

Ollscoil na hÉireann, Gaillimh
National University of Ireland, Galway

Summer Examinations 2000

Bachelor of Commerce Degree Examination
Management Accounting III (AY 310)

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Time Allowed: Two Hours.

Answer Question 1, and TWO other questions

Present Value and Annuity Tables are attached.

Question 1 (Obligatory)

Answer Either Part A or Part B (20 marks)

Part A:

Ideally, transfer prices should satisfy the dual objectives of goal-congruence, and fairness. It is not easy to find transfer prices which satisfy both of these criteria. Discuss. **(20 Marks)**

OR:

Part B:

Hitech Speakers Plc is considering a special order for a delivery of 5,000 Tweeters to **HiSound Ltd.**, a retail chain of hi-fi stores. This order, if accepted, would use idle assembly capacity. The price offered by HiSound is £40 per Tweeter, and Hitech's decision will depend on whether this selling price will result in a positive contribution margin on the order.

The direct (variable) cost of producing the Tweeters, excluding the cost of services provided by the Quality Control and Testing department, is as follows:

	<u>Per Tweeter</u>
Direct Materials	£ 24.00
Assembly Labour	£ 8.00
Variable Overhead	<u>£ 4.00</u>
Variable Cost	<u>£ 36.00</u>

Each quality control inspection and test of a Tweeter should take 15 minutes.

The Quality Control and Testing department receives service from the Administrative Services department at the rate of 1 administrative service hour for every 5 service hours it provides. In turn, the Administrative Services department requires 1 hour of Quality Control and Testing service for every 10 administrative service hours provided.

The monthly cost functions of the service departments, which represent the costs directly identifiable with service departments but exclude the cost of services received from other service departments, are as follows:

Quality Control and Testing Department:

Monthly Cost = £100,000 + £ 15 per hour of Service

Administrative Services Department:

Monthly Cost = £150,000 + £ 10 per hour of Service

Required:

Estimate the service cost required to support the production of Tweeters, and recommend whether Hitech should accept the HiSound offer. Justify the method you have used in estimating the service cost.

(20 Marks)

Question 2 begins on the next page.

P.T.O. ⇒

Question 2:

(a) Using the insights provided by contingency theory, discuss the organisational circumstances which may result in the delegation of responsibility for operating decisions to business unit managers. **(15 Marks)**

(b) The Ballyvaughan Division is an autonomous business unit of the Clare Group plc. The financial performance of the manager of the Ballyvaughan Division is assessed each year using Residual Income (RI) as a performance measure, and an end-of-year bonus is payable as a function of the excess of actual performance over and above budgeted performance for the year. The budgeted level of Residual Income for the Ballyvaughan Division has been set at £500,000 for the year to 30th June 2001.

In calculating Residual Income, profit is defined as net profits, including gains or losses on asset disposals, and the division's investment base is defined as net fixed assets at year end, plus average net current assets for the year. Since cash balances are managed centrally, a fixed notional cash balance of £20,000 is attributed to the Ballyvaughan division, and is included in the average net current assets each year. Otherwise, all current assets associated with the division's business are included in the division's current asset investment data. The cost of capital for the Ballyvaughan Division is estimated at 18% per annum.

In early July 2000, the manager of the Ballyvaughan Division is considering the following independent decisions, the financial effects of which have not been anticipated in the budgeted Residual Income for the year:

- ☐ Dispose of production equipment immediately for £60,000. This equipment has a book value of £40,000 at the beginning of the year, and the budget includes depreciation of £20,000 on the equipment for the year. The budget also includes a cash contribution of £40,000 from the use of this equipment for the year, and a gain on sale of £10,000 from the assumed disposal of the equipment for a cash sum of £30,000 at the end of the financial year.
- ☐ Purchase trucks at a cost of £100,000 which would result in annual cash savings on contract delivery costs amounting to £33,500. The trucks would be depreciated on a straight-line basis over an expected life of four years to the expected residual value of £20,000.

Required:

- (i) Using either NPV or IRR, determine whether these decisions are in the interests of the Clare Group's shareholders. Ignore Taxation. **(10 Marks)**
- (ii) Calculate the incremental effect each decision would have on the reported residual income of the Ballyvaughan Division for the coming year, and, based on this evidence, suggest whether or not residual income is goal congruent.

(15 Marks)

(Total: 40 Marks)

Question 3 begins on the next page. P.T.O. ⇒

Question 3:

Cedarwood Industries uses two sequential processes to mass-produce a wooden flooring product. Raw materials are added at the **beginning** of the first process ("compressing") and also at the **end** of the second process ("finishing"). In each process, labour and overhead costs are incurred evenly over the process.

At 1st April 2000, work-in-progress (WIP) in the "compressing" process was 300 units, which were 35% complete as regards labour and overhead costs. WIP in the "finishing process" at the same date was 500 units, which were 90% complete as regards labour and overhead costs. The figures at which the WIP was carried in the accounts at 1st April were composed of:

	Compressing Process	Finishing Process
Previous Process Cost	NIL	£49,640
Raw Materials	£18,000	NIL
Labour and Overheads	£4,250	£19,080
Totals:	£22,250	£68,720

The following table summarises the activities during April in each process:

	Compressing	Finishing
Units started	2,200	All units which completed "compressing"
Units completed	1,900	1,750
Normal loss (units)	100	NIL
Abnormal loss (units)	NIL	50
Raw Materials added	£137,000	£46,200
Labour & Overhead added	£85,000	£76,800

Normal and abnormal losses are detected by means of a quality inspection at the end of each process. (In the case of "finishing", this occurs immediately *before* raw materials are added). Any quality rejects from the "compressing" process are sold immediately as scrap for £66 each, but rejects from the "finishing" process are unsaleable.

There were some units of WIP in the "compressing" process at 30th April; these were 25% complete as regards labour and overhead costs. The WIP units in the "finishing" process at the same date were 40% complete as regards labour and overheads.

Required:

- (a) Prepare accounts for each process, and for normal and abnormal losses, for April 2000, using the "weighted average" approach to process costing.

(32 Marks)

- (b) Explain the distinction between "normal" and "abnormal" losses, and explain why they are accounted for differently.

(8 marks)

(Total: 40 Marks)

Question 4:

- (a) **Mike Ltd. and Bill Ltd.**, two small engineering firms, are close rivals. They often bid against each other for the same contract work. The “average contract” is a job involving 10 labour hours and 5 machine hours. One problem in making a bid is that it is difficult to estimate accurately the amount of labour and machine time for a job. (If a customer accepts a bid, then the price offered in the bid must be honoured even if the job takes longer than expected).

Both Mike’s and Bill’s past levels of accuracy (or inaccuracy) in forecasting times are described by the following frequency distributions:

Labour Hours		Machine Hours	
“E1” (estimated labour hours as % of actual labour hours)		“E2” (estimated machine hours as % of actual machine hours)	
Values of E1	Frequency	Values of E2	Frequency
90%	Half of all jobs	90%	Half of all jobs
110%	Half of all jobs	110%	Half of all jobs

Mike and Bill both know that the cost of carrying out a job is £20 per labour hour plus £40 per machine hour. Each of them sets a price by adding 20% to his estimate of the cost of doing the work.

The two firms provide similar levels of work quality, and to date Mike and Bill have achieved approximately equal success in winning contract work.

Required:

Show how the “winner’s paradox” will affect the rate of profit earned by Mike Ltd. and Bill Ltd. Use the “average contract” (i.e., a job involving 10 labour hours and 5 machine hours) to illustrate your answer. **(20 Marks)**

- (b) An accountant friend of Mike and Bill has suggested to them that they could simplify their cost estimation systems. Her argument is as follows:

- **true cost of the average job**
= $(£20 * 10 \text{ labour hours}) + (£40 * 5 \text{ machine hours}) = \text{£400};$
- therefore the cost of any job could be estimated by reference to **only one variable, i.e.:**

either: $£400 / 10 \text{ labour hours} = \text{£40 per labour hour}$

or: $£400 / 5 \text{ machine hours} = \text{£80 per machine hour}$

However, both Bill and Mike are concerned that this kind of simplification would, in practice, lead to serious cost estimation errors and exacerbate the winner’s paradox problem. They point out that not every job involves the same mix of labour and machine hours as the average job – for example, the job on which they both most recently bid (Job #402) involved 9 labour hours and 4 machine hours.

Required:

Are Mike’s and Bill’s fears justified? Explain your answer, and present detailed calculations for the specific case of Job #402. Assume that Bill adopts the “£40 per labour hour” basis of cost estimation, and that Mike adopts the “£80 per machine hour” basis. **(20 Marks)**

(Total: 40 Marks)