



Course information 2015–16

AC3097 Management accounting

This course is designed to provide students with knowledge and skills that enable them to strategically use management accounting in a business context.

Prerequisite

If taken as part of a BSc degree, courses which must be passed before this course may be attempted:

AC1025 Principles of accounting.

Aims and objectives

This course is designed to equip you with the knowledge of concepts and the ability to apply techniques of management accounting, in order to be able to contribute to the success of a firm. Management accounting has evolved from being purely concerned with the recording and measurement of costs, to supporting decision makers in their daily and strategic decisions. For this reason non-financial information is included in management accounting reports, where it is used in combination with financial information to construct a picture that can illuminate the contribution that each division, function, activity, process and procedure makes to the strategic achievements of a firm.

Essential reading

For full details, please refer to the reading list.

Horngrén, Datar, Foster, Rajan, Ittner, Cost Accounting: A Managerial Emphasis, Mongiello, M., *International Financial Reporting*

Learning outcomes

At the end of the course and having completed the essential reading and activities students should be able to:

- ✓ critically evaluate the uses of Managerial Accounting information for strategic decision making in various business contexts
- ✓ select, devise and apply different types of cost allocation and explain their different roles for supporting strategic managerial decisions
- ✓ design and prepare budgets and explain their use in strategic planning and control
- ✓ design and use variances to support feedback analysis and strategic control
- ✓ discuss various approaches to performance measurement and control in various types of organisations, and devise and evaluate simple indicators of performance
- ✓ discuss the changing role of Management Accounting.

Assessment

This course is assessed by a three hour and 15 minute hour unseen written examination.

Students should consult the *Programme Regulations for degrees and diplomas in Economics, Management, Finance and the Social Sciences* that are reviewed annually. Notice is also given in the *Regulations* of any courses which are being phased out and students are advised to check course availability.

Syllabus

This is a description of the material to be examined, as published in the *Programme handbook*. On registration, students will receive a detailed subject guide which provides a framework for covering the topics in the syllabus and directions to the essential reading

This subject guide begins by putting management accounting in its current context, i.e. as an essential function for the implementation of a firm's strategy. Chapters 1 and 2 give particular emphasis to the role played by management accounting in the support of strategic decision making. Chapter 3 adds the elements of uncertainty and capacity constraint.

Chapters 4 to 11 address various costing techniques, showing their underlying logic and demonstrating their most appropriate use. These techniques enable different analyses which are aimed at tracing the consumption of resources back to units of products or services. The choice between them will be seen in light of the different aims that the decision makers are hoping to achieve.

Chapter 12 explores the link between measurement and management, making the information created by activity-based costing (ABC) an essential tool for strategic management of an organisation. These decisions imply wider and longer commitments for a company, as explained in Chapter 13.

Chapters 14 to 19 close the loop opened at the beginning of the study guide with regards to the role of management accounting in strategic management. Chapters 14 to 16 will demonstrate how the concepts and techniques presented in the previous chapters can be used for advanced management practices, such as budgeting and controlling in a strategic context. Chapters 17 and 18 will explore how management accounting can enable performance evaluation aimed at supporting daily and strategic decision making. Chapter 19 brings it all together by emphasising the use of comprehensive frameworks, such as the balanced scorecard, in strategic decision making.

The study guide closes with Chapter 20, where scenarios and questions are proposed to address all concepts in a systematic way.

Examiners' commentaries 2015

AC3097 Management accounting – Zone A

Important note

This commentary reflects the examination and assessment arrangements for this course in the academic year 2014–15. The format and structure of the examination may change in future years, and any such changes will be publicised on the virtual learning environment (VLE).

Information about the subject guide and the Essential reading references

Unless otherwise stated, all cross-references will be to the latest version of the subject guide (2015). You should always attempt to use the most recent edition of any Essential reading textbook, even if the commentary and/or online reading list and/or subject guide refers to an earlier edition. If different editions of Essential reading are listed, please check the VLE for reading supplements – if none are available, please use the contents list and index of the new edition to find the relevant section.

Comments on specific questions

Candidates should answer **FOUR** of the following **EIGHT** questions: **TWO** from Section A, **ONE** from Section B and **ONE** further question from either section. All questions carry equal marks.

Section A

Answer two questions and no more than one further question from this section.

Question 1

Diamond Ltd makes 2 types of baseball bat the "Jonny Bench (JB)" and the "Mickey Mantles (MM)". The standard costs for these items are shown below:

| Standard cost | JB | MM |
|---|---------|--------|
| Price | £100.00 | £55.00 |
| Variable costs | | |
| Wood – maple 1.5 metres @ £3 per metre | 4.50 | 4.50 |
| Varnish- £12 per litre | 6.00 | 4.00 |
| Labour (variable) @ £15 per hour | 45.00 | 22.50 |
| Variable overhead based on labour hours | 15.00 | 7.50 |
| Total variable cost | 70.50 | 38.50 |
| Standard contribution | £29.50 | £16.50 |

Budgeted fixed overheads per month are £150,000

The monthly expected demand is 10,000 JB bats and 5,000 MM bats.

The following actual activities took place during the month of April:

Sales: total £1,340,000: 9,500 JB bats were sold at an average price of £110 and 6,000 MM bats were sold.

Materials: Maple: 23,460 metres @ £3.25 per metre

Varnish: 6,580 litres costing a total of £76,328

Labour: 36,850 hours costing a total of £560,120

Overhead: Variable £195,300: Fixed £165,000

[For the Required questions, please refer the the full examination paper.]

Reading for this question

Subject guide, Chapter 14.

Horngren, C.T., S.M. Datar and M.V. Rajan *Cost accounting a managerial emphasis*.

(Harlow: Pearson Education, 2015) 15th edition (Horngren), Chapters 7 and 8.

Drury C. *Management and cost accounting*. (London: Cengage, 2015) 9th edition

(Drury), Chapters 13–19.

Approaching the quesiton

This is a fairly routine variance analysis question but is complicated by having two products which mostly use the same resources. This means that the sales variances should be worked out by product but the materials, labour and overhead are used by both products and as the question does not give information on how much of each resource is used by each product it is only possible to work out the costs variances in total.

The question also asks for a mix variance.

a. Budgeted Income and Actual Income

| | Budgeted Income | | Actual Income | |
|---|-----------------|--------------|---------------------|-----------------------|
| | 10,000 JB | 5,000 MM | total | |
| | <u>£000</u> | <u>£000</u> | £000 | £000 |
| Price | <u>1,000</u> | <u>275</u> | <u>1275</u> | <u>1,340.000</u> |
| Variable costs | | | | |
| Wood – maple 1.5 metres @ £3 per metre | 45 | 22.5 | 67.5 | 76.245 |
| Varnish – superior £12 per litre | 60 | 20.0 | 80.0 | 76.328 |
| Labour (variable) @ £15 per hour | 450 | 112.5 | 562.5 | 560.120 |
| Variable overhead based on labour hours | <u>150</u> | <u>37.5</u> | <u>187.5</u> | <u>195.300</u> |
| Total variable cost | <u>705</u> | <u>192.5</u> | <u>897.5</u> | <u>907.993</u> |
| Standard contribution | <u>295</u> | <u>82.5</u> | <u>377.5</u> | <u>432.007</u> |
| Less fixed costs | | | <u>150.0</u> | <u>165.000</u> |
| | | | <u>227.5</u> | <u>267.007</u> |

The complete table above is not required in order to achieve the marks in the part, as the budgeted net income can be provided by multiplying the standard contribution per product by number of units per product and deducting total fixed costs (i.e. provide the final three lines of the above table). However for the calculation of actual income all actual revenues and expenses need to be tabulated to calculate the net income required by the question.

b. In order to calculate the sales volume, cost efficiency and mix variances the budget must be flexed to the actual level of sales. This can be done separately for each variance, as shown in the alternative answer, or a table can be produced as shown below. For the mix variance the budget is flexed based on 15,500 products at the mix of 2:1 (i.e. dividing each total budget amount by 15,000 and multiplying by 15,500)

Flexed budget and actual performance

| | Flexed budget | Flexed budget | | Actual | |
|--|----------------------------------|---------------|-------------|-----------------|------------------|
| | For 15,500 units at 2.1 ratio | JB 9,500 | MM 6,000 | total | |
| | £000 | £000 | £000 | £000 | £000 |
| Price JB | | <u>950.00</u> | | 950.000 | 1045.000 |
| MM | | | 330.00 | <u>330.000</u> | <u>*295.000</u> |
| total | <u>1,317.500</u> | | | <u>1,280.00</u> | <u>1,340.000</u> |
| Variable costs | | | | | |
| Wood – maple 1.5 metres @ £3 per metre | 69,750 | 42.75 | 27 | 69.75 | 76.245 |
| Varnish £12 per litre | 82.667 | 57.00 | 24 | 81.00 | 76.328 |
| Labour (variable) @ £15 per hour | 581.250 | 427.5 | 135 | 562.50 | 560.120 |
| Variable overhead based on labour hours | <u>193.750</u> | <u>142.5</u> | <u>45</u> | <u>187.50</u> | <u>195.300</u> |
| Total variable cost | <u>927.417</u> | <u>669.75</u> | <u>231</u> | <u>900.75</u> | <u>907.993</u> |
| Standard contribution | <u>390.083</u> | <u>280.25</u> | <u>99</u> | <u>379.25</u> | <u>432.007</u> |
| Fixed costs | 150.000 | | | <u>150.00</u> | <u>165.000</u> |
| Net income | 240.083 | | | 229.25 | 267.007 |
| | | | | | |
| *Sales breakdown Total | £1,340,000 | | | | |
| Less JB 9,500 × 110 = | <u>1045,000</u> | | | | |
| MM | <u>295,000</u> | | | | |

Variance analysis approach (i)

Using the table the mix contribution variance can be calculated as
 $229,250 - 240,083 = 10,833(A)$

Where there is a mix variance, the sales volume variance is the difference between the budgeted total sales and actual sales × standard weighted contribution.

$$15,500 - 15,000 \times £25.17 = \underline{12,585(F)*}$$

Total volume variance 1,752 (F)

*£377.5/15,000

If a mix variance were not required, the sales contribution volume variance per product is as shown in alternative answer below.

The columnar form can continue to be used to calculate the cost variances

Flexed budget and actual performance

| | Flexed budget at actual sales SQ × SP | Quantity/ efficiency/ variance | AQ × SP | Price variance | Actual AQ × AP |
|--|--|--------------------------------------|---------|-------------------|-----------------------|
| | total | | | | |
| | £000 | £000 | £000 | £000 | £000 |
| Price JB | 950.00 | See above | 950.00 | 95.00(F) | 1,045.000 |
| MM | <u>330</u> | <u>See above</u> | 330 | 35(A) | <u>295.000</u> |
| total | | | | | <u>1,340.000</u> |
| Variable costs | | | | | |
| Wood – maple 1.5 metres @ £3 per metre | 69.75 | 0.63(A) | 70.380 | 5.865(A) | 76.245 |
| Varnish £12 per litre | 81.00 | 2.04(F) | 78.960 | 2.632(F) | 76.328 |
| Labour (variable) @ £15 per hour | 562.50 | 9.75(F) | 552.750 | 7.370(A) | 560.120 |
| Variable overhead based on labour hours | 187.50 | 3.25(F) | 184.250 | 11.050(A) | 195.300 |
| Total variable cost | <u>900.75</u> | | | | <u>907.933</u> |
| Standard contribution | <u>379.25</u> | | | | <u>432.007</u> |
| Fixed costs | <u>150.00</u> | | | <u>15(A)</u> | <u>165.000</u> |
| Net income | <u>229.25</u> | | | | <u>267.007</u> |

Alternative approach

Candidates using the formula approach would provide the following answer instead

Mix contribution – standard ratio – 2:1 std weighted contribution per unit (59 + 16.50)/3 = £25.17

Actual ratio (280.25 + 99)/15.5 = £24.47

Variance calculations

| | Favourable | Adverse |
|--|-----------------------|----------------------|
| | £000 | £000 |
| Contribution volume variances | | |
| JB 10,000 – 9,500 × 29.50 | | 14.75 |
| MM 5,000 – 6,000 × 16.50 | 16.5 | |
| Or 15,500 – 15,000 × 25.17 | 12.59 | |
| Mix Variance contribution ratio 25.17 – 24.47 × 15,500 | | 10.85 |
| Sales price variance | | |
| JB (100 – 110) × 9500 | 95 | |
| MM (6,000 × 55) – 295,000 | | 35 |
| Maple price 3 – 3.25 × 23,460 | | 5.865 |
| Maple usage (15,500 × 1.5 – 23,460) × £3 | | 0.63 |
| Varnish price 12 – 11.6 × 6,580 | 2.632 | |
| Varnish usage (9,500 × 0.5 + 6,000 × 0.33 – 6,580) × £12 | 2.040 | |
| Labour price 36,850 × £15 – 560,120 | | 7.37 |
| Labour efficiency 9,500 × 3 + 6,000 × 1.5 – 36,850 × £15 | 9.75 | |
| Variable overhead spending 36,850 × £5 – 195,300 | | 11.05 |
| Variable overhead efficiency 9,500 × 3 + 6,000 × 1.5 – 36,850 × £5 | 3.25 | |
| Fixed overhead 150,000 – 165,000 | | 15 |
| Total variances | <u>129.172</u> | <u>89.665</u> |

| | Amount explained | Original variance | Variance to be explained |
|---|------------------|-------------------|--------------------------|
| Impact of contract with Sports Retail chain | | | |
| MM Sales volume | | | |
| It is not known to what extent sales volumes of bats were affected by the Sports Ltd contract since capacity to produce may also be an issue. However 2,000 extra MM bats \times £16.5 | 33,000 (F) | 16,500(F) | 16,500 (F) |
| MM Sales price | | | |
| The 2,000 were sold at £7 less than standard price showing an adverse variance of £14,000. This means that the other bats were at sold $21,000/4,000 = £7.75$ less than £55 (i.e. £47.25). If typical, this indicates that the security provided by the contact is valuable to the company. | 14,000(A) | 35,000 (A) | 21,000(A) |
| Varnish | | | |
| The price savings is $667 \times £12 - £8 = £2,668$ is more than the price variance so adverse variance on the rest was £36. The standard amount was used. | 2,668 (F) | 12,632(F) | 36 (A) |
| Impact of faulty machine | | | |
| Maple usage adverse $16 \times £4.50 = £72$ | 72 (A) | 630(A) | 702 (A) |
| Varnish usage adverse $16 \times £6 = £96$ | 96(A) | 2,040(F) | 2,136(F) |
| Labour efficiency adverse $(16 \times 3) + 8 = 56 \times £15 = £840$ | 840(A) | 9,750(F) | 10,590 (F) |
| Variable overhead efficiency $56 \times £75 = £280$ | 280(A) | 3,250(F) | 3,530(F) |

Question 2

Catering Cookers Ltd has a reputation for manufacturing high quality cookers for commercial kitchens. The company makes standard cookers and cookers to customer specification. It has recently been approached by a valued client the Regency Hotel to build a new cooker within the next three weeks.

The work already scheduled for the next three weeks means that there is sufficient capacity in all departments except oven construction for the Regency Hotel's cooker to be made. No other new orders are expected during the next three weeks.

The company's method of pricing is to:

- Add 30% to all material costs and other bought in resources.**
- Calculate the charge out rate for each type of employee as their salary costs + 300% to cover, a contribution to their departmental overhead and company profits (See table 2 below). All salary costs are fixed in the short-term.**
- General administrative overhead is charged at £1,000 per cooker.**

[For the full question, please refer to the examination paper.]

Reading for this question

Subject guide, Chapter 6.

Horngren, Chapter 12.

Drury, Chapter 10.

Approaching the question

This question first requires candidates to understand the normal pricing system adopted by this company. It is a cost-plus system but related to each different type of resource required by the job. Different types of

employee are charged out at a rate which covers salary, a proportion of budgeted variable and fixed overhead costs and an amount towards profit. The materials etc. bought in for the job, whether through use of inventory or specifically for the job are charged with a percentage added on for profit. This method is used by many service companies doing one-off commissions which combine professional skill and the provision of materials as part of the order; for example, motor repairs, jewellers, construction projects and professional firms (e.g. legal, accountancy, architecture).

The method calculates a charge out rate for each different type of employee and a mark-up on any materials or outsourcing work done. The idea is exactly the same as cost-plus pricing but with each resource using a different mark up.

Although this is not specifically covered in the recommended textbooks, in an advanced paper candidates should expect to meet problems which use the main principles but are slightly different from previous questions.

The question is in principle a relevant cost question.

Suggested answer

- a. This part can be approached in two ways, either the profit element earned on each resource can be calculated (approach 1) or the price can be taken and the actual costs incurred deducted (approach 2).

Workings for absorption cost profit – (assumes fixed costs are correctly allocated)

Workings: Profit element of Hourly breakdown

| Department | Profit |
|--|------------------|
| Design and supervision | $240 - 98 = 142$ |
| Oven construction labour | $120 - 51 = 69$ |
| Component fitting and finishing labour | $200 - 75 = 125$ |

| Regency Hotel Cooker – Full absorption profit: approach 1 | £ |
|--|----------------------|
| Design and supervision salaries 15 hours \times £142 per hour | 2,130 |
| External ceramics $40 \times £100 \times 0.3$ | 1,200 |
| Internal metal $40 \times £30 \times 30\%$ | 360 |
| Components cost $\times 30\% = (5,200/1.3) \times 0.3$ | 1,200 |
| Oven construction labour 50 hours $\times 69$ | 3,450 |
| Component fitting and finishing labour 30 hours $\times 125$ | 3,750 |
| Delivery and on-site fitting $£400 \times 30\%$ | 120 |
| General administration overhead $£1,000$ per cooker | 0 |
| Profit | <u>12,210</u> |

| Or Regency Hotel Cooker – Full absorption profit: approach 2 | £ |
|---|----------------------|
| Price | <u>29,080</u> |
| Costs: Design and supervision salaries 15 hours × £(60 + 30 + 8) per hour | 1,470 |
| External ceramics 40 × £100 | 4,000 |
| Internal metal 40 × £30 | 1,200 |
| Components cost (5,200/1.3) × 1 | 4,000 |
| Oven construction labour 50 hours × (30 + 15 + 6) | 2,550 |
| Component fitting and finishing labour 30 hours × (50 + 20 + 5) | 2,250 |
| Delivery and on-site fitting £400 | 400 |
| General administration overhead £1,000 per cooker | <u>1,000</u> |
| Total cost | <u>16,870</u> |
| Profit | <u>12,210</u> |

b. Relevant cost calculation

| Regency Hotel Cooker | Reason for inclusion | Relevant cost £ |
|---|---|------------------------|
| Design and supervision salaries | V cost 9 × £8 | 72 |
| External ceramics 40 sq mtrs @ £100 per metre | Bought in | 4,000 |
| Internal metal 40 sq mtrs | Subsidiary v cost 40 × £18 | 720 |
| Components cost | £1,300 + 2,800 | 4,100 |
| Oven construction labour | Contribution lost on std cooker – below | 20,015 |
| Component fitting and finishing labour | V cost 30 × 5 | 150 |
| Delivery and on-site fitting | Bought in | 400 |
| General admin overhead £1,000 per cooker | Fixed | <u>100</u> |
| Total | | <u>29,557</u> |

| Contribution of standard cookers | £ |
|---|---------------------|
| Price | <u>5,728</u> |
| Design and supervision salaries 1 hours × £8 | 8 |
| External ceramics material 32 square metres @ £20 per metre | 640 |
| Internal metal 32 square metres £6 | 192 |
| Components cost + £800 | 800 |
| Oven construction labour 10 hours × £6 | 60 |
| Component fitting and finishing labour 5 hours × £5 | 25 |
| General administration overhead £1,000 per cooker | 0 |
| Total variable costs | <u>1,725</u> |
| Contribution | <u>4,003</u> |

Lost contribution from standard cookers $50/10 = 5 \times 4,003 = 20,015$

- c. The original cost estimate would be used when there is sufficient capacity for all current orders to be met and assumes that the capacities available will be used in line with budgeted usage. The resources purchased will be charged at their original cost (assuming that FIFO method is used for inventory). This means that if all resources are used as budgeted a fair profit will be made on each job.

For Regency Hotel if these conditions existed a price of £28,480 would seem fair. However, some of the resources have better uses than making this cooker.

The relevant cost estimate identifies the impact on the future cashflows of using the resources to their best use and shows that in order not to be worse off from taking the contract, a price of £30,545 would need to be charged. This would mean that five standard cooker customers would be inconvenienced by their cookers having to be made later, it would be reasonable for the company to add on compensation for this.

Question 3

Keepcool PLC, a divisionalised company makes refrigerators. There is trading between divisions. The "Motors" division has recently developed and patented a radical new energy efficient motor the M62. It forms the basis of Keepcool's new product, the EcoFridge to be constructed and marketed by "Products" division who will buy the M62 motors from "Motors" division. The launch year will be 1.7.2015 to 30.6.2016 (2016). Production difficulties mean that only 5,000 can be made in that year. The company's other products will continue but the EcoFridge will command a high price due to its radical nature.

[Please refer to the examination paper for the full question.]

Reading for this question

Subject guide, Chapter 17.

Horngren, Chapter 23.

Drury, Chapter 19.

Approaching the question

This question addresses the issues of the fairness of the set transfer pricing method where circumstances change and the calculation of Economic Value Added.

Suggested answer

a. EVA for 2015

| | Products Div £000 | Motors Div £000 |
|---------------------------------------|-------------------|-----------------|
| Net income | 640 | 250 |
| Add back costs relating to Ecofridge | <u>100</u> | <u>400</u> |
| | 740 | 650 |
| Less Capital charge 12% × 5,240 + 100 | <u>641</u> | |
| (12% × 3,910 + 400) | | <u>517</u> |
| EVA | <u>99</u> | <u>133</u> |

b. Transfer price for M62 motors $(£24 + 80) \times 1.4 = £145.60 \times 5,000 = £728,000$

Net Income and EVA for both divisions for 2016

| | Products Div £000 | | | Motors Div £000 | | |
|-------------------------------------|-------------------|--------------|---------------|-----------------|--------------|--------------|
| | Other | Ecofridge | Total | Other | Ecofridge | Total |
| Sales | <u>27,300</u> | <u>4,000</u> | <u>31,300</u> | <u>7,870</u> | <u>728</u> | <u>8,598</u> |
| Material | 15,750 | 650 | 16,400 | 2,820 | 120 | 2,940 |
| Motors transferred 520×1.4 | 0 | 728 | 728 | | | |
| Labour | 6,050 | 500 | 6,550 | 2,790 | 400 | 3,190 |
| Packaging and delivery | 305 | 100 | 405 | | | |
| Fixed overhead | 4,550 | 500 | 5,050 | 1,600 | 400 | 2,000 |
| R & D/Marketing | | <u>100</u> | <u>100</u> | | <u>200</u> | <u>200</u> |
| <u>Total costs</u> | <u>26,655</u> | <u>2,578</u> | <u>29,233</u> | <u>7,210</u> | <u>1,120</u> | <u>8,330</u> |

| | | | | | | |
|----------------------|-------------------|---------------------|---------------------|-------------------|---------------------|-------------------|
| Net Income | <u>645</u> | <u>1,422</u> | <u>2,067</u> | <u>660</u> | <u>(392)</u> | <u>268</u> |
| Less capital charge | | | | | | |
| 12% × 5,160* (4,910) | <u>509</u> | <u>115</u> | <u>624</u> | <u>373</u> | <u>216</u> | <u>589</u> |
| <u>EVA</u> | <u>136</u> | <u>1,307</u> | <u>1443</u> | <u>287</u> | <u>(608)</u> | <u>(321)</u> |

| | | |
|--|-----------------|---------------|
| *30.6.2016 Investment calculation | Products | Motors |
| Previous assets 2015 book value | <u>5,240</u> | 3,910 |
| Additions during 2016 | <u>1,200</u> | <u>2,000</u> |
| | 6,440 | 5,910 |
| Less depreciation | <u>1,240</u> | <u>1,200</u> |
| | <u>5,200</u> | <u>4,710</u> |
| <u>R&D</u> | | <u>200</u> |
| | | <u>4910</u> |

- c. This part can be answered by discussion. This would include explaining the issues to be considered in setting a different transfer price. Different transfer price methods could then be considered and the most appropriate method recommended.

Alternatively a specific transfer price could be calculated from the budgeted figures given. This method is shown below:

Calculate the EVA for Ecofridge as a whole and then find the unit transfer price which divides the total EVA fairly, bearing in mind that Motors has also spent more on fixed assets than Products to produce Ecofridges.

| | | |
|--|--------------|---|
| Ecofridges 5000 units | £000 | |
| Products Div | | |
| Sales | <u>4,000</u> | If candidates have provided the detailed table above they can take the figures from that table i.e. Products net income 1422 Motors net income <u>(392)</u> Total net income 1030 Capital charge 115 + 216 <u>331</u> EVA <u>699</u> |
| Material | 650 | |
| Labour | 500 | |
| Packaging and delivery | 100 | |
| Fixed overhead | 500 | |
| Launch marketing | 100 | |
| Motors Div | | |
| Material | 120 | |
| Labour | 400 | |
| Fixed overhead | 400 | |
| R & D | <u>200</u> | |
| <u>Total costs</u> | <u>2,970</u> | |
| <u>Net income</u> | <u>1,030</u> | |
| <u>Less capital charge 12% × £2,760*</u> | <u>331</u> | |
| <u>EVA</u> | <u>699</u> | |

*Fixed assets less depreciation 3,200 – 640 = 2,560 + 200

Narration figures in £000

For the divisions to share profits fairly they should share total profit equally, i.e. $\text{£}1,030/2 = \text{£}515$

'Motors' profits must also increase by 50% of the difference in value between the investments, i.e. $0.5 \times (12\% \times 840) 100.8 = \underline{50}$

| | |
|------------------------|--------------|
| Motors required profit | 565 |
| Add 'Motors' costs | <u>1,120</u> |
| | <u>1,685</u> |

This would change the divisional profits by $1,685 - 728 = 957$ (rounded)

The price therefore must be $1,685/5 = \text{£}362.5$ per unit

The change to EVA would be:

| | Products £000 | | | Motors £000 | | |
|-------------------------------|---------------|-------------|--------------|-------------|-----------|-------------|
| | Other | Ecofridge | Total | Other | Ecofridge | Total |
| Net Income | 645 | 1,422 | 2,067 | 660 | (392) | 268 |
| Adjust for new transfer price | | <u>-957</u> | <u>-957</u> | | +957 | <u>+957</u> |
| | | <u>465</u> | <u>1,110</u> | | 565 | 1,225 |
| Less capital charge | | | | | | |
| $12\% \times 5,160^* (4,910)$ | 509 | 115 | 624 | 373 | 216 | 589 |
| EVA | 136 | 350 | 486 | 287 | 349 | <u>636</u> |

The method shown relies on calculating the transfer price based on budgeted costs and output and might need to be revised if the projections were incorrect.

Question 4

Copland American Hotels (CAH) is a hotel group which wishes to have a hotel in all major North American cities. It is particularly keen to open a hotel in Toronto.

The Copland Development Director has found a disused office block in Toronto on a prominent site. He estimates that this can be converted into an attractive 200-room hotel in three years. The purchase price of the office block is \$40million. Negotiating the sale, obtaining planning consents and detailed design work will occupy the first year and will cost a further \$2million. Installing all major services will occupy the second year and will cost \$10million. Fitting out and furnishing the rooms and public spaces will occupy the third year and will cost a further \$4million.

For financial accounting purposes the value of the site will be assumed to be \$8million and the building \$32million. The building and the subsequent design work will be depreciated on a straight line basis over 50 years. The major services will be depreciated over 20 years and the furniture and fittings will be depreciated over 10 years. The value of the site will not be depreciated. Asset depreciation will start in the first year of trading.

[For the full question, please refer to the examination paper.]

Reading for this question

Subject guide, Chapter 15.

Horngren, Chapter 21.

Drury, Chapters 13 and 14.

Approaching the question

This question is a basic capital budgeting question but includes two issues relating to the project:

- i. A refurbishing process taking 3 years during which time no trading can take place. In financial accounting these 3 years would be regarded as an investment and depreciation will not be charged until the investment is operational. This information is needed for the calculation of accounting rate of return in part (d).
- ii. Since the hotel will continue to operate for more than 10 years an assumed sale value is provided based on the written down value of the assets after 10 years of trading.

Suggested answer

- a. Asset depreciation and Written Down Value

| Asset | Capital cost £000 | Working life £000 | Annual depreciation £000 | 10 years depreciation £000 | WDV after 10 years £000 |
|-------------------------|----------------------|----------------------|-----------------------------|-------------------------------|----------------------------|
| Purchase Price; Land | 8,000 | Indefinite | – | | 8,000 |
| Buildings | 32,000 | 50 | 640 | 6,400 | 25,000 |
| Design Work | 2,000 | 50 | 40 | 400 | 1600 |
| Major Services | 10,000 | 20 | 500 | 5,000 | 5,000 |
| Furnishing and Fittings | <u>4,000</u> | 10 | <u>400</u> | <u>4,000</u> | <u>–</u> |
| | <u>56,000</u> | | <u>1,580</u> | <u>15,800</u> | <u>40,200</u> |

- b. Annual Revenue at Full capacity $£400 \times 200 \times 365 = £29,200,000$

| | Annual Revenue \$000 | Variable Operating Costs \$000 | Site Fixed Costs \$000 | Operating Cash Flow \$000 | Annual Depreciation \$000 | Net Operating Profit \$000 |
|-----------------------|-------------------------|-----------------------------------|---------------------------|------------------------------|------------------------------|-------------------------------|
| Year 1 (50% Capacity) | 14,600 | 7,300 | 4,000 | 3,300 | 1,580 | 1,720 |
| 2 60% " | 17,520 | 8,760 | 4,000 | 4,760 | 1,580 | 3,180 |
| 3 70% " | 20,440 | 10,220 | 4,000 | 6,220 | 1,580 | 4,640 |
| 4 80% " | 23,360 | 11,680 | 4,000 | 7,680 | 1,580 | 6,100 |
| 5 90% " | 26,280 | 13,140 | 4,000 | 9,140 | 1,580 | 7,560 |
| Sub Total | 102,200 | 51,100 | 20,000 | 31,100 | 7,900 | 23,200 |
| Years 6–10 | <u>131,400</u> | <u>65,700</u> | <u>20,000</u> | <u>45,700</u> | <u>7,900</u> | <u>37,800</u> |
| Ten Year Total | <u>233,600</u> | <u>58,400</u> | <u>40,000</u> | <u>76,800</u> | <u>15,800</u> | <u>61,000</u> |

c. Pay back calculation

| | Cash Flow | Cumulative Cash Flow |
|--------|------------------|-----------------------------|
| | \$000 | \$000 |
| Year 1 | -42,000 | -42,000 |
| 2 | -10,000 | -52,000 |
| 3 | -4,000 | -56,000 |
| 4 | 3,300 | -52,500 |
| 5 | 4,760 | -47,740 |
| 6 | 6,220 | -41,720 |
| 7 | 7,680 | -34,040 |
| 8 | 9,140 | -24,900 |
| 9 | 9,140 | -15,760 |
| 10 | 9,140 | -6,620 |
| 11 | 9,140 | 2,520 |

Payback therefore is 7 operating years + $6620/9140 = 7.72$ years
(approximately 7 years 9 months)

d. Accounting Rate of Return – details

| | \$000 |
|-----------------------------------|--------------|
| Operating Profit over 10 Years | 61,000 |
| Average Annual Profit | 6,100 |
| Initial Investment Value | 56,000 |
| Written down value after 10 years | 40,200 |

Accounting rate of return:

$$\frac{\text{Annual average profit}}{(\text{Opening investment} + \text{closing investment})/2} = \frac{\$6,100}{(\$56,000 + \$40,200)/2} = 12.7\%$$

e. Net Present Value

| | Cash Flow | Discount Factor | Discounted Value |
|------------|------------------|------------------------|-------------------------|
| | \$000 | "@ 10%" | \$000 |
| Year 1 | -42,000 | 1.000 | -42,000 |
| 2 | -10,000 | 0.909 | -9,090 |
| 3 | -4,000 | 0.826 | -3,304 |
| 4 | 3,300 | 0.751 | 2,478 |
| 5 | 4,560 | 0.683 | 3,252 |
| 6 | 6,220 | 0.621 | 3,862 |
| 7 | 7,680 | 0.564 | 4,332 |
| Years 8–13 | 9,140 | 2.464 | 22,520 |
| Year 14 | 40,200 | 0.290 | 11,658 |
| | | | <u>-6,292</u> |

When Discounted at 10%, NPV = -\$6,292.000

f. The calculation shows that this investment fails to reach the Company's target of 10% discounted cashflow return.

However other factors indicate that the project may be adopted despite the negative NPV.

Firstly the calculation assumes that the business will be sold for its book value in Year 14. This is a very prudent assumption as hopefully

there will be goodwill built up and a possible increase in the value of Land and Buildings therefore if the business were sold it would generate much more than £15,900,000. The forecasts do not include potential income from hosting conferences, dinners and wedding receptions, which would improve annual cashflows.

- g. Discount Factor Years 4–13 5.083
Therefore Net Annual Conference Income required
 $\$6,292,000/5.083 = \underline{\underline{\$1,238,000}}$

Section B

Answer one question and no more than one further question from this section.

Question 5

A Survey of UK companies large enough to employ qualified management accountants, found that only about 15% of the companies surveyed used Activity Based Costing (Drury C. and Tayles M. 2005). The companies using Activity Based Costing were most likely to be large and/or in service industries.

- Explain the benefits of using Activity Based Costing and discuss the reasons why large companies and service industry companies are the types of companies most likely to use Activity Based Costing. (18 marks)
- Indicate any other features of companies which could indicate suitability for their adoption of Activity Based Costing. (7 marks)

Reading for this question

Subject guide, Chapter 11.

Hornigren, Chapter 5.

Drury, Chapter 11.

Approaching the question (a)

Benefits

- Calculates more accurate full product costs.
- Makes resource use financially visible.
- Traces costs at different levels thus indicating each products use of these resources.
- Enables Customer Focus, ABM and ABB.
- Should only be used if there is cost-benefit.

Large companies

- Can afford it.
- More resources able to be put into analysing and using results.
- Already have substantial bespoke IT and experience with using more refined analysis.
- More volume sales and market sensitivity to price.

Service industries

- Large proportion of indirect fixed cost.
- Enables companies to move from mostly monitoring performance by department to identifying activities across departmental boundaries.
- Enables viability of different activities to be seen.
- Pricing strategies can be more focused.

Approaching the question (b)

Other features of companies which could indicate suitability for ABC adoption.

- Those with a large number of diverse products.
- Differential use of support services by different products.
- High percentage of fixed overhead costs to total costs.
- Prices not entirely market driven.

Question 6

In connection with the capital budgeting process:

- a. **Identify the problems involved with estimating cashflows and describe methods which are used to assist in this process.** (18 marks)
- b. **Describe a post completion audit and identify the strengths and difficulties of this activity.** (7 marks)

Reading for this question

Subject guide, Chapter 15.

Hornigren, Chapter 21.

Drury, Chapters 13 and 14.

Approaching the question

This question is not asking about problems with using different capital budgeting methods (e.g. Accounting Rate of Return, Payback or DCF methods). The results from these analyses and their interpretation depend critically on the accuracy of the amounts and timings of the cashflows. Since this requires forecasting for several/many years ahead this is never going to be completely accurate. The question is about this issue of forecasting.

a.

- Future impossible to predict.
- Often requires drawing on past experience but this may not identify differences relevant to new project.
- Costs easier to identify than revenues but future impacts on them may be unpredictable; for example, prosperity/recession, material shortages, changes in work practices and pay, changes in technology making project worthless.
- Revenues – quantity and price of output of products/services sold, behaviour of competitors, lifecycle.
- Risk measurement difficult.

Methods

- Involving all personnel with technical experience in the forecast preparation.
- Sensitivity analysis.
- Probability analysis.
- Cost-benefit analysis.

b.

Post completion audit involves monitoring the progress of the project at regular intervals after it has been adopted to monitor and compare actual results with project estimates.

Strengths

- Improves future planning.
- Provides a brake on overoptimistic estimators.
- Enables problems to be identified after implementation and appropriate action to be taken.

Difficulties

- If performed too early before project outcomes have stabilised, wrong evaluations may be made.
- Identifying specific cashflows arising from the project may be difficult as many will be amalgamated with other costs in the budgetary control reporting system.
- Impacts identified may not be due to the project being reviewed but related to other activities of the business.

Question 7

- a. Explain the concept of the Balanced Scorecard and why it is adopted by companies. (15 marks)
- b. Discuss how the use of strategic maps can help in the design of measures incorporated in the Balanced Scorecard. (10 marks)

Reading for this question

Subject guide, Chapter 17.

Hornegren, Chapter 13.

Drury, Chapter 22.

Approaching the question (a)

- Measures activities of the whole value chain and gives targets to different departments.
- Incorporates lead and lag measures.
- Incorporates quantitative and qualitative measures.
- Focus on setting targets and measuring results relating to how each department is achieving goals which improve Customer experience, Efficient Internal processes, Improvement through learning and growth, and Improving Financial performance.

Approaching the question (b)

- Difficult to identify what measures should be included and prioritised if strategy is not defined.
- Strategy maps identify the company's future focus and map the activities necessary to achieve them (e.g. expanding certain areas or products, cost minimisation/quality focus, etc.).
- Once the key activities are determined appropriate targets are put in place.
- Care should be taken to ensure new targets complement or replace existing ones so that managers have a clear focus.
- Without using this approach companies may institute conflicting measures for different departments.

Question 8

Modern management considers that awareness of customer needs should be part of their strategic focus.

Briefly describe each of the following activities and explain how each provides financial information to help this strategic focus. Include in your answer some of the practical limitations to be considered when using each technique.

- a. Target costing (9 marks)
- b. Cost of Quality (9 marks)
- c. Analysis of each customer's profitability to the company (7 marks)

Reading for this question

Subject guide, Chapters 7 and 18.

Horngren, Chapters 12 and 19.

Drury, Chapters 10 and 21.

Approaching the question (a)**Description**

- Process of developing a new product by researching competitors' products, customers' preferences and price.
- Once the features and prices of the product are determined the target cost is found by deducting the target profit from the target price.
- Design, production, marketing and distribution costs are calculated. If the addition of these is greater than target cost the processes are reviewed to eliminate non-value adding parts or processes.
- Tear down analysis, value engineering and process improvements may be performed.
- Important as many costs locked in at design stage.
- Design and price must be retested in market before production starts.
- Can be used when reviewing price and design of existing products.
- Encourages team work between different departments of business.

Financial information

- Market prices, detailed information on costs and possible savings through efficiencies identified which may be adopted by other existing products. Better cost management as accurate standard costs can be set.

Limitations

- Time consuming. Involves co-operation between departments which must be reflected in performance measures to avoid departmental attitudes by managers.

Approaching the question (b)**Description**

- Attempts to move to total quality management by monitoring activities along the value chain and comparing the costs of ensuring quality with the costs of failure.
- Costs divided into prevention, appraisal, internal failure and external failure.

Financial information

- Provides regular reports on costs enabling improvements to be monitored and initiatives which would reduce failure to be quantified.

Limitations

- Not always possible to measure external failure costs accurately (e.g. lost reputation from external failure products).

Approaching the question (c)

Description

- Identifies customers into appropriate classes (e.g. type – business/private, region or country) and analyses volume of business and profit generated by each class.
- Customers to be identified as high or low cost, thus enabling company to work with high cost customers to make them more profitable.
- Pareto analysis can be used to identify those customers providing very little profit.

Financial information

- Profitability of each class of customer enabling better strategies for improvement.

Limitations

- In some industries it might be difficult to classify customers appropriately leading to misleading information.