## M1 Introduction to Management Accounting – Solutions

##### Practice Problem A

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| **Item** | **Product or period** | **Direct materials, direct labour or overhead.** |
| Legal fees paid by a corporation | Period |  |
| Depreciation on the factory building | Product | Overhead |
| Advertising | Period |  |
| Wages of a factory storeroom clerk | Product | Overhead |
| Wages of a sewing machine operator in a clothes factory | Product | Direct labour |
| Lubricating oil for sewing machines | Product | Overhead |
| Overtime wages paid to the sewing machine operators | Product | Overhead |
| Corporate-level research and development costs | Period |  |
| Sugar in a chocolate bar | Product | Direct materials |
| Insurance on a warehouse and its inventory | Period |  |
| Salary of a cleaner in a factory | Product | Overhead |
| Depreciation on office equipment (at corporate headquarters) | Period |  |

##### Practice Problem B

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| --- | --- | --- |
| Smith Ltd  Statement of Cost of Goods Manufactured  for the year ending December 31, 2016 | | |
|  |  |  |
| Direct materials: |  |  |
| Beginning inventory | $ 60,000 |  |
| Add: Purchases | 160,000 |  |
| Materials available | $220,000 |  |
| Less: Ending inventory | 10,000 |  |
| Direct materials used |  | $210,000 |
| Direct labour |  | 80,000 |
| Manufacturing overhead: |  |  |
| Indirect manufacturing labour | $ 40,000 |  |
| Plant electrical expense | 10,000 |  |
| Depreciation (equipment & building)  Factory overheads (other)  Factory Supplies | 18,000  20,000  12,000 |  |
| Rates | 2,000 |  |
| Total overhead costs |  | 102,000 |
| Manufacturing costs added |  | $392,000 |
| Add: Beginning work in progress |  | 20,000 |
| Total manufacturing costs |  | $412,000 |
| Less: Ending work in process |  | 4,000 |
| Cost of goods manufactured |  | $408,000 |

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| Smith Ltd | | |
| Income Statement | | |
| For the Year Ended December 31, 2016 | | |
|  |  |  |
| Revenue |  | $700,000 |
| Cost of goods sold: |  |  |
| Beginning finished goods inventory | $ 80,000 |  |
| Add: Cost of goods manufactured | 408,000 |  |
| Goods available for sale | $488,000 |  |
| Less: Ending finished goods inventory | 24,000 | 464,000 |
| Gross profit |  | $ 236,000 |
| Less: Operating expenses |  |  |
| Marketing & distribution costs | 180,000 | 180,000 |
| Income before taxes |  | $ 56,000 |
| \*Note: Data re: accounts receivable & accounts payable are not used in this question |  |  |

### Discussion Questions

1. The term *management accounting system* relates to the systematic provision of information to aid the internal decision-makers within an organisation so as to assist them to *increase* *stakeholder value*.
2. Management accounting includes a broad spectrum of activities and can bedescribed as the procedures, practices and methods that are employed by an organisation’s management to ensure the effective use of its resources. Management accountingrelies on all aspects of the broader accounting system to collect and distribute the best available data to a hierarchy of managers within an organisation.
3. The primary distinction between the two major subsystems of an organisation’s *accounting information system* is the *targeted user*. The *management accounting system* produces information for *internal users*, whereas the *financial accounting system* produces it for *external users*. It should be emphasised, however, that both the *management accounting system* and the *financial accounting system* are part of the total *accounting information system* and that both subsystems rely extensively on transaction-based data.
4. The elements of management information system must facilitate organisational decision making. Decision making is the core of management and aims at selecting the best alternative to achieve the organisation’s stated objectives. The decisions may be of both a strategic or operational nature. This particularly includes planning process and controlling process. This includes setting performance standards, measuring performance against those standards, and correcting any deviations from those standards. It is the integration between planning and controlling that ensures smooth functioning in the organization. Communication is also a basic element of an organisation’s management accounting information system.
5. There are no official bodies that prescribe the format, contents or rules for preparing internal management accounting reports. This means that the management of a company is free to determine the structure and components of their internal management accounting reports or the systems used to create them. Therefore, given their future orientation, the emphasis in the design of the *management accounting system* may be more on *relevance, timeliness* and *flexibility* rather than *reliability*. While management desires organisational information to be as reliable as possible given the need to make decisions on a very timely basis, they often can’t wait for that information to be absolutely confirmed.
6. C*ost leadership* is an approach that sees an organisation compete in a market using a strategy based on having a lower product or service cost than its competitors. Cost leadership is often associated with organisations that operate at high levels of sales-turnover, with tight controls over their product’s costs. Such a strategy is often underpinned by higher levels of economic scale. This approach differs to a strategy based on *product differentiation*. A product differentiation approach relies on an organisation’s product or service exhibiting characteristics or attributes that make it more desirable to consumers other than simply its low price. Organisations adopting this approach attempt to differentiate their products by highlighting their uniqueness in a variety of ways. Some organisations differentiate their products through their brand image, its quality or innovation, others on the basis of the additional services they provide consumers.
7. The introduction of intense international competition into many Australian markets has forced some organisations to reconsider their strategies. Where they were competing on price, adopting a ‘product differentiation’ strategy the entry of international firms (who are often operating at a much greater scale, with different wage and regulatory environments) now find they unable to compete. International competition has created an environment where Australian consumers are increasingly expecting lower prices and a greater variety of goods or services. This changing world means managers must seek alternative ways of adding to stakeholder value. This increases their need for timely and relevant cost information as provided by an organisation’s accounting system.
8. Planning is the process of developing and setting the desired goals or outcomes of an organisation and the means by which those goals will be achieved. Control is an important organisational function that allows management to initiate any corrective action needed so that any deviations from the plan are minimized and thus the goals of the organisation are achieved by the means outlined in that plan. Feedback is a generic term for the processes by which data pertaining to the past performance of organisational components are collected so as management can assess their performance relative to the organisation’s goals.
9. The three types of inventory a manufacturing organisation holds are raw materials, work-in-progress and finished goods.
10. A *cost object* is any item or activity, such as products, departments, projects, and so on, to which costs are assigned. Effectively a cost object is anything that the management of an organisation wants to know the cost of. Cost objects may be a product, a department, a process or a customer.
11. Product costs are those costs that are assigned to a product that was either purchased to resell by retailer/wholesaler or manufactured by a manufacturer. Product costs for a manufacturer include direct materials, direct labour and a proportion of the manufacturing overhead costs.
12. Costs that are expensed in the period in which they are incurred are called *period costs*.
13. *Direct costs* are those costs that can be traced to a cost object, in a convenient and cost-effective way.
14. *Indirect costs* are those costs that are common to several cost objects and, accordingly, are not directly traceable to any one particular cost object.
15. Management sometimes refers to a combination of direct materials and direct labour as a product’s *prime costs*.
16. Conversion costs refer to the combined labour and overhead costs that are incurred in the transformation of direct material into a finished product.
17. Product costs are those costs that can be directly traced or assigned to a specific product that was either purchased to resell by retailer/wholesaler or manufactured by a manufacturer. As the name would suggest period costs are related to period of time rather than a specific product.
18. While *direct costs* are those costs that can be traced to a specific cost object, in a convenient and cost-effective wayindirect costs are those costs that are shared by several cost objects and as a result are not directly traceable to any one identifiable cost object. Remember the distinction between direct and indirect depends on the point of reference. While the salary of the operational supervisor is a direct cost of the assembly department, it is an indirect product cost if more than one product is assembled in that department.
19. Shareholders: By increasing profits and dividends while promoting capital growth
20. Customers: Through its provision of a wide variety of goods and services at lower prices.
21. Community: Through its social, environment, and community service policies and activities.
22. Employees: Through its payment of a fair wages and conditions.
23. Suppliers: Through its payment of a prices and payables policies.
24. In parallel to the introduction of international competition into many Australian markets, Australian firms (particularly in the manufacturing sector) have migrated their production facilities off-shore to other countries (often throughout Asia). As with the introduction of international firms into Australia, the migration of Australian firms to Asia has forced some organisations to reconsider their strategies. This changing world means managers must seek alternative ways of adding to stakeholder value. In addition to the increasing consumer demands associated with on-line shopping and localised international competition, management must simultaneously consider and balance the expectations of both international and domestic Governments, employees and capital markets. Given the expanded range of stakeholders involved management’s decisions as to the future allocation of organisational resources will have significant implications for the organisation’s performance in future periods. This additional complexity increases their need for the timely and relevant resource and cost information provided by an organisation’s accounting system.
25. Most people would acknowledge that the technological changes and innovations associated with on-line retailing are rapidly changing all consumer markets. As a result, retailers operate in an environment where its customers are increasingly expecting lower prices and a greater variety of goods or services. Retailers, their competitors and their suppliers are always under growing pressure to not only ‘*get products* *to the market*’ but also to provide a wider range of goods and services to their customers at a lower cost. Given the evolutionary nature of the situation management will need more accurate and timely data as to the actual cost of their products, processes and service.

##### Problem M1.1

1. Harvey’s salary is a manufacturing cost and is considered indirect labour. Harvey’s salary is a fixed cost, because his salary does not change as production varies.
2. Helen’s salary is a non-manufacturing cost and also a selling cost. Helen’s salary is a mixed cost; she is paid a fixed salary plus a variable portion that varies with the sales level.

##### Problem M1.2

1. Indirect

2. Indirect

3. Indirect

4. Indirect

5. Indirect

6. Direct

7. Direct

##### Problem M1.3

|  |  |  |
| --- | --- | --- |
| Campwell, Pty Ltd | | |
| Statement of Cost of Goods Manufactured | | |
| For the Month Ended August 31, 2016 | | |
|  |  |  |
| Direct materials: |  |  |
| Beginning inventory | $185,000 |  |
| Add: Purchases | 800,000 |  |
| Materials available | $985,000 |  |
| Less: Ending inventory | 168,000 |  |
| Direct materials used |  | $ 817,000 |
| Direct labour |  | 405,000 |
| Manufacturing overhead |  | 1,050,750 |
| Manufacturing costs added |  | $2,272,750 |
| Add: Beginning work in process |  | 120,000 |
| Total manufacturing costs |  | $2,392,750 |
| Less: Ending work in process |  | 235,000 |
| Cost of goods manufactured |  | $2,157,750 |

2.

|  |  |  |
| --- | --- | --- |
| Campwell, Pty Ltd | | |
| Cost of Goods Sold Statement | | |
| For the Month Ended August 31, 2016 | | |
|  |  |  |
| Beginning finished goods inventory |  | $ 102,000 |
| Add: Cost of goods manufactured |  | 2,157,750 |
| Goods available for sale |  | $2,259,750 |
| Less: Ending finished goods inventory |  | 91,000 |
| Cost of goods sold |  | $2,168,750 |

##### Problem M1.4

|  |  |  |  |
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|  | **Item** | **Direct/Indirect**  **Product Cost** | **Product/Period Cost** |
|  | Tacks in a large sofa | Indirect | Product |
|  | Salary of a plant security guard | Indirect | Product |
|  | Buttons on a shirt | Indirect/Direct | Product |
|  | Salary of a plant manager | Indirect | Product |
|  | Carpenters in a construction company | Direct | Product |
|  | Salary of a warehouse clerk | N/A | Period |
|  | Total overhead cost | Indirect | Product |
|  | Printing and Postage for advertising circulars | N/A | Period |
|  | Total selling costs | N/A | Period |
|  | Wood in a new home being built | Direct | Product |
|  | Depreciation on the company’s executive jet plane | N/A | Period |
|  | Depletion on an existing oil well | Indirect | Product |
|  | Fees paid for an annual audit | N/A | Period |
|  | The total cost of operating a power service center in a factory | Indirect | Product |
|  | Pipelines for transporting crude oil to a refinery | Indirect | Product |
|  | The cost of a market research study | N/A | Period |
|  | Pipelines for transporting crude oil to customers | N/A | Period |

##### Problem M1.5

1. Product

2. Product

3. Period

4. Product

5. Product

6. Period

7. Period

8. Period

9. Product

##### Problem M1.6

|  |  |  |
| --- | --- | --- |
| 1. Statement of Cost of Goods Manufactured | | |
|  |  |  |
| Direct materials: |  |  |
| Beginning inventory | $ 4,000 |  |
| Add: Purchases | 8,000 |  |
| Materials available | $12,000 |  |
| Less: Ending inventory | 2,000 |  |
| Direct materials used |  | $10,000 |
| Direct labour |  | 13,000 |
| Manufacturing overhead: |  |  |
| Material handling | $ 2,745 |  |
| Supplies used | 675 |  |
| Insurance | 350 |  |
| Supervision | 1,230 |  |
| Total overhead costs |  | 5,000 |
| Manufacturing costs added |  | $28,000 |
| Add: Beginning work in process |  | 12,500 |
| Total manufacturing costs |  | $40,500 |
| Less: Ending work in process |  | 14,250 |
| Cost of goods manufactured |  | $26,250 |

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| 2. Cost of Goods Sold Statement | | |
|  |  |  |
| Beginning finished goods inventory |  | $ 5,685 |
| Add: Cost of goods manufactured |  | 26,250 |
| Goods available for sale |  | $31,935 |
| Less: Ending finished goods inventory |  | 3,250 |
| Cost of goods sold |  | $28,685 |

##### Problem M1.7

1.

|  |  |  |
| --- | --- | --- |
| Phillips Company | | |
| Statement of Cost of Goods Manufactured | | |
| For the Year Ended December 31, 2016 | | |
|  |  |  |
| Direct materials: |  |  |
| Beginning inventory | $ 46,800 |  |
| Add: Purchases | 320,000 |  |
| Materials available | $366,800 |  |
| Less: Ending inventory | 66,800 |  |
| Direct materials used |  | $300,000 |
| Direct labour |  | 200,000 |
| Manufacturing overhead: |  |  |
| Indirect labour | $ 40,000 |  |
| Rent | 42,000 |  |
| Depreciation | 60,000 |  |
| Utilities | 11,956 |  |
| Total overhead costs |  | 153,956 |
| Total manufacturing costs added |  | $653,956 |
| Add: Beginning work in process |  | 13,040 |
| Total manufacturing costs |  | $666,996 |
| Less: Ending work in process |  | 14,996 |
| Cost of goods manufactured |  | $652,000 |

2. Average unit cost = $652,000/4,000 = $163

3.

|  |  |  |
| --- | --- | --- |
| Phillips Company | | |
| Absorption-Costing Income Statement | | |
| For the Year Ended December 31, 2016 | | |
|  |  |  |
| Sales (3,800\* x $400) |  | $1,520,000 |
| Cost of goods sold: |  |  |
| Beginning finished goods inventory | $ 80,000 |  |
| Add: Cost of goods manufactured | 652,000 |  |
| Goods available for sale | $732,000 |  |
| Less: Ending finished goods inventory | 114,100 | 617,900 |
| Gross profit |  | $ 902,100 |
| Less: Operating expenses |  |  |
| Salary, sales supervisor | $ 90,000 |  |
| Commissions, salespersons | 180,000 |  |
| Administrative expenses | 300,000 | 570,000 |
| Income before taxes |  | $ 332,100 |
|  | | |
| \* 500 + 4,000 - 700 = 3,800 units sold | | |

##### Problem M1.8

1. Beginning inventory, materials $ 40,500

Add: Purchases 90,000

Less: Ending inventory, materials (15,250)

Materials used in production $115,250

2. Prime cost = $115,250 + $63,000 = $178,250

3. Conversion cost = $63,000 + $113,000 = $176,000

4. Total repair cost = $115,250 + $63,000 + $113,000 = $291,250

Since the repair shop has no WIP inventories, this number would be equivalent to cost of goods manufactured in a manufacturing firm. Actually, it is possible to have unfinished repair work at the end of the period, and so we could call this ‘work in process’. In practice, it is unlikely that any effort would be made to recognise and value this WIP inventory. Yet it does illustrate the concept that the distinction between service and manufacturing may be more of a continuum than a dichotomy.

##### Problem M1.9

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| Wollworks Ltd’s  Statement of Cost of Goods Manufactured  For the Year Ended December 31, 2016 | | |
|  |  |  |
| Direct materials used |  | $174,000 |
| Direct labour |  | 68,000 |
| Manufacturing overhead: |  |  |
| Indirect manufacturing labour  Factory depreciation | $ 46,000  18,000 |  |
| Factory repairs & maintenance  Depreciation on factory equipment | 32,000  22,000 |  |
| Indirect material used | 22,000 |  |
| Plant electrical expenses  Factory overheads (other) | 34,000  8,000 |  |
| Total overhead costs |  | 182,000 |
| Manufacturing costs added |  | $424,000 |
| Add: Beginning work in process |  | 40,000 |
| Total manufacturing costs |  | $464,000 |
| Less: Ending work in process |  | 52,000 |
| Cost of goods manufactured |  | $412,000 |

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| --- | --- | --- |
| Wollworks Ltd’s | | |
| Cost of Goods Sold Statement | | |
| For the Year Ended December 31, 2016 | | |
|  |  |  |
| Beginning finished goods inventory |  | $ 54,000 |
| Add: Cost of goods manufactured |  | 412,000 |
| Goods available for sale |  | $466,000 |
| Less: Ending finished goods inventory |  | 84,000 |
| Cost of goods sold |  | $382,000 |

(Note: capital gains tax of $6,000, Administrative & general costs of $86,000 & Marketing & distribution costs $72,000 are period rather than product costs)

##### Problem M1.10

|  |  |  |
| --- | --- | --- |
| Jones Ltd’s  Statement of Cost of Goods Manufactured  For the Year Ended December 31, 2016 | | |
|  |  |  |
| Direct materials: |  |  |
| Beginning inventory | $ 30,000 |  |
| Add: Purchases | 650,000 |  |
| Materials available | $680,000 |  |
| Less: Ending inventory | 40,000 |  |
| Direct materials used |  | $640,000 |
| Direct labour |  | 200,000 |
| Manufacturing overhead: |  |  |
| Indirect manufacturing labour  Factory supplies | $ 120,000  20,000 |  |
| Plant electrical expenses | 60,000 |  |
| Factory management labour | 10,000 |  |
| Depreciation factory building & equipment  Factory overheads (general) | 160,000  70,000 |  |
| Total overhead costs |  | 440,000 |
| Manufacturing costs added |  | $1,280,000 |
| Add: Beginning work in process |  | 20,000 |
| Total manufacturing costs |  | $1,300,000 |
| Less: Ending work in process |  | 10,000 |
| Cost of goods manufactured |  | $1,290,000 |

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| Jones Ltd’s | | |
| Income Statement | | |
| For the Year Ended December 31, 2016 | | |
|  |  |  |
| Revenue |  | $1,900,000 |
| Cost of goods sold: |  |  |
| Beginning finished goods inventory | $ 140,000 |  |
| Add: Cost of goods manufactured | 1,290,000 |  |
| Goods available for sale | $1,430,000 |  |
| Less: Ending finished goods inventory | 110,000 | 1,320,000 |
| Gross profit |  | $ 580,000 |
| Less: Operating expenses |  |  |
| Marketing & distribution costs  Administrative & general costs | 280,000  86,000 | 366,000 |
| Income before taxes |  | $ 214,000 |