

Fundamentals Level – Skills Module

Performance Management

Monday 11 June 2012



Time allowed

Reading and planning: 15 minutes

Writing: 3 hours

ALL FIVE questions are compulsory and MUST be attempted.

Formulae Sheet is on page 7.

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

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ALL FIVE questions are compulsory and MUST be attempted

- 1 Robber Co manufactures control panels for burglar alarms, a very profitable product. Every product comes with a one year warranty offering free repairs if any faults arise in this period.

It currently produces and sells 80,000 units per annum, with production of them being restricted by the short supply of labour. Each control panel includes two main components – one key pad and one display screen. At present, Robber Co manufactures both of these components in-house. However, the company is currently considering outsourcing the production of keypads and/or display screens. A newly established company based in Burgistan is keen to secure a place in the market, and has offered to supply the keypads for the equivalent of \$4.10 per unit and the display screens for the equivalent of \$4.30 per unit. This price has been guaranteed for two years.

The current total annual costs of producing the keypads and the display screens are:

	Keypads	Display screens
	80,000 units	80,000 units
	\$'000	\$'000
Direct materials	160	116
Direct labour	40	60
Heat and power costs	64	88
Machine costs	26	30
Depreciation and insurance costs	84	96
Total annual production costs	374	390

Notes:

- Materials costs for keypads are expected to increase by 5% in six months' time; materials costs for display screens are only expected to increase by 2%, but with immediate effect.
- Direct labour costs are purely variable and not expected to change over the next year.
- Heat and power costs include an apportionment of the general factory overhead for heat and power as well as the costs of heat and power directly used for the production of keypads and display screens. The general apportionment included is calculated using 50% of the direct labour cost for each component and would be incurred irrespective of whether the components are manufactured in-house or not.
- Machine costs are semi-variable; the variable element relates to set up costs, which are based upon the number of batches made. The keypads' machine has fixed costs of \$4,000 per annum and the display screens' machine has fixed costs of \$6,000 per annum. Whilst both components are currently made in batches of 500, this would need to change, with immediate effect, to batches of 400.
- 60% of depreciation and insurance costs relate to an apportionment of the general factory depreciation and insurance costs; the remaining 40% is specific to the manufacture of keypads and display screens.

Required:

- (a) Advise Robber Co whether it should continue to manufacture the keypads and display screens in-house or whether it should outsource their manufacture to the supplier in Burgistan, assuming it continues to adopt a policy to limit manufacture and sales to 80,000 control panels in the coming year. (8 marks)

- (b) Robber Co takes 0.5 labour hours to produce a keypad and 0.75 labour hours to produce a display screen. Labour hours are restricted to 100,000 hours and labour is paid at \$1 per hour. Robber Co wishes to increase its supply to 100,000 control panels (i.e. 100,000 each of keypads and display screens).

Advise Robber Co as to how many units of keypads and display panels they should either manufacture and/or outsource in order to minimise their costs. (7 marks)

- (c) Discuss the non-financial factors that Robber Co should consider when making a decision about outsourcing the manufacture of keypads and display screens. (5 marks)

(20 marks)

2 The Universal Health System (UHS) provides the entire healthcare service to residents in Illopia. The UHS is funded centrally through revenues from taxpayers. However, the government is not involved in the day-to-day running of the UHS, which is largely managed regionally by a number of self-governing trusts, such as the Sickham UHS Trust.

The Sickham UHS Trust runs one hospital in Sickham and, like other trusts in Illopia, receives 70% of its income largely from the UHS' 'payments by results' scheme, which was established two years ago. Under this scheme, the trust receives a pre-set tariff (fee income) for each service it provides. If the Trust manages to provide any of its services at a lower cost than the pre-set tariff, it is allowed to use the surplus as it wishes. Similarly, it has to bear the cost of any deficits itself. Currently, the Trust knows that a number of its services simply cannot be provided at the tariff paid and accepts that these always lead to a deficit. Similarly, other services always seem to create a surplus. This is partly because different trusts define their services and account for overheads differently. Also, it is partly due to regional differences in costs, which are not taken into account by the scheme, which operates on the basis that 'one tariff fits all'.

The remaining 30% of the Trust's income comes from transplant and heart operations. Since these are not covered by the scheme, the payment the Trust receives is based on the actual costs it incurs in providing the operations. However, the Trust is not allowed to exceed the total budget provided for these operations in any one year.

Over recent years, the Trust's board of directors has become increasingly dissatisfied with the financial performance of the Trust and has blamed it on poor costing systems, leading to an inability to control costs. As a result, the finance director and his second in command – the financial controller – have now been replaced. The board of directors has taken this decision after complaining that 'the Trust simply cannot sustain the big deficit between income and spending'. The new financial controller comes from a manufacturing background and is a great advocate of target costing, believing that the introduction of a target costing system at the Sickham UHS Trust is the answer to all of its problems. The new financial director is unconvinced, believing target costing to be only really suitable in manufacturing companies.

Required:

- (a) Explain the main steps involved in developing a target price and target cost for a product in a typical manufacturing company. (6 marks)
- (b) Explain four key characteristics that distinguish services from manufacturing. (4 marks)
- (c) Describe how the Sickham UHS Trust is likely, in the current circumstances, to try to derive:
 - (i) a target cost for the services that it provides under the 'payment by results' scheme; and (2 marks)
 - (ii) a target cost for transplants and heart operations. (2 marks)
- (d) Discuss THREE of the particular difficulties that the Sickham UHS Trust may find in using target costing in its service provision. (6 marks)

(20 marks)

3 Sauce Co manufactures and sells cartons of cooking sauces, which deteriorate over time and must be used within three months. Over the last two years, Sauce Co has experienced all kinds of problems. The financial and sales directors believe these to be a result of persistently unrealistic sales targets imposed by the managing director, who makes forecasts based on his own subjective and overly optimistic views about future sales. Whilst an incentive scheme is in place for employees, the company has not hit its targets for the last three years, so no bonuses have been paid out. The financial director has asked you to forecast the sales for the last two quarters of 2012, hoping to present these figures to the managing director in an attempt to persuade him that the basis of forecasting needs to be changed. Production volumes are also currently based on anticipated sales rather than actual orders.

The following sales figures are available for the last two years. All of the figures represent actual sales except for quarter 2 of 2012, which is an estimate. The financial director is satisfied that this estimate can be relied upon.

Year	Quarter One '000 units	Quarter Two '000 units	Quarter Three '000 units	Quarter Four '000 units
2010			900	1,100
2011	1,200	1,000	1,050	1,300
2012	1,400	1,150		

The following centred moving averages have been calculated, using a base period of four quarters:

Year	Quarter One '000 units	Quarter Two '000 units	Quarter Three '000 units	Quarter Four '000 units
2011	1,068.75	1,112.5	1,162.5	1,206.25
2012	1,243.75	1,287.5		

The average seasonal variations for 2010 have already been made available to you and are 0.908 for quarter 3 and 1.082 for quarter 4. The random component is negligible and can therefore be ignored.

Required:

(a) Using the information provided above, and assuming a proportional (multiplicative) model, forecast the sales of Sauce Co for the last two quarters of 2012. Calculate your seasonal adjustments to four decimal places.

(10 marks)

(b) Discuss the likely impact that the budgeting style and inaccurate sales forecasts have had on the staff and business of Sauce Co.

(10 marks)

(20 marks)

4 Lock Co makes a single product – a lock – and uses marginal costing. The standard cost card for one unit is as follows:

Standard cost card	\$
Selling price	80
Direct materials (4 kg at \$3 per kg)	12
Direct labour (2 hours at \$10 per hour)	20
Variable overhead (2 hours at \$2 per hour)	4
Marginal cost	<u>36</u>

A junior member of the accounts team produced the following variance statement for the month of May.

	Budget (1,000 units)	Actual (960 units)	Variances
	\$	\$	\$
Sales	80,000	76,800	3,200 Adv
Less: Marginal cost			
Direct materials	(12,000)	(11,126)	874 Fav
Direct labour	(20,000)	(18,240)	1,760 Fav
Variable overheads	(4,000)	(3,283)	717 Fav
Contribution	<u>44,000</u>	<u>44,151</u>	<u>151 Fav</u>

Lock Co used 3,648 kg of materials in the period and the labour force worked – and was paid for – 1,824 hours. Until now, Lock Co has had a market share of 25%. In the month of May, however, the market faced an unexpected 10% decline in the demand for locks.

Required:

- (a) **Prepare a statement which reconciles budgeted contribution to actual contribution in as much detail as possible. Do not calculate the sales price and the labour rate variances, since both of these have a value of nil. Clearly show all other workings.** (12 marks)
- (b) The production director at Lock Co believes that the way to persistently increase market share in the long term is to focus on quality, and is hoping to introduce a 'Total Quality Management' (TQM) approach. The finance director also shares this view and has said that 'standard costing will no longer have a place within the organisation if TQM is introduced.'

Discuss the view that there is no longer a place for standard costing if TQM is introduced at Lock Co.

(8 marks)

(20 marks)

- 5 The Biscuits division (Division B) and the Cakes division (Division C) are two divisions of a large, manufacturing company. Whilst both divisions operate in almost identical markets, each division operates separately as an investment centre. Each month, operating statements must be prepared by each division and these are used as a basis for performance measurement for the divisions.

Last month, senior management decided to recharge head office costs to the divisions. Consequently, each division is now going to be required to deduct a share of head office costs in its operating statement before arriving at 'net profit', which is then used to calculate return on investment (ROI). Prior to this, ROI has been calculated using controllable profit only. The company's target ROI, however, remains unchanged at 20% per annum. For each of the last three months, Divisions B and C have maintained ROIs of 22% per annum and 23% per annum respectively, resulting in healthy bonuses being awarded to staff. The company has a cost of capital of 10%.

The budgeted operating statement for the month of July is shown below:

	B \$'000	C \$'000
Sales revenue	1,300	1,500
Less variable costs	(700)	(800)
Contribution	600	700
Less controllable fixed costs	(134)	(228)
Controllable profit	466	472
Less apportionment of head office costs	(155)	(180)
Net profit	311	292
Divisional net assets	\$23.2m	\$22.6m

Required

- (a) Calculate the expected annualised Return on Investment (ROI) using the new method as preferred by senior management, based on the above budgeted operating statements, for each of the divisions. (2 marks)
- (b) The divisional managing directors are unhappy about the results produced by your calculations in (a) and have heard that a performance measure called 'residual income' may provide more information.

Calculate the annualised residual income (RI) for each of the divisions, based on the net profit figures for the month of July. (3 marks)

- (c) Discuss the expected performance of each of the two divisions, using both ROI and RI, and making any additional calculations deemed necessary. Conclude as to whether, in your opinion, the two divisions have performed well. (6 marks)
- (d) Division B has now been offered an immediate opportunity to invest in new machinery at a cost of \$2.12 million. The machinery is expected to have a useful economic life of four years, after which it could be sold for \$200,000. Division B's policy is to depreciate all of its machinery on a straight-line basis over the life of the asset. The machinery would be expected to expand Division B's production capacity, resulting in an 8.5% increase in contribution per month.

Recalculate Division B's expected annualised ROI and annualised RI, based on July's budgeted operating statement after adjusting for the investment. State whether the managing director will be making a decision that is in the best interests of the company as a whole if ROI is used as the basis of the decision. (5 marks)

- (e) Explain any behavioural problems that will result if the company's senior management insist on using solely ROI, based on net profit rather than controllable profit, to assess divisional performance and reward staff. (4 marks)

(20 marks)

Formulae Sheet

Learning curve

$$Y = ax^b$$

Where Y = cumulative average time per unit to produce x units

a = the time taken for the first unit of output

x = the cumulative number of units produced

b = the index of learning (log LR/log2)

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

$$P = a - bQ$$

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

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

$$MR = a - 2bQ$$

End of Question Paper