PRINCE OF SONGKLA UNIVERSITY

FACULTY OF ENGINEERING

Final Examination : Semester 1 Academic Year : 2007

Date : October 5, 2007 Time : 9:00 - 12:00

Subject : 225-717 Logistics & Transportation Room : R200

ทุจริตในการสอบ โทษขั้นต่ำ คือ พักการเรียน 1 ภาคการศึกษา และปรับตกในรายวิชาที่ทุจริต

Direction

- There are 10 questions. The total scores are 100.
- Write your own answer on the exam papers.
- All materials, books, calculators are allowed.

Assoc. Prof. Wanida Rattanamanee

Name.....Code.....

Question No.	Full Scores	Taken Score
1	5	
2	5	
3	15	
4	10	
5	10	
6	10	
7	10	
8	10	
9	10	
10	15	
Total	100	

1. (5 points) *"If you do things the way you're always done them, you'll get the same things you've always got"*. What is its meaning? And how can you apply for the transportation management?

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

2. (5 points) "*Transport is becoming increasingly less important, as e-commerce and developments become widespread.*" Do you think that this is true? Explain your answer.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

3. (15 points) From Mount Isa Mines Case Study, answer these questions.

3.1 (5 points) How important do you think transport is for the operations at Mount Isa?

.....

.....

.....

.....

.....

.....

.....

.....

3.2 (5 points) What alternatives are there for transport? What are the current arrangements and how might they be improved?

.....

.....

.....

.....

.....

.....

.....

3.3 (5 points) Do other mining companies have similar transport problems?

.....

.....

.....

.....

.....

.....

.....

.....

4. (10 points) An organization with weak transport management suffers as it gives worse performance than more competent competitors and becomes uncompetitive; one with strong transport management may be diverting valuable talent from the rest of the business. What does this argument mean for transport management within an organization?

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

5. (10 points) For each of the four types of organization shown, rate the importance of each factor in term of making location decisions using L = low importance, M = moderate importance, and H = high importance.

Factor	Local Bank	Steel Mill	Food Warehouse	Public School
Convenience for customers	.....	.....	.....	.....
Attractiveness of building	.....	.....	.....	.....
Nearness to raw materials	.....	.....	.....	.....
Large amounts of power	.....	.....	.....	.....
Pollution controls	.....	.....	.....	.....
Labor cost and availability	.....	.....	.....	.....
Transportation costs	.....	.....	.....	.....
Construction costs	.....	.....	.....	.....

6. **(10 points)** A manager has received an analysis of several cities being considered for a new office complex. The data (10 points maximum) are

Factor	Location		
	A	B	C
Business services	9	5	5
Community services	7	6	7
Real estate cost	3	8	7
Construction cost	5	6	5
Cost of living	4	7	8
Taxes	5	5	4
Transportation	6	7	8

a. If the manager weights the factors equally, how would the locations stack up in terms of their composite factor rating scores?

b. If business services and construction costs are given weights that are double the weights of the other factors, how would the locations stack up?

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

7. **(10 points)** A company that handles hazardous thing wants to minimize the shipping cost for shipments to a disposal center from five receiving stations it operates. Given the locations of the receiving stations and the volumes to be shipped daily, determine the location of the disposal center.

Location of Processing Station (x,y)	Volume Tons per Day
10,5	26
4,1	9
4,7	25
2,6	30
8,7	40

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

8. (10 points) A large retailer is planning to open a new store. Three locations in California are currently under consideration: South Coast Plaza (SCP), Fashion Island (FI), and Laguna Hills (LH). Transportation costs for the locations and costs, demands, and supplies for existing locations and warehouses (origins), are shown below. Each of the locations has a demand potential of 300 units per week. Which location would yield the lowest transportation costs for the system?

From Warehouse	To		
	SCP($)	FI ($)	LH ($)
1	4	7	5
2	11	6	5
3	5	5	6

From Warehouse	To transportation cost ($),	
	A [(400)]**	B [(500)]**
1 [(660)]*	15	9
2 [(340)]*	10	7
3 [(200)]*	14	18

* = [supply (units/week)], ** = [demand (units/week)]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

9. **(10 points)** What are the inventory accuracy and picking accuracy? How do this impact on the logistics velocity?

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

10. **(15 points)**The ABC Company produces the dried banana. There are 2 kinds of products, type I and type II. The company is located in Hat Yai. The data of customers is shown in Table 1

Table 1 Customer's data

Transportation types	Customers		Demand (boxes/month)		Distances
	Province	Number	Type I	Type II	
1. Public Car	Bangkok	10	800	750	1000
	Phuket	8	450	520	500
2. Personal Car	Hat Yai	20	1000	1200	20
	Puttalung	5	500	400	100
	Nakornsritummarat	10	400	450	250
	Surathanee	15	500	600	350
	Satul	5	400	350	100
3. Air plane	Chiangmai	10	1500	1200	1600

.....

.....

.....

.....

.....

.....

.....

Define :

- The inventory cost is 1 Baht per box.
- The transportation cost of the public car is 0.5 Baht per box per kilometer.
- The transportation cost of low price air line is 10 Baht per box per kilometer.
- The transportation cost of the personal car are as follow;
  - Gas 75000 Baht per month
  - Maintenance 1000 Baht per month

The company would like to develop 2 distribution centers.

From the above data, answer these questions

10.1 If you would like to improve the logistics system of the company, what is it?

10.2 What are the decision variables?

10.3 What is the objective function?

10.4 What is the constrain function?

10.5 How can you solve the problem?

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....