

**PRINCE OF SONGKLA UNIVERSITY**  
**FACULTY OF ENGINEERING**

Final Examination: Semester 1

Academic Year: 2006

Date: October 7, 2006

Time: 9:00–12:00

Subject: 226–542 Productivity Management

Room: A201

**Instructions**

- There are 3 questions in 5 pages.
- Attempt all questions in the answer-book.
- Any materials, books, papers, calculators and dictionaries are allowed. (Open-book exam)
- Total score is 100.

Questions	Full Score	Assigned Score
Q1	30	
Q2	50	
Q3	20	
<b>Total</b>	<b>100</b>	

Assoc. Prof. Somchai Chuchom

ทฤษฎีในการสอบ โทษขั้นต่ำคือ ปรับตกในรายวิชาที่ทฤษฎี และพักการเรียน 1 ภาคการศึกษา

### **Question 1 (30 marks)**

The terms or phrases for question 1 are:

- a) Lean Manufacturing
- b) 5S Philosophy
- c) Total Productive Maintenance
- d) Poka Yoke

- 1.1 Briefly explain what the terms or phrases above are?
- 1.2 How to make use of each term or phrase above as a tool to improve productivity?

### **Question 2 (50 marks)**

The data provided in Table 1 and 2 were obtained from a motel operation.

2.1 Using these data, develop an MFPMM analysis.

Your analysis should include:

- a) the analysis output
- b) the analysis and interpretation
- c) executive summaries
- d) graphics for management

2.2 If you were hired as a management systems analyst for the motel operation, how would you integrate the MFPMM into the overall organizational performance measurement, evaluation, control, and improvement system? What would you may do or prepare before start working?

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Table 1: Motel Data

	Period 1			Period 2		
	Quantity (1)	Price (2)	Value (3)	Quantity (4)	Price (5)	Value (6)
Single	620	17.5	10850	660	18	11880
Double	85	24	2040	110	25	2750
Triple	22	25	550	16	30	480
Meeting Room	4	42	168	5	50	250
Restaurant	1	1500	1500	1	2000	2000
Carpet Store	1	320	320	1	500	500
<b>Total Outputs</b>			<b>15428</b>			<b>17860</b>
Personnel	3	1000	3000	2	1250	2500
<i>Management Labor</i>			<i>3000</i>			<i>2500</i>
Desk Clerk	400	3.5	1400	360	4.5	1620
Housekeeper	330	3	990	280	3.75	1050
Maintenance	160	4	640	150	4.5	675
Laundrymen	115	3	345	130	3.5	455
<i>Hourly Labor</i>			<i>3375</i>			<i>3800</i>
<b>Total Labor</b>			<b>6375</b>			<b>6300</b>
Cleaning Supp.	1	580	580	1	475	475
Office Supp.	1	125	125	1	125	125
Maintenance Supp.	1	450	450	1	360	360
<b>Total Materials</b>			<b>1155</b>			<b>960</b>
Natural Gas	250	2.55	637.5	240	3.9	936
Electricity	15900	0.05	795	15000	0.09	1350
Water & Sewage	365	0.70	255.5	390	0.90	351
<b>Total Energy</b>			<b>1688</b>			<b>2637</b>
<b>Total Inputs</b>			<b>9218</b>			<b>9897</b>

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Table 2: Quantity and Price Forecasted for Period 3

Category Name	Quantity			Price		
	Pessimistic	Most Likely	Optimistic	Pessimistic	Most Likely	Optimistic
Single	650	675	700	18	20	22
Double	90	100	140	24	26	28
Triple	20	24	30	26	28	30
Meeting Room	4	6	8	40	55	60
Restaurant	1	1	1	2000	2000	2000
Carpet Store	1	1	1	500	500	500
<b>Total Outputs</b>						
Personnel	3	2	1	1500	1400	1000
<i>Management Labor</i>						
Desk Clerk	450	375	350	4.5	4.5	4.5
Housekeeper	360	310	285	3.75	3.75	3.75
Maintenance	200	160	140	4.5	4.75	5
Laundrymen	140	110	95	3.5	3.5	3.5
<i>Hourly Labor</i>						
<b>Total Labor</b>						
Cleaning Supp.	1	1	1	550	450	400
Office Supp.	1	1	1	190	125	90
Maintenance Supp.	1	1	1	500	410	380
<b>Total Materials</b>						
Natural Gas	300	260	235	4.2	4.2	4.2
Electricity	16500	15000	13800	0.09	0.09	0.09
Water & Sewage	400	360	310	1	1	1
<b>Total Energy</b>						
<b>Total Inputs</b>						

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**Question 3 (20 marks)**

3.1 Explain each step of the productivity management process.

3.2 How has your thinking changed (after attending this course) about quality, technology and productivity?

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