

ACCOUNTING FOR DECISION MAKING

Diploma stage examination

5 December 2007

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

Instructions to candidates

There are **five** questions on this question paper

Answer **four** questions in total

One compulsory question from **Section A**

Three of the four questions from **Section B**

The question in Section A carries **40** marks

The questions in Section B each carry a total of **20** 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 examinations 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

The University of Westland occupies three sites in and around the city of Wester. The original University College which dates from 1920 is situated in the city centre. In the 1960s, when it became a polytechnic, it acquired another site on the outskirts of the city. This new site was the Meadows Campus. In 1990 when full university status was granted, a further site was acquired. This had formerly been a teacher training college based on a country estate and possessing substantial land. The university has continued to exploit the full potential of this area and most of the new build has been concentrated here. This is the Manor House Campus.

Most of the administrative work is concentrated upon the city centre site but there has been steady increase in the number of staff, both academic and non academic, who are being required to take cross university roles. Many of these roles involve travelling from one site to another. There has also been an increase in inter-departmental teaching which requires travel.

Currently the need to travel is recognised by the university management and staff are entitled to reclaim mileage on necessary journeys. These are reimbursed based upon standard journey distances. The rate of reimbursement for car drivers is 25p per mile.

Data has been collected from the travel and subsistence allowances system for the last complete financial year. It proved difficult to extract the actual data required as many of the claimants were claiming for other journeys made on University business and not just for inter-site travel. Accordingly the information produced is based upon a sample, but it can be judged to have 95% accuracy.

The analysis shows the following information on inter-site journeys

Journey	Distance (miles)	No of journeys
University College – Meadows	6	2,600
University College – Manor House	10	4,200
Meadows – Manor House	12	12,000
Meadows – University College	6	3,200
Manor House – University College	10	4,800
Manor House - Meadows	12	11,000

At the present time the only inter-site transport is the Students' Union bus which only travels between Meadows and Manor House (return). This is a minibus with a capacity of only 15 people. It runs every other hour during the day from one site to the other. The bus is generally full and is the subject of a lot of complaints and grievances from the student population. Staff do not usually use the bus. At present the bus belongs to the Union but the University pays for the full time driver. The total cost of the driver amounts to £16,000 per annum, but during vacation time the bus service is suspended and the driver is given alternative duties within the University.

The University is considering two options in addition to a proposal to modify the existing arrangements. The first option would involve the purchase of a small fleet of pool cars. Two cars would be made available at each of the sites and they would be available via a booking system throughout the normal working day and until 9.00 pm each evening. The second option is to purchase two minibuses. They would each provide a continuous daily service travelling a circular route covering the three campuses. One would travel clockwise and the other would travel in an anti-clockwise direction.

The minibus option would impinge upon the Students' Union service as the University would claim the use of the driver and has said that it could no longer support the Union's service in its present form. The University has agreed to contribute £5,000 per year to compensate the Union.

It is not expected that either of the options would totally remove the need for some use of private cars. The University is also planning to change the terms of the current travel scheme in order to encourage an effective use of the potential new arrangements. The plan is to reduce the mileage payable to 15p per mile and, to encourage agreement to this, to pay staff who agree to these new terms a one off payment of £100. This payment would have to be made available to all staff who use their cars on University business. There are currently 1,200 staff. 70% of them are expected to comply.

Option 1 – use of pool cars

The University would require six cars which would be leased for a period of three years. The annual lease payment per car would be £2,750 (based upon unlimited mileage). The lease would be payable in advance at the beginning of the financial year. Other costs have been estimated as follows:

	£
Fuel	18,000
Servicing	1,500
Tax and insurance	1,800
Administration (additional cost)	4,000

The cars would only be available to staff and would need to be pre-booked. A simple computer based diary system would be developed and would be made available via the university intranet. It would require a small amount of administrative time to supervise and to exercise oversight.

Based upon consultations with staff it is expected that this system would be popular and would reduce inter-site mileage claims by 60%.

Option 2 – use of minibuses

Two minibuses would be leased. This would be for a five year period. The annual lease payment per minibus would be £6,300. The lease would be payable in advance at the beginning of the financial year. The minibuses would operate to a designated timetable and would be available on a first-come first-served basis. This might cause some problems at peak times, and Wednesday lunchtime has been identified as a particular problem. Nevertheless it is expected that the minibus system would reduce inter-site mileage claims by 80%. The University would employ the driver who had previously operated the Students' Union minibus. He would then be employed full time in a driving role. It is expected that his other duties could be covered through redeployment of other staff at no additional cost. A new driver would be taken on for the second minibus, at a cost of £16,000 per annum. Other costs are estimated as follows:

	£
Fuel	24,048
Servicing	1,000
Tax and insurance	2,000
Administration (additional cost)	2,000

The University has a set of procedures that must be employed in investment appraisal. The procedures state that where the total cost of an investment over the period of appraisal exceeds £500,000 the appraisal should also incorporate the identification and quantification of non-financial factors. This requirement is usually met through the use of a weighted benefit analysis.

The proposals have already been taken in outline to the University Finance Committee. This is another requirement of the investment appraisal process. There is considerable controversy surrounding the proposed changes. Not all staff are in agreement with them and there is doubt over whether they will deliver actual savings, despite the feedback from the consultations which was mainly positive. The Students' Union is also very concerned about its ability to continue to provide an inter-site service for students.

It was agreed at the Finance Committee that a financial appraisal would be produced for the next meeting, but a number of other issues were raised which will need to be addressed at this meeting. The Vice Chair of the meeting, a Professor of Economics, was concerned that there was no intention to consider non-financial factors in the appraisal. He argued very strongly that this decision would have an effect upon the use of staff time as it would affect journey times between sites, and that this was not being taken into account. The student representative was concerned about the impact on students and did not think that this was being taken into account. She felt that a weighted benefit analysis would have reflected the effect of these proposals on students.

The University uses the Treasury Test Discount Rate of 3.5% for investment appraisals. Discount factors over a five year period are:

Year	Discount factor
0	1.0000
1	0.9662
2	0.9335
3	0.9019
4	0.8714
5	0.8420

• **Requirement for question 1**

- (a) Produce an investment appraisal to show the net present value of the two options proposed. Comment upon your result and recommend what action should be taken by the University. 12
- (b) Identify and discuss the main areas of uncertainty in the data used in your calculations and suggest how you might take that uncertainty into account. Discuss how you would test the sensitivity and the certainty of your calculations. Produce calculations to illustrate two possible approaches, and comment on your results. 18
- (c) Provide an additional briefing note addressing the concerns of the Vice Chair and the student representative. 10
- (40)**
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SECTION B (Answer three from four questions)

2

Reedmire Council occupies a headquarters administrative building in Reedmire city centre. The cleaning contract for the main building was awarded some years ago to an in-house contractor RCS (Reedmire Cleaning Services). At the same time the responsibility for cleaning other council buildings was devolved either to departmental level (in the case of Social Services) or to establishment level (in the case of the Registrar of Births, Deaths and Marriages).

RCS is operated on business lines and is self financing. Despite not having been market tested for some time RCS is regarded as an efficient organisation and has performed well in benchmarking comparisons.

The Council has reviewed its procurement policies and has decided to go out to tender, beginning with cleaning. The Council's intention is to centralise all cleaning activity and bring it under one central control. It plans, however, to bundle the contract into two parts. It will, first, put out to tender all the other buildings (Other Buildings) and then, six months later, the administrative headquarters (HQ). Both contracts will begin at the same time and will run for five years.

RCS is anxious to be involved with the process and will need to make three decisions. The first decision will be whether to bid for the Other Buildings contract. If they do bid they will have to decide what type of cleaning machines to acquire. Once the outcome of the first bid is known they would then have to decide whether to bid for the HQ contract.

In order to bid for the Other Buildings contract RCS would need to invest in new cleaning machinery and it faces a choice. It can simply purchase machines similar to those which they already use (at a total cost of £10,000) or it can decide to upgrade to more advanced machines which would improve productivity by 20% at a cost of £25,000.

The advanced machines would facilitate a reduction in the Other Buildings tender price and would produce an annual surplus of £20,000 (compared with £15,000 if the similar machines are used). The lower tender price should increase the probability of being awarded the contract from 50% to 70%.

The HQ contract will be let after the Other Buildings contract. RCS expect the existing machines that are currently being used at HQ would have to be replaced, at a total cost of £35,000. This should have an impact upon the tender price for the HQ contract, but as this contract is expected to be more competitive the whole of the benefit would have to be applied to the reduction of this price. The probability of being awarded the contract would be 70%. The expected annual surplus on the contract would be £30,000.

If RCS bids for the Other Buildings contract and is not awarded the contract this is likely to have an adverse effect on its ability to win the HQ contract. Management estimates that this probability would reduce from 70% to 50%. RCS also takes the view that if it decides not to tender for the first contract this would not be so detrimental, with their chances being 60%.

RCS is required to make a 6% return on its investments. The value of an annuity of £1 over five years discounted at 6% is £4.2124.

• **Requirement for question 2**

- (a) Using the above data analyse the decisions that RCS will need to take. Identify the options available and the implications of each option based upon estimates of cost and risk. Advise RCS on the best course of action to take. 14
- (b) Assess the usefulness and validity of your advice, taking into account the strengths and weaknesses of your adopted approach. 6
- (20)**
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3

Laserop specialises in the provision of laser surgery for the correction of short sight, long sight and astigmatism. There are three stages in the process: the first stage is the initial consultation which involves an assessment of the patient and an evaluation of the surgical requirement; the second stage is the actual surgery itself; and the final stage is the post surgery check up which is usually carried out three weeks after the surgery.

The first and final stages are carried out by junior staff and require less advanced equipment and techniques than the surgery stage.

Laserop currently operates six clinics and has analysed its operations in an attempt to increase its throughput. The company is struggling to meet the demand for its services and feels that there is potential for increasing its activity by 10-15% in the short term. Data is shown in the table below:

	Initial consultation	Surgery	Check up
Annual capacity	20,000	15,000	25,000
Annual activity (actual)	15,000	15,000	15,000
Fixed operating costs (including staff and equipment)	£600,000	£2,600,000	£400,000

Direct costs for each complete treatment average £180 and the average price charged for treatment is £500.

Laserop is considering three options for improving its operations.

1. Currently the surgery work is carried out five days per week. It would be possible to work for six days but this would involve a re-structuring and movement of staff between clinics and would lead to the employment of additional staff. Capacity could be increased to 18,000 at a cost of £240,000.
2. A new computer system can be acquired which will speed up the existing on line booking system and allow for the collection of diagnostic data. This would reduce the time taken at the initial consultation stage. The system would cost £200,000 to develop and implement. Laserop would be able to deal with 25,000 initial consultations per annum as a result of this.
3. Some surgery work could be sub-contracted to a recently set up business partnership controlled by two former Laserop employees. They have offered to take on surgery work at a charge of £400 per treatment and would be able to offer 6,000 treatments per annum.

• Requirement for question 3

- (a) Calculate the effects of each of the three options and advise Laserop on the course of action they should take. 7
- (b) Outline and describe the process that should be used in the management of bottleneck resources. What are the three key measures used in the theory of constraints? 6
- (c) What are the main limitations of this approach? Illustrate with reference to an organisation familiar to you how this approach can be applied to the public sector. 7

(20)

4

Cheesysweddes operates a chain of vegetarian fast food restaurants. The company is organised into two divisions. Division A is responsible for a number of basic no-frills restaurants, Cheesysweddes Qwik, which have simple menus, self service and lower prices. Division B runs the Cheesysweddes Plus chain which provides a wider range of choices in better surroundings, full service and higher prices.

Comparisons between the two divisions have been made on a straightforward ROI basis. Management is now concerned that this is too restrictive and that it does not provide sufficient information for meaningful comparison. It has been suggested that the Du Pont method could be used and that it would be worth considering a balanced scorecard approach.

Information for last year shows:

	Division A £000s	Division B £000s
Profit	400	500
Investment	2,000	2,500
Sales	3,200	3,000

• **Requirement for question 4**

- (a) Calculate the ROI for each of the divisions and show how the Du Pont method can facilitate comparisons between them. Comment on your calculations. 6
- (b) Explain what the balanced scorecard involves and indicate the main arguments for and against its use. 8
- (c) How might the balanced scorecard be used by Cheesysweddes? Should Cheesysweddes adopt this approach? 6

(20)

5

Wittonshire County Council is planning to adapt one of its waste recycling sites to allow for the disposal and recycling of trade waste. This facility would be made available to small and medium size businesses based in the District of Swinthorpe.

The site currently has the ability to recycle green waste, hardcore, paper and cardboard, wood and metal. It would accept trade refuse in these categories.

The scheme has been well publicised and all local businesses have been provided with information on the potential benefits. These include:

- Savings resulting from recycling waste rather than paying for the disposal of trade refuse.
- Meeting legal obligations in respect of accounting for waste produced and disposed of.
- Making a contribution to the conservation of the environment through diverting waste from landfill to more sustainable options.

In order to use the site businesses will be required to purchase vouchers in advance. The site has been adapted to receive vehicles with a capacity of up to 2 tonnes. Vouchers may be purchased for 1 or 2 tonnes.

As part of the publicity campaign businesses have been asked to indicate whether they would be using the scheme and have been asked about levels of pricing. The County Council recognises that the success of the scheme will depend to a significant extent upon getting the pricing right. Success, however, is not to be solely determined in financial terms and the Council has set itself certain targets in terms of the amount of waste disposed of and recycled at the site. The first year target for the site will be 9,500 tonnes of recyclable waste.

The feedback shows that at a price of £16 per tonne (2 tonnes = £32) the annual demand for vouchers would be 10,500 tonnes. Demand will change by 1,500 tonnes for every £2 change in price. The variable costs are estimated to be £11 per tonne.

• **Requirement for question 5**

- (a) Calculate the price at which the contribution from the voucher scheme would be maximised. 7
- (b) Compare the financial position with that required to meet the Council's recycling targets, and comment upon the situation. 4
- (c) What are the strengths and weaknesses of this approach and how appropriate is it to Wittonshire County Council in these circumstances? Describe two alternative approaches which might have been used and comment upon them. 9

(20)