Graduateship in Marketing - Stage 4

LOGISTICS MANAGEMENT

FRIDAY, 25TH AUGUST 2000. TIME: 9.30 am - 12.30 pm

Please answer the question in Section A, and **ONE** question from each of Sections B, C and D.

(If more than the specified number of questions in Sections B, C and D are attempted, delete those questions you do not wish to have marked. Otherwise the examiner will mark the **FIRST** question in Sections B, C and D.)

Section A carries **40%** of the marks. All other questions carry equal marks.

Do NOT repeat questions in the answers, but show clearly the number of the question attempted on the appropriate page of the Answer Book.

SECTION A (40%)

1. **Case: Portland Fish Company**

    (a) Briefly review the issues and facts in the case which vice-president and general manager Walter Jones should take into account when reviewing distribution manager George Parker's proposal to use Fast-Cold Truck Lines.

    (b) Evaluate how the Penguin Transportation Company (PTC) serves Portland Fish's distribution objectives.

    (c) Evaluate Mr. Parker's proposal to the management of the Portland Fish Company (PFC).

    (d) Discuss how Walter Jones should resolve the conflict between PFC and PTC both on the current issue of the Portland to Chattanooga route and generally in the long run.

SECTION B (20%)

2. *"The most significant change to impact western companies has been the maturing of the markets in which they compete."*
    Martin Christopher
    Describe the characteristics of mature markets and their impact on logistics.

3. Discuss the trend towards supply chain management. **P.T.O.**

4.   The manager of a sports shop, open for 50 weeks each year, holds a regular stock of table tennis balls. Although he purchases these at £4.80 per box containing 12 balls, he is prepared to sell these balls singly. Over the past year he has sold, on average, 12 boxes each week, and considers it likely that this level of sales will continue for the time being.

The order related cost to the sports shop of each order is £8, made up mainly of secretarial costs. The annual cost of storage is estimated at 20% of the value of stock, mainly due to interest costs. The manager sets prices to cover the purchase price and the stock-related costs, appropriately allocated, and include a mark up on all the costs of 50%.

(a)   Determine the optimum number of boxes of table tennis balls that the manager should order at a time and the number of orders per year.

(b)   Find the price at which he should sell each ball using the optimum policy.

(c)   Each sale incurs a selling cost of £0.20p. Discuss what would be an appropriate discount rate for sales of a box of table tennis balls.

(d)   Occasionally table tennis clubs buy boxes of table tennis balls by the carton. A carton contains 100 boxes. The clubs expect a discount. What discount would you recommend? Explain your answer.

5.   The Ring Rental Car Hire firm rents cars in Dingle. It wants to determine how many rental cars it should have available for hire. Based on market projections and historical data, the manager has determined probability distributions for the number of rentals per day and rental durations (in days only) as shown in the following tables:

Number of customers per day	0	1	2	3	
Probability	.20	.20	.50	.10	

Rental Duration (in days)	1	2	3	4	5
Probability	.10	.30	.40	.10	.10

(a)   Use the following random numbers to simulate a number of customers for seven days:

04   23   01   68   85   30   80

(b)   Develop your own set of random numbers and use it to simulate the number of days each of the projected customers would want the car.

(c)   Given that the current fleet contains four cars, compute the probability that Ring Rental will not have a car available upon demand.

(d)   Should they expand their fleet? Explain your reasons.

SECTION D (20%)

6.   Guthawn Ltd. sells two kinds of mobile phone: EasyCard and DayMainly. Records show that 18 minutes of sales time are used for each EasyCard phone that is sold and 30 minutes of sales time for each DayMainly phone. A total of 60 hours of sales time is available over the next 4-week period. In addition, management planning policies call for minimum sales goals of 50 units each for both EasyCard and DayMainly phones.

(a)   Show the feasible region for Guthawn's problem.

(b)   Assuming that the company makes a £4 profit contribution for each EasyCard phone sold and a £5 profit contribution for each DayMainly phone sold, what is the optimal sales goal for the company over the next 4-week period?

(c)   Develop a constraint and show the feasible region if management adds the restriction that Guthawn must sell at least as many DayMainly phones as EasyCard phones.

(d)   What is the new optimal solution if the constraint in part (c) is added to the problem?

7. A ladies fashion shop wishes to purchase the following quantities of spring dresses:

Dress size	I	II	III	IV
Quantity	100	200	450	150

Three manufacturers are willing to supply dresses. The quantities given below are the maximum they are able to supply of any given combination of orders for dresses:

Manufacturer	A	B	C
Total Quantity	150	450	250

The shop expects the profit per dress to vary with the manufacturer as given below.

Sizes

Manufacturer	I	II	III	IV
	£	£	£	£
A	25	40	50	20
B	30	35	45	15
C	20	25	45	25

(a) Use the transportation technique to solve the problem of how the orders should be placed with the manufacturers by the fashion shop in order to maximise profits.

(b) Explain how you know that no further improvements are possible, showing your workings.

(c) If there are any alternative combinations, show them in detail.