MANAGEMENT ACCOUNTING

Certificate stage examination
8 December 2005

From 10.00am to 1.00pm
plus ten minutes reading time from 9.50am to 10.00am

Instructions to candidates

*Answer **five** questions in total: **Three** questions from **Section A** and **two** questions from **Section B**. The marks available for each question are shown in italics in the right hand margin.*

All workings should be shown. Where calculations are required using formulae, calculators may be used but steps in the workings must be shown. Calculations with no evidence of this (for example, using the scientific functions of calculators) will receive no credit. Programmable calculators are not permitted in the examination room.

Formula sheets, statistical tables, graph paper and cash analysis paper are available from the invigilator, where applicable.

Where a question asks for a specific format or style, such as a letter, report or layout of accounts, marks will be awarded for presentation and written communication.

SECTION A (Compulsory)

1 Bayswater College of Further Education has a subsidised crèche facility for use by its staff. The budgeted net expenditure for the current year is £125,000. Another college in the area has recently expanded its curriculum provision, resulting in reduced demand at Bayswater College in some areas. Staffing at the Bayswater College has been reduced in numbers accordingly, mainly through a policy of natural wastage. This has had an effect on the crèche, which is now expecting the net expenditure to be higher than budget. The crèche manager is considering options for improving performance next year, consistent with a maximum subsidy of £165,000.

The forecast expenditure for the crèche for the current year is as follows:

	£
Full time nursery nurses	90,000
Agency staff	30,000
Consumables and meal provisions	112,000
Toys and play equipment	35,000
Staff uniforms	12,000
Other supplies	4,600
Repairs and maintenance	11,000
Overheads	15,000
	309,600

The crèche has a capacity to take 25 children for 8 hours per day. The crèche operates on 250 days of the year. Output is measured in 'crèche hours' and the above forecast assumed that the crèche operates at 80% capacity. Next year it should be assumed that the crèche, because of the reduced demand, would only operate at 70% capacity.

Early indications have shown that cost inflation is likely to be 2% for the coming year. All costs are fixed in nature apart from agency staff and consumables and meal provisions. These vary directly with the amount of 'crèche hours'.

The crèche manager (who is one of the nursery nurses) has had an idea that may go some way to improving the financial performance of the crèche next year. She has suggested that activity could be increased by advertising the facility to other local residents who are not employed by the college. She has already done some tentative market research and this has indicated that if college employees take up 70% of the capacity, the remainder can be filled from local demand, if a price of £3.50 per child per hour is charged (per crèche hour). The research indicates that for each £0.25 increase in price from £3.50 per hour, demand would fall by 2,500 crèche hours per annum. The maximum that would be charged is £4.25 per child per hour.

These prices would not apply to employees. The price that college staff currently pay for the crèche facility is £3.25 per hour per child. It is thought that the maximum price increase that could be sustained is 8% without reducing demand.

The other option, that is being considered by the College Board, is closing down the facility altogether. All staff that work in the crèche could be made redundant, at a cost of £17,000. Some equipment could be sold on to other local crèches, and it is

estimated that this would bring in £16,000. The crèche is situated in part of the college, that under this option, would be vacated and converted to a new common room. The common room would need to be refurbished, at a cost of £8,000. This development is already part of the college five year plan, but the original plans were to build this facility on a currently unused area of the college site at a cost of £45,000. None of the costs quoted in this paragraph will be affected by the cost inflation.

The overheads are central overheads that are charged to the crèche under a service level agreement. All of these costs and benefits will occur in the coming year.

- **Requirement for question 1**

(a) Determine and comment on, for the coming year, the price per crèche hour needed to recover the full cost of the crèche, net of subsidy, assuming that the facility is only used by Bayswater staff. *6*

(b) Evaluate the crèche manager's proposals for charging residents and comment on your findings. *6*

(c) Analyse for the coming year, assuming crèche facilities are only available to staff, the financial impact of closing the crèche. Advise the college on the best course of action to follow. State any non-financial factors that should be taken into consideration before a decision is made. *8*

(20)

---

2 TXL Electronics manufactures a range of high quality specialised audio equipment.

The East Division of the company specialises in the production of the Techtron. The standard cost of producing one unit of Techtron is as follows:

Direct Materials:

Material X	9 kg at £7 per kg
Material Y	3 kg at £5.50 per kg
Additional parts	46 individual parts at a cost of £74 per 100

Direct Labour:

Skilled	2.5 hours at £11.50 per hour
Unskilled	1.5 hours at £5.00 per hour

Overheads:

Variable overhead	£3.75 per labour hour
Fixed overhead	£5.40 per labour hour

East Division have budgeted to sell and produce 1,100 units in the six months to November 05 at a standard selling price of £273 per Techtron.

The actual cost data has been recently compiled and is presented below:

TXL Electronics

Profit and Loss Statement for the 6 Months ended 30 November 2005

		£
Sales	1,040 units at £275 per unit	286,000
Skilled Labour	3,020 hours at £11.75 per hour	35,485
Unskilled Labour	1,590 hours at £4.90 per hour	7,791
Material X	10,200 kg at £ 7.20 per kg	73,440
Material Y	3,020 at £5.85 per kg	17,667
Additional parts	50,800 at £76 per 100	38,608
Variable Overhead	£3.68 per hour	16,965
Fixed Overhead	£5.52 per hour	25,447
Surplus		70,597

Stock levels remained constant throughout the six-month period.

- **Requirement for question 2**

(a) Calculate the standard cost of the Techtron and prepare a statement that shows the flexed budget surplus to 30 November 2005. *6*

(b) Calculate appropriate variances and prepare a statement that reconciles the budgeted surplus calculated in part (a), with the actual surplus. (It is not necessary to calculate mix and yield variances). *12*

(c) Comment on the possible reasons for two of the significant variances calculated in (b) above. *2*

(20)

3 South Duns Healthcare Trust is a recently established provider of acute health services. It has been formed from the amalgamation of two smaller providers in the region.

The Director of Finance for the Trust has been appointed and is new to the health sector, her background being predominantly in Local Government. She manages the new Finance Department and the present focus is to prepare the budgets for the financial year 1 April 2006 to 31 March 2007. It has been decided to use the November price-base method to set the budgets.

As Senior Management Accountant you have the responsibility for preparing the expenditure budget for the operating theatres.

Information relating to the financial year 2005/06 is shown below. This budget was set using November 2004 prices.

South Duns Health Care Trust
Acute Operations Suite

	2005/06 Budget (Nov 2004 Prices) £
Pay	
Consultant surgeons (6 WTE)	455,160
Consultant anaesthetists (3 WTE)	186,900
Theatre sister – Grade H (1 WTE)	29,200
Theatre nurses – Grade E (6 WTE)	151,200
Theatre nurses – Grade D (9 WTE)	192,780
Operating department orderlies (3 WTE)	44,250
Domestic assistants (3 WTE)	37,370
Total pay	1,096,860
Non Pay	
Theatre supplies - gases	72,190
Non disposable medical and surgical equipment	182,020
Disposable medical and surgical equipment	90,520
Sterile dressings	77,960
Repairs and maintenance	15,170
Energy	2,800
Capital charges	20,400
Total non pay	461,060
Total expenditure	1,557,920

WTE – Whole time equivalents

Additional information:

1. One of the consultant anaesthetists is due to retire on 31 August 2006. They are at the top of the salary range, costing the trust £62,300 per annum at November 2004 prices. It is planned to replace them, but their replacement will not be commencing until 1 January 2007 due to existing contractual obligations. The new anaesthetist is less experienced and will cost £51,750 per annum (also at November 2004 prices).

2. There is an intention to create a new post for a grade E nurse. It is planned to appoint one with effect from 1 September 2006. This will incur a cost of £25,200 per annum, at November 2004 prices.

3. On 31 May 2006, one domestic assistant will retire at a cost of £12,458 per annum, at November 2004 prices. This post will not be filled.

4. Pay awards are made to all staff on 1 July each year. For 2005, they were as follows:

   Nursing staff 2.5%
   Consultant medical staff 1.75%
   Operating department orderlies and domestic staff 2.0%

   Pay awards are also expected to be at the same percentage increase in 2006.

5. In 2005/06 the budget contained £27,250, at November 2004 prices, to fund non-recurring expenditure to buy a piece of specialist non-disposable anaesthetic equipment.

6. The capital financing committee have approved non-recurring expenditure of £47,860, at November 2004 prices, for theatre non-disposable medical equipment in 2006/07.

7. Because of the additional equipment in the theatres, capital charges are expected to go up by 4% from 1st April 2006.

8. A new supplier has been found for the medical gases. They are able to supply gases for a cheaper price and this will enable a 1% saving to be achieved.

9. Price indices for the Hospital services prices index are as follows:

	Nov 2004	Nov 2005
Medical gases	172	175
Non-disposable M & S	172	175
Disposable M & S	181	183
Dressings	192	192
Repairs and maintenance	131	136
Energy	127	136

(M & S – medical and surgical equipment)

- **Requirement for question 3**

(a) Prepare the budget working papers for the acute operating theatre suite. Produce the 2006/2007 budget at November 2005 prices. *11*

(b) This method of budgeting is known as the 'fixed-price basis'. However, other approaches to setting budgets can be used. Briefly describe and outline the main advantages and disadvantages of three other budgeting methods that could be used to set budgets in the public sector. *9*

(20)

SECTION B (Answer two questions from this section)

4 Budgeting can be used as a means of financial or administrative control. In order for budgetary control to be effective, the provision of good budgetary control information is essential.

- **Requirement for question 4**

(a) Explain the main objectives of budgets in an organisational context. *7*

(b) Describe the key features that should be taken into consideration when designing budgetary control information. *5*

(c) Outline two ways to make budgetary control reports more meaningful. *4*

(d) Define the terms 'feedback control' and 'feedforward control' and provide an example of each. *4*

(20)

5 Rafters Engineering Ltd is a recently formed company that manufactures central heating systems for the industrial market. The Managing Director is a close friend of yours, but he has little knowledge of management accounting.

In order to price its contracts, the company currently just adds 110% to direct costs to reach the selling price. It is assumed that this is sufficient to cover the overheads of the three production departments X, Y and Z, in addition to covering the non-production overheads and providing an element of profit.

Your friend has asked your advice, as he considers that the costing system that is in place is not satisfactory. You review the system in place. You decide that by calculating separate overhead absorption rates for the three production departments you can reach a more accurate cost and therefore selling price.

You have determined the following information:

Expense item £	Annual cost £	Basis for apportionment
Labour related expenses	47,000	% of direct wages cost
Supplies of consumables	5,200	% of direct labour hours
Indirect labour	45,000	% of direct labour hours
Rates and insurance	13,000	Floor area
Maintenance	32,000	Job requisitions
Depreciation	18,000	NBV of equipment
Canteen costs	17,500	Number of direct production workers

Other information:

	Department X	Department Y	Department Z
Direct labour hours	25,000	15,000	12,000
Direct wages cost	£185,000	£105,600	£54,200
Floor area	2,600m^2	1,900m^2	560m^2
NBV of equipment	£97,000	£62,756	£82,100
Number of direct production workers	10	8	7
Job requisitions	65	47	62

Your additional work has also revealed that the non-production overheads are 27% of production costs.

The company has specified that in order to achieve a return on capital employed that is satisfactory to the owners, a margin of 15% of sales value is necessary, if your method of calculation is used.

- **Requirement for question 5**

(a) (i) Using your proposed new method, allocate or apportion the estimated overhead costs to each of the three production departments. Calculate an overhead absorption rate for each production department using direct labour hours. *7*

(ii) A request for a job has come into the company that requires 20 labour hours in department X, 11 in department Y and 17 in department Z. It is estimated that the direct materials cost will be £1,120. Calculate the price that should be quoted for the job based on the current method of job pricing and also based on your answer to part (a) (i). *7*

(b) When service departments within an organisation perform services for another service centre, it may be necessary to perform secondary distribution of overheads. Explain, making specific reference to three methods that could be used, how secondary distribution may be performed in such cases. *6*

(20)

6 Communications Ltd specialises in the construction of telecommunications hardware. Their main products are switchboard systems that are used in large organisations.

There are two different types of switchboard that the company make. The X150, which has a capacity to serve up to 150 users, and the X500, which is a bigger system, capable of serving up to 500 users.

They buy in the parts from national suppliers and assemble them, mainly through mechanised processes. The systems are quality control tested by engineers, before being installed on the customers' premises. Both switchboards use the same components, but in different quantities.

Their specifications and data are as follows:

	X150	X500
Selling price per switchboard	£4,000	£6,000
Cost of components per switchboard	£750	£1,550
	Hours per unit	Hours per unit
Assembly	3	9
Quality control	6	9
Installation	15	30

A costing system is in place in the company and the budget is based on the following costs:

Assembly time	£140 per hour
Quality control	£ 60 per hour
Installation	£40 per hour

Communications Ltd are preparing for the next 6 month production period. During this period the assembly time will be limited to 2,250 hours, the quality control time available will be 3,600 hours.

It is believed that there will be no limit on the availability of installation engineers at this time, although the company that supply them are having financial difficulties and there is uncertainty as to whether this may change in the future.

Some initial market research has already been done and the maximum demand for switchboards in the next 6 months is:

500 of type X150
400 of type X500.

- **Requirement for question 6**

(a) Calculate the contribution per unit for each type of switchboard. *2*

(b) Determine the optimum mix of switchboards that Communication Ltd should produce in the next 6 month period using a linear programming model and calculate the contribution that will be earned in doing so, assuming that installation labour is not a limiting factor. *9*

(c) Communications Ltd has another problem. It wants to work out how many of the X2200 and the Y3300 exchanges to make. It has used a computer programme to work out the following information:

Objective function value
365,077

Row	Slack/surplus	Dual prices
2	0	2.6769
3	0	22.6153
4	955.3848	0
5	392.3076	0

Variable	Value
X	2584.6152
Y	2307.6924

Objective Function Coefficient Ranges

Variable	Current coefficient	Allowable increase	Allowable decrease
X	36	42	8.7
Y	54	17.3994	29.4

Interpret the solution above, where X = X2200 and Y = Y3300, Row 2 = Processing Hours, Row 3 = Labour hours, Row 4 = Demand for X, and Row 5 = Demand for Y. *5*

(d) State the key assumptions underlying linear programming. *4*

(20)