



Graduateship in Marketing - Stage 4

LOGISTICS MANAGEMENT

FRIDAY, AUGUST 19, 2005. 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 international examples of marketing practice)

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 move to supply chain management.

P.T.O.

SECTION C (20%)

4. A company uses 6,000 Widgets and 9,000 Gadgets each year of 48 working weeks. The company gets the Widgets from a regular supplier at a cost of €6 per unit. It gets the Gadgets from a different regular supplier at a cost of €120 per unit. Because of the technical characteristics of the product, the cost of ordering, receiving and testing *each* batch of *either* Widgets or Gadgets is generally €400.

A third supplier has offered to supply both Widgets and Gadgets on a regular monthly basis, i.e. twelve times a year. He intends to quote the same price for both types, whether Widgets or Gadgets. The company has estimated the cost of ordering, receiving and testing of each monthly batch to be €600.

Whichever supplier is used, the storage costs are €12 per unit per annum based on the average annual stock. Assume certainty of demand, lead-time and costs.

As logistics advisor you have been asked to give some costs background to help the managing director, who is about to negotiate a price for both together with the new supplier.

- (a) What should the economic order quantities be for Widgets and Gadgets from the present suppliers?
- (b) What is the total minimum inventory cost for Widgets and Gadgets from the present suppliers?
- (c) What should the price be for a Widget and for a Gadget from the new supplier to make a change worthwhile?
5. A company wishes to decide on a production and delivery schedule for a product for the next five months. From past records the manager knows that 4,000 units can be produced and delivered per month. Also, an additional 1,200 units can be produced and delivered monthly on an overtime basis. The unit cost of items produced and delivered on a regular time basis is €12, and €16 on an overtime basis. Contracted sales are as follows:

Month	Contracted Sales
June	2,400
July	4,200
August	4,800
September	6,000
October	8,000

Inventory carrying costs are €24 per unit per month. The company does not want any inventory carried over beyond October.

The company wants to know the monthly production and delivery schedule that minimizes total costs. Formulate a linear programme for this problem. Do not solve it.

SECTION D (20%)

6. Pretty Paint Producers (PPP) plc produces two types of varnish: high gloss and matt, with the following selling prices and unit variable costs as given below.

Product	Selling Price (€ per litre)	Unit variable cost (€ per litre)
Matt	16.0	11.0
High Gloss	19.0	13.0

Each litre of matt varnish requires six minutes of skilled labour and each litre of high gloss requires twelve minutes of skilled labour. In a given day there are 500 man hours of skilled labour available. Also, there are 125 grammes of an important blending chemical available each day. Each litre of matt varnish needs 0.05 grammes of the blending chemical and each litre of high gloss varnish needs 0.02 grammes of the chemical. The processing capacity at the plant is limited to 4,000 litres of varnish per day.

The company is committed to supplying a leading retailer with 6,000 litres of matt varnish and 3,000 litres of high gloss varnish each working week (consisting of five days). In addition, there is an agreement with the unions that at least 2,500 litres are produced each day. PPP management would like to determine the daily production volume that will maximize total contribution.

- (a) Develop a linear programming model of the production problem facing Pretty Paint Producers.
- (b) Use a graphical approach to determine the optimum daily production plan and the consequent contribution.
- (c) The union is pressing for an overtime wage rate of €22 per hour above the wage rate for skilled labour. Determine the consequences of this claim on PPP's profitability. Comment on your answer.
- (d) In the original problem (where overtime was not considered) determine the maximum range of variation in the unit contribution figure on a litre of high gloss varnish for the original solution to remain optimal.

P.T.O.

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.

Manufacturer	Sizes			
	I	II	III	IV
	€	€	€	€
A	50	80	100	40
B	60	70	90	30
C	40	50	90	50

- Use the transportation technique to solve the problem of how the orders should be placed on the manufacturers by the fashion shop in order to maximise profits.
- Explain how you know that no further improvements are possible, showing your workings.
- If there are any alternative combinations, show them in detail.