General Comments

The May 2006 results showed a small improvement on November 2005, with a number of candidates displaying a high level of competence and attaining good results.

Section A performance showed a noticeable improvement when compared to previous diets. However many attempts at questions in Section B, and more particularly in Section C, were disappointing, with candidates demonstrating poor application of skills within the given scenarios.

The paper's assessment strategy allows the Examiner to test a large proportion of the syllabus and, again, questions were based on the full breadth of the syllabus. Candidates are therefore reminded that they must study the whole of the published syllabus and be aware of the learning outcomes. Candidates should also ensure that they are familiar with the fundamental aspects of Management Accounting studied at Certificate level, particularly if they have been awarded exemptions from that level.

Section A – 20 marks

Question 1.1

X plc intends to use relevant costs as the basis of the selling price for a special order: the printing of a brochure. The brochure requires a particular type of paper that is not regularly used by X plc although a limited amount is in X plc's inventory which was left over from a previous job. The cost when X plc bought this paper last year was $15 per ream and there are 100 reams in inventory. The brochure requires 250 reams. The current market price of the paper is $26 per ream, and the resale value of the paper in inventory is $10 per ream.

The relevant cost of the paper to be used in printing the brochure is

A $2,500

B $4,900

C $5,400

D $6,500

(2 marks)

The answer is **B**

Workings

100 reams @ resale value of $10	$1,000
150 reams @ market price of $26	$3,900
	$4,900

Question 1.2

A farmer grows potatoes for sale to wholesalers and to individual customers. The farmer currently digs up the potatoes and sells them in 20kg sacks. He is considering a decision to make a change to this current approach. He thinks that washing the potatoes and packaging them in 2kg cartons might be more attractive to some of his individual customers. Which of the following is relevant to his decision?

(i)	the sales value of the dug potatoes
(ii)	the cost per kg of growing the potatoes
(iii)	the cost of washing and packaging the potatoes
(iv)	the sales value of the washed and packaged potatoes

A   (ii), (iii) and (iv) only

B   (i), (ii) and (iii) only

C   (i), (ii) and (iv) only

D   (i), (iii) and (iv) only

(2 marks)

The answer is **D**

Question 1.3

A company makes and sells three products, R, S, and T. Extracts from the weekly profit statements are as follows:

	R $	S $	T $	Total $
Sales	10,000	15,000	20,000	45,000
Variable cost of sales	4,000	9,000	10,000	23,000
Fixed costs*	3,000	3,000	3,000	9,000
Profit	3,000	3,000	7,000	13,000

* general fixed costs absorbed using a unit absorption rate

If the sales revenue mix of products produced and sold were to be changed to: R 20%, S 50%, T 30% then the new average contribution to sales ratio

A   would be higher.

B   would be lower.

C   would remain unchanged.

D   cannot be determined without more information.

(2 marks)

The answer is **B**

Workings

Contribution/Sales ratios are : R 60%, S 40%, and T 50%

Now = $22,000 /$45,000 = 0·489

New = (0·6 x 0·2) + (0·4 x 0·5) + (0·5 x 0·3) = 0·47

Question 1.4

Z Limited is a hotel that serves cakes and gateaux in its coffee shop. An analysis of its internal costs has revealed that the variable cost of preparing its own gateaux is £5·50 per gateau compared to the price of £8·00 per gateau that would be charged by an external bakery. Z Limited employs a chef to prepare the gateaux at a salary of £1,000 per month. This chef is not able to carry out any other work in the hotel and is the only employee capable of preparing the gateaux.

Calculate the minimum monthly number of sales of gateaux at which it is worthwhile preparing the gateaux in the hotel.

(2 marks)

Workings

Variable cost saving per gateaux = £2·50
Fixed cost = £1,000 per month

Minimum quantity = £1,000 / £2·50 = **400 gateaux**

The following data are to be used when answering questions 1.5 to 1.7

M plc is evaluating three possible investment projects and uses a 10% discount rate to determine their net present values.

Investment	A	B	C
	£000	£000	£000
Initial Investment	400	450	350
Incremental cashflows			
Year 1	100	130	50
Year 2	120	130	110
Year 3	140	130	130
Year 4	120	130	150
Year 5*	100	150	100
Net present value	39	55	48

*includes £20,000 residual value for each investment project.

Question 1.5

Calculate the payback period of investment A.

(2 marks)

Workings

Year	£000	£000 to date
1	100	
2	120	220
3	140	360
4	120	480

Payback period = 3 years + 40/120^{ths} of year 4 = **3·33 years**

Question 1.6

Calculate the discounted payback period of investment B.

(3 marks)

Workings

Discounted cashflows are:

Year	£000	£000	£000
1	130 x 0·909	118·17	
2	130 x 0·826	107·38	
3	130 x 0·751	97·63	
4	130 x 0·683	88·79	411·97
5	130 x 0·621		80·73

Discounted payback occurs in year 5 and can be estimated as:

4 years plus (450 – 411·97) / 80·73 of year five = 4·47 years.

Question 1.7

Calculate the Internal Rate of Return (IRR) of investment C.

(3 marks)

Workings

Discount using 20% cost of capital

Year	Cashflow £000	Discount Factor	Present Value £000
0	(350)	1·000	(350)
1	50	0·833	42
2	110	0·694	76
3	130	0·579	75
4	150	0·482	72
5	100	0·402	40
NPV			(45)

	Discount Factor	NPV £000
	10%	48
	20%	(45)
Change	10%	(93)

IRR = 10% + (48/93 x 10%) = **15% (approx).**

Question 1.8

A company is preparing a quotation for a new product. The time taken for the first unit of the product was 30 minutes and the company expects an 85% learning curve. The quotation is to be based on the time taken for the final unit within the learning period which is expected to end after the company has produced 200 units.

Calculate the time per unit to be used for the quotation.

Note: The learning index for an 85% learning curve is -0·2345

(4 marks)

Workings

$y = ax^b$

At 200 units: $y = 30 \times 200^{-0.2345} = 8·660$
Total time = 8·660 x 200 =   1,732·00 minutes

At 199 units: $y = 30 \times 199^{-0.2345} = 8·670$
Total time = 8·670 x 199 =   1,725·33 minutes

The time for the 200th unit to be used for the quotation is **6·67 minutes**

Section B – 30 marks
ANSWER *ALL* THREE QUESTIONS

Question 2

(a) Briefly explain sensitivity analysis and how the manager may use it in the evaluation of this project.

(4 marks)

(b) Calculate the sensitivity of the project to independent changes in

(i) the selling price;
(ii) the cost of capital.

(6 marks)

(Total for Question Two = 10 marks)

Rationale
Question Two requires candidates to explain sensitivity analysis and to use the data provided to calculate the sensitivity of an investment project to independent changes in two of the input variables. The question addresses the learning *outcome "Apply sensitivity analysis to cash flow parameters to identify those to which net present value is particularly sensitive."*

Suggested Approach
Read the scenario carefully
Explain the meaning of sensitivity analysis
Explain how sensitivity analysis could be used by the manager
Calculate the sensitivity of the project to a change in the selling price
Calculate the sensitivity of the project to a change in the cost of capital

Marking Guide	Marks
Explain the meaning of sensitivity analysis	2
Explain how sensitivity analysis could be used by the manager	2
Calculate the sensitivity of the project to a change in the selling price	2
Calculate the sensitivity of the project to a change in the cost of capital	4

Examiner's Comments
Most candidates attempted to explain sensitivity analysis but only those who related the technique to the scenario in the question scored highly.

The attempts at part (b) were relatively poor, with candidates completely ignoring the tax implication and, in some cases, the time value of money
Common Errors
1. Not relating the answer to the scenario in the question;
2. Ignoring the tax implication in part (b).

Question 3

(a) Explain the meanings of, and the differences between, Value Analysis and Functional Analysis.

(4 marks)

(b) Briefly explain the series of steps that you would take to implement Value Analysis for this organisation.

(6 marks)

(Total for Question Three = 10 marks)

Rationale

Question Three requires candidates to explain the meanings of and differences between Value Analysis and Functional Analysis and then to explain the steps that would be needed to implement Value Analysis into the organisation depicted in the scenario. This question addresses the learning outcome *"Compare and contrast value analysis and functional cost analysis".*

Suggested Approach

Read the scenario carefully
Explain the meanings of Value Analysis and Functional Analysis
Explain the differences between Value Analysis and Functional Analysis
Explain the steps to be taken to implement Value Analysis in the context of the scenario provided

Marking Guide	Marks
Explain the meanings of Value Analysis and Functional Analysis	2
Explain the differences between them	2
Explain the steps to be taken to implement Value Analysis	6

Examiner's Comments

Many candidates read "Value Analysis" as the "Value Chain" and put forward an answer based on Porter's model. Very few candidates attempted to explain "Functional Analysis".

Part (b) required candidates to explain the process associated with Value Analysis but attempts were poor due to problems candidates encountered in answering part (a).

Common Errors
A number of candidates demonstrated a complete lack of understanding of the two techniques and of the difference between them (that is, Value Analysis relates to an existing product or service whereas Functional Analysis is more commonly applied to a product or service prior to its production).

Question 4

Prepare a report, addressed to the Managing Director, that discusses quality costs and their significance for the company. Your report should include examples of the different quality costs and their classification within a manufacturing environment.

(10 marks)

Note: 2 marks are available for report format

Rationale

Question Four requires candidates to prepare a report that discusses quality costs and their significance for the company depicted in the scenario. This question addresses the learning outcome "*Explain the concepts of continuous improvement and Kaizen costing that are central to total quality management and prepare cost of quality reports*".

Suggested Approach

Identify and explain the different quality costs with examples of each
Discuss the significance of those costs for the company

Marking Guide

	Marks
Identify and explain the different quality costs with examples of each	4
Discuss the significance of those costs for the company	4
Report format	2

Examiner's Comments

Most candidates made a good attempt at this question. However, a number of candidates failed to take advantage of the marks that were available for presenting the answer in a report format. (To, From and a date is simply not enough for two marks).

Common Errors
1. Not presenting a report;
2. Not giving relevant examples of different quality costs;
3. Not developing the price/quality relationship;
4. Not developing the relationship between incurring conformance costs and avoiding non-conformance costs.

Question 5

(a)

    (i)   Calculate the monthly rates of learning that applied during the six months;

    (ii)   Identify when the learning period ended and briefly discuss the implications of your findings for AVX Plc.

(10 marks)

(b)   Calculate the profit maximising selling price per batch using the data supplied by the Finance Director

(8 marks)

(c)

    (i)   Explain the difference between standard costs and target costs;

    (ii)   Explain the possible reasons why AVX Plc needs to re-consider its pricing policy now that the CB45 circuit board has been available in the market for six months.

(7 marks)

(Total for Question Five = 25 marks)

Rationale

Question Five requires candidates to prepare calculations to enable them to determine the rate of learning that occurred in the company depicted in the scenario, when this learning ended and its implications for the company in part (a). In part (b) candidates were required to calculate the company's profit maximising price based upon the data provided, and then in part (c) to explain the differences between standard costs and target costs and the reasons why the company needs to reconsider its pricing policy now that its product has been available for six months. This question addresses the learning outcomes *"Apply an approach to pricing based on profit maximisation in imperfect markets and evaluate the financial consequences of alternative pricing strategies"* and *"Explain and apply learning and experience curves to estimate time and cost for new products and services"* and *"Explain how target costs can be derived from target prices and describe the relationship between target costs and standard costs"*.

Suggested Approach

(a)
Calculate the actual hours for each month and to date by combining the labour efficiency variances and the standard hours
Calculate the cumulative average actual hours per batch for each month
Calculate the rate of learning that occurred in each month until there is no further improvement
Discuss the implications of the learning effect

(b)
Determine the price equation
Determine the marginal revenue equation
Determine the optimum quantity
Determine the optimum price

(c)
Explain standard cost and target cost and the difference between them
Explain why AVX Plc needs to reconsider its pricing policy

Marking Guide	Marks
(a)	
Calculate the actual hours for each month and to date by combining the labour efficiency variances and the standard hours	3
Calculate the cumulative average actual hours per batch for each month	2
Calculate the rate of learning that occurred in each month until there is no further improvement	3
Discuss the implications of the learning effect	2
(b)	
Determine the price equation	4
Determine the marginal revenue equation	1
Determine the optimum quantity	2
Determine the optimum price	1
(c)	
Explain standard cost and target cost and the difference between them	4
Explain why AVX Plc needs to reconsider its pricing policy	3

Examiner's Comments

Part (a) was very poorly answered. The majority of candidates were unable to relate the efficiency variance to the learning curve and demonstrated a lack of understanding of the basic principles of the learning curve.

Part (b) was very well answered

(c) (i) A surprising number of candidates were unable to explain the term 'standard cost'. This is one of the most important and fundamental aspects of management accounting.

(c) (ii) Many answers described market skimming and market penetration, rather than developing the theme put forward in c(i), that AVX Plc needed to move from a cost plus pricing technique to a target selling price technique.

Common Errors

1. Not being able to relate variances to the learning curve;
2. Not being able to explain the terms 'standard cost' and 'target cost';
3. Providing a detailed answer discussing different methods of pricing without relating the discussion to cost implications.

Question 6

(a) Prepare a decision tree to illustrate the investment decision that needs to be made by the manager of the health clinic. (Numerical values are NOT required).

(6 marks)

(b) Advise the manager of the health clinic which investment decision should be undertaken on financial grounds.

(15 marks)

(c) Briefly discuss any non-financial factors that the manager should consider before making her final investment decision.

(4 marks)

(Total for Question Six = 25 marks)

Rationale

Question Six requires candidates to prepare a decision tree for an investment decision, advise as to which decision should be taken on financial grounds and then to discuss any non financial factors that should also be considered. This question addresses the learning outcomes *"Produce decision support information for management, integrating financial and non financial considerations"* and *"Prepare and apply decision trees"*.

Suggested Approach

(a)
Read the scenario carefully
Identify the three alternatives
Identify possible year 1 outcomes and plot them
Identify the outcomes for the rest of the project and plot them

(b)
Identify the investment needed for each of options A and B
Identify the costs expected to arise for each alternative
Determine the probability of each outcome
Calculate the total expected cost of each investment decision
Advise the manager which decision should be taken on financial grounds

(c)
Identify and discuss any non-financial factors that the manager
should consider before making her decision

Marking Guide	**Marks**
(a)	
Identify the three alternatives	1
Identify possible year 1 outcomes and plot them	2
Identify the outcomes for the rest of the project and plot them	3
(b)	
Identify the investment needed for each of options A and B	2
Identify the costs expected to arise for each alternative	5
Determine the probability of each outcome	3
Calculate the total expected cost of each investment decision	3
Advise the manager which decision should be taken on financial grounds	2
(c)	
Identify and discuss any non-financial factors that the manager should consider before making her decision	4

Examiner's Comments

(a) Very few good attempts were put forward, with only a small percentage of candidates displaying a good knowledge of decision trees. Some attempts were extremely poor.

(b) Many different approaches were acceptable. While there were some good attempts, a number of candidates simply presented a full page of figures, with poor labelling and descriptions, and expected the marker to pick out the relevant figures.

(c) Most candidates put forward 'general' answers and did not mention the three most important non-financial factors: loss of control, problems concerning quality and the possible impact on staff motivation.

Common Errors

1. Demonstrating a lack of understanding of decision trees
2. Demonstrating an inability to present financial information in a clear and concise manner.
3. Ignoring the option to continue as at present

Question 7

(a)   For each of the four products, calculate the relevant contribution per $ of material B for the next quarter.

(6 marks)

(b)   It has been determined that the optimum production plan based on the data above is to produce 4,100 units of product G, 4600 units of product H, 800 units of product J, and 2,417 units of product K. Determine the amount of financial penalty at which GHK would be indifferent between meeting the contract or paying the penalty.

(5 marks)

(c)   Calculate the relevant contribution to sales ratios for each of the four products.

(2 marks)

(d)   Assuming that the limiting factor restrictions no longer apply, prepare a sketch of a multi product profit volume chart by ranking the products according to your contribution to sales ratio calculations based on total market demand. Your sketch should plot the products using the highest contribution to sales ratio first.

(6 marks)

(e)   Explain briefly, stating any relevant assumptions and limitations, how the multi product profit volume chart that you prepared in *(d)* above may be used by the manager of GHK to understand the relationships between costs, volume and profit within the business.

(6 marks)

(Total for Question Seven = 25 marks)

Rationale

Question Seven requires candidates to use relevant cost principles to calculate the relevant contributions for each of four products from the data provided in part (a), to calculate in part (b) the sensitivity of the product mix solution provided to a change in a financial penalty and in parts (c), (d) and (e) of the question to prepare a multi product profit volume chart and discuss its assumptions and limitations. This question addresses the learning outcome *"Apply variable/fixed cost analysis in multiple product contexts to break-even analysis and product mix decision making, including circumstances where there are multiple constraints and linear programming methods are needed to reach optimal solutions"*.

Suggested Approach

(a)
Determine the relevant product contributions
Calculate the relevant contribution per $ of material B

(b)
Calculate the contribution from the minimum contract
Calculate the contribution from the alternative use of resources
Calculate the penalty value

(c)
Calculate the product contribution/sales ratios

(d)
Calculate and plot the general fixed costs
Plot the products, starting with the product which earns the highest c/s ratio

(e)
Explain the use of the chart

Marking Guide	Marks
(a)	
Determine the relevant product contributions	5
Calculate the relevant contribution per $ of material B	1
(b)	
Calculate the contribution from the minimum contract	2
Calculate the contribution from the alternative use of resources	2
Calculate the penalty value	1
(c)	
Calculate the product contribution/sales ratios	2
(d)	
Calculate and plot the general fixed costs	2
Plot the products, starting with the product which earns the highest c/s ratio	4
(e)	
Explain the use of the chart	6

Examiner's Comments

(a) This was poorly answered. In most cases the overhead was ignored and contributions were not expressed in terms of "contribution per $ of material B".
(b) Very few completely correct answers were produced.
(c) No issues to report.
(d) Very few candidates were able to sketch a multi-product profit volume chart. The rules relating to graphs/sketches such as labelling and drawing lines in the correct proportions were often ignored.
(e) Most answers were poor and very few related to the scenario in the question.

Common Errors

1. Not following the basic principles that relate to limiting factor situations;
2. Not being able to apply the principles of limiting factors to the scenario in the question;
3. Producing charts that were poorly sketched and/or difficult to interpret, with little or no labelling of the information displayed.