MANAGEMENT ACCOUNTING

Certificate stage examination
8 December 2004

From 2.00pm to 5.00pm
plus ten minutes reading time from 1.50pm to 2.00pm.

Instructions to candidates

*Answer **five** questions: All **three** questions from **Section A** and **two** questions in **Section B**. All questions carry equal marks.*

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 (Answer all three questions)

1 Proseal is a large pharmaceuticals company that manufactures drugs for the healthcare sector. The company specialises in the manufacture and distribution of a wide range of medicines. Manufacturing takes place in four regional divisions, North, South, East and West.

East Division (Renal medicines)

East division specialises in renal medicines. The supplier of a vital ingredient called Rantrip has downsized its operations. This has led to supplies of Rantrip to Proseal becoming limited to 300,000 litres per month. Rantrip is an ingredient in four of the renal medicines that Proseal makes. Details of the regular monthly demand, costs and revenues of each of these medicines are as follows:

	Products			
	Medicine A	**Medicine B**	**Medicine C**	**Medicine D**
Monthly demand (units)	15,000	37,500	45,000	22,500
Litres of Rantrip required per unit	4.5	3	2.25	6
Costs and revenues:				
	£	£	£	£
Selling price	22.50	27.00	21.00	33.00
Direct materials	6.00	7.50	4.50	12.00
Direct labour	4.50	3.00	1.50	6.00
Variable overheads	3.00	4.50	1.50	6.00
Fixed overheads	3.00	7.50	6.00	6.00
Profit per unit	6.00	4.50	7.50	3.00

North, South and West Divisions (Radiotherapy medicines)

Proseal also has three divisions within the company that specialise in radiotherapy fluids. The South and the West divisions specialise in the production of unique products, Fromean and Promean respectively. The North Division manufactures the main ingredients for these products. The production details are as follows:

	North	**South**	**West**
Ingredients used in production (litres)	750,000 of X	300,000 of Y	450,000 of Z
Output (litres)	300,000 of Y and 450,000 of Z	300,000 of Fromean	450,000 of Promean

Additional information:

- The raw materials Y and Z cannot be sold elsewhere as they have been specifically designed for Fromean and Promean.

- Y and Z are joint products and must be produced together in fixed proportions. Any output that is not required can be disposed of at no cost. There is no restriction on the output of Y and Z.

- The North Division sells Y and Z to the South and West divisions at cost plus 25%.

- The South Division manufactures its product, Fromean, from ingredient Y. Fromean is unable to be stored for very long due to its chemical nature. Any unsold Fromean has to be destroyed, costing the division £45 per litre. This product has a high demand in the market place.

- The West Division manufactures its product, Promean, from ingredient Z. Demand is limited to the existing level of sales. It costs £30 per litre to destroy any surplus Promean.

- The North Division uses 750,000 litres of ingredient X per year. This produces 300,000 litres of Y and 450,000 of Z. These ingredients produce 300,000 litres of Fromean and 450,000 litres of Promean.

- Fixed overheads are specific to each division as they are on separate sites whereas central overheads are charged on a basis determined by head office.

The directors at Proseal are concerned that the South Division is making losses and are currently considering whether to close the division. This has been met with opposition from the workforce and the unions in the division. As an alternative to closure, the directors are also considering increasing sales of Fromean, as the demand is high. They are not, however, prepared to increase the selling price. Increasing sales of Fromean would not affect sales of Promean. Any mark up on costs and overheads incurred by the North Division should be ignored in calculations relating to increasing sales of Fromean.

The profits and losses made by the divisions are as follows:

	North **£000**	**South** **£000**	**West** **£000**
Materials	7,500	9,000	13,500
Labour	3,300	6,600	3,300
Fixed overheads	4,200	6,900	3,450
Central overheads	3,000	6,000	3,000
Total costs	18,000	28,500	23,250
Revenue	22,500	21,750	31,500
Profit (loss)	4,500	(6,750)	8,250

- **Requirement for question 1**

(a) Determine which medicines should be produced by the East division and in what quantities, in order to maximise the profit next month. *8*

(b) Advise the directors of:

(i) The change in annual profit that would result if the South Division were closed down. *5*

(ii) The profit that would result from the sale of any additional litres of Fromean. *4*

(c) Suggest three non-financial factors that should be taken into account before a final decision on the future of the South Division is made by the directors. *3*

(20)

2 Teensworld Publications specialise in the printing and publication of magazines for the teenage markets. The company have done some initial market research into the reading preferences of young teenage girls. They consider that a market exists for a new magazine, which, at initial estimates, could be sold for £1.75 a copy. They estimate, from information provided by market research consultants, that the circulation of this magazine could reach around 750,000 copies per month. However, the market research has been based upon a cluster of potential customers in the west of the country only, and it is unknown whether sales will reach this figure on a nationwide basis. There is also the possibility that the figure of 750,000 may be an underestimation.

The company are currently considering two alternative methods of producing the magazine. The costs associated with both of these methods are given below:

	Method A	**Method B**
Variable costs	£ 0.95 a copy	£ 0.88 a copy
Fixed costs	£140,000 per month	£210,000 per month

The fixed costs are specific to each method of production.

In addition to the above, there are also a number of semi-variable costs. These have not been broken down into their fixed and variable elements, but the following estimates have been derived from analysis of similar methods of production used on other magazines. The fixed cost element of the semi-variable cost remains fixed throughout the relevant range. The semi-variable costs are specific to each method of production.

	Method A	**Method B**
600,000 copies	£96,000	£83,000
800,000 copies	£114,000	£92,000
1,000,000 copies	£132,000	£101,000

The new magazine will focus on the music and fashion industries. The company currently produce a similar magazine that is more specific to music, and it is anticipated that sales of this may decline when the new magazine comes on to the market.

It has been estimated that for every 20 copies of the new magazine that are sold, sales of this existing magazine will reduce by one copy.

The details for the existing magazine are as follows:

Sales price	£1.20
Circulation	442,000 copies per month
Variable costs	£0.85 per copy
Specific fixed costs	£140,000

The Sales and Marketing Manager has requested information regarding the potential net increase in the profits of Teensworld if the new magazine is brought into production, and has requested that this be calculated for various levels of activity.

- **Requirement for question 2**

(a) Calculate, for each method of production, the net increase in the company's profits that will result from introducing the new magazine at the following levels of circulation:

(i) 750,000 copies per month.

(ii) 700,000 copies per month.

(iii) 900,000 copies per month. *8*

(b) For each production method, calculate the breakeven point and the percentage by which sales of the new magazine could go down from the estimated 750,000 copies per month, before the company begins to make a loss on the introduction of this new magazine. *4*

(c) State your recommendations to the Sales and Marketing Manager of Teensworld Publications, in respect of both the new magazine and the old magazine. *5*

(d) Briefly explain the assumptions that are inherent in the techniques you have used. *3*

(20)

3 XYZ Limited produces and sells a single product, the Ratchet. The standard costs of one Ratchet are as follows:

	£
Direct materials (4 kgs at £14 per kg)	56.00
Direct labour (3 hours at £12.00 per hr)	36.00
Variable production overhead	6.00
Fixed production overhead	40.00
Total standard production cost	138.00

The normal output of the Ratchet is 32,000 units per annum, and this is the capacity upon which the fixed production overhead is absorbed.

In addition to the production costs, the company also incurs other fixed costs related to selling, administration and distribution. These are split into fixed costs of £360,000 per annum and variable costs that amount to 15% of the sales revenue.

After some regular analysis by the management accountant, it is discovered that the only variance is a fixed overhead volume variance. The expenditure on fixed overheads is evenly spread over the year. On 1 January 2004 there were no units of Ratchet in the finished goods store. The selling price per ratchet is £280.

For the year 2004, the number of Ratchets produced and sold was as follows:

	Six months ending 30 June 2004	Six months ending 31 December 2004
Production	17,000	14,000
Sales	14,000	16,000

- **Requirement for question 3**

(a) Prepare profit statements for each six month period using:

(i) Absorption costing.

(ii) Marginal costing. *11*

(b) Prepare a statement that reconciles, for each period, the profit using marginal costing to that using absorption costing. *3*

(c) By referring to their respective features, outline the key strengths and weaknesses of absorption and marginal costing systems. *6*

(20)

SECTION B (Answer two questions)

4 You are the Management Accountant at Floodwell NHS Trust and have been asked to prepare for a short presentation to be given to the next Board Meeting on the nature of capital budgeting in public services.

Although you work for the Trust, the meeting is also to be attended by a number of Local Authority representatives, and you have been asked by the Chief Executive to keep the presentation general to public services.

- **Requirement for question 4**

Prepare briefing notes that will enable you to give the presentation.

You should aim to cover the following areas:

(a) The procedure that should be followed in setting the capital budget. *4*

(b) The contents of the capital budget. *4*

(c) The factors that may limit capital budgets. *3*

(d) The available sources of finance that could be used in the capital budget. *3*

(e) How the capital budget should be monitored. *4*

(f) How to take into account the revenue effect of the capital budget. *2*

(20)

---

5 'Anyone for tennis?' is a small company that manufactures and sells a range of equipment and clothing for the tennis sporting fraternity. The company specialises in the manufacture of championship tennis balls, and they supply these to tennis clubs all over the country. The demand for these tennis balls has recently been so large that a separate division of the company has been established and set up as its own profit centre.

The division operates from a factory in the South East of England and relies on a good distribution network to supply the tennis balls to all of its customers. In addition, the division has a retail outlet on the factory site that has proved popular, particularly in the summer months.

The division operates a three monthly profit reporting system to the central office. As part of this, the divisional accountant prepares a cash flow forecast on a three monthly basis. It is now the time to prepare the next three month cash flow forecast for July, August and September.

Additional Information:

1. Tennis balls are sold to the tennis clubs in packs of ten and the price per pack is £12.00. All of these are sold for credit, the customers receiving a 30 day credit payment period.

2. Tennis balls are sold from the factory shop for cash. These are priced at £16.00 per pack of ten.

3. Sales of packs to the tennis clubs are expected to be 15,000, 16,000 and 15,500 in July, August and September respectively. The sales from the factory shop will remain static at 40 packs per month.

4. The shop costs are £8,000 per month. These are all fixed costs including £650 depreciation.

5. The raw materials are 70 pence per pack of tennis balls. It is expected that there will be a price increase in the August to 72 pence per pack of tennis balls.

6. The manufacturing process is mainly mechanised but the balls are tested manually as they have to be loaded on to a specialised machine. Each pack takes 3 minutes to test. The current rate of pay for the testing staff is £5.50 per hour. The staff are paid in the month that the wages are incurred, and are due a 2% pay award in September.

7. The fixed production overhead is £4,000 per month. This includes depreciation of machinery of £500.

8. The division has decided to produce sufficient tennis balls to allow them to increase their closing stocks by 9,000 packs of balls per month over the three month period. It will also purchase enough materials to permit an increase in stocks of raw materials sufficient for the manufacture of 12,500 packs of balls per month.

9. The raw materials that the division has in stock at the start of the period are sufficient to make 20,000 packs of tennis balls. There were 12,000 packs of balls already in stock at the end of June.

10. Although the division has a 30 day credit policy, the divisional accountant assumes that 40% of debtors will pay one month after purchase and the remainder two months after purchase.

11. Debtors outstanding at the beginning of July are £120,000. These are to be incorporated into the cash flow as follows:

July	£64,000
August	£56,000

12. Raw materials are paid for one month in arrears. Creditors in respect of June were £70,500.

13. The division's bank balance is £35,000 overdrawn at the end of June. It has agreed a flexible arrangement with the bank where interest is chargeable at 1% monthly on the overdrawn balance at the end of the previous month. If the account is in credit at the end of the month then 1% interest will be paid to the division based on this balance.

14. The division will make a £60,000 loan repayment to the company in August.

- **Requirement for question 5**

(a) Prepare the materials purchase budget and cash flow budget for the three month period from July to September. Comment on the results. *14*

(b) Explain the following:

(i) Strategic budgets.

(ii) Tactical budgets.

(iii) Operational budgets. *6*

(20)

---

6 The Rocester Housing Association has a contract with a company called Heating Solutions to maintain and replace domestic boilers for their properties. As a result of a recent audit of Health and Safety, it has been identified that certain older properties owned by the Association have outdated boilers installed. These boilers are all in flats and bed sits. It has been strongly recommended that in order to make the boilers safe, and to comply with recent Health and Safety legislation, they are replaced. The Association has set a one year programme of replacement in place in order to achieve this.

Heating Solutions have identified that the estimated costs of replacing each boiler are as follows:

	£
Direct Materials (including the cost of the new boiler £85)	115.00
Direct Labour (4 hours at £6.30 per hour)	25.20

Additional budgetary information relating to the project is as follows:

- It has been budgeted to replace 7,920 boilers throughout the programme. The replacement programme work will be phased evenly over twelve months.

- Boilers are purchased according to the planned replacement programme. However, occasionally the new boiler may be incompatible with the heating system in the accommodation. In these cases the boilers are given away to another company in the Heating Solutions group for no charge. The other materials (excluding the boiler itself) are also purchased according to the planned replacement programme.

- Each old boiler replaced earns a trade-in value to Heating Solutions of £22.00.

- There are fixed overheads of £96,240 per annum. These are absorbed on the basis of planned number of boilers.

- For control purposes a standard costing system has been introduced, and the results for the first month of the boiler replacement programme were as follows:

New boilers purchases from suppliers	660 (costing £89 per boiler)
Boilers installed into accommodation	635
Incompatible boilers	25
Hours paid for	2,260
Wages paid	£17,425
Fixed overhead	£7,300
Other direct materials	£20,170

- There was no variation to the trade-in value for old boilers during the period.

- **Requirement for question 6**

(a) Calculate the standard cost of replacing one boiler. *3*

(b) Prepare an operating statement that reconciles budgeted costs for the first month to actual cost, showing all variances that have occurred. *13*

(c) Outline the main advantages and disadvantages of using standard costing in a situation such as the boiler replacement programme. *4*

(20)