing or job shop. Each method of manufacture has difference fixed cost and per unit cost as listed in Table 1. Determine which manufacturing process is the most economical for a production volume of 10000 units per year.

	Automated Process	Cellular Manufacturing	Job Shop
Annual volume required	10000	10000	10000
Fixed cost per year	RM110 000	RM 80 000	RM 75 000
Variable cost per year	RM 2.00	RM 4.00	RM 5.00

Table 1 Cost for Various Type of Manufacture

(10 marks)

- (c) What volume should job-shop manufacturing is to be preferred?

(5 marks)

