



Graduateship in Marketing - Stage 4

LOGISTICS MANAGEMENT

FRIDAY, AUGUST 24, 2001. 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: Parkway

- (a) Briefly review the issues and facts that Parkway should take into account when deciding on the correct warehousing numbers and locations, the correct choice of physical distribution system, the implications of these decisions on the stock holding requirements, and production limitations and order scheduling.
- (b) Evaluate the profitability and performance of the Hollins and Parkway operations by product, region and distribution channel.
- (c) Describe in detail the changes that you think would be appropriate for the new combined Hollins and Parkway operation.
- (d) Use your evaluations from (b) to justify your proposals.

SECTION B (20%)

2. *“Speeding up the flow of information can enable a business to become a time-based competitor.”*
Martin Christopher
Discuss how good logistics can improve time-based competitiveness.
3. Describe how to measure customer value.

P.T.O.

SECTION C (20%)

4. A company that holds the franchise for a particular brand of computer game has made the following estimates. It costs £500 delivery costs each time it gets a delivery of computer games from the manufacturer. The cost of carrying one of these computer games in stock for a year has been estimated to be £208, mainly coming from insurance and estimates of decline in price due to changes in popularity. The estimated annual demand for this type of computer game is 520 units. Assume that orders are received instantaneously and that no shortages are allowed.

- (a) Determine the optimum order quantity and the minimum inventory cost.
- (b) At what level of stock should the manager re-order if the following changes occur in the assumptions? There is a three week delivery lead-time during which demand averages at thirty (30) computer games with a standard deviation of five (5). It is estimated that the shortage cost of not having one of the computer games in stock when it is demanded is £24.
- (c) On what assumptions have you based your calculations? Comment on them.
(This question requires statistical tables for the Normal Distribution.)

5. A petrol station sells one grade of petrol and has a single pump and one attendant. Cars arrive for petrol, wait in a single queue, and are served on a first-come, first-served basis.

The interarrival-time probability distribution is as follows:

IAT (minutes)	2	3	4	5	6	7	8
Probability	0.07	0.14	0.26	0.22	0.16	0.10	0.05

- (a) Use the following random numbers to simulate 10 inter-arrival times between 11 customers:
87 73 51 30 05 10 45 80 13 41.
- (b) The probability distribution of the time it takes to be served is:

Service Time (minutes)	2	3	4	5	6	7	8
Probability	0.08	0.17	0.28	0.20	0.14	0.09	0.04

Use the following random numbers to simulate the customers' service times:

23 71 68 85 30 80 26 55 59 72 20.

- (c) What is the average waiting time and average time spent in the petrol station?
- (d) Discuss how to resolve any weaknesses in the procedure you used.
- (e) What practical advice would you offer the manager?

SECTION D (20%)

6. An advertising agency plans to buy advertising time for a company on both radio and television. The company considers radio and television equally effective, but only wants to advertise at peak times. With a current monthly budget of £6,800 for this type of advertising, the company wants to reach the largest group of listeners/viewers possible. The following table supplies the pertinent information for both radio and television.

	Radio	Television
Number of listeners/viewers	150,000	600,000
Cost per minute	£240	£1,800

- (a) Determine the mix of radio and television advertising expenditure which would help the company reach the maximum number of listeners/viewers.
 - (b) It has been suggested that at least one third of the budget should be allocated to each medium. What would be the consequence in terms of the optimum mix and the numbers of listeners/viewers reached?
 - (c) An alternative policy to that suggested in (b) is that at least twice as much time be spent on radio advertising as on television. Evaluate the consequences of this policy.
 - (d) What would be the effect of combining the policies outlined in (b) and (c)?
7. Marketing Research Ltd. has developed a proposal for introducing a new marketing information system (MKIS) that will improve market planning and interoffice communication for a particular company. Contained in the proposal is a list of activities that must be accomplished in order to complete the new MKIS project. Information about the activities is shown below. Times are in weeks, and costs are in thousands of pounds.

P.T.O.

Activity	Description	Immediate Predecessor	Normal Time (weeks)	Crash Time (weeks)	Normal Cost (£1000s)	Crash Cost (£1000s)
A	Plan needs	--	10	8	30	70
B	Order equipment	A	8	6	120	150
C	Install equipment	B	10	7	100	160
D	Set up software	A	7	6	40	50
E	Conduct course	D	10	8	50	75
F	Test system	C, E	3	3	60	--

- (a) Show the network for the project.
- (b) What are the critical path activities, and what is the expected project completion time?
- (c) Assume that the company wishes to complete the project in 26 weeks. What crashing decisions would be recommended in order to meet the desired completion time at the least possible cost?