Graduateship in Marketing - Stage 4

LOGISTICS MANAGEMENT

THURSDAY, AUGUST 20, 2009. 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.

(Note: Marks are awarded for the relevant use of contemporary Irish and or international examples of marketing practice)

SECTION A (40%)

1. **Case: Exel plc-Supply Chain Management at Haus Mart**

(a) Why do companies outsource supply chain activities to third party logistics providers? What is the nature of the outsourced activities? What are the benefits?

(b) Appraise Exel's performance to date. Has combining freight management with contract logistics been a successful strategy? What additional capabilities has the company developed?

(c) How is value-added in supply chain management through
- better planning?
- better coordination and execution?
- rationalization, restructuring, and improvement of the structure of a firm's supply?

(d) How would a better understanding of supply chain execution and stronger capabilities in execution allow companies to make better supply chain planning decision? Please be specific. For example; inventory management decisions.

P.T.O.

SECTION B (20%)

2. Discuss how the Tesco Clubcard model was used as a solution to the fragmentation issue of consumer markets.

3. Efficient Consumer Response (ECR) was launched as a logistics management concept by Kurt Salmon Associates in 1992. Explain the four pillars of ECR.

SECTION C (20%)

4. OPR Cooperation supplies West Engineering Company with a chemical at the rate of 5,500 barrels per day and a price of €19.10 per barrel. West Engineering uses the chemical at the rate of 2,200 barrels per day and 550,000 barrels per year. The ordering cost is €3,250 per year and the holding cost is 25% of the price per barrel per year. Find: (a) EOQ; (b) total cost at EOQ; (c) number of production days per order; (d) maximum storage capacity for the chemical.

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	.2	.2	.5	.1

Rental duration (in days)	1	2	3	4	5
Probability	.1	.3	.4	.1	.1

(a) Use the following random figures to simulate a number of customers for seven days:
04 23 01 68 85 30 80

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

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

SECTION D (20%)

6. A factory is about to buy some machines to produce boxes and has a choice of machines. Type X or Type Y machine. €160,000 has been budgeted for the purchase of machines. Type X machines cost €5,000 each, require 25 hours of maintenance a week and produce 1,500 units a week. Type Y machines cost €10,000 each, require 10 hours of maintenance a week and produce 2,000 units a week.

Each machine, X or Y, needs 50 square meters of floor area. There is 1,000 square metres of floor area available and 400 hours of maintenance time each week. Since all production can be sold, the factory management wishes to maximise output.

You are required to:

(a) list the objective function and constraints;
(b) graph the constraints, shading the feasible region;
(c) state with reasons the optimum mix of machines to buy;
(d) add any comments that would be useful to management.

7. A wholesale company has nine storage depots which it proposes to rationalise. Four depots, Q, R, S, and T are to be expanded and five depots, A, B, C, D, and E are to be closed. Thirty six of the mechanical loaders in the depots to be closed will be required for use in the enlarged depots.

The mechanical loaders in the five depots to be closed are:

A:5, B:7, C:11, D:8, and E:9

The additional loaders required at the depots to be expanded are:

Q:8, R:9, S:11, and T:8

The cost of transporting one mechanical loader, in hundreds of Euros, between depots is given below:

Depots to be closed	**Depots to be expanded**			
	Q	R	S	T
A	3	3	7	9
B	6	5	3	3
C	6	4	8	7
D	5	4	5	4
E	4	3	6	5

You are required to:

(a) Show by calculation the minimum cost plan for meeting the rationalisation requirements of transfers between depots;
(b) State at which depot there will be surplus loaders;
(c) State with reasons whether or not your solution is optimum.