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**UNIVERSITI KUALA LUMPUR  
Malaysia France Institute**

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**FINAL EXAMINATION  
SEPTEMBER 2014 SESSION**

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**SUBJECT CODE** : FVB31203  
**SUBJECT TITLE** : OPERATION MANAGEMENT  
**LEVEL** : BACHELOR  
**TIME / DURATION** : 2.00 PM – 4.30 PM  
( 2.5 HOURS )  
**DATE** : 4 JANUARY 2015

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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 **TWO (2)** sections. Section A and B. Answer all questions in Section A. For Section B, answer three (3) questions only.
6. Answer all questions in English.
7. FMEA Form is appended.
8. Graph paper is appended.

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**THERE ARE 5 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.**

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**SECTION A (Total: 40 marks)****INSTRUCTION: Answer ALL questions.****Please use the answer booklet provided.****Question 1**

- (a) Explain the operation management concept. (6 marks)
- (b) Describe the conversion process in operation management. (4 marks)
- (c) Quality is the most important element in operation management. Discuss the challenges of today's technology on maintaining high quality faced by companies. (5 marks)
- (d) In what ways does technology have an impact on capacity planning? Discuss. (5 marks)

**Question 2**

- (a) Many people might be thinking "Project management is a waste of time". Is it true? Defend your answer. (8 marks)
- (b) Why productivity is very important in manufacturing? Explain with at least **THREE (3)** points. (6 marks)
- (c) Describe briefly the foundation elements that JIT can be applied to achieve the ultimate goal. (6 marks)

**SECTION B (Total: 60 marks)**

**INSTRUCTION: Answer only THREE (3) questions.**

**Please use the answer booklet provided.**

**Question 4**

- a) During production of prototype, operators have found eight defects which then been tabulated in a production defect check sheet as figure 1 below. **Prepare** a pareto diagram and **find** which defects that contributes 80% of the total defects.

(defect tracking sheet) No. \_\_\_\_\_

**PRODUCTION DEFECT CHECK SHEET**

Product Line _____ 3G Line _____	Date _____ 12 / 09 / 02 _____
Product Type _____ 3G Alternators _____	Factory _____ Church Street _____
No. of Inspections _____ 280 _____	Data Collector _____ I. M. Quality _____
Total Number _____	Group Name _____ Day Shift _____
Lot Number _____	Remarks: _____

TYPE	OCCURRENCE	SUBTOTAL
HIGH TURN ON SPEED		<b>18</b>
HIGH RIPPLE CURRENT		<b>38</b>
HIGH LEAKAGE		<b>12</b>
LOW OUTPUT AT LOW SPEED		<b>15</b>
LOW OUTPUT AT HIGH SPEED		<b>7</b>
DEAD UNIT		<b>4</b>
BAD REGULATOR		<b>22</b>
BAD VOLTAGE SETPOINT		<b>6</b>

Figure 1 : Defect check sheet

(15 marks)

- b) Describe what is FMEA

(5 marks)

**Question 5**

a) Table 1 shows final year project activities. As a project team manager, you need to prepare the project's schedule as below:

i. Prepare a Gantt Chart

(5 marks)

ii. Identify critical path and the project's duration

(10 marks)

**Table 1 : FAC project activities**

Activity	Duration (Weeks)	Immediate Predecessors
Start	-	A,B,C
A	5	D
D	6	F
F	2	G
B	5	E
E	9	F
C	4	H
H	6	G,I
G	3	End
I	1	End

(15 marks)

b) Explain what the impacts of "crashing" are.

(5 marks)

**Question 6**

- (a) Develop a linear trend equation for the data on bread deliveries shown in Table 2 below. Forecast deliveries for period 11 through 14.

**Table 2: Bread deliveries**

Period	Dozen Deliveries
1	648
2	590
3	631
4	769
5	745
6	856
7	760
8	962
9	990
10	1100

(10 marks)

- (b) A manager wants to choose one of two forecasting techniques. Each technique was tested using historical data as shown in below table 3. The resulting forecast errors for the two are shown in the table. Analyze the data and recommend a course of action to the manager.

**Table 3**

Period, t	1	2	3	4	5	6	7	8	9
Forecast Technique 1	3	-2	0	2	1	-2	2	-1	2
Forecast Technique 2	4	3	-3	-1	1	-1	0	1	0

(10 marks)

**Question 7**

In order to verify the quality of a new model in your working company, failure mode and effect analysis (FMEA) need to be done. Assuming the product is a car, perform process FMEA to anticipate what you could do to eliminate potential defects or problems. Write your answer in the Process FMEA Form given in Appendix 1, by identifying at least five (5) possible causes.

(20 marks)

**END OF QUESTION**

### Failure Modes & Effects Analysis

Process/Product: _____						FMEA Date: (original) _____									
FMEA Team: _____						(Revised) _____									
Black Belt: _____						Page: _____ of _____									
Process						Actions				Results					
Item Process Steps	Potential Failure Mode	Potential Effects of Failure	Severity	Potential Cause(s) of Failure	Occurrence	Current Controls	Detection	Risk Priority Number	Recommended Action	Responsibility and Target Completion Date	Action Taken	Severity	Occurrence	Detection	Risk Priority Number
<b>Total Risk Priority:</b>									<b>Resulting Risk Priority</b>						

Appendix 1