General Comments

The overall average mark was above the level achieved in previous diets, with a higher proportion of candidates attaining good marks, and some students attaining excellent marks.

The paper contained questions relating to the topics that have become familiar to this paper, and should have caused no problem for a well prepared candidate. Topics such as the learning curve, investment appraisal and the two-way data table fall into this category. Whereas most candidates made solid attempts at numerical questions, many displayed a marked weakness when tacking discursive issues, especially when asked to explain the figures calculated in the numerical part of a question. For example, 'Explain the meaning of the table you have produced in part (c)'.

It was also a little disappointing to note that in some cases the questions that tested fundamental aspects of management accounting were poorly answered. This emphasises the point that students who have been awarded exemptions from papers C1 (Fundamentals of Management Accounting) and P1 (Management Accounting Performance Evaluation) need to ensure they have a good understanding of all topics included in the two syllabi before attempting the P2 examination.

The quality of writing and grammar was generally good. However, many candidates presented answers that were difficult to follow and assumed the marker would understand what they meant to say, as opposed to what they actually wrote.

The marking team also experienced great difficulty in marking the answers to numerical questions, where candidates did not give clear directions to workings relating to their answers. This unfortunately did not allow markers to apply the 'own figure' rule, which in many cases could have gained candidates additional marks.

It was pleasing to note that candidates appear to be making full use of the 20 minutes planning time, especially as very few candidates appeared to encounter a time constraint problem.

The performance on question 1 (objective test questions) again showed an improvement when compared to the previous two diets. It was unfortunate that some students did not take the advice given in the instructions for answering Section A, in that they did not show their workings for sub-questions 1.6, 1.7 and 1.8 for which marks could be awarded.

Section A – 50 marks

Question 1.1

An investment project that requires an initial investment of $500,000 has a residual value of $130,000 at the end of five years. The project's cash flows have been discounted at the company's cost of capital of 12% and the resulting net present value is $140,500. The profitability index of the project is closest to:

A 0·02

B 0·54

C 0·28

D 0·26

(2 marks)

The answer is **C**

Workings

Profitability Index = $140,500 / $500,000 = 0·28

Question 1.2

A project has a net present value of $320,000.

The sales revenues for the project have a total pre-discounted value of $900,000 and a total present value of $630,000 after tax.

The sensitivity of the investment to changes in the value of sales is closest to:

A $310,000

B $580,000

C 51%

D 36%

(2 marks)

The answer is **C**

Workings

Sensitivity = $320,000 / $630,000 = 51%

Question 1.3

A company provides a number of different services to its customers from a single office. The fixed costs of the office, including staff costs, are absorbed into the company's service costs using an absorption rate of $25 per consulting hour based on a budgeted activity level of 100,000 hours each period.

Fee income and variable costs are different depending on the services provided, but the average contribution to sales ratio is 35%. The breakeven fee income each period is closest to:

A $1,400,000

B $11,500,000

C $875,000

D $7,143,000

(2 marks)

The answer is **D**

Workings

Breakeven sales value = Fixed cost / Contribution to sales ratio
= $2,500,000/ 0·35
= $7,142,857

Question 1.4

A company has recently completed the production of the first unit of a new product. The time taken for this was 12 minutes. The company expects that there will be a 75% learning rate for this product.

Calculate the total time expected to produce the first four units.

(2 marks)

Workings

Units	*Average Time/unit (minutes)*	*Total time (minutes)*
1	12·00	12·00
2	9·00	18·00
4	6·75	27·00

The following data are given for sub-questions 1.5 and 1.6 below

An investment project with no residual value has a net present value of $87,980 when it is discounted using a cost of capital of 10%. The annual cash flows are as follows:

Year	*$*
0	(200,000)
1	80,000
2	90,000
3	100,000
4	60,000
5	40,000

Question 1.5

Calculate the Accounting Rate of Return of the project using the average investment value basis.

(2 marks)

Workings

	$
Lifetime cash flows	370,000
Lifetime depreciation	200,000
Lifetime profit	170,000
Average annual profit	34,000

ARR = Average annual profit / Average investment value
= $34,000 / $100,000
= 34%

Question 1.6

Calculate the Internal Rate of Return of the project.

(3 marks)

Workings

Discounting the cash flows using 20% gives:

Year	*Cash flow*	*DF*	*PV*
	$		*$*
0	(200,000)	1·000	(200,000)
1	80,000	0·833	66,640
2	90,000	0·694	62,460
3	100,000	0·579	57,900
4	60,000	0·482	28,920
5	40,000	0·402	16,080
			32,000

IRR (%) = 20 + (32,000/55,980 x 10) = 26%

Question 1.7

A company manufactures three products. Each of these products uses the same type of material but in different quantities. The unit selling prices, cost and profit details are as follows:

Product	*X* *$/unit*	*Y* *$/unit*	*Z* *$/unit*
Selling price	23	26	28
Direct materials	6	8	6
Direct labour	8	6	8
Variable overhead	2	3	3
Fixed overhead	4	5	6
Profit	3	4	5

The direct material used on all three products costs $10 per kg. The material available is expected to be limited to 600 kgs for the next accounting period. The maximum demand for each of the products during the next accounting period is expected to be as follows:

X 240 units Y 600 units Z 400 units

No inventories of finished products are held.

Calculate the optimum product mix for the next accounting period.

(3 marks)

Workings

Product	*X*	*Y*	*Z*
Contribution / unit	$7	$9	$11
Materials / unit (kg)	0·6	0·8	0·6
Contribution / kg	$11·67	$11·25	$18·33
Ranking	2nd	3rd	1st
Produce (units)	240	270	400
Uses (kgs)	144	216	240

Question 1.8

A company is launching a new product. Market research shows that if the selling price of the product is $100 then demand will be 1,200 units, but for every $10 increase in selling price there will be a corresponding decrease in demand of 200 units and for every $10 decrease in selling price there will be a corresponding increase in demand of 200 units. The estimated variable costs of the product are $30 per unit. There are no specific fixed costs but general fixed costs are absorbed using an absorption rate of $8 per unit.

Calculate the selling price at which profit is maximised.

Note: When Price = a-bx then Marginal Revenue = a-2bx

(4 marks)

Workings

P = $160 – 0·05q

MR = 160 – 0·1q

MC = 30

Profit is maximised when MC = MR so

30 = 160 – 0·1q

130 = 0·1q

q = 1,300

P = $160 – 0·05q

Therefore P = $160 – (0·05 x 1,300) = $95

Section B – 30 marks

ANSWER *ALL* THREE QUESTIONS

Question 2

(i) Calculate the revised expected cumulative direct labour costs for the four levels of output given the actual cost of $280,000 for the first batch.

(ii) Calculate the actual learning rate exhibited at each level of output.

(iii) Discuss the implications of your answers to (i) and (ii) for the managers of the company.

(10 marks)

(Total for Question Two = 10 marks)

Rationale

Question Two This question tests candidates' understanding of the learning curve and the effect of differences between the expected and actual initial unit/time cost, the learning rate and the length of the learning period on the eventual time/cost of units produced. This question addresses the learning outcome: *Explain and apply learning and experience curves to estimate time and cost for new products and services.*

Suggested Approach

- Calculate the expected direct labour cost using the expected rate of learning and the expected length of the learning period based on the actual labour cost of the first batch
- Compare the result of your calculations with the actual labour cost provided
- Calculate the actual rate of learning shown by the actual labour cost provided
- Comment on the differences between the expected learning and the actual learning that occurred and discuss the implications for profitability and pricing

Marking Guide	Marks
Calculating the difference in the rate of learning	3
Calculating the length of the learning period	3
Identifying and commenting on the differences between the expected learning and the actual learning that occurred and discussing the implications for profitability and pricing	4

Examiner's Comments

Although part (i) was generally well answered the answers to parts (ii) and (ii) were generally poor. The majority of answers put forward by candidates for part (ii) demonstrated either a total misunderstanding of what was required, or that the candidate did not know the simple method of calculating the rate of learning, (as opposed to the formula). The majority of candidates attempting part (iii) incorrectly assumed that an 85% learning rate was an improvement on the expected rate of 80%.

Common Errors

1. Not understanding the principles associated with the learning curve.
2. Calculating an incorrect actual rate of learning.
3. Not understanding that an increase in the learning curve percentage was a worsening position that could have pricing and profitability implications.

Question 3

(a) Produce calculations to determine the optimum replacement cycle of the boats and state clearly your recommendations. Ignore taxation.

(6 marks)

(b)

(i) Explain the meaning of the data shown above; and

(ii) Briefly explain how the data may be used by the company when choosing between alternative investments.

(4 marks)

(Total for Question Three = 10 marks)

Rationale

Question Three This question tests candidates' knowledge of two specific areas of long term decision making. In part (a) candidates are required to prepare calculations to determine the optimum asset replacement cycle for a company. In part (b) candidates are required to explain the data provided and how it may be used to choose between alternative investments. This question addresses the learning outcome: *Evaluate and rank projects that might be mutually exclusive, involve unequal lives and/or be subject to capital rationing.*

Suggested Approach

(a)

- Identify the relevant cash flows of each replacement cycle
- Identify the timing of those relevant cash flows
- Calculate the net present value and annualised equivalent cost of each replacement cycle
- Make a recommendation based upon the calculations

(b)

- Explain expected NPV
- Explain standard deviation
- Discuss risk v return relationship using data provided

Marking Guide	**Marks**
(a) Selecting an appropriate solution method and using it appropriately	3
Using relevant cash flows correctly and making an appropriate recommendation	3
(b) Explain expected NPV	1
Explain standard deviation	1
Discuss risk v return relationship using data provided	2

Examiner's Comments

Most candidates were able to produce net present value calculations, but very few annualised the figures relating to the three cycles, with the result that a true and correct comparison could not be made. (Annualisation did not apply if a six year cash flow profile was submitted).

Many candidates submitted poor layouts/ presentation of the figures, also providing poor or no links to workings. Both situations complicated the marking process and made it difficult to award marks.

In part (b) many candidates could not explain, in their own words, the terms 'net present value' and 'standard deviation'. This is a source of concern, especially as these topics are included in the Certificate Level syllabus.

Common Errors

1. Demonstrating a complete lack of understanding of the techniques of annualising.
2. Calculating a NPV (part (a)) but not appreciating that the highest NPV, based solely on cost, is the most inferior position.
3. Demonstrating an inability to explain the terms 'net present value', and 'standard deviation'.
4. Not appreciating that standard deviation figures are synonymous with the risk associated with each campaign.

Question 4

(a) Produce calculations to determine whether any of the intermediate products should be further processed before being sold. Clearly state your recommendations together with any relevant assumptions that you have made.

(3 marks)

(b) Produce calculations to assess the viability of the common process:

(i) assuming that there is an external market for products R,S and T; and

(ii) assuming that there is **not** an external market for products R,S and T.

State clearly your recommendations.

(7 marks)

(Total for Question Four =10 marks)

Rationale

Question Four This question tests candidates' ability to interpret a process account and with the other data provided to determine the viability of the process. This question addresses the learning outcome: *Explain why joint costs must be allocated to final products for financial reporting purposes, but why this is unhelpful when decisions concerning process and product viability have to be taken.*

Suggested Approach

- Compare incremental costs and revenues for each product and make recommendations
- Compare the sales value of the common process with its costs and comment on viability:
- Recognising the benefits of further processing as accruing to the common process
- Calculate the benefits of further processing and make a recommendation

Marking Guide	**Marks**
Compare incremental costs and revenues for each product and make recommendations	3
Compare the sales value of the common process with its costs and comment on viability	4
Recognising the benefits of further processing as accruing to the common process	1
Calculate the benefits of further processing	1
Conclusion	1

Examiner's Comments

The majority of candidates did not appreciate the simplicity of part (a) where marks were awarded for comparing the incremental income with the incremental costs for each product. A variety of alternative methods were put forward which, while gaining the marks available, were lengthy and time consuming.

Part (b) was fairly well answered, although many candidates did not fully grasp what was required and put forward the answer for b(i) as the answer for b(ii) and vice versa. Unfortunately as the requirement was quite specific the marks were not interchangeable. As already mentioned, candidates did not always provide clear directions to workings.

Common Errors

1. Completely ignoring the fixed costs associated with product T/TZ.
2. Setting out figures, but not indicating the meaning of the figures. In addition, for parts b(ii) and b(iii) omitting to include the totals of the three products i.e. the final outcome.
3. Omitting to put forward any recommendations and instead simply leaving the markers to draw their own conclusions from the figures submitted.

Section C – 50 marks

ANSWER *TWO* QUESTIONS OUT OF THREE

Question 5

(a) Calculate the net present value of the above investment proposal.

(10 marks)

(b) Explain how the above investment project would be appraised if there were to be a change in the rate of inflation so that it became too significant to be ignored.

(5 marks)

(c) Recommend, with supporting calculations, which of the three investment proposals should be accepted.

(3 marks)

(d)

(i) Briefly explain gain sharing arrangements.

(3 marks)

(ii) Explain the reasons why X might not want to overcome its investment funding limitations by using a gain sharing arrangement.

(4 marks)

(Total for Question Five = 25 marks)

Rationale

Question Five This question tests candidates' ability in part (a) to calculate the net present value of an investment proposal from the data provided and in part (b) to discuss how their appraisal would change if inflation were at a significant level. Part (c) of the question requires candidates to choose between alternative investment opportunities, and part (d) requires candidates to explain gain sharing arrangements and why they may not be a solution to a limitation in investment funding. This question addresses the learning outcomes: *Calculate project cash flows*, *accounting for tax and inflation, and apply perpetuities to derive "end of project" value where appropriate;* and *Evaluate and rank projects that might be mutually exclusive, involve unequal lives and/or be subject to capital rationing* and *Discuss gain sharing arrangements whereby contractors and customers benefit if contract targets for cost, delivery etc are beaten.*

Suggested Approach

(a)

- Identify the relevant costs and revenues of the investment proposal
- Convert these relevant costs and revenues into annual cash flows by adjusting for opening and closing receivables and payables
- Calculate the tax arising on the investment and the timing of its payment
- Calculate the net present value of the proposal

(b)

- Explain how the calculations would be affected if inflation were to become significant

(c)

- Determine the possible combinations of projects and investments given the limited funds available for investment
- Calculate the NPV of each possible combination and make a recommendation

(d)

- Explain gain sharing arrangements
- Explain why X may not wish to enter into a gain sharing arrangement

Marking Guide	**Marks**
(a) Identifying relevant costs and revenues	4
Taxation cash flows	3
Adjusting for receivables and payables	2
Discounting	1
(b) Inflation of cash flow elements	2
Conversion into cash flows	2
Use of money cost of capital	1
(c) Identify possible combinations and their NPVs	2
Recommendation	1
(d) (i) Explain gain sharing arrangements	3
(ii) Explain why X plc may not wish to enter into such an arrangement	4

Examiner's Comments

A straightforward discounted cash flow exercise involving tax and phasing implications.

In part (a) most candidates opted to completely ignore the payables and receivables figures, whereas other candidates made very poor attempts to adjust for them. In addition many candidates simply applied the taxation rate to the profit as given in the question and did not adjust for the depreciation that was included in the "other" costs figure.

In part (b) many candidates appeared to understand the significance of a change in the rate of inflation but were unable to explain clearly the terms 'money rate' and 'real rate'.

Part (c) was generally answered well, although many candidates introduced the profitability index to rank the use of the capital available, even though the question clearly stated the proposals were non-divisible.

Part (d) was generally answered quite well.

Common Errors

1. Failing to introduce the receivables and payables balances into the cash flow statement.
2. Treating the profit given in the question as the cash flow figure i.e. failing to remove the depreciation figure from the "Other Production Costs".
3. Not explaining correctly the difference between "money rates" and "real rates" of interest.
4. Adopting the performance index as a measure when allocating available funds.

Question 6

(a) In order to assist the management of H in preparing its quotation, prepare a schedule showing the relevant costs for the production of the catalogues. State clearly your reason for including or excluding each value that has been provided in the above scenario.

(15 marks)

(b) Explain how the use of relevant costs as the basis of setting a selling price may be appropriate for short-term pricing decisions but may be inappropriate for long-term pricing decisions. Your answer should also discuss the conflict between reporting profitability within a traditional absorption costing system and the use of relevant cost based pricing.

(10 marks)

(Total for Question Six = 25 marks)

Rationale

This question tests candidates' ability in part (a) to interpret relevant cost data to determine the relevant cost of printing a brochure and in part (b) to explain the appropriateness of using relevant costs as the basis of pricing and the conflict that can arise when reporting profitability if a relevant cost based pricing method is used. This question addresses the learning outcomes: *Discuss the principles of decision making including the identification of relevant cash flows and their use alongside non-quantifiable factors in making rounded judgements;* and *Explain the possible conflicts between cost accounting for profit reporting and stock valuation and the convenient availability of information for decision making;* and *Explain the particular issues that arise in pricing decisions and the conflict between "marginal cost" principles and the need for full recovery of all costs incurred.*

Suggested Approach

(a)

- Identify each cost from the scenario provided
- Determine the relevant value and explain the reason for its inclusion / exclusion

(b)

- Discuss short term v long term pricing decisions
- Routine reporting using absorption costing
- Conflict between profitability reported and decision making

Marking Guide	**Marks**
(a) Each relevant item	5
Reasons for including /excluding each item	10
(b) Short term v long term pricing decisions	4
Routine reporting using absorption costing	4
Conflict between profitability reported and decision making	2

Examiner's Comments

This was the optional question chosen by most candidates, and generally the answers for part (a) were well presented. Unfortunately the answers to part (b) were generally poor, with most candidates simply describing the characteristics of marginal costing, and not addressing the question which was in effect in two parts. Firstly, candidates were asked to explain why relevant costing is suitable for short term pricing but not suitable for long term pricing. Secondly, a discussion was requested relating to the conflict between absorption costing and relevant costing when reporting profitability.

Common Errors

1. Failing to answer the question, particularly in part (a) when every item needed a comment i.e. the reason a figure was included or the reason it was excluded.
2. Failing to follow the golden rules relating to relevant costing i.e. a relevant cost is a "future cost" and it is "cash".
3. Not answering the question, but simply putting forward general answers relating to absorption costing/marginal costing.

Question 7

(a) Calculate the expected annual fee income of D.

(2 marks)

(b) Using Expected Values, calculate the breakeven number of members.

(3 marks)

(c) Prepare a two-way data table that shows the nine possible profit values.

(6 marks)

(d) Explain the meaning of the table that you have produced in *(c)* above and, by including appropriate probability values, how it may be used by management.

(4 marks)

(e) Explain how and why the collection of this data from members might improve the information that would be available to the Management Team.

(10 marks)

(Total for Question Seven = 25 marks)

Rationale

Question Seven This question tests candidates' ability to analyse data to determine the expected value and the range of possible profit values that could arise for a company that provides a motorist rescue service and then to explain how the use of activity based costing might improve the information available to the Management Team. This question addresses the learning outcomes: *Evaluate the impact of uncertainty and risk on decision models that may be based on CVP analysis, relevant cash flows, learning curves, discounting techniques etc;* and *Apply activity based costing ideas to analyse direct customer profitability and extend this analysis to distribution channel profitability.*

Suggested Approach

(a)

- Calculate expected income value

(b)

- Calculate the expected contribution per member
- Calculate the breakeven number of members

(c)

- Prepare the two-way data table

(d)

- Discuss the range of values in the table
- Discuss the use of probability to assist in the interpretation of the table

(e)

- Discuss the use of Activity Based Costing principles and how they can be applied to the scenario
- Explain the need for collection and cross analysis of cost data
- Discuss the use of members' data and its relevance

Marking Guide	**Marks**
(a) Calculate expected income value	2
(b) Calculate the expected contribution per member	1
Calculate the breakeven number of members	2
(c) Prepare the two-way data table:	
Structure	1
Contribution values	3
Fixed cost	2
(d) Range of values	2
Probability interpretation	2
(e) Recognition of ABC	2
Collection & cross analysis of cost data	2
Discuss use of members' data and its relevance	6

Examiner's Comments

Parts (a) and (b) were well answered.

A large variety of answers was put forward for part (c) and many of these options successfully gained marks. However two particular aspects were crucial for full marks to be awarded: a two-way table as opposed to simply a list of figures, and profits were requested as opposed to contributions.

In part (d) very few candidates put forward a meaningful explanation of the two-way data table, especially by introducing joint probability figures.

Many candidates submitted lengthy answers to part (e) which were of a general nature. The main point the examiner was seeking related to the principles of Activity Based Costing and recognising that there could be many causes of cost being incurred, not simply the number of members.

A good answer also needed to develop the idea that the availability of additional information from members would allow the company to recognise the costs incurred by each member and allow a fairer pricing strategy to be adopted.

Common Errors

1. Including contributions, as oppose to profits in the two-way table.
2. Presenting a vertical list of numbers as opposed to a traditional two-way table.
3. Failing to introduce joint probability figures to support the answers in part (d).
4. Failing to appreciate that costs can be driven by many causes and that additional data would help the company to introduce a fairer pricing structure.