

Prince of Songkla University
Department of Industrial Engineering, Faculty of Engineering

Final Examination: Semester 2
Date: 20 February 2007
Subject: 225-601 Supply Chain Management

Academic Year: 2006
Time: 13:30-16:30
Room: A203

ทฤษฎีในการสอบ โทษขั้นต่ำ คือ ปรับตกในรายวิชาที่ทฤษฎี และพักการเรียนหนึ่งภาคการศึกษา


Instructions: Read carefully

1. All materials are allowed.
2. There are 3 sections for this test. Section 1 has 6 problems, section 2 has 3 problems and section 3 has 8 problems. Do all of them. Also show your work clearly and legibly.
3. Answer the questions in this test paper, only.
4. You must write your name and your student ID in every page of the test.
5. Total score is 140 points.

Distribution of Score

Section	Problem	Points	Points Gained
1	1	7.5	
	2	7.5	
	3	7.5	
	4	7.5	
	5	7.5	
	6	7.5	
2	1	15	
	2	20	
	3	20	
3	1	5	
	2	5	
	3	5	
	4	5	
	5	5	
	6	5	
	7	5	
	8	5	

Tests are prepared by
Nikorn Sirivongpaisal



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Section 1: (45 points) Answer the following questions. Explain your answer or concept clearly.

Problem 1: (7.5 points) Identify the appropriate supply chain strategy and explain your reasons for the following industries.

(a) Movie Rental Industry.

(b) Canned Fruits Industry.

(c) Construction Industry.

Problem 2: (7.5 points) Explain the types of retailer-supplier relationships.

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Problem 3: (7.5 points) Explain the key concept of keeping the manufacturing process parallel.

Problem 4: (7.5 points) Explain the concept of process standardization.



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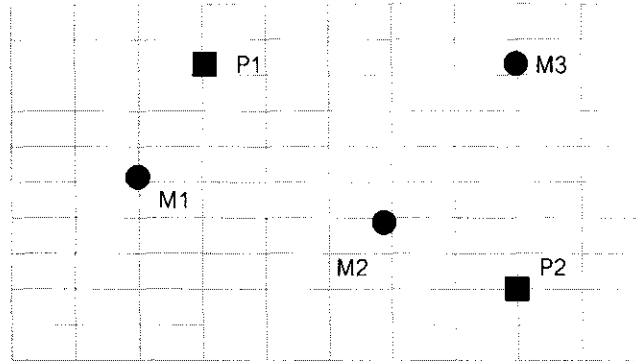
Problem 5: (7.5 points) How many kinds of the spectrum of supplier integration? And what are they? And identify the spectrum of the relationship between the Toyota company and their suppliers from “The Toyota Way” textbook.

Problem 6: (7.5 points) Explain a framework for BUY/MAKE decisions.



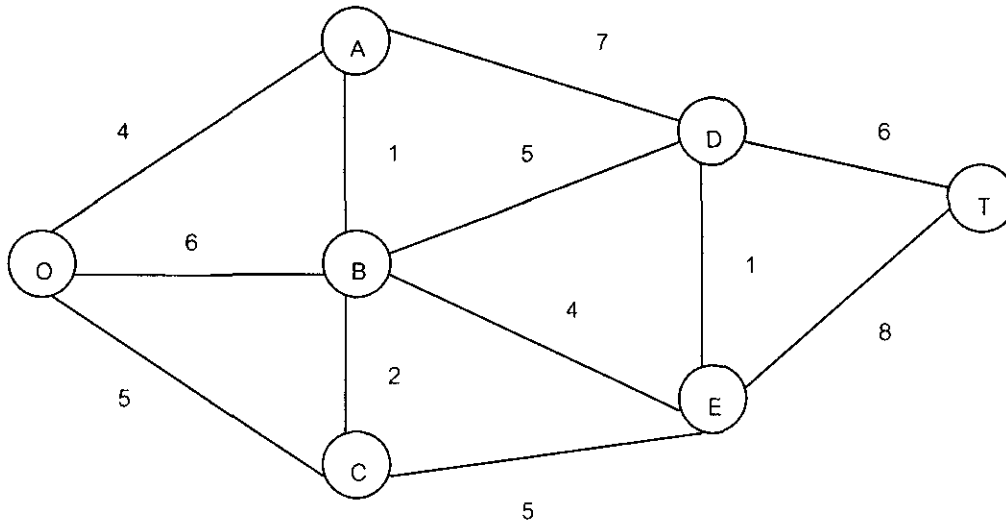
Section 2: (55 points) Answer the following questions.

Problem 1: (15 points) The company, which has two plants supplying the warehouse, which, in turn, supplies three demand centers, is considering the location for the single warehouse that will minimize transportation costs. Each plant and demand center location is expressed as a geometric coordinate point, as following figure. Product A is supplied from P1 and product B from P2. These products are reshipped to the markets. Coordinate points, volumes, and transportation rates are summarized in the following table. Find the location for the warehouse and calculate the of transportation cost. **Do only 3 iterations.** Note: scale of figure is 1:10 Km.



Point(i)	Product	Total Volume Moving (units)	Transportation Rate (Baht/unit/Kilometer)	Coordinate Xi	Coordinate Yi
P1	A	2000	0.050	3	8
P2	B	3000	0.050	8	2
M1	A&B	2500	0.075	2	5
M2	A&B	1000	0.075	6	4
M3	A&B	1500	0.075	8	8

Problem 2: (20 points) The transportation manager needs to find the shortest path from his factory (node O) to the retailer (node T) through the road system shown in the figure below. Find the shortest path on this road system. Number on each arc represents distance.



Problem 3: (20 points) One manufacturing company is considering expansion by building a new factory in either “City A” or “City B”, or perhaps even in both cities. It is also considering building at most one new warehouse, but the choice of location is restricted to a city where a new factory is being built. The net present value of each of these alternatives is shown in the following table. Also the capital required is shown in the same table. From information given, formulate the model that maximizes the total net present value. **(Do not solve for the solution, formulate model only)**

Alternatives	Net Present Value	Capital Required
Building factory in “City A”	9 million Baht	6 million Baht
Building factory in “City B”	5 million Baht	3 million Baht
Building warehouse in “City A”	6 million Baht	5 million Baht
Building warehouse in “City B”	4 million Baht	2 million Baht



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Section 3: (40 points) Answer the following questions.

Problem 1: (5 points) Explain the main difference between “Frederick Taylor’s Way” and “The Toyota Way”.

Problem 2: (5 points) What is the visual control?

Problem 3: (5 points) How does the information technology support the Toyota Way?



Problem 4: (5 points) Explain the Toyota leader's perspective about the Toyota Production System (TPS).

Problem 5: (5 points) Compare these motivation theories with the Toyota Way.
(a) Job enrichment by Herzberg

(b) Scientific Management by Taylor

Problem 6: (5 points) Explain the principle of Genchi Genbutsu



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Problem 7: (5 points) Explain the five important components of Nemawashi

Problem 8: (5 points) Explain Hoshin Kanri.

