

General Comments

Overall, candidates' performance was very good, with a significant increase in the pass rate compared to the previous exam sitting. The exam assessed a breadth of topics from across the syllabus including learning curve effect, direct customer profitability analysis, just-in-time production, feedback/feed-forward control, balanced scorecard, profit and investment centre analysis and transfer pricing.

Questions 1 and 2 were generally well answered. In question 3 candidates had a good understanding of just-in-time systems but some were weak on the calculation aspect – either not calculating the average inventory cost as required by the question, or forgetting to take account of the shortfall standard hours or overtime hours.

The weakest performance was on question 4 which required candidates to be able to distinguish between feedback and feed-forward control. Many candidates were not able to differentiate between the two types of controls, or to give suitable example of each difference.

In question 5 candidates gave a good discussion on the balanced scorecard. However, some candidates were weak in giving examples of performance measures that were suitable to the scenario presented in the question.

Section A – 50 marks

ANSWER ALL FIVE QUESTIONS IN THIS SECTION. EACH QUESTION IS WORTH 10 MARKS. YOU SHOULD SHOW YOUR WORKINGS AS MARKS ARE AVAILABLE FOR THE METHOD YOU USE.

Question 1

(a) **Calculate** labour efficiency planning and operating variances following the recognition of the learning curve effect.

(6 marks)

(b) **Explain** why the recognition of the learning curve effect is important for companies that use Target Costing.

(4 marks)

(Total for Question One = 10 marks)

Rationale

The question examines candidates' knowledge and understanding of the learning curve and how it links with target costing. The learning outcomes tested are B1(e) *apply learning curves to estimate time and cost for new products and services.*

Suggested Approach

Use the Learning Curve formula to calculate the average time per unit.
 Calculate total time for 49 units
 Determine original standard hours for actual output.
 Calculate the labour efficiency planning variance (= standard hours for actual output – time allowed for actual production) x standard labour rate;
 Calculate Operating efficiency variance (= actual hours worked – time allowed for actual production) x std labour rate.

Marking Guide

Marks

(a)	
Calculate total time for 49 units	2 marks
Calculate labour efficiency planning variance	2 marks
Calculate operating efficiency variance	2 marks
(b)	
Explanation of target costing	2 marks
Explanation of learning curve	1 mark
Explanation of why Learning curve is important	Up to 2 marks
	Max. of 4 marks for part (b)

Maximum marks awarded

10 marks

Examiner's Comments

The majority of students calculated the planning and operating variances correctly and explained the meaning of Target Costing well but some students failed to explain why the recognition of the learning curve effect is important for companies that use Target Costing. Also, weaker students did not realise that Target Costing is not just a system that mainly aims to improve quality and increase profitability. Target Costing is used by organisations when they are forced to accept the market price.

Question 2

(a) **Prepare** a Direct Customer Profitability Analysis for each of the two customers for the period.

(6 marks)

(b) **Explain**, using your analysis, how ZZ could use Direct Customer Profitability Analysis to manage its relationships with customers to increase its profits.

(4 marks)

(Total for Question Two = 10 marks)

Rationale

The question examines candidates' ability to apply the principles of Activity Based Costing to Direct Customer Profitability Analysis.

Suggested Approach

Calculate the cost driver rates
 Apply the cost driver rates to the activities consumed by each customer
 Measure the profit from each customer
 Explain how DCPA can be used to improve its profits by considering the causes of costs shown in the analysis

A good answer for Part (a) would be numerically correct with clear workings, part (b) would relate to the scenario whereas a poor answer to (b) would be too generic.

Marking Guide

Marks

(a)	
Calculation of cost driver rates	2 marks
Calculation of customer costs	2 marks
Measurement of customer profits	2 marks
(b)	
Explanations of examples relevant to the scenario (two examples)	2 marks per example explanation

Maximum marks awarded

10 marks

Examiner's Comments

This question was answered very well. Students analysed the profitability of each of the two customers very well. However, some students provided just general comments on how DCPA could be used by the company without any reference to the calculations in Part (a) or to the scenario.

Question 3

- (a)
- (i) **Calculate** for each of the six months and the period in total, the total inventory holding costs (based on average inventory levels within each month).
 - (ii) **Calculate** the total production cost savings that would be made by using a JIT production system.

(6 marks)

- (b) **Explain** TWO other factors that the company should consider before changing to a JIT production system.

(4 marks)

(Total for Question Three = 10 marks)

Rationale

The question examines candidates' knowledge of alternative production systems and their costs.

Suggested Approach

- Calculate the inventory at the end of each month
- Calculate the average inventory and its cost for each month
- Determine the months in which overtime would be required and its cost
- Compare the total costs of each production method
- Explain other factors to be considered before changing to a JIT production system

Marking Guide

Marks

(a)	
Calculate the average inventory for each of the six months	3 marks
Calculate inventory cost	0.5 mark
Calculate shortfall standard hours	1 mark
Calculate overtime hours	0.5 mark
Calculate total overtime cost	0.5 mark
Calculate total production cost savings using JIT	0.5 mark
(b)	
Two other factors identified and explained	2 marks for each factor

Maximum marks awarded

10 marks

Examiner's Comments

Unfortunately, many students calculated the total inventory holding costs not based on average inventory levels within each month (as was required by the question) but based on closing inventory levels. However, the majority of students explained well two non-financial factors that the company should consider before changing to a JIT production system.

Common Errors

In (a) some candidates didn't calculate 'average inventory costs'. Some candidates failed to identify shortfall standard hours or overtime hours.

Question 4	
<p>Illustrate the differences between feed-forward control and feedback control using the above information.</p> <p style="text-align: right;"><i>(Total for Question Four = 10 marks)</i></p>	
Rationale	
<p>The question examines candidates' understanding of feed-forward control and feedback control in the context of a cash budget. The learning outcome tested is C1(a) <i>explain the concepts of feedback and feed-forward control and their application in the use of budgets for planning and control.</i></p>	
Suggested Approach	
<p>Carefully read the information provided to identify the relevant data. Use the data provided to illustrate the differences between these forms of control.</p>	
Marking Guide	Marks
Differences between feed-forward and feedback control, with identified example for each difference from the given scenario.	2 marks for each. Max of 10 marks
Maximum marks awarded	10 marks
Examiner's Comments	
<p>Unfortunately, few students answered this question well. Many students were confused and could not distinguish between feedback control and feed-forward control. Many could not provide examples of feedback and feed-forward control from the scenario. E.g. measuring progress during the year and then forecasting the final outcome is feed-forward control, whereas the comparison of actual results with budget at the end of the year (which would not give any opportunity to take corrective action) is feedback control.</p>	

Question 5

(a) **Discuss** how the Balanced Scorecard differs from traditional financial performance measurement.

(4 marks)

(b) **Explain** THREE non-financial performance measures (ONE for EACH of the THREE different perspectives given in the scenario) that the Fire Service could use as part of its performance measurement system.

(6 marks)

(Total for Question Five = 10 marks)

Rationale

This question tests candidates' understanding of the Balanced Scorecard. It addresses the learning outcome: *compare and contrast traditional approaches to budgeting with recommendations based on the balanced scorecard.*

Suggested Approach

Carefully read the scenario provided.

Discuss the four perspectives of the Balanced Scorecard.

Explain how non-financial success leads to financial success and therefore the importance of measuring non-financial performance.

Identify and explain three different non-financial performance measures.

Marking Guide

Marks

(a)

Each difference identified
 Each difference further discussed.

1 mark
 1 mark

Maximum of 4 marks

(b)

Each perspective that is identified (relevant to the scenario)
 Each measure identified (relevant to the scenario)
 Explanation of use of measure for performance management

2 marks
 1 mark
 1 mark

Maximum of 6 marks

Maximum marks awarded

10 marks

Examiner's Comment

Some students discussed well the main differences between the Balanced Scorecard (BSC) and traditional financial performance measurement but some students just explained the four perspectives of BSC and did not highlight the differences. Also, some students suggested good non-financial performance measures that the Fire service could use as part of its performance measurement system but failed to explain them. Weaker students suggested "non-financial performance measures" which are not appropriate to the specific scenario, such as the quality of the equipment or customer satisfaction, for example.

SECTION B – 50 MARKS

ANSWER *BOTH* QUESTIONS IN THIS SECTION. EACH QUESTION IS WORTH 25 MARKS. YOU SHOULD SHOW YOUR WORKINGS AS MARKS ARE AVAILABLE FOR THE METHOD YOU USE.

Question 6

- (a) If you were to determine the optimal weekly production plan for company C using linear programming, **state**:
- (i) the objective function
 - (ii) the inequalities for the demand for Product E constraints
 - (iii) the inequality for the material B constraint.
- (4 marks)*
- (b) **Calculate** the optimum weekly production plan for company C.
Note: you are **NOT** required to use linear programming
- (11 marks)*
- (c)
- (i) **Calculate** the minimum price that company C can quote for the production of 3,000 units of product K per week.
- (6 marks)*
- (ii) **Explain** TWO non-financial factors that should be considered before deciding whether or not to manufacture the product K.
- (4 marks)*

(Total for Question Six = 25 marks)

Rationale

This question tests candidates' ability to interpret the data provided to solve a scarce resource problem and measure the sensitivity of the solution to a change in the value of one of the input variables. This question addresses the following learning outcomes: *interpret 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 identify optimal solutions and discuss the meaning of optimal solutions and how linear programming methods can be employed for profit maximising, revenue maximising and satisfying objectives and analyse the impact of uncertainty and risk on decision models based on CVP analysis.*

Suggested Approach

In (a) use objective function formula.

In (b) both material A and material B are limited in supply. Calculations are required to determine whether this affects the production plans of C. The resources required for the maximum demand must be compared with the resources available to determine whether either of the materials is a binding constraint. Ranking allows you to identify optimal use of material B (after satisfying the contracted orders). From this devise a production plan to maximise weekly profit.

In (c) calculate the variable cost per unit for producing product K. The decision to make the new product, from a financial perspective, rests on its comparative ability to generate a contribution equal to that already being earned. The production of 3000 units of K needs 9000 kg of Material B. Therefore determine how much to reduce the output of G and H (after protecting need to fulfil contract) to obtain the required amount of B. Determine the lost contribution arising from the reduced production of H and G and the variable cost of 3000 unit of K. Calculate the minimum price.

Marking Guide	Marks
(a)	
Objective function is stated	1 mark
Algebraic equation for objective function is specified	1 mark
Maximum demand for product E specified	0.5 mark
Minimum demand for product E specified	0.5 mark
Inequality for material B constraint identified	1 mark
(b)	1 mark
Calculate limited availability of A on total resource	1 mark
Calculate limited availability of B on total resource	1 mark
Identify scarcity of material B as a binding constraint	3 marks
Calculate contribution per kg of B to products E, G and H	1 mark
Rank contribution per kg of B for E, G and H	1 mark
Identify optimal use of B after satisfying contracted orders	3 marks
Determine production plan to maximise weekly profits	
(c) i	1 mark
Calculate variable cost per unit for production of product K	1 mark
Determine the amount of material B required to produce 3000 units of K.	1 mark
Identify that reduction in output of G and H is required (after contract fulfil).	
Determine the availability of B after stopping production of G and H (post-contract).	2 mark
Determine minimum price (taking account of lost contribution, and variable cost of 3000 units of K)	1 mark
(c) ii	4 marks
1 mark for stating a factor plus 1 mark for explaining.(2 factors)	
Maximum marks awarded	25 marks
Examiner's Comments	
<p>The question was answered very well. The majority of students stated the objective function and the constraints correctly but some students (not many) stated the inequality for the remaining capacity of Material B instead of the maximum capacity available.</p> <p>Many students correctly determined the weekly production plan for the company. However, some students did not realise that the company has to satisfy the contracted orders first (meet the minimum demand per week) and then to make a decision on the optimum use of Material B.</p>	

Question 7

- (a) **Prepare** an analysis of the internal sales made by Division L to Division M during the year to 31 December 2011. Your answer should show the transfer prices used and the quantities transferred at those prices. (3 marks)
- (b) **Discuss** the effect of possible changes in external demand on the profits of Division L, assuming that the current transfer pricing policy continues. (6 marks)
- (c) Assuming that the current transfer pricing policy continues:
- (i) **Evaluate** the investment from the perspective of the manager of Division L. (6 marks)
- (ii) **Evaluate** the investment from the perspective of the LM Company. (4 marks)
- (d) **Explain** three factors that should be considered when setting a transfer pricing policy. (6 marks)

(Total for Question Seven = 25 marks)

Rationale

Question Seven examines candidates' understanding of transfer pricing and its impact on divisional performance measurement and on decision making. The learning outcomes examined are D2 (b) *discuss revenue and cost information in appropriate formats for profit and investment centre managers, taking due account of cost variability, attributable costs, controllable costs and identification of appropriate measures of profit centre contribution*, D3 (c) *discuss the likely consequences of different approaches to transfer pricing for divisional decision making, divisional and group profitability, the motivation of divisional management and the autonomy of individual divisions* and D2 (c) *discuss alternative measures of performance for responsibility centres*.

Suggested Approach

- 7(a)
- Identify the internal sales volume
 - Identify Division L's ability to sell further components (either through extra capacity or reduced internal sales);
 - Identify components sold to Division M at market price and the balance sold at variable cost.
 - Identify that the price per unit is \$700 @cost and \$900 @ market price.
 - Therefore, calculate the revenue from internal sales.
- 7(b)
- Discuss the effect of the possible change in external demand.
- 7(c)
- Consider each of 'capacity', 'sales at market price' and 'sales at variable cost' in terms of 'current' and 'with investment' scenario.
 - Calculate the annual cost saving to L;
 - Calculate the present value of the annual savings (using 10% annuity factor for 6 years)
 - Determine NPV;
 - Conclude if investment decision is financially viable for L.

7(c) ii	<ul style="list-style-type: none"> - Consider the incremental benefit of the new machine (lower costs; contribution from extra components) - Calculate new variable cost per component; - Calculate cost savings on 80,000 components; - Calculate extra contribution; - Calculate annual benefit - Calculate present value of this over 6 years; - Determine NPV; - Conclude whether investment decision is worthwhile. 	
7(d)	Explain factors which should be considered when setting a transfer pricing policy.	
		Marks
(a)	Number of components at market price (36,000)	1 mark
	Price per unit at market price (\$900)	1 mark
	Number of components at cost price (14,000)	½ mark
	Price per unit at cost price (\$700)	½ mark
(b)	<ul style="list-style-type: none"> - L sells 14000 components to M without financial benefits; - the transfer value, if M buys 14,000 components at market price; - unfairness in all the profit going to M; - some reward to L for supply of components would be fairer; - any transfer price above variable cost would reduce profit for M & increase L's Profit; - decreased external demand for components would increase supply of components to Mat variable cost; - this would lower L's profit but increase M's profit; - reverse would happen if external demand increased. 	1 mark per relevant point; maximum of 6 marks.
(c) i	<ul style="list-style-type: none"> - benefits to L limited to cost-savings on units sold at the external selling price; - the value of the annual benefit of 15% cost saving to L; - Present Value of annual savings, using 10% annuity factor for 6 years; - NPV - Decision: investment is not financially viable for L 	2 marks 1 mark 1 mark 1 mark
(c) ii	<ul style="list-style-type: none"> - calculate variable cost - cost-savings on 80,000 components; - extra contribution; - annual benefit (\$10.84m) - Present Value over 6 years - NPV (\$12.208) - Investment decision: the investment would be worthwhile for LM. 	½ mark ½ mark 1 mark ½ mark ½ mark ½ mark
(d)	Any THREE relevant factors: <ul style="list-style-type: none"> - The policy should lead to transfer prices that are fair to both the supplying division and the receiving division; - The policy should provide both divisions with an incentive to carry out the internal transaction where it is worthwhile from the Group's viewpoint to do so; - The policy should reflect the capacity constraints and market demand for the item being transferred. Therefore the transfer price should take account of the supplying division's opportunity cost; - The policy should provide autonomy to both divisions to make their own decisions concerning internal transactions. 	2 marks per factor, maximum of 6 marks
Maximum marks awarded		25 marks

Examiner's Comments

The majority of students analysed the internal sales of Division L well showing the transfer prices and the quantities transferred at those prices. Weaker students calculated the average transfer price instead (it was not required by the question) and did not show how many units were sold at variable costs and how many units were sold at the market price.

Many students answered Part (b) of the question well recognising that with the increase in the external demand, more of the components supplied to Division M will be sold at the market price increasing the profits of Division L and vice versa.

The majority of students do understand the concept of the NPV, but not all students were able to calculate the annual savings from the investment of Division L and the annual savings of Company LM. Some students calculated a new operating profit figure or a new contribution figure instead of savings of Division L. Also, weaker students did not realise that the benefit gained by Division L is limited to the variable costs savings on the units that will be sold at the market price (66,000 units).