# Management Accounting
# Level 3

International Qualifications from EDI

## Model Answers
Series 2 2011 (3024)

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# Management Accounting Level 3
## Series 2 2011

**How to use this booklet**

Model Answers have been developed by EDI to offer additional information and guidance to Centres, teachers and candidates as they prepare for LCCI International Qualifications. The contents of this booklet are divided into 3 elements:

| | | |
|---|---|---|
| (1) | Questions | – reproduced from the printed examination paper |
| (2) | Model Answers | – summary of the main points that the Chief Examiner expected to see in the answers to each question in the examination paper, plus a fully worked example or sample answer (where applicable) |
| (3) | Helpful Hints | – where appropriate, additional guidance relating to individual questions or to examination technique |

Teachers and candidates should find this booklet an invaluable teaching tool and an aid to success.

EDI provides Model Answers to help candidates gain a general understanding of the standard required. The general standard of model answers is one that would achieve a Distinction grade. EDI accepts that candidates may offer other answers that could be equally valid.

**QUESTION 1**

Company X manufactures three components, P, Q and R, using the same machines for each. Since there are only 35,000 machine hours available in the next period, the company will have to purchase some units of any of the components from outside suppliers. The following budgeted data are available:

| | Component P | Component Q | Component R |
|---|---|---|---|
| | £ per unit | £ per unit | £ per unit |
| Direct material cost | 60.30 | 35.00 | 85.40 |
| Direct labour cost | 29.20 | 36.50 | 58.40 |
| Production overheads | 57.00 | 30.00 | 42.00 |
| | 146.50 | 101.50 | 185.80 |
| Machine hours per unit | 4.75 hours | 2.5 hours | 3.5 hours |
| Purchase price from supplier per unit | £175.00 | £118.00 | £204.00 |
| Sales demand | 4,500 units | 6,400 units | 1,200 units |

Production overheads are absorbed at the rate of £12.00 per standard machine hour; 30% of the production overheads are fixed costs.

**REQUIRED**

For the next period, given that there are only 35,000 machine hours available:

(a) Prepare a schedule showing the number of each component to be manufactured and the number to be purchased, in order to minimise total costs.

(15 marks)

Company Y manufactures and sells a single product. The following data relate to the product:

| | |
|---|---|
| Direct material cost per unit | £49.30 |
| Direct labour cost per unit | £28.20 |
| Production overhead cost per machine hour | £10.50 |
| Machine hours per unit | 5 hours |

Non-production overheads are absorbed at the rate of 7.5% of total production cost.

The company's capital invested in manufacturing and selling 2,400 units of the product per period is £248,000.

**REQUIRED**

(b) Calculate a selling price for the product in order to achieve a required rate of return of 12% per period on the capital invested.

(5 marks)

**(Total 20 marks)**

**MODEL ANSWER TO QUESTION 1**

**Syllabus Topic 3: Short-term decision-making (3.6), (3.9 & (3.14)**

(a)

| | Component P<br>£ per unit | | Component Q<br>£ per unit | | Component R<br>£ per unit | |
|---|---|---|---|---|---|---|
| **Variable costs** | | | | | | |
| Direct material cost | 60.30 | | 35.00 | | 85.40 | |
| Direct labour cost | 29.20 | | 36.50 | | 58.40 | |
| Variable production overheads* | 39.90 | ½ | 21.00 | ½ | 29.40 | ½ |
| Total variable costs | 129.40 | | 92.50 | | 173.20 | |
| Purchase price from supplier (per unit) | £175.00 | | £118.00 | | £204.00 | |
| Cost savings from manufacture (per unit) | £45.60 | 1 | £25.50 | 1 | £30.80 | 1 |
| Machine hours saved by purchasing | 4.75 | | 2.5 | | 3.5 | |
| Cost savings per machine hour saved | £9.60 | 1 | £10.20 | 1 | £8.80 | 1 |
| Ranking | 2nd | | 1st | | 3rd | |

• Variable production overheads 0.7×£57 = £39.90 0.7×£30 = £21.00 0.7×£42 = £29.40

| | Manufacture<br>units | | | Machine hours | | Purchase<br>units | | Total<br>units |
|---|---|---|---|---|---|---|---|---|
| Component **Q** | 6,400 | 1 | × 2.5 | 16,000 | 1 | 0 | | 6,400 |
| Component **P** | 4,000 | 1 | × 4.75 | 19,000 | 1 | 500 | 1 | 4,500 |
| Component **R** | 0 | | | | | 1,200 | ½ | 1,200 |
| | | | | 35,000 | | | | |

(13 marks)

(b)

| | | £ | |
|---|---|---|---|
| Component **P** | (19,000 hours × £9.60) | 182,400 | 1 |
| Component **Q** | (16,000 hours × £10.20) | 163,200 | 1 |
| **Total cost savings** | | 345,600 | |

(2 marks)

(c)

| | £ per unit | |
|---|---|---|
| Direct material cost | 49.30 | ½ |
| Direct labour cost | 28.20 | ½ |
| Production overhead (5 × £10.50) | 52.50 | 1 |
| Total production cost | 130.00 | |
| **Add**: Non-production overhead (£130.00 × 0.075) | 9.75 | 1 |
| Total cost | 139.75 | |
| **Add**: Required return on capital employed [(£248,000 × 0.12) ÷2,400 | 12.40 | 2 |
| **Required selling price** | 152.15 | |

(5 marks)

**(Total 20 marks)**

**QUESTION 2**

A retail company is preparing budgets for the coming months. Details of profit and loss statement items are as follows:

| | Month 7 | Month 8 | Month 9 | Month 10 |
|---|---|---|---|---|
| | **£000** | **£000** | **£000** | **£000** |
| Sales (all on credit) | 580 | 720 | 960 | 840 |
| Salaries and wages | 58 | 68 | 75 | 62 |
| Selling and administrative expenses | 80 | 102 | 118 | 105 |

The following additional budgeted information is available:

1. Gross profit: 30% of sales.

2. Purchases in any month will be sufficient to cover that month's sales, and to provide closing stock to satisfy 25% of the following month's sales demand. Payment for purchases is made in the month of purchase.

3. A cash discount of 5% is granted to customers if they pay their invoices within the month of sale. It is estimated that 25% of customers will pay within the month of sale and the rest of them will pay in the month following sale.

4. Salaries and wages are paid in the month in which they are earned.

5. Selling and administrative expenses, which include £25,000 depreciation charge per month, are paid one month in arrears.

6. The cash balance at the start of Month 8 is expected to be £80,000.

**REQUIRED**

(a) Prepare, for Month **8** and Month **9**, the following:

(i) a single budgeted profit and loss statement

(6 marks)

(ii) a cash budget for each month.

(12 marks)

(b) Explain, briefly, the differences between the budgeted profit and loss statement and the cash budget prepared in your answer to part (a).

(2 marks)

**(Total 20 marks)**

**MODEL ANSWER TO QUESTION 2**

**Syllabus Topic 4: Budgetary planning and control (4.5)**
**Syllabus Topic 5: Cash and working capital management (5.2)**

(a) (i) **Budgeted profit and loss statement for Month 8 and Month 9**

| | | £000 | £000 |
|---|---|---|---|
| Sales | (720 + 960) | | 1,680 **1** |
| **Less**: Cost of sales | | | 1,176 |
| Gross profit | (0.30 × 1,680) | | 504 **1** |
| | | | |
| **Less**: Expenses | | | |
| Salaries and wages | (68 + 75) | 143 1 | |
| Selling and administrative | (102 + 118 – 50) | 170 1 | |
| Depreciation | (25 + 25) | 50 ½ | |
| Discount allowed | (0.05 × 0.25 ×1,680) | 21 1½ | 384 |
| **Budgeted net profit** | | | 120 |

(6 marks)

(ii) **Cash budget for Month 8 and Month 9**

| | Month 8 £000 | Month 9 £000 | |
|---|---|---|---|
| **Receipts** | | | |
| Credit sales (W1) | 606 | 768 | **3** |
| | | | |
| **Payments** | | | |
| Credit purchases (W2) | 546 | 651 | **5** |
| Salaries and wages | 68 | 75 | **1** |
| Selling & administrative expenses | 55 | 77 | **2** |
| | 669 | 803 | |
| | | | |
| Net cash flow | (63) | (35) | |
| Opening cash balance | 80 | 17 | |
| Closing cash balance | 17 | (18) | **1** |

(12 marks)

**Workings:**

| | | | £000 | |
|---|---|---|---|---|
| W1 | **Month 8 sales collections** | | | |
| | Current month | (25% × 95% × 720) | 171 | **1** |
| | Previous month | (75% × 580) | 435 | ½ |
| | | | 606 | |
| | | | | |
| | **Month 9 sales collections** | | | |
| | Current month | (25% × 95% × 960) | 228 | **1** |
| | Previous month | (75% × 720) | 540 | ½ |
| | | | 768 | **[3]** |

W2 **Credit purchases**

| | | Month 8 £000 | | Month 9 £000 | |
|---|---|---|---|---|---|
| Cost of sales | (70% × 720) | 504 | ½ | (70% × 960) | 672 ½ |
| **Add**: Closing stock | (25% ×70% × 960) | 168 | **1** | (25% × 70% × 840) | 147 **1** |
| | | 672 | | | 819 |
| **Less**: Opening stock | (25% ×70% × 720) | 126 | **1** | (25% × 70% × 960) | 168 **1** |
| Budgeted purchases | | 546 | | | 651 **[5]** |

(b) Differences between budgeted profit and loss and cash budget arise because the budgeted profit and loss statement:

- is based on the accruals concept – revenues and costs are recognised when they occur rather than when cash is received or paid. **1**
- includes non-cash items such as depreciation and discount allowed. **1**

(2 marks)

**(Total 20 marks)**

**QUESTION 3**

Solar Limited manufactures and sells a single product. In a recent period, the company budgeted to produce and sell 6,500 units, based on standard costs, as follows:

| | | £ | £ |
|---|---|---|---|
| Sales | (6,500 units × £150.00 per unit) | | 975,000 |
| **Less** Cost of sales | | | |
| Materials | (15,600 kilos × £20.50 per kilo) | 319,800 | |
| Labour | (19,500 hours × £12.60 per hour) | 245,700 | |
| Fixed production overhead | (19,500 hours × £9.50 per hour) | 185,250 | |
| | | | 750,750 |
| Budgeted gross profit | | | 224,250 |

The fixed production overheads are absorbed on the basis of direct labour hours.

Raw materials and finished goods stocks are valued at standard costs.

6,650 units were actually produced and 15,750 kilos of materials were purchased during the period. The actual sales revenue was £928,080.

The following variances were calculated for the period:

| | £ | |
|---|---|---|
| Sales price | 16,080 | Favourable |
| Sales volume profit | 14,490 | Adverse |
| Direct material price | 12,35 | Favourable |
| Direct material usage | 10,455 | Favourable |
| Direct labour rate | 8,459 | Favourable |
| Direct labour efficiency | 11,214 | Adverse |
| Fixed production overhead expenditure | 15,950 | Adverse |
| Fixed production overhead volume | 4,275 | Favourable |

**REQUIRED**

(a) Calculate the following **actual figures** for the period:

(i) sales units

(3 marks)

(ii) quantity of direct material used

(3 marks)

(iii) cost of direct materials purchased

(2 marks)

(iv) direct labour hours worked

(3 marks)

(v) direct labour cost

(2 marks)

(vi) fixed production overhead cost

(2 marks)

(b) Identify the factors that should be considered when setting the standards for direct material cost and direct labour cost.

(5 marks)

**(Total 20 marks)**

**MODEL ANSWER TO QUESTION 3**

**Syllabus Topic 6: Standard costing and variances (6.1) & (6.9)**

(a) (i) Actual sales units

| | | | | |
|---|---|---|---|---|
| | | | units | |
| Budgeted sales units | | | 6,500 | ½ |
| **Less** Sales volume profit variance | = | £14,490 | **1** = | 420 |
| Budgeted gross profit per unit | | £34.50* | ½ | |
| **Actual sales units** | | | 6,080 | |

*Budgeted gross profit per unit $\frac{\text{Budgeted gross profit}}{\text{Budgeted sales units}} = \frac{£224,250}{6,500} = £34.50$ **1**

(3 marks)

(ii) Actual quantity of direct material used

| | | kilos | |
|---|---|---|---|
| Standard quantity of actual production | (6,650 units × 2.4 kilos**) | 15,960 | **1** |
| **Less** Direct material usage variance | (£10,455 ÷ £20.50) | 510 | **1** |
| **Actual quantity of direct material used** | | 15,450 | |

**Standard quantity of direct material per unit =

$$\frac{\text{Budgeted quantity of direct material}}{\text{Budgeted production units}} = \frac{15,600}{6,500} = 2.4 \text{ kilos}$$ **1**

(3 marks)

(iii) Actual direct material cost

| | £ | |
|---|---|---|
| Standard cost of actual materials purchased (15,750 kilos × £20.50) | 322,875 | **1** |
| **Less** Direct material price variance | 12,375 | **1** |
| **Actual direct material cost** | 310,500 | |

(2 marks)

(iv) Actual direct labour hours worked

| | | hours | |
|---|---|---|---|
| Standard hours of actual production | (6,650 units × 3 hours***) | 19,950 | **1** |
| **Add** Direct labour efficiency variance | (£11,214 ÷ £12.60) | 890 | **1** |
| **Actual direct labour hours worked** | | 20,840 | |

***Standard hours per unit = $\frac{\text{Budgeted direct labour hours}}{\text{Budgeted production units}} = \frac{19,500}{6,500} = 3 \text{ hours}$ **1**

(3 marks)

(v) Actual direct labour cost

| | £ | |
|---|---|---|
| Standard cost of actual units (6,650 units × 3 hours × £12.60) | 251,370 | **1** |
| **Add** Direct labour efficiency variance | 11,214 | ½ |
| | 262,584 | |
| **Less** Direct labour rate variance | 8,459 | ½ |
| **Actual direct labour cost** | 254,125 | |

(2 marks)

(vi) Actual fixed production overhead cost

| | £ | |
|---|---|---|
| Budgeted fixed production overhead cost | 185,250 | **1** |
| **Add** Fixed production overhead variance | 15,950 | **1** |
| **Actual fixed production overhead cost** | 201,200 | |

(2 marks)

(b) The factors that should be considered when setting the standards for direct materials cost and direct labour cost include the following:

**Direct material cost**

- Price studies, including expected general economic conditions, industry prospects, demand for the materials and market conditions
- Product specifications from descriptions, drawings and blueprints
- Past records on raw material cost, usage, waste and scrap

**Direct labour cost**

- Employee skills, experience, training and the mix of employees for each job
- Time-and-motion studies to determine the efficiency of labour and machinery
- Past performance and personnel records, including historical wage rates

**1 mark for each point with a maximum of 5 marks**

(5 marks)

**(Total 20 marks)**

**QUESTION 4**

A company is considering two alternative investment projects both of which require the purchase of new equipment with a lifespan of four years. The following information relates to the two projects:

| | **Project M** | **Project N** |
|---|---|---|
| | **£000** | **£000** |
| Purchase cost of equipment - Year 0 | 350 | 600 |
| Estimated accounting profits: | | |
| Year 1 | (20) | 50 |
| Year 2 | (5) | 125 |
| Year 3 | 210 | 90 |
| Year 4 | 60 | 30 |
| Estimated disposal value of equipment | 70 | 80 |

The company's depreciation policy is to write off the cost of equipment using the straight-line method.

Cost of capital is 15% per annum.

Discount factors:

| *Year* | *10%* | *15%* | *20%* | *25%* |
|---|---|---|---|---|
| 1 | 0.909 | 0.870 | 0.833 | 0.800 |
| 2 | 0.826 | 0.756 | 0.694 | 0.640 |
| 3 | 0.751 | 0.658 | 0.579 | 0.512 |
| 4 | 0.683 | 0.572 | 0.482 | 0.410 |

**REQUIRED**

(a) Calculate for each of Project **M** and Project **N**, the:

(i) payback period

(7 marks)

(ii) net present value

(5 marks)

(iii) internal rate of return.

(6 marks)

(b) Recommend which project should be undertaken giving reasons for your decision.

(2 marks)

**(Total 20 marks)**

**MODEL ANSWER TO QUESTION 4**

**Syllabus Topic 7: Long-term decision-making (7.3), (7.4) & (7.7)**

(a) (i) **Payback period**

| | Project M | | Project N | |
|---|---|---|---|---|
| Annual depreciation (£000) | = £350 – 70 / 4 years = £70 ½ | | = £600 – 80 / 4 years = £130 ½ | |
| Annual net cash inflow (£000) = | Annual accounting profit + Annual depreciation | | | |
| Year 1 | (20) + 70 = | 50 | 50 + 130 = | 180 |
| Year 2 | (5) + 70 = | 65 | 125 + 130 = | 255 |
| Year 3 | 210 + 70 = | 280 | 90 + 130 = | 220 |
| Year 4 | 60 + 70 + 70 = | 200 1½ | 30 + 130 + 80 = | 240 1½ |

| | Project M | | Project N | |
|---|---|---|---|---|
| Year | Cash flows | Cumulative cash flows | Cash flows | Cumulative cash flows |
| | **£000** | **£000** | **£000** | **£000** |
| 0 | (350) | (350) | (600) | (600) |
| 1 | 50 | (300) | 180 | (420) |
| 2 | 65 | (235) | 255 | (165) |
| 3 | 280 | 45 | 220 | 55 |
| 4 | 200 | 245 | 240 | 295 |

**Payback period for Project M** = 2 + (235 ÷ 280) = 2.8 years 1½

**Payback period for Project N** = 2 + (165 ÷ 220) = 2.8 years 1½

(7 marks)

(ii) **Net present value (discounted at 15%)**

| | Project M | | | Project N | | |
|---|---|---|---|---|---|---|
| Year | Cash flow | Factor | Present value | Cash flow | Factor | Present value |
| | **£000** | | **£000** | **£000** | | **£000** |
| 0 | (350) | 1.000 | (350.00) ½ | (600) | 1.000 | (600.00) ½ |
| 1 | 50 | 0.870 | 43.50 ½ | 180 | 0.870 | 156.60 ½ |
| 2 | 65 | 0.756 | 49.14 ½ | 255 | 0.756 | 192.78 ½ |
| 3 | 280 | 0.658 | 184.24 ½ | 220 | 0.658 | 144.76 ½ |
| 4 | 200 | 0.572 | 114.40 ½ | 240 | 0.572 | 137.28 ½ |
| | | | 41.28 | | | 31.42 |

(5 marks)

(iii) **Internal rate of return (discounted at 20%)**

| | **Project M** | | | **Project N** | | |
|---|---|---|---|---|---|---|
| Year | Cash flow | Factor | Present value | Cash flow | Factor | Present value |
| | **£000** | | **£000** | **£000** | | **£000** |
| 0 | (350) | 1.000 | (350.00) | (600) | 1.000 | (600.00) |
| 1 | 50 | 0.833 | 41.65 | 180 | 0.833 | 149.94 |
| 2 | 65 | 0.694 | 45.11 | 255 | 0.694 | 176.97 |
| 3 | 280 | 0.579 | 162.12 | 220 | 0.579 | 127.38 |
| 4 | 200 | 0.482 | 96.40 | 240 | 0.482 | 115.68 |
| | | | ( 4.72) **1** | | | ( 30.03) **1** |

**IRR for Project M** = 15% + {5% × [41.28 ÷ (41.28 + 4.72)]} = 19.5% **2**

**IRR for Project N** = 15% + {5% × [31.42 ÷ (31.42 + 30.03)]} = 17.6% **2**

(6 marks)

(b) The payback periods for the two projects are almost identical. However, Project M's net present value and internal rate of return are higher than those of Project N. Therefore, Project M should be selected over Project N. **2**

(2 marks)

**(Total 20 marks)**

**QUESTION 5**

(a) Discuss the use of the balanced scorecard approach to the performance evaluation of divisions in a decentralised organisation.

(6 marks)

A company has two divisions, A and B. The following financial information for a recent period is available:

| | **Division A** | **Division B** |
|---|---|---|
| | £000 | £000 |
| Sales | 3,900 | 1,950 |
| Cost of sales | 2,814 | 1,436 |
| Operating expenses | 488 | 202 |
| Fixed assets (net book value) | 2,565 | 1,240 |
| Current assets | 1,420 | 610 |
| Current liabilities | 735 | 350 |

The company's cost of capital is 14% per annum.

**REQUIRED**

(b) Calculate for each of Division A and Division B for the period, the:

(i) net profit ratio (%)

(3 marks)

(ii) net asset turnover ratio (number of times)

(3 marks)

(iii) return on capital employed ratio (%)

(2 marks)

(iv) residual income (£).

(3 marks)

(c) State, with reasons, which performance measure would be more useful when comparing the performance of the two divisions, based on the calculations of the return on capital employed and residual income in part (b).

(3 marks)

**(Total 20 marks)**

**MODEL ANSWER TO QUESTION 5**

**Syllabus Topic 8: Performance evaluation and transfer pricing (8.3), (8.4) & (8.6)**

(a)

- A balanced scorecard is a performance measurement and reporting system that strikes a balance between financial and operating measures.
- It links performance to rewards.
- Gives explicit recognition to the diversity of organisational goals and objectives.
- The balanced scorecard includes key performance indicators which are measures that drive the organisation to meet its goals.
- Performance indicators are grouped into four categories, namely: **1**) financial; **2**) customers; **3**) internal processes and **4**) employee growth and learning. Most decentralised companies that use a balanced scorecard specify the categories that each division would use, but they allow the divisions to choose the key performance indicators.
- Managers can readily see the relationship between non-financial measures (which often more directly evaluate the results of their own actions) and the financial measures that relate to organisational goals.
- Its focus on performance measure from each of the key components of the successful organisation, including organisational learning, business process improvement, customer satisfaction and financial strength. This enhances the divisional managers' learning process.
- Any other reasonable comment.

(1 mark each to a maximum of 6 marks) (6 marks)

(b) (i) **Net profit ratio**

$$\text{Net profit ratio} = \frac{\text{Operating profit}}{\text{Sales}} \times 100\%$$

| **Division A** | | | **Division B** | | |
|---|---|---|---|---|---|
| **£000** | | | **£000** | | |
| 598 | × 100% = 15.3% | **1½** | 312 | × 100% = 16% | **1½** |
| 3,900 | | | 1,950 | | |

Operating profit (£000) = Sales – Cost of sales – Operating expenses

£(3,900 – 2,814 – 488) = £598 £(1,950 – 1,436 – 202) = £312

(3 marks)

(ii) **Net asset turnover ratio**

Net asset turnover ratio = $\frac{\text{Sales}}{\text{Capital employed}}$ = No. of times

**Division A**

$$\frac{\textbf{£000}\ 3{,}900}{3{,}250} = 1.2 \text{ times } \textbf{1½}$$

**Division B**

$$\frac{\textbf{£000}\ 1{,}950}{1{,}500} = 1.3 \text{ times } \textbf{1½}$$

Capital employed (£000) = Fixed assets + Current assets – Current liabilities

£ (2,565 + 1,420 – 735) = £3,250

£(1,240 + 610 – 350) = £1,500

(3 marks)

(iii) **Return on capital employed ratio**

Return on capital employed ratio = $\frac{\text{Operating profit}}{\text{Capital employed}} \times 100\%$

**Division A**

$$\frac{\textbf{£000}\ 598}{3{,}250} \times 100\% = 18.4\% \ \textbf{1}$$

**Division B**

$$\frac{\textbf{£000}\ 312}{1{,}500} \times 100\% = 20.8\% \ \textbf{1}$$

(2 marks)

(iv) **Residual income**

Residual income = Operating profit – (Capital employed × Cost of capital)

**Division A**

**£000**

£598 – (£3,250 × 14%)

£598 – £455 = £143 **1½**

**Division B**

**£000**

£312 – (£1,500 × 14%)

£312 – £210 = £102 **1½**

(3 marks)

(c)

The return on capital employed (ROCE) is a relative measure (i.e. expressed in percentage terms) whereas the residual income (RI) is measured in monetary value terms. The RI measure is less useful to compare divisional performance when the divisions' sizes differ.

For instance, Division B is approximately half the size of Division A (in terms of sales and net assets values) and the latter division's residual income is £41,000 (£143,00 – £102,000) higher. However, in relative terms, Division B is more profitable since its ROCE is 2.4% (20.8% – 18.4%) greater than the ROCE of Division A.

(3 marks)

**(Total 20 marks)**

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