

General Comments

Performance on this paper was better than in previous diets, mainly as a result of improved performance in Sections A and B. Candidates scored better on average in the multiple choice questions than in previous diets and Question 1 as a whole was well done. The performance in Question 2 was improved with many candidates scoring very high marks. However it was disappointing to see that the improved performance was not reflected in Section C. It is concerning that questions on the core areas of the syllabus are not being answered very well by candidates.

The inability of some candidates to read the question requirements carefully and to do what is asked in the questions was extremely apparent in this diet. If candidates are asked to explain TWO benefits they will not earn additional marks for explaining FOUR. If they are asked to explain, for example, the benefits of environmental costing, marks will not be awarded for merely discussing the benefits of being an environmentally friendly company. If candidates are asked to 'explain using appropriate calculations' then no marks will be awarded for narrative without calculations. Candidates must read the requirements more carefully to avoid wasting time unnecessarily and to ensure they clearly address the question that has been asked. Candidates should also review what they have written or calculated to see whether it makes logical sense. The present value of \$4,000 per annum in perpetuity is not by any stretch of the imagination going to be less than \$4,000 and yet very many candidates gave an answer of less than \$4,000.

The performance on Question 3 was disappointing with a significant number of candidates failing to achieve a pass in this question. Performance could have been significantly improved if candidates had read the question properly and taken a bit of time to think about the requirement. Question 3(a) required candidates to produce a reconciliation statement of the **material** costs and yet a significant number of candidates produced labour and overhead variances. A majority of candidates were not sure what variances needed to be calculated and thus decided to calculate every material variance they could think of and did not produce a reconciliation statement. No doubt this was because they did not know what variances should go into the statement.

Part of the skill required in this type of question is the reconciliation of budget and actual figures rather than just the calculation of variances. The "scatter gun" approach to variance analysis did not meet the requirements of the question.

This question highlighted some major knowledge gaps with many candidates unable to calculate material mix and yield variances or planning and operational variances. The average mark would have been significantly lower if most candidates had not performed well in parts (c) and (d) of the question. Much more work needs to be done by candidates and tutors in this area.

Question 4 was very well done by some candidates but seemed to cause a lot of difficulty for others. Most candidates made a reasonable attempt at calculating the NPV but very few were able to calculate annualised equivalent figures despite the fact that this was examined in the previous two diets. Part (b) and (c) were reasonably well done.

The overall performance of candidate was encouraging although there are still some areas that are very weak. Some candidates are still unable to calculate even the basic variances and are relying on rote learning with the result that they are unable to explain what it is they are calculating and why the calculation provides useful information.

Section A – 20 marks
ANSWER ALL EIGHT SUB-QUESTIONS IN THIS SECTION

Question 1.1

A decision maker who makes decisions using the maximin criterion would be classified as:

- A** Risk averse
- B** Risk seeking
- C** Risk neutral
- D** Risk spreading

(2 marks)

The correct answer is **A**

Question 1.2

A flexible budget is a budget that is

- A** set prior to the control period and not subsequently changed in response to changes in activity, costs or revenues
- B** continuously updated by adding a further accounting period when the earliest accounting period has expired
- C** changed in response to changes in the level of activity
- D** changed in response to changes in costs

(2 marks)

The correct answer is **C**

Question 1.3

NG is deciding which of four potential venues should be used to stage an entertainment event. Demand for the event may be low, medium or high depending on weather conditions on the day. The management accountant has estimated the contribution that would be earned for each of the possible outcomes and has produced the following regret matrix:

<i>Regret Matrix</i>				
<i>Venue</i>	<i>Ayefield</i> \$	<i>Beefield</i> \$	<i>Ceefield</i> \$	<i>Deefield</i> \$
<i>Demand</i>				
<i>Low</i>	0	200,000	300,000	450,000
<i>Medium</i>	330,000	110,000	0	150,000
<i>High</i>	810,000	590,000	480,000	0

If the company applies the minimax regret criterion the venue chosen would be

- A** Ayefield
- B** Beefield
- C** Ceefield
- D** Deefield

(2 marks)

The correct answer is **D**

Workings

The maximum regret if the Ayefield venue is chosen is \$ 810,000

The maximum regret if the Beefield venue is chosen is \$ 590,000

The maximum regret if the Ceefield venue is chosen is \$ 480,000

The maximum regret if the Deefield venue is chosen is \$ 450,000

Therefore if NG wants to minimise the maximum regret it should stage the entertainment event at the Deefield venue.

The following data are given for sub-questions 1.4 and 1.5 below

JD is a retailer of storage boxes. Annual demand is 39,000 units spread evenly throughout the year. Ordering costs are \$100 per order and the cost of holding one storage box in inventory for one year is \$1.60. It takes two weeks for an order to be delivered to JD's premises.

Question 1.4

The economic order quantity (EOQ) for the storage boxes is

- A 1,746 units
- B 2,208 units
- C 2,793 units
- D 1,248 units

(2 marks)

The correct answer is **B**

Workings

$$EOQ = \sqrt{\frac{2C_o D}{C_h}}$$

Where:

C_o = (cost per order) = \$100

D = (annual demand) = 39,000 units

C_h = (cost of holding one unit for one year) = \$1.60

$$EOQ = \sqrt{\frac{2 \times 100 \times 39,000}{1.6}}$$

Question 1.5

The re-order level that would ensure that JD never runs out of inventory of storage boxes is

- A 1,560 units
- B 4,416 units
- C 3,492 units
- D 1,500 units

(2 marks)

The correct answer is **D**

Workings

JD must be certain that there is sufficient inventory available to satisfy demand throughout the two weeks lead time. Therefore JD must place an order for storage boxes when there is the equivalent of two weeks demand in inventory.

The reorder level is therefore $39,000 \times \frac{2}{52} = 1,500$ units.

Question 1.6

TM's customers all pay their invoices at the end of an agreed 30 day credit period. In an attempt to improve cash flow, TM is considering offering all customers a 2.0% discount for payment within 7 days.

Required:

Calculate, to the nearest 0.1%, the effective annual interest rate to TM of offering the discount. You should assume a 365 day year and use a compound interest methodology.

(3 marks)

Workings

Payment will be made 23 days early.

Number of compounding periods = $365/23 = 15.86957$

$$1 + r = (1.00/0.98)^{15.86957}$$

$$1 + r = 1.37797$$

The effective annual rate of the early settlement discount is 37.8%

Question 1.7

PJ is considering building a warehouse on a piece of land which will be leased at an annual cost of \$4,000 in perpetuity. The lease payments will be made annually in advance.

PJ has a cost of capital of 12% per annum.

Required:

Calculate the present value of the lease payments.

(3 marks)

Workings

The first lease payment is made in advance i.e. in Year 0

<i>Time</i>	<i>Cash flow</i> \$	<i>Discount factor 12%</i>	<i>Present value</i> \$
0	(4,000)	1.0000	(4,000)
1 - ∞	(4,000)	1 / 0.12 = 8.3333	(33,333)
Present Value			(37,333)

The present value of the lease payments is \$37,333.

Question 1.8

A company has budgeted to produce 5,000 units of Product B per month. The opening and closing inventories of Product B for next month are budgeted to be 400 units and 900 units respectively. The budgeted selling price and variable production costs per unit for Product B are as follows:

	<i>\$ per unit</i>
Selling price	20.00
Direct costs	6.00
Variable production overhead costs	3.50

Total budgeted fixed production overheads are \$29,500 per month.

The company absorbs fixed production overheads on the basis of the budgeted number of units produced. The budgeted profit for Product B for next month, using absorption costing, is \$20,700.

Required:

- (i) **Prepare** a marginal costing statement which shows the budgeted profit for Product B for next month.
- (ii) **Explain**, using appropriate calculations, why there is a difference between the profit figures for the month using marginal costing and using absorption costing.

(4 marks)

Workings

(i)

Contribution per unit = \$20 – (\$6.00 + \$3.50) = \$10.50

Number of units sold = 400 units + 5,000 units – 900 units = 4,500 units

Marginal costing statement

	\$
Sales revenue (4,500 x \$20)	90,000
Variable costs (4,500 x \$9.50)	<u>42,750</u>
Total contribution (4,500 x \$10.50)	47,250
Fixed production overheads	<u>29,500</u>
Marginal costing profit	<u>17,750</u>

(ii)

Profit under absorption costing =	\$20,700
Profit under marginal costing =	<u>\$17,750</u>
Difference =	<u>\$ 2,950</u>

Fixed overhead absorption rate = \$29,500 / 5,000 units = \$5.90 per unit

Increase in inventory = 900 units - 400 units = 500 units

Fixed overhead not charged to profit under absorption costing =
 500 units x \$5.90 per unit = \$2,950

Section B – 30 marks

ANSWER ALL SIX SUB-QUESTIONS. YOU SHOULD SHOW YOUR WORKINGS AS MARKS ARE AVAILABLE FOR THE METHOD YOU USE

Question 2(a)

Prepare a cash budget for each of the THREE months of January, February and March.

(5 marks)

Rationale

The question assesses learning outcome E1(c) *analyse cash-flow forecasts over a twelve month period*. It examines candidates' ability to prepare a cash budget.

Suggested Approach

Candidates should firstly prepare a format for the cash budget with months along the top and receipts and payments down the side. They should then work out the timing of the cash flows for each of the items. The cash receipts and cash payments should be totalled and the net cash flow for each month should be calculated. The opening cash balance and closing cash balance for each month can then be calculated.

Marking Guide

Marks

Cash sales	½ mark
Receipts from credit sales	1 ½ marks
Payment for credit purchases	1 mark
Expenses paid	½ mark
Fork lift trucks	½ mark
Opening balances	½ mark
Closing balances	½ mark

Maximum marks awarded

5 marks

Examiner's comments

This question was very well done by the majority of candidates, with most scoring four or five marks. There were occasionally mistakes in calculating the cash received for credit sales or cash paid for purchases but these were mainly due to candidates not reading the question carefully.

Common errors

1. Double counting credit sales and cash from credit sales
2. Including bad debts in cash from credit sales
3. Double counting credit purchases and cash paid for credit purchases
4. Including fork lift truck as \$25k rather than 4 x \$25k i.e. \$100k

Question 2(b)

(i) **Demonstrate**, using a decision tree, which course of action GT should pursue.

(3 marks)

(ii) GT could commission a market research survey that will give an accurate prediction of the level of demand.

Required:

Calculate the maximum price that GT should pay for the market research survey.

(2 marks)

(Total for sub-question (b) = 5 marks)

Rationale

The question assesses learning outcome D1(f) *apply decision trees*. It examines candidates' ability to use decision trees to evaluate a decision where there is uncertainty regarding expected cash flows.

Suggested Approach

Candidates should firstly establish the decision that has to be made and then draw the decision tree showing the possible outcomes. The expected value of the possible outcomes should then be calculated. Candidates should then clearly indicate the most profitable decision.

Marking Guide

Marks

(i)	
Expected value of large restaurant	1 mark
Expected value of small restaurant	1 mark
Correct decision	½ mark
Format	½ mark
(ii)	
Expected value with survey	1 mark
Value of perfect information	1 mark

Maximum marks awarded

5 marks

Examiner's comments

Part (i) was well answered with most candidates scoring full marks. However part (ii) was not well answered with candidates obviously not understanding what they were trying to calculate.

Common errors

1. Treating the net present value of the large restaurant with low demand as \$1,000,000 rather than \$(1,000,000)
2. Calculating the expected value with the survey as \$1,920,000 i.e. (\$1,200,000 x 60%) + (\$2,000,000 x 60%)
3. Calculating the value of perfect information as \$240,000 i.e. \$1,040,000 - \$800,000

Question 2(c)	
<p>Discuss TWO sources of information that a company could use when setting credit limits for customers.</p> <p style="text-align: right;"><i>(5 marks)</i></p>	
Rationale	
<p>The question assesses learning outcome E1(f) <i>analyse the impacts of alternative debtor and credit policies</i>. It examines candidates' ability to identify potential sources of information that can be used when assessing a customer's creditworthiness.</p>	
Suggested Approach	
<p>Candidates should identify TWO sources and clearly explain the benefits as well as the potential problems associated with their use.</p>	
Marking Guide	Marks
<ul style="list-style-type: none"> • Bank references • Trade references • Financial statements • Personal contact • Past experience • Credit agency checks 	<p>1 mark for describing source</p> <p>Up to 2 marks for discussion</p>
Maximum marks awarded	5 marks
Examiner's comments	
<p>This question was generally well answered although most candidates did not appreciate the significance of the use of the verb 'discuss' in the question. To achieve full marks candidates were expected to give both advantages and disadvantages of the suggested sources of information. It was also not clear in many cases what exactly was the source of information. Some candidates discussed using ratio analysis but did not explain where these figures were going to come from. Candidates need to take a more methodical approach to answering questions. No further credit was given to those candidates who chose to give three or four sources of information.</p>	
<i>Common errors</i>	
<ol style="list-style-type: none"> 1. Giving more than TWO sources of information 2. Not explaining the disadvantages of the suggested sources 3. Not describing the sources of information 4. Confusing credit terms/period with credit limit 	

Question 2(d)	
<p>Explain THREE benefits that a company could gain from using environmental costing. (5 marks)</p>	
Rationale	
<p>The question assesses learning outcome A3(a) <i>apply principles of environmental costing in identifying relevant internalised costs and externalised environmental impacts of the organisation's activities</i>. It examines candidates' ability to explain the benefits that a company could gain from using an environmental costing system.</p>	
Suggested Approach	
<p>Candidates should identify THREE potential benefits and clearly explain their impact on the company.</p>	
Marking Guide	Marks
<ul style="list-style-type: none"> • Increased awareness of the impact of environment related activities as shown in their financial statements • Effect on company image/reputation • Cost reduction • Improved decision making • Avoidance of costs of failure • Avoidance of reputational damage 	<p>Up to 1 mark for identifying the benefit</p> <p>Up to 2 marks for explanation</p>
<p>Note: candidates must identify and explain THREE benefits.</p>	
Maximum marks awarded	5 marks
Examiner's comments	
<p>This was reasonably well answered, particularly since it has not previously been examined. Candidates obviously knew the area well although many strayed from discussions of environmental costing into general narrative about the benefits of being an environmentally friendly company, giving several examples of how a company could achieve that status. This was all very interesting but not worthy of any marks unless the discussion was linked to environmental costing. There was also evidence of very poor exam technique with far too much being written in answer to a question worth five marks.</p> <p><i>Common errors</i></p> <ol style="list-style-type: none"> 1. Failure to specifically relate the answer to environmental costing 2. Poor exam technique 	

Question 2(e)	
(i) Calculate the probability of the contribution being greater than \$39 per unit.	(3 marks)
(ii) Calculate the expected value of the contribution per unit.	(2 marks)
(Total for sub-question (e) = 5 marks)	
Rationale	
The question assesses learning outcome D1(c) <i>analyse risk and uncertainty by calculating expected values and standard deviations together with probability tables and histograms</i> . It examines candidates' ability to calculate the expected values of possible outcomes using joint probabilities.	
Suggested Approach	
Candidates should firstly establish which combinations of selling price and variable costs would give a contribution of more than \$39 per unit. They should then calculate the joint probability of these outcomes and their total probability. In part (ii) candidates should separately calculate the expected value of the selling price and the expected value of the variable costs per unit. The expected value of the contribution per unit can then be calculated by deducting the expected value of the variable costs from the expected value of the selling price.	
Marking Guide	Marks
(i) Calculation of joint probabilities of outcomes greater than \$39	½ mark per probability (total 3 marks)
(ii) Expected value of selling price per unit	½ mark
Expected value of variable cost per unit	½ mark
Expected value of contribution per unit	1 mark
Maximum marks awarded	5 marks
Examiner's comments	
Part (i) of the question caused difficulties for some candidates but overall the question was well answered. Some candidates answered part (ii) as part (i) and many candidates made careless errors in the calculations, particularly in part (i).	
<i>Common errors</i>	
<ol style="list-style-type: none"> 1. Failure to sum the probabilities in part (i) 2. Arithmetic errors 	

Question 2(f)

Explain THREE benefits that organisations gain from using budgetary planning and control systems.

(5 marks)

Rationale

The question assesses learning outcome B1(a) *explain why organisations prepare forecast and plans*. It examines candidates' ability to identify and explain THREE benefits of using a budgetary planning and control system.

Suggested Approach

Candidates should firstly identify three potential benefits and then clearly explain why they would be of benefit to an organisation.

Marking Guide

- Planning
- Control/Evaluation
- Co-ordination
- Communication
- Motivation

Marks

Up to 2 marks
 for explanation
 of each benefit

Maximum marks awarded

5 marks

Examiner's comments

This question was reasonably well answered although as the question was fairly straightforward it was surprising how many candidates did not make a good attempt at it. To obtain full marks candidates need to discuss three distinct benefits. In many cases there was duplication of points which earned no marks. Candidates need to take a more structured approach to these questions, clearly identifying the benefit and explaining why it is of benefit. Candidates score much better with this type of approach rather than producing two pages of general, non-specific material in the vain hope of picking up some marks.

Common errors

1. Not considering three distinct benefits
2. Duplication of points made
3. Not addressing the question set but instead discussing various aspects of budgeting e.g. rolling budgets and flexible budgets

Section C – 50 marks
ANSWER BOTH QUESTIONS

Question 3

- (a) **Prepare** a statement which reconciles the flexed budget material cost and the actual material cost. Your statement should include the material price planning variances, and the operational variances including material price, material mix and material yield.

(12 marks)

- (b) **Discuss** the usefulness of the planning and operational variances calculated in part (a) for TP's management.

(5 marks)

- (c) **Calculate** the total sales price variance and the total sales volume contribution variance.

(4 marks)

- (d) **Explain** the benefits that TP should gain from operating a JIT purchasing system for materials.

(4 marks)

(Total for Question Three = 25 marks)

Rationale

The question assesses a number of learning outcomes. Part (a) assesses learning outcome A1(d) *apply standard costing methods, within costing systems, including the reconciliation of budgeted and actual profit margins* and learning outcome A1(f) *interpret material, labour, variable overhead, fixed overhead and sales variances, distinguishing between planning and operational variances*. It examines candidates' ability to calculate material variances including material mix and yield variances and material planning and operational variances. Part (b) also assesses learning outcome A1(f) *interpret material, labour, variable overhead, fixed overhead and sales variances, distinguishing between planning and operational variances*. It examines candidates' ability to discuss the usefulness of the planning and operational variances calculated in part (a). Part (c) also assesses learning outcome A1(d) *apply standard costing methods, within costing systems, including the reconciliation of budgeted and actual profit margins* and examines candidates' ability to calculate sales price and sales volume contribution variances. Part (d) assesses learning outcome A1(h) *explain the impact of just-in-time manufacturing methods on cost accounting and the use of 'back-flush accounting' when work-in-progress stock is minimal*. It examines candidates' ability to explain the benefits of a JIT purchasing system for materials.

Suggested Approach

In part (a) candidates should firstly calculate the flexed budget material costs and the actual material costs for the period. They should then calculate each of the variances for material price, material mix and material yield showing separately the material price planning and material price operational variances. They should then prepare a reconciliation statement starting with the budgeted material cost and then showing each of the individual variances to reconcile the budgeted material cost to actual material cost. In part (b) candidates should use the figures calculated in part (a) to discuss the benefits of calculating planning and operational variances. In part (c) candidates should calculate the total sales price variance and the total sales volume contribution variance. In part (d) candidates should clearly explain the benefits of using a JIT purchasing system for materials.

Marking Guide	Marks
Part (a)	
Original budgeted material cost	1 mark
Material price planning variance – Ingredient A	1 mark
Material price planning variance – Ingredient B	1 mark
Material price operational variance – Ingredient A	1 mark
Material price operational variance – Ingredient B	1 mark
Material price variance – Ingredient C	1 mark
Material mix variance	3 marks
Material yield variance	2 marks
Actual material cost	1 mark
	Total 12 marks
Part (b)	
<ul style="list-style-type: none"> Enables distinction between variances caused by factors extraneous to the business and planning errors and variances caused by factors that are within the control of management Allows evaluation of managers' performance Avoids dysfunctional behaviour Allows assessment of the effectiveness of the planning process 	Up to 2 marks per point made Total 5 marks
Part (c)	
Calculation of sales price variance	2 marks
Calculation of sales volume contribution variance	2 marks
	Total 4 marks
Part (d)	
<ul style="list-style-type: none"> Zero or very little inventory thus reducing the costs involved with holding inventory The use of a small number of suppliers should reduce administrative costs and result in greater quantity discounts. Close working relationships with suppliers should result in a reduction in quality control costs Quality standards should improve resulting in lower wastage in the production process. 	Up to 2 marks per benefit Total 4 marks
Maximum marks awarded	25 marks
Examiner's comments	
<p>In part (a) very few candidates produced a reconciliation statement despite the fact that this was clearly required by the question. A large number of candidates calculated labour and overhead variances when the question asked for a reconciliation of material costs. It was apparent that most candidates were unsure which material variances to calculate and there was duplication of variances i.e. calculation of material usage variances as well as material mix and yield variances. There was an apparent lack of knowledge of how to deal with planning and operational variances. A number of candidates managed to calculate a material price planning variance for ingredient C despite the fact that its standard price has not changed. Too many candidates did not appreciate that the operational variances should be calculated based on the revised standard.</p> <p>Part (b) was consequently not well answered because candidates did not know how to calculate planning and operational variances and therefore were unlikely to be able to discuss the usefulness of the calculation. Some candidates defined planning and operational variances but did not go on to explain why they would be useful to management. A significant number of candidates described the generic benefits of variance analysis and commented on all the variances that had been calculated in part (a) explaining what they measured, even to the extent of discussing the labour and overhead variances that they had calculated.</p>	

Part (c) was well answered. Most candidates could calculate the sales price variance but many had more difficulty with the sales volume contribution variance. The sales volume revenue variance was often calculated rather than the sales volume contribution variance.

Part (d) was generally well answered although many candidates, as well as discussing just in time purchasing, also discussed just in time production which was given no credit. Some of the answers were too narrowly focused. merely considering the low inventory holding costs.

Common errors

1. Calculation of labour and overhead variances in part (a)
2. Failure to produce a reconciliation statement
3. Duplication of material usage variances and material mix and yield variances
4. Duplication of material price variances and material price planning and operational variances
5. Calculation of material price planning variances using actual or budgeted quantities rather than standard quantities
6. Lack of understanding of the benefits of planning and operational variances
7. Failure to answer the question asked
8. Valuing the sales volume variance at selling price per unit.
9. Discussion of JIT production
10. Too narrow a focus in part (d)

Question 4

- (a) **Prioritise** the two systems using an annualised equivalent approach. You should ignore taxation and inflation. Your workings should be shown in \$000.

(12 marks)

(b)

- (i) **Explain** the purpose of sensitivity analysis in investment appraisal.

(4 marks)

- (ii) **Calculate** the sensitivity of your recommendation in part (a) to changes in the contribution generated by System 1.

(4 marks)

- (c) **Calculate**, for System 2, the tax depreciation and the resulting tax cash flows for each year. Your workings should be shown in \$000.

(5 marks)

(Total for Question Four = 25 marks)

Rationale

Part (a) assesses learning outcomes C1(b) *apply the principles of relevant cash flow analysis to long-run projects that continue for several years* and learning outcome C2(c) *prioritise projects that are mutually exclusive, involve unequal lives and/or are subject to capital rationing*. It examines candidates' ability to identify the relevant costs of a project and then apply discounted cash flow analysis to calculate the net present value of the project. It then requires candidates to prioritise the projects using an annualised equivalent approach. Part (b) assesses learning outcome C1(f) *apply sensitivity analysis to cash flow parameters to identify those to which net present value is particularly sensitive*. It examines candidates' ability to explain the benefits of carrying out sensitivity analysis and then to calculate the sensitivity of the recommendation to changes in one variable. Part (c) assesses learning outcome C1(c) *calculate project cash flows, accounting for tax and inflation, and apply perpetuities to derive 'end of project' value where appropriate*. It examines candidates' ability to calculate tax depreciation and the resulting tax cash flows for a project.

Suggested Approach

In part (a) candidates should firstly identify the relevant cash flows for each year for both projects. The cash flows should be discounted using the appropriate annuity factor to calculate the NPV of each of the projects. The NPV should then be divided by the correct cumulative discount factor to calculate an annualised equivalent cash flow. The project with the highest annualised equivalent cash flow should be selected. In part (b)(i) candidates should clearly explain the benefits of carrying out a sensitivity analysis. In part (b)(ii) the difference in the annualised equivalent cash flows should be calculated. This should then be compared to the contribution generated by System 1 to calculate the sensitivity of the choice of project to changes in the contribution generated by System 1. In part (c) the tax depreciation and the resulting tax cash flows for System 2 should be calculated, based on a 30% tax rate and the correct timing of the cash flows.

Marking Guide	Marks
Part (a)	
Operating costs excluding depreciation	1 mark
Present value of initial investment	1 mark
Present value of contribution	1 mark
Present value of operating costs	1 mark
Present value of maintenance costs	2 marks
Present value of residual value	1 mark
Net present value of cash flows	1 mark
Use of cumulative discount factor	2 marks
Annualised equivalent	1 mark
Decision	1 mark
	Total 12 marks
Part (b)(i)	
<ul style="list-style-type: none"> • Recognises that not all cash inflows and cash outflows are known with certainty • Enables management to determine the effect of changes to variables on the planned outcome • Particular attention can then be paid to those variables of special significance and an effort made to mitigate the risk associated with these variables • An analysis can be made of all the key variables to ascertain by how much each variable would need to change before the net present value (NPV) reaches zero • Alternatively, specific changes can be made to key variables to determine the effect on NPV. 	1 mark per valid point
	Total 4 marks
Part (b) (ii)	
Difference in NPV for each system	1 mark
Sensitivity percentage	3 marks
	Total 4 marks
Part (c)	1 mark
Tax depreciation Year 1 - 4	1 mark
Tax depreciation Year 5	1 mark
Apply 30% tax rate	1 mark
Phasing of tax payments/benefit	1 mark
Total tax payment/benefit	
	Total 5 marks
Maximum marks awarded	25 marks
Examiner's comments	
<p>The performance in part (a) was varied. Most candidates were able to make a reasonable attempt at calculating the NPV. However many did not then go on to calculate an annualised equivalent despite the clear instruction in the question. A large number of candidates did not adjust the operating costs for depreciation and many of those that did failed to take account of the residual value for the systems. Most candidates did not appreciate the significance of the maintenance costs being payable in advance. For those candidates that did calculate the annualised equivalent figures some then treated them as costs and therefore made an incorrect decision about the system to purchase.</p> <p>Part (b)(i) was fairly well answered although few candidates actually discussed risk or taking measures to mitigate the risk of certain variables. Part (b)(ii) was not well answered with very few candidates getting the correct answer. Some candidates calculated the break even contribution for system 1 or system 2 rather than the change in contribution that would lead to a changed recommendation between the two</p>	

systems.

Part (c) was generally well answered although many candidates calculated the tax cash flows for the whole system 2 project which was not required. This was given full credit but did involve extra work in calculating the figures.

Common errors

1. Including sunk costs and depreciation as cash flows
2. Incorrect calculation of depreciation
3. Failure to treat the maintenance costs as payable in advance
4. Treating the annualised equivalent figures as an annualised cost
5. Failure to calculate annualised equivalent figures
6. Dividing the net present value by 3 or 5 years
7. Multiplying rather than dividing the net present value by the cumulative discount factor
8. Failure to discuss risk in part (b)(i)
9. Calculating the break even contribution for System 1 or 2
10. Attempting to calculate an IRR for one of the systems
11. Failure to calculate the correct balancing allowance for year 5
12. Calculating the tax cash flows for system 1 rather than system 2
13. Failure to extend the tax savings into Year 6
14. Including the sunk costs as part of the initial investment