

## ACCOUNTING FOR DECISION MAKING

### Diploma stage examination

**12 June 2006**

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

#### ***Instructions to candidates***

Answer **four** questions in total: **One** question from **Section A**, and **three** 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

Southborough Council is a medium size unitary authority mainly concentrated in the city of Southborough but also covering an outlying area containing several small, but picturesque, villages within which are a number of popular visitor attractions. The total population is 150,000 with around 130,000 people living in the city.

The city has benefited in recent years from the devolvement of a number of central government departments which occupy much of the office space in the city centre. Southborough is also known for its central shopping facilities and it attracts shoppers from the region and outside the immediate area. At the heart of Southborough is a well-preserved collection of medieval streets which lead to the city's Norman cathedral. The city has developed as a major tourist attraction but one consequence of this has been an increase in congestion and a growing pressure on both on-street and off-street car parking. On-street parking is not charged for at the present time but most of the city centre is partly pedestrianised and allows only for deliveries at the end of each day. Spaces are at a premium.

The Council operates five car parks over its whole area. There are also a number of privately run parks operated by UK Car Parks plc (UKCP). Three of the Council-run car parks are situated in Southborough, with the remaining car parks being in the villages of Oatfield and Wheaton. The demand for parking in Southborough is consistently high throughout the whole year, even at weekends. In the villages the demand is more concentrated on the summer months, school holiday times and weekends. The car parks in the two villages tend to be underused and this has led to a problem with parking on roadsides and the village greens which has caused a lot of ill feeling on the part of local residents and representations from the Parish Councils.

Car parking is regarded by the council as a valuable activity in terms of revenue raising and the policy has been one of maintaining and increasing, if at all possible, current income levels. Charges have gone up steadily in recent times and increases have largely kept in step with those of UKCP.

The issue has been brought to the fore as the Council has been considering a consultant's report which it had commissioned on transport and congestion within the city. Whilst this report was not specifically concerned with car parking it has triggered a series of investigations into the area and a number of key points have emerged. They can be summarised as:

- The council is generally satisfied with the financial performance of the car parks and would seek to continue to at least match that performance in the future.
- There is recognition that it may be unfair to continue the current policy of standard charges throughout the local authority area and there may be grounds for differentiating between city and non-city car parks.
- There is probably a need for an overall review of car parking policy and charges.

Information on parking activity has been collected by internal audit as a result of a detailed monitoring exercise carried out in 2005/2006. It is summarised in the table below:

	Goose Lane	Cows End	Pigs Gate	Riverside	Abbey Path
	City	City	City	Oatfield	Wheaton
Capacity (cars)	200	150	200	100	100
Usage					
- Off peak	50%	55%	40%	35%	40%
- peak	90%	90%	80%	50%	50%
Off peak days	56	56	112	213	213
Peak days	309	309	253	152	152
Charging hours per day	10	10	8	8	8
Charges per hour					
- off peak	£0.70	£0.70	£0.70	£0.70	£0.70
- peak	£1.00	£1.00	£1.00	£1.00	£1.00
Direct costs	180,000	120,000	160,000	60,000	50,000
Car parking overheads	45,000	33,000	24,000	12,000	9,000
Central overheads	20,000	15,000	20,000	10,000	10,000
Total cost	245,000	168,000	204,000	82,000	69,000

- Direct costs are those incurred directly by each car park and include notional capital charges (except in the case of the Goose Lane car park which is leased to the Council with there being ten years of the lease remaining from 1 April 2006). Car parking overheads are costs of the car parking service which are apportioned to each car park. Central overheads are costs of central services apportioned to the car parking service and then re-apportioned to each car park.
- 10% of the direct costs can be assumed to vary with activity with the remainder being related to capacity. 50% of the car parking overheads would be stepped fixed costs and would change if there were a significant change in provision. It can be assumed that this change would be proportionate.
- The usage figures are a yearly average and do not reflect peak time usage at certain parks where there is often 100% usage.
- Assume that the 2005/2006 cost figures should be increased by 10% to adjust for inflation and unavoidable cost increases.

Private sector car park charges are broadly 40% greater than the Council's. They offer slightly different services and their tariffs are calculated differently to allow for both short and long stay users. They are all enclosed and offer a greater degree of security. Only Goose Lane, of the Council's parks, is enclosed, being a multi storey facility. No details of usage are available but there is a note on the audit file to the effect that "Car Park Full" signs have been frequently observed during the summer months on the UKCP car parks.

A survey of car park users in the city centre has produced some information on the likely sensitivity of demand to changes in price.

- At peak times it is likely that there would be no change in demand following price increases up to 20p per hour (which would be roughly comparable with the private sector car parks). After that there is likely to be a decrease in demand of 10% for each additional 10p per hour increase. This outcome, showing quite an inelastic demand, is as expected given the extreme pressure on car parking spaces at these times.
- At off peak times the situation is different. Demand elasticity is likely to be much greater. Users have indicated that they would either seek on-street parking or they would be deterred from visiting the city (or the villages). The fall off in demand is likely to be 15% for each 10p per hour increase.

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• **Requirement for question 1**

- (a) Calculate the likely financial position of the car parks for 2006/2007 if the current scale of charges is imposed and then assess the impact of increasing the charges by 20p (off peak) and 30p (peak) per hour at Goose Lane and Riverside. Comment upon the position which is revealed by your calculations and explain what is meant by price elasticity of demand. 15
- (b) Should public sector organisations charge for their services? Should car parking be provided free of charge? Outline the main approaches to charging that can be taken and discuss which approach is most relevant for the car parking services operated by Southborough Council. What are the main arguments in favour of differential charges? 15

UKCP has been seeking to expand its position within the city but has been unable to identify any viable sites for development of new space. It has approached the Council with a proposal for them to purchase outright the lease on the Goose Lane car park. They have tabled an offer of £2.5m.

- (c) Evaluate the offer made by UKCP, taking into account financial and non-financial considerations, and recommend whether or not it should be accepted. You may assume central overheads will not be affected by any changes. Please state clearly any additional assumptions that you make. 10

Present value factors for Test Discount Rate (TDR) are shown below:

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
0.9662	0.9335	0.9019	0.8714	0.8420	0.8135	0.7860	0.7594	0.7337	0.7089

**(40)**

**SECTION B - (Answer three questions)**

**2**

Highmoors District Council serves an area in which the majority of the population is concentrated in two towns, Kelton and Moulton. The authority has appointed a firm of financial and management consultants to report on the financial and operational performance of Kelton Sports and Leisure Centre. This is a response to concerns over increasing levels of deficits and growing financial subsidy being made by the authority to the centre.

The Council originally owned and operated two identical centres, the other being situated in Moulton. Controversially, the Moulton Centre was sold to Leisureright, a privately owned business, in 1999. Leisureright took over the centre, including its operational and management staff, and has since invested in the facilities whilst still retaining broadly the same level of services.

The Council and Leisureright have maintained a good working relationship and have entered into a benchmarking partnership which has allowed for an ongoing exchange of information and views.

The two centres offer the same basic sporting activities, which are swimming, squash, badminton and a gym. Information for the two centres for the year 2005/2006 is shown below.

1. Both of the centres are open for 350 days per year.
2. Leisureright offers membership that covers all activities but Kelton has no membership scheme. Leisureright charges a flat rate membership fee of £800 for the year and has a membership of 1,600 in 2005/2006 (rising from 1,500 in the previous year).
3. Council policy is to give free access to local schools and children under the age of 16. In addition charges for those over 65 are 50% of the standard amount. Free access users comprise 20% of total users and an additional 20% receive the services at the reduced fees level. It has been estimated that 50% of those receiving free access or reduced rates would use the centre even if they had to pay the full amount.

**Information on sports and leisure activities**

**Table 1. Kelton**

	Squash	Swimming	Gym	Badminton
Number of hours per day open	12	10	12	8
% use of facility (all users)				
- day time	40	75	35	45
- night time (after 6 p.m.)	75	75	55	65
- total	55	75	40	50
Average no of full payers attending per hour	6	12	12	6
Price per person per hour	£6	£3	£5	£6

**Table 2. Leisureright**

	Squash	Swimming	Gym	Badminton
Number of hours per day open	14	14	14	14
% use of facility				
- day time	45	70	40	45
- night time (after 6 p.m.)	90	80	80	70
- total	60	75	50	55
Average users attending per hour	10	16	20	10

**Cost information**

**Table 3. Kelton**

	2005/2006 £
Staff	680,000
Non staff	240,000
Capital charges/ interest	60,000*

**Table 4. Leisureright**

	2005/2006 £
Staff	575,000
Non staff	315,000
Cost of capital / interest	150,000*

\*Assume that half of each of these amounts is depreciation

In addition:

- There is no outstanding debt on the Kelton Sports and Leisure Centre. The centres were built at the same time but the Leisureright Centre has been developed and refurbished and also possesses more up-to-date equipment. The valuation of capital assets at the end of 2005/2006 is Kelton - £475,000 and Leisureright - £700,000.

**• Requirement for question 2**

- (a) Calculate relevant measures and compare the operational and financial performance of the Kelton and Leisureright Centres. 16
- (b) Comment on the performance of Kelton as shown by these measures and on the limitations of the approach taken. 4

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# 3

You have recently been appointed to the post of Financial Controller to Ecocycle. This is a registered charity operating on a not-for-profit basis. It is funded partly through grants and subsidies from public sector bodies and partly through trading activities such as the sale of compost and plants, and from charity tea and gift shops located adjacent to conservation sites.

Ecocycle's main activities relate to conservation of the environment and recycling of products, mainly green waste. The organisation has developed very quickly and now has a turnover of approximately £3m per annum.

Ecocycle has taken on a wide brief largely driven by idealistic and enthusiastic volunteers. This has led to a diversity of activity and a similar diversity of decision-making approaches. The permanent paid staff is headed by the General Manager who is a good leader but with a mainly technical rather than managerial background. Although there is an established revenue budgeting and monitoring process there is no equivalent capital programme. In fact, capital expenditure is not clearly understood or defined at a management level and there are no systematic processes for formal planning and decision-making.

As a result of this situation there is a perception that investment decisions are taken on an ad hoc basis and with a short-term focus. Resource allocation appears to be based upon organisational politics.

You have suggested to the General Manager that this position is not satisfactory. As an organisation develops, key stakeholders, including funding sources and the bank, would appreciate some evidence of rational decision-making and financial control. The General Manager has given you the go-ahead to develop a rational framework for investment appraisal and financial decision-making. He has asked you to draft a paper on the issue, initially for his consideration.

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- **Requirement for question 3**

You should draft a paper on investment appraisal to meet the needs of the General Manager. The paper should cover:

- The establishment of an overall decision-making process for capital investment decisions, with an indication of the potential benefits to be gained from adopting this approach. 9
- The identification of appropriate criteria for use in making investment decisions. 3
- A brief outline of the main techniques which can be employed in investment appraisal with a reasoned recommendation as to the most appropriate approach for Ecocycle. 8

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# 4

Stainmore General Hospital NHS Trust (SGH) provides a fifteen bed private ward, known as the Darningham Suite, within the general hospital site. The suite is currently leased to a private healthcare group, Corpore Sano Healthcare (CSH). The lease was fixed for seven years and has one year left to run.

SGH has experienced capacity problems and has had few options for expansion on an already overcrowded site. This problem is likely to be exacerbated by future developments and pressures such as an expected increase in the local population and new targets under the NHS Improvement Plan.

After due consultation with stakeholders a wide range of options has been reduced to three feasible possibilities, which are to:

1. Keep the Darningham Suite as it is and tender for a private company to run it commencing in 1 April 2007 for a contract period of seven years (still providing 15 beds).
2. Reconfigure and refurbish the suite and convert it to NHS use (providing 24 beds).
3. Reconfigure and refurbish the suite retaining 10 private beds and creating 10 new NHS beds, with SGH managing the whole facility.

Options 2 and 3 would have a seven year life and there would be no residual value.

Private beds are in single rooms and NHS beds are in an open ward. It is assumed that options 2 and 3 would commence at the same time as option 1. The cost of reconfiguration and refurbishment has been estimated based upon similar, recent developments. Option 2 (24 beds) would cost £85,000 and option 3 (10 private and 10 NHS beds) would cost £65,000.

The current contract with CSH provides for payments to be made to SGH in two forms. One element of the payment is a lease of the facilities. Presently this is a fixed charge of £320,000 per annum. The other element is largely activity-based and represents a recharge at cost for services received such as pharmacy and diagnostic testing. In 2005/2006 this was £230,000 (£100,000 fixed costs and £130,000 variable costs). It has been assumed that the fixed element would increase by 5% and the activity-based element would also increase by 5%.

Bed occupancy rates for NHS beds have been 90%, in excess of the national recommended level, reflecting the pressures on capacity within the Trust. SGH is paid on the basis of PBR (payment by results) tariffs which were introduced in 2005/2006. Payment is made for each procedure (treatment) and the estimated tariff for 2007/2008 is £800. The number of bed days is calculated by applying the bed occupancy rate to the number of beds available for the year. The number of procedures depends upon the average length of stay (ALOS) which for 2007/2008 is expected to be 4.5 days.

Research has shown that private charges are 90% above NHS charges and it is expected that ALOS would be 6 days. It is difficult to get figures on average bed occupancy rates for the private ward but the Trust has been using 85% as a working estimate.

Staff and non-staff cash costs have been calculated from the Trust's costing system and are shown below as cost per available bed (estimated for 2007/2008).



	Staff £	Non staff £
Private bed – single room	36,000	26,000
NHS bed – open ward	26,000	20,000

The ward would have a ward manager costing £37,000. This would be the same for options 2 and 3.

The cost and activity data provided has an element of risk and uncertainty attached to it. Stakeholder consultation, using the Delphi Method, has come up with certainty equivalents which can be applied to the data. For example, due to the uncertainty surrounding charges and demand for private beds the certainty equivalents for private patient income have been estimated as:

Year	Certainty equivalent	Year	Certainty equivalent
1	1.00	5	0.80
2	0.95	6	0.75
3	0.90	7	0.70
4	0.85		

The Trust is in danger of not meeting its statutory break-even position and is having difficulty coping with current financial pressures.

The Treasury Test Discount Rate (TDR) is 3.5% Present Value factors for 3.5% are

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
0.9662	0.9335	0.9019	0.8714	0.8420	0.8135	0.7860	0.7594	0.7337	0.7089

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• **Requirement for question 4**

- (a) Calculate the Net Present Values of the three options over seven years at the TDR and recommend which should be accepted on financial criteria. 14
- (b) How appropriate would it be to use certainty equivalents for the investment appraisal carried out above? Calculate the effect that their use would have upon the NPV calculations and state how it would affect the recommendation you made in part (a). 6

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# 5

The ideology relating to Optimised Production Technology (OPT) and the Theory of Constraints (TOC) arose mainly out of the work of Eli Goldratt in the 1980s and 1990s. Goldratt did not himself advocate any specific management accounting practices to be used in the pursuit of these approaches but suggested that approaches should be developed to suit specific circumstances. One approach that has been used to support OCT and TOC is throughput accounting.

TPT plc manufactures wooden doors using three operations: machining, finishing and painting. Production data is shown in the table below.

	Machining	Finishing	Painting
Annual capacity	300,000 units	300,000 units	240,000 units
Annual production	240,000 units	240,000 units	240,000 units
Fixed operating costs (excluding direct materials)	£1,440,000	£720,000	£960,000

Direct materials costs are incurred at the beginning of the manufacturing process and are £28 per unit. There are no other variable costs. The sales price for each completed door is £50 and, at this price, TPT can sell as many as it produces.

TPT is considering three mutually exclusive options as potential improvements to its manufacturing process. These are:

- (i) Acquiring more up-to-date painting machinery that would increase capacity by 40,000 units per annum, and which would cost £200,000.
- (ii) Introducing new shift patterns which would increase the capacity of the machining process by 20,000 units at an annual cost of £5,000.
- (iii) Using an outside contractor to do some of the painting work. The contractor would charge £8 per unit and would be able to take up to 40,000 units.

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• **Requirement for question 5**

- (a) Explain briefly what OPT and TOC involve, what they aim to achieve and the circumstances in which they might be relevant. 4
- (b) Outline the three key measures used in the theory of constraints and describe the four step approach that can be taken in the management of bottleneck resources. 7
- (c) Calculate the effects of the three options available to TPT and advise the company accordingly. 7
- (d) What do you see as being the main drawbacks of this approach to cost management. 2

**(20)**