

Fundamentals Level – Skills Module

Performance Management

Monday 9 June 2008

Time allowed

Reading and planning: 15 minutes

Writing: 3 hours

ALL FOUR questions are compulsory and MUST be attempted.

Do NOT open this paper until instructed by the supervisor.

During reading and planning time only the question paper may be annotated. You must NOT write in your answer booklet until instructed by the supervisor.

This question paper must not be removed from the examination hall.

The Association of Chartered Certified Accountants

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Paper

ACCA

ALL FOUR questions are compulsory and MUST be attempted

1 Chaff Co processes and sells brown rice. It buys unprocessed rice seeds and then, using a relatively simple process, removes the outer husk of the rice to produce the brown rice. This means that there is substantial loss of weight in the process. The market for the purchase of seeds and the sales of brown rice has been, and is expected to be, stable. Chaff Co uses a variance analysis system to monitor its performance.

There has been some concern about the interpretation of the variances that have been calculated in month 1.

1. The purchasing manager is adamant, despite criticism from the production director, that he has purchased wisely and saved the company thousands of dollars in purchase costs by buying the required quantity of cheaper seeds from a new supplier.
2. The production director is upset at being criticised for increasing the wage rates for month 1; he feels the decision was the right one, considering all the implications of the increase. Morale was poor and he felt he had to do something about it.
3. The maintenance manager feels that saving \$8,000 on fixed overhead has helped the profitability of the business. He argues that the machines' annual maintenance can wait for another month without a problem as the machines have been running well.

The variances for month 1 are as follows:

	\$
Material price	48,000 (Fav)
Material usage	52,000 (Adv)
Labour rate	15,000 (Adv)
Labour efficiency	18,000 (Fav)
Labour idle time	12,000 (Fav)
Variable overhead expenditure	18,000 (Adv)
Variable overhead efficiency	30,000 (Fav)
Fixed overhead expenditure	8,000 (Fav)
Sales price	85,000 (Adv)
Sales volume	21,000 (Adv)

Fav = Favourable, Adv = Adverse

Chaff Co uses labour hours to absorb the variable overhead.

Required:

- (a) **Comment on the performance of the purchasing manager, the production director and the maintenance manager using the variances and other information above and reach a conclusion as to whether or not they have each performed well.** (9 marks)

In **month 2** the following data applies:

Standard costs for 1 tonne of brown rice

- 1.4 tonnes of rice seeds are needed at a cost of \$60 per tonne
- It takes 2 labour hours of work to produce 1 tonne of brown rice and labour is normally paid \$18 per hour. Idle time is expected to be 10% of hours paid; this is not reflected in the rate of \$18 above.
- 2 hours of variable overhead at a cost of \$30 per hour
- The standard selling price is \$240 per tonne
- The standard contribution per tonne is \$56 per tonne

Budget information for month 2 is

- Fixed costs were budgeted at \$210,000 for the month
- Budgeted production and sales were 8,400 tonnes

The **actual results** for month 2 were as follows:

Actual production and sales were 8,000 tonnes

- 12,000 tonnes of rice seeds were bought and used, costing \$660,000
- 15,800 labour hours were paid for, costing \$303,360
- 15,000 labour hours were worked
- Variable production overhead cost \$480,000
- Fixed costs were \$200,000
- Sales revenue achieved was \$1,800,000

Required:

- (b) **Calculate the variances for month 2 in as much detail as the information allows and reconcile the budget profit to the actual profit using marginal costing principles. You are not required to comment on the performance of the business or its managers for their performance in month 2.** (16 marks)

(25 marks)

2 Higgins Co (HC) manufactures and sells pool cues and snooker cues. The cues both use the same type of good quality wood (ash) which can be difficult to source in sufficient quantity. The supply of ash is restricted to 5,400 kg per period. Ash costs \$40 per kg.

The cues are made by skilled craftsmen (highly skilled labour) who are well known for their workmanship. The skilled craftsmen take years to train and are difficult to recruit. HC's craftsmen are generally only able to work for 12,000 hours in a period. The craftsmen are paid \$18 per hour.

HC sells the cues to a large market. Demand for the cues is strong, and in any period, up to 15,000 pool cues and 12,000 snooker cues could be sold. The selling price for pool cues is \$41 and the selling price for snooker cues is \$69.

Manufacturing details for the two products are as follows:

	Pool cues	Snooker cues
Craftsmen time per cue	0.5 hours	0.75 hours
Ash per cue	270 g	270 g
Other variable costs per cue	\$1.20	\$4.70

HC does not keep inventory.

Required:

- (a) Calculate the contribution earned from each cue. (2 marks)
- (b) Determine the optimal production plan for a typical period assuming that HC is seeking to maximise the contribution earned. You should use a linear programming graph (using the graph paper provided), identify the feasible region and the optimal point and accurately calculate the maximum contribution that could be earned using whichever equations you need. (12 marks)

Some of the craftsmen have offered to work overtime, provided that they are paid double time for the extra hours over the contracted 12,000 hours. HC has estimated that up to 1,200 hours per period could be gained in this way.

Required:

- (c) Explain the meaning of a shadow price (dual price) and calculate the shadow price of both the labour (craftsmen) and the materials (ash). (5 marks)
- (d) Advise HC whether to accept the craftsmens' initial offer of working overtime, discussing the rate of pay requested, the quantity of hours and one other factor that HC should consider. (6 marks)

(25 marks)

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Question 3 begins on page 6.**

3 Bridgewater Co provides training courses for many of the mainstream software packages on the market.

The business has many divisions within Waterland, the one country in which it operates. The senior managers of Bridgewater Co have very clear objectives for the divisions and these are communicated to divisional managers on appointment and subsequently in quarterly and annual reviews. These are:

1. Each quarter, sales should grow and annual sales should exceed budget
2. Trainer (lecture staff) costs should not exceed \$180 per teaching day
3. Room hire costs should not exceed \$90 per teaching day
4. Each division should meet its budget for profit per quarter and annually

It is known that managers will be promoted based on their ability to meet these targets. A member of the senior management is to retire after quarter 2 of the current financial year, which has just begun. The divisional managers anticipate that one of them may be promoted at the beginning of quarter 3 if their performance is good enough.

The manager of the Northwest division is concerned that his chances of promotion could be damaged by the expected performance of his division. He is a firm believer in quality and he thinks that if a business gets this right, growth and success will eventually follow.

The current quarterly forecasts, along with the original budgeted profit for the Northwest division, are as follows:

	Q1	Q2	Q3	Q4	Total
	\$'000	\$'000	\$'000	\$'000	\$'000
Sales	40.0	36.0	50.0	60.0	186.0
<i>less:</i>					
Trainers	8.0	7.2	10.0	12.0	37.2
Room hire	4.0	3.6	5.0	6.0	18.6
Staff training	1.0	1.0	1.0	1.0	4.0
Other costs	3.0	1.7	6.0	7.0	17.7
Forecast net profit	24.0	22.5	28.0	34.0	108.5
Original budgeted profit	25.0	26.0	27.0	28.0	106.0
Annual sales budget					180.0
Teaching days	40	36	50	60	

Required:

- (a) Assess the financial performance of the Northwest division against its targets and reach a conclusion as to the promotion prospects of the divisional manager** (8 marks)

The manager of the Northwest division has been considering a few steps to improve the performance of his division.

Voucher scheme

As a sales promotion, vouchers will be sold for \$125 each, a substantial discount on normal prices. These vouchers will entitle the holder to attend four training sessions on software of their choice. They can attend when they want to but are advised that one training session per quarter is sensible. The manager is confident that if the promotion took place immediately, he could sell 80 vouchers and that customers would follow the advice given to attend one session per quarter. All voucher holders would attend planned existing courses and all will be new customers.

Software upgrade

A new important software programme has recently been launched for which there could be a market for training courses. Demonstration programs can be bought for \$1,800 in quarter 1. Staff training would be needed, costing \$500 in each of quarters 1 and 2 but in quarters 3 and 4 extra courses could be offered selling this training. Assuming similar class sizes and the usual sales prices, extra sales revenue amounting to 20% of normal sales are expected (measured before the voucher promotion above). The manager is keen to run these courses at the same tutorial and room standards as he normally provides. Software expenditure is written off in the income statement as incurred.

Delaying payments to trainers

The manager is considering delaying payment to the trainers. He thinks that, since his commitment to quality could cause him to miss out on a well deserved promotion, the trainers owe him a favour. He intends to delay payment on 50% of all invoices received from the trainers in the first two quarters, paying them one month later than is usual.

Required:

- (b) Revise the forecasts to take account of all three of the proposed changes.** (7 marks)
- (c) Comment on each of the proposed steps and reach a conclusion as to whether, if all the proposals were taken together, the manager will improve his chances of promotion.** (6 marks)
- (d) Suggest two improvements to the performance measurement system used by Bridgewater Co that would encourage a longer term view being taken by its managers.** (4 marks)

(25 marks)

4 Jola Publishing Co publishes two forms of book.

The company publishes a children’s book (CB), which is sold in large quantities to government controlled schools. The book is produced in only four large production runs but goes through frequent government inspections and quality assurance checks.

The paper used is strong, designed to resist the damage that can be caused by the young children it is produced for. The book has only a few words and relies on pictures to convey meaning.

The second book is a comprehensive technical journal (TJ). It is produced in monthly production runs, 12 times a year. The paper used is of relatively poor quality and is not subject to any governmental controls and consequently only a small number of inspections are carried out. The TJ uses far more machine hours than the CB in its production.

The directors are concerned about the performance of the two books and are wondering what the impact would be of a switch to an activity based costing (ABC) approach to accounting for overheads. They currently use absorption costing, based on machine hours for all overhead calculations. They have accurately produced an analysis for the accounting year just completed as follows:

	CB		TJ	
	\$per unit	\$per unit	\$per unit	\$per unit
Direct production costs				
Paper	0.75		0.08	
Printing ink	1.45		4.47	
Machine costs	1.15		1.95	
		3.35		6.50
Overheads		2.30		3.95
Total cost		5.65		10.45
Selling price		9.05		13.85
Margin		3.40		3.40

The main overheads involved are:

Overhead	% of total overhead	Activity driver
Property costs	75.0%	Machine hours
Quality control	23.0%	Number of inspections
Production set up costs	2.0%	Number of set ups

If the overheads above were re-allocated under ABC principles then the results would be that the overhead allocation to CB would be \$0.05 higher and the overhead allocated to TJ would be \$0.30 lower than previously.

Required:

- (a) Explain why the overhead allocations have changed in the way indicated above. (8 marks)
- (b) Briefly explain the implementation problems often experienced when ABC is first introduced. (4 marks)

The directors are keen to introduce ABC for the coming year and have provided the following cost and selling price data:

1. The paper used costs \$2 per kg for a CB but the TJ paper costs only \$1 per kg. The CB uses 400g of paper for each book, four times as much as the TJ uses.
2. Printing ink costs \$30 per litre. The CB uses one third of the printing ink of the larger TJ. The TJ uses 150ml of printing ink per book.
3. The CB needs six minutes of machine time to produce each book, whereas the TJ needs 10 minutes per book. The machines cost \$12 per hour to run.
4. The sales prices are to be \$9.30 for the CB and \$14.00 for the TJ

As mentioned above there are three main overheads, the data for these are:

Overhead	Annual cost for the coming year
	\$
Property costs	2,160,000
Quality control	668,000
Production set up costs	52,000
Total	2,880,000

The CB will be inspected on 180 occasions next year, whereas the TJ will be inspected just 20 times.

Jola Publishing will produce its annual output of 1,000,000 CBs in four production runs and approximately 10,000 TJs per month in each of 12 production runs.

Required:

- (c) Calculate the cost per unit and the margin for the CB and the TJ using machine hours to absorb the overheads. (5 marks)
- (d) Calculate the cost per unit and the margin for the CB and the TJ using activity based costing principles to absorb the overheads. (8 marks)

(25 marks)

End of Question Paper

Formulae Sheet

Learning curve

$$Y = ax^b$$

Where y = average cost per batch

a = cost of first batch

x = total number of batches produced

b = learning factor ($\log LR / \log 2$)

LR = the learning rate as a decimal

Regression analysis

$$y = a + bx$$

$$b = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2}$$

$$a = \frac{\sum y}{n} - \frac{b\sum x}{n}$$

$$r = \frac{n\sum xy - \sum x \sum y}{\sqrt{(n\sum x^2 - (\sum x)^2)(n\sum y^2 - (\sum y)^2)}}$$

Demand curve

$$P = a - bQ$$

$$b = \frac{\text{change in price}}{\text{change in quantity}}$$

$$a = \text{price when } Q = 0$$