

**OLLSCOIL NA hÉIREANN, GAILLIMH
NATIONAL UNIVERSITY OF IRELAND, GALWAY**

SEMESTER II EXAMINATIONS 2000/2001

HIGHER DIPLOMA IN BUSINESS STUDIES

ACCOUNTING FOR MANAGEMENT DECISIONS (AY 874)

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Time allowed: TWO hours

Candidates are required to attempt THREE Questions, ONE of which must be from Section A and TWO of which must be from Section B.

All questions carry equal marks. Separate answer books are NOT required.

Graph Paper is available if required.

**SECTION A
(Attempt one question from this Section)**

Question 1

Discuss the purpose of future cost prediction and the underlying problems associated with the use of available past data for such purposes.

and

Explain the methodology and important features of alternative methods of approaching the problem of cost estimation and prediction using past data.

Total: $33\frac{1}{3}$ Marks

Question 2

Outline the methodology and discuss the various approaches a company might take in the setting of a price and evaluate the accountant's role, if any, under each approach. Your discussion should include the limitations and benefits associated with each approach.

Total: $33\frac{1}{3}$ Marks

Question 3

Space Ltd. Galway, makes two products – Jupiter and Venus which are the only two products manufactured by the company. Production requirements and other relevant information is as follows:

<u>Product</u>	<u>Jupiter</u>	<u>Venus</u>
Material A	4 kilos	2 kilos
Material B	3 kilos	3 kilos
Labour	6 hours	8 hours
Selling Price	£60	£67

The Directors are planning production for the month of June and have been advised that all input factors required for the manufacture of these components will be in short supply for that month.

The company will have supplies of not more than 10,000 kilos of material A, 18,000 kilos of material B and 24,000 labour hours.

Material A costs £3 per kilo and Material B costs £4 per kilo. Labour costs are £2.50 per **half hour**.

There is no production for stock and there is a ready market for all quantities of Jupiter and Venus. There are no other production costs and total Fixed Overheads are £18,000. Given the constraints on availability of two material types and labour, Space Ltd. requires a production plan that will maximise total contribution from the two products for the month of June.

You are required to:

- (a) (i) Formulate the problem given as a linear programme.
- (ii) Using a graph, calculate and identify the optimum production plan for Space Ltd. (Plot Jupiter Product on the Vertical Axis)
- (iii) Confirm the outcome in (ii) above by solving for values using relevant equations
and
- (iv) Calculate the overall expected profit or loss for the year deriving from these optimum production levels.

(22 marks)

Question 3 continued overleaf..

Question 3 continued..

- (b) Explain what is meant by the term dual (or shadow) price of a resource.
(3 marks)
- (c) Briefly outline and discuss the limitations and assumptions of such linear programming models.
(8 $\frac{1}{3}$ Marks)
- Total: 33 $\frac{1}{3}$ Marks**

Question 4:

Watts Ltd is a small specialist manufacturer of electronic components and much of its output is used by the makers of aircraft for both civil and military purposes. One of the few aircraft manufacturers has offered a contract to Watts Ltd for the supply, over the next twelve months, of 400 identical components.

The data relating to the production of **each component** is as follows:

(a) Material requirements:

3kg material M1 - Material M1 is in continuous use by the company. 1,000kg are currently held in stock at a book value of £4.70 per kg but it is known that future purchases will cost £5.50 per kg.

2kg material P2 - 1,200kg of Material P2 are held in stock. The original cost of this material was £4.30 per kg but as the material has not been required for the last two years it has been written down to £1.50 per kg scrap value. The only foreseeable alternative use is as a substitute for material P4 (in current use) but this would involve further processing costs of £1.60 per kg. The current cost of material P4 is £3.60 per kg.

1 Part No 678 - It is estimated that the Part No 678 could be bought for £50 each.

- (b) **Labour requirements:** Each component would require five hours of skilled labour and five hours of semi-skilled. An employee possessing the necessary skills is available and is currently paid £5 per hour. A replacement would, however, have to be obtained at a rate of £4 per hour for the work which would otherwise be done by the skilled employee. The current rate for semi-skilled work is £3 per hour and an additional employee could be appointed for this work.
- (c) **Overhead:** Watts Ltd absorbs overhead by a machine hour rate, currently £20 per hour of which £7 is for variable overhead and £13 for fixed overhead. If this contract is undertaken it is estimated that fixed costs will increase for the duration of the contract by £3,200. Spare machine capacity is available and each component would require four machine hours.

Question 4 continued overleaf...

Question 4 continued..

A price of £145 per component has been suggested by the large company which makes aircraft.

You are required to:

(a) (i) Give your recommendation, whether on financial grounds the contract should be accepted or rejected. Your calculations must be supported by clear and detailed explanations of the reasons why any particular figure is included or excluded, and also of any assumptions that you make.

(ii) Briefly outline any non-financial factors which you consider might influence the decision

(24 Marks)

(b) (i) Identify the distinguishing characteristics of both direct costs and indirect costs giving an example in each case.

(ii) In the context of a furniture manufacturer, give **two** examples of **each** of both such type costs.

(9¹/₃ Marks)

Total: 33¹/₃ Marks

Question 5

Access Ltd., a successful information technology firm, has recently formed a new division to manufacture a replacement hard disk component suitable for a wide range of personal computers. The company has not yet decided whether to manufacture the component at its highly automated factory in Galway, or to produce it at its plant in Southport, which is somewhat less automated but is closer to the target market. The following estimates have been made by the accountant:

(A) Production in Galway:

Rental of new production equipment:	£170,000 per annum
Production inputs per unit of output:	
Skilled labour:	0.6 hours
Raw Material X:	0.9 kilogrammes
Raw Material Y:	0.5 kilogrammes
Machine hours:	3.4

There would also be variable overheads amounting to £1 per machine hour.
Transport costs on finished goods would amount to £0.60 per kilo.

Question 5 continued overleaf..

Question 5 continued..

(B) Production in Southport:

Rental of new production equipment:	£80,000 per annum
Production inputs per unit of output:	
Skilled labour:	1.28 hours
Raw Material X:	1.2 kilogrammes
Raw Material Y:	0.6 kilogrammes
Machine hours:	0.6

In the Southport manufacturing facility, there would also be variable overheads of 30% of labour cost and £2 per machine hour. Transport costs would amount to £0.20 per kilo.

At either location, the per-kilogramme prices of raw materials X and Y would be £4 and £6 respectively. Wage rates in Southport are expected to be £5 per hour for skilled labour, whilst wage rates in Galway are expected to be £7 for skilled labour.

The company's marketing staff suggest that the sales price should be set at £25 per unit.

You are required to:

- (a) For each production location, calculate the breakeven sales volume **and** the volume that must be achieved in order to earn a profit of £100,000 per annum.

(14 Marks)

- (b) Calculate the volume of production/sales at which the level of profit earned would be the same irrespective of which location is chosen.

(6 Marks)

- (c) Assume now that the volume of production/sales is to be 25,000 units and that efficiency engineers at the Galway plant are working on a plan to reduce the amount of fixed overhead attributable to this division.
How large would this reduction have to be for the two production locations to be equally profitable?

(7 Marks)

- (d) Explain the principal assumptions of Cost Volume Profit Analysis and state whether you think they are acceptable.

(6¹/₃ Marks)

Total: 33¹/₃ Marks