

# MANAGEMENT ACCOUNTING

## FORMATION 2 EXAMINATION - AUGUST 2017

### NOTES:

**Section A** - Questions 1 and 2 are compulsory. You have to answer Part A **or** Part B **only** of Question 2. Should you provide answers to both Part(s) A and B of Question 2, you must draw a clearly distinguishable line through the answer not to be marked. Otherwise, only the first answer to hand for this question will be marked.

**Section B** - You are required to answer any **three** out of Questions 3 to 6. Should you provide answers to all of Questions 3 to 6, you must draw a clearly distinguishable line through the answer not to be marked. Otherwise, only the first three answers to hand for these four questions will be marked.

### TIME ALLOWED:

3 hours, plus 10 minutes to read the paper.

### INSTRUCTIONS:

During the reading time you may write notes on the examination paper but you may not commence writing in your answer book. **Please read each Question carefully.**

Marks for each question are shown. The pass mark required is 50% in total over the whole paper.

**Start your answer to each question on a new page.**

You are reminded to pay particular attention to your communication skills and care must be taken regarding the format and literacy of your solutions. The marking system will take into account the content of your answers and the extent to which answers are supported with relevant legislation, case law or examples where appropriate.

List on the cover of each answer booklet, in the space provided, the number of each question attempted.

**NB: PLEASE ENSURE TO ENCLOSE YOUR ANSWER SHEET TO QUESTION 3 IN THE ENVELOPE PROVIDED.**

# MANAGEMENT ACCOUNTING

FORMATION 2 EXAMINATION - AUGUST 2017

Time allowed: 3 hours, plus 10 minutes to read the paper.

**Section A:** Answer Question 1 and either Part A or Part B of Question 2.

**Section B:** You are required to answer any three out of Questions 3 to 6.

## SECTION A - QUESTIONS 1 AND 2 ARE COMPULSORY

- 1.** XY Storage Ltd. was established five years ago and manufactures plastic storage boxes in a range of sizes, supplying large homeware retailers throughout Ireland. To date, a simple traditional absorption costing system has been used to allocate overheads to products. Total production overheads are divided by total machine hours to obtain a rate per machine hour which is then applied to products. Selling prices are calculated by adding a mark-up of 60% to the product cost.

However, recently XY Storage Ltd. has streamlined its production process so that manufacturing overheads represent the most significant portion of product cost. In an attempt to recognise this situation the management accountant is trying to convince the managing director of XY Storage Ltd. to switch to activity based costing (ABC) for overhead allocation. Information relating to the company's most recent financial period and for two of its most popular storage products is shown below.

*Budgeted cost and activity information:*

|                                  |          |
|----------------------------------|----------|
| Direct wages                     | €306,250 |
| Purchasing department costs      | €106,200 |
| Machine set up costs             | €95,500  |
| Quality control costs            | €108,400 |
| Machine depreciation             | €62,500  |
| Machine hours                    | 73,125   |
| Labour hours                     | 24,500   |
| Number of inspections            | 338,750  |
| Number of machine set ups        | 119,375  |
| Number of purchase orders raised | 531,000  |

*Product information:*

|                           | Medium 'storeganiser' box | Large 'storeganiser' box |
|---------------------------|---------------------------|--------------------------|
| Direct materials          | €1.05                     | €1.62                    |
| Labour hours              | 2 minutes                 | 2 minutes                |
| Machine hours             | 6 minutes                 | 8 minutes                |
| Number of machine set ups | 1                         | 1                        |
| Number of purchase orders | 2                         | 3                        |
| Number of inspections     | 1                         | 2                        |

**REQUIREMENT:**

- (a)** Calculate the total product cost and selling price for each of the two storage products noted using:
- (i) The costing approach currently used by XY Storage Ltd.; (7 marks)
  - (ii) Activity based costing (ABC). (11 marks)
- (b)** Compare and briefly discuss your answers in (a) (i) and (ii) above. (4 marks)
- (c)** Outline TWO reasons why XY Storage Ltd. may decide NOT to adopt ABC. (3 marks)

**[Total: 25 Marks]**

## ANSWER PART (A) OR PART (B)

**2.**

- (A)** ST Materials Ltd., a new client, has asked for your assistance regarding inventory valuation and management. The company supplies different grades of paper and other stationery materials to government departments and educational institutions. Paper supplies are purchased in bulk from Germany and stored in a large rented warehouse in Dublin. The company has a five year contract with one educational institution, a private college based in Sligo, to supply paper for student examinations. As the college strictly controls enrolment, the contract requires the same quantity of paper each year for its examinations. The managing director of ST Materials Ltd. has read an article on inventory valuation (FIFO, LIFO and Average Cost) and the importance of inventory management. In particular, the article proposed that the use of the economic order quantity (EOQ) may bring substantial benefits to an organisation. As a financial advisor to the company, the managing director has asked for your opinion on this matter.

### REQUIREMENT:

Prepare a report on inventory valuation and management for the managing director of ST Materials Ltd., that:

- (i)** Outlines the main features of the FIFO, LIFO and Average Cost approaches to inventory valuation. (6 marks)
- (ii)** Describes the application of the economic order quantity (EOQ) model, highlighting its limitations. (6 marks)
- (iii)** Briefly explain whether the use of the EOQ model is suitable for ST Materials Ltd. (2 marks)

Format and Presentation (1 mark)

**[Total: 15 Marks]**

## OR

- (B)** You are a trainee Certified Public Accountant in the firm of Farrelly, O'Brien & Co. Your firm has recently started advising a number of Irish start-up manufacturing companies. The partner in charge of these clients has commented that "the firms have spent time and energy developing their strategy but don't seem to realise the importance of preparing budgets". You have been asked to draft a clear and concise briefing note that will be circulated to the start-up companies on the subject of budgeting.

### REQUIREMENT:

Draft a briefing note that:

- (i)** Explains the main purposes of budgeting; (6 marks)
- (ii)** Outlines the functional budgets that are typically prepared for a manufacturing company. (8 marks)

Format and Presentation (1 mark)

**[Total: 15 Marks]**

## SECTION B - ANSWER ANY THREE QUESTIONS.

**3.** The following multiple-choice question contains eight sections, each of which is followed by a choice of answers. Only one answer is correct in each case. Each question carries equal marks. On the answer sheet provided indicate for each question, which of the options you think is the correct answer. Marks will not be awarded where you select more than one answer for any question.

1. In a company that manufactures furniture, which of the following is more likely to be a step fixed cost:
  - (a) Lengths of oak used in production.
  - (b) Factory telephone costs.
  - (c) Machinery depreciation costs.
  - (d) Supervisors' salaries.
  
2. In process costing, a normal loss:
  - (a) Is not an inherent part of the production process.
  - (b) Occurs under efficient operating conditions and is unavoidable.
  - (c) Is less than the expected loss from the process.
  - (d) Is not expected to occur under efficient operating conditions.
  
3. Which of the following statements is INCORRECT:
  - (a) Financial accounting is more focused on historic information than management accounting.
  - (b) There is no requirement to prepare management accounts for any particular period.
  - (c) Financial accounting information is more regulated than management accounting information.
  - (d) Management accounting information is prepared for a wider range of users than financial accounting information.

**The following information relates to Questions 4, 5 and 6.**

The table below shows details of materials that Brownlow Ltd. currently has in its warehouse:

| Material | Quantity (Kgs) | Original Cost<br>per Kg | Scrap Value<br>per Kg | Current purchase<br>price per Kg |
|----------|----------------|-------------------------|-----------------------|----------------------------------|
| B6       | 10,000         | €5                      | €0.50                 | €5.75                            |
| D7       | 4,000          | €10                     | €2.50                 | €11                              |
| G10      | 3,200          | €4                      | Nil                   | €4.40                            |

The company has been approached by a new customer who has requested a quotation for a one-off order.

4. Assume that the customer order requires 5,000 Kgs of material B6. This material is in regular use by the company. What cost should be included in the customer quotation for this material?
  - (a) €2,500
  - (b) €25,000
  - (c) €28,750
  - (d) €Nil.
  
5. Assume that the customer order requires 6,000 Kgs of material D7. This material is also in regular use by the company. What cost should be included in the customer quotation for this material?
  - (a) €60,000
  - (b) €66,000
  - (c) €62,000
  - (d) €45,000.

6. Assume that the customer order requires 2,200 Kgs of material G10. This material is no longer used by the company. What cost should be included in the customer quotation for this material?
- (a) €Nil  
 (b) €8,800  
 (c) €9,680  
 (d) €12,800.
7. Belton Ltd. manufactures low calorie chocolate bars. The selling price per bar is €1.60 and total variable costs per bar are €0.86. Fixed costs for the month are expected to be €10,730 and sales are budgeted to be 15,950 bars per month. What is the margin of safety for the month in bars (units) to the nearest whole bar?
- (a) 3,473 bars  
 (b) 9,244 bars  
 (c) 5,220 bars  
 (d) 1,450 bars.
8. Regal Records Ltd. operates recording studios and charges its clients for time spent in its state of the art facility. An extract showing the amounts charged during the past three months is shown below:

|                        | <b>May</b> | <b>June</b> | <b>July</b> |
|------------------------|------------|-------------|-------------|
| Hours spent in studio  | 1,480      | 1,650       | 1,260       |
| Recording fees charged | €53,840    | €59,450     | €46,580     |

During August one artist spent 1,575 hours in the studios. The recording fees charged to this client would be:

- (a) €56,975  
 (b) €57,295  
 (c) €56,748  
 (d) €58,225.

**[Total: 20 Marks]**

4. Tasty Crumbe Ltd. is an artisan bakery based in Wicklow and specialises in sourdough bread. Currently the company has a small production facility and until recently this was sufficient to supply demand mainly from retailers. However, last month the company and its products were featured on a popular evening television show and as a result demand has grown steadily. The directors of the company are investigating the possibility of moving to a larger premises and hiring more staff but for now want to focus on producing an optimal mix of products to maximise profits. Financial information relating to the company for the year ahead is provided below.

1. The company makes three main types of sourdough bread: 100% Rye; Multigrain and Spelt.
2. Budgeted selling and distribution expenses are estimated to be €13,860 per quarter and budgeted fixed production overhead is €9,450 per month.
3. The company has 9,792 labour hours available for production for the year.
4. Details relating to the three products are shown in the table:

|                                            | <b>100% Rye<br/>bread</b> | <b>Multigrain<br/>bread</b> | <b>Spelt<br/>bread</b> |
|--------------------------------------------|---------------------------|-----------------------------|------------------------|
| Sales demand for the year (loaves)         | 27,100                    | 56,600                      | 31,500                 |
| Selling price per loaf                     | €4.60                     | €5.50                       | €5.70                  |
| Ingredients required per loaf of bread:    |                           |                             |                        |
| Direct materials:                          |                           |                             |                        |
| - Rye flour @ €0.60 per Kg                 | 0.5Kg                     |                             |                        |
| - Multigrain flour mix @ €0.85 per Kg      |                           | 0.6 Kg                      |                        |
| - Spelt flour @ €0.75 per Kg               |                           |                             | 0.6 Kg                 |
| Direct labour: @ €15 per hour              | 0.05 hour                 | 0.10 hour                   | 0.10 hour              |
| Variable overhead: 100% Direct labour cost |                           |                             |                        |

**REQUIREMENT:**

- (a) State whether Tasty Crumbe Ltd. has sufficient production capacity to satisfy sales demand for the year ahead, providing calculations to support your answer. (4 marks)
- (b) Compute and show the ranking for the optimal production plan for Tasty Crumbe Ltd. for the year, clearly showing total profit expected. (13 marks)
- (c) Another artisan bakery has offered to supply up to 4,000 loaves, of any of the three types, to Tasty Crumbe Ltd. during the year for a fixed price of €5.00 per loaf. Should the company avail of this offer? Give reasons for your answer. (3 marks)

**[Total: 20 Marks]**

5. Float On Ltd. was established six years ago in Galway. The company produces specially designed kickboards for swimmers. The kickboards, based on one simple design, are produced using durable high density EVA foam in a range of colours. Over the past two years, sales have been growing steadily due to the 'Swimathon', a national event organised to encourage more people to learn to swim. However, the managing director, Kate McKenna was dismayed when she received the management accounts for July. While sales had increased, profit for the month was lower than budgeted. She has asked for your assistance and has provided budgeted and actual information for the month as follows:

|                              | Budget  | Actual  |
|------------------------------|---------|---------|
| Sales                        |         |         |
| - units                      | 1,400   | 1,500   |
| - revenue                    | €25,200 | €26,250 |
| Direct materials             |         |         |
| - EVA (cubic metres)         | 189     | 210     |
| - Cost                       | €6,615  | €7,140  |
| Direct labour                |         |         |
| - Hours                      | 280     | 325     |
| - Cost                       | €4,480  | €3,969  |
| Variable production overhead | €910    | €1,170  |
| Fixed production overhead    |         | €3,800  |

**Other information:**

1. Variable overhead is absorbed into production based on direct labour hours.
2. Total fixed production overhead is budgeted to be €35,280 for the year and normal annual production is budgeted to be 16,800 units.

**REQUIREMENT:**

- (a) Prepare a standard cost card for ONE kickboard. (4 marks)
- (b) Using the information provided calculate all relevant variances. (11 marks)
- (c) Reconcile budgeted profit to actual profit achieved. (3 marks)
- (d) Suggest TWO reasons to explain the material variances. (2 marks)

**[Total: 20 Marks]**

6. JK Ltd. is based in Dublin and sells one product, a specialist shampoo, Glossy Tresses. The shampoo was originally developed for the Irish swimming team at the Rio Olympics and was so successful that a company was established specifically to produce and market the product. The managing director and product creator, John Knight, is aware that there are different methods of product costing, however, he does not understand their impact on profitability. He has provided company information relating to the most recent three month trading period (shown below) and has asked for your assistance in highlighting the difference in profit that may arise from using these costing methods.

*Production and sales volumes:*

|      | Production (bottles) | Sales (bottles) |
|------|----------------------|-----------------|
| May  | 24,000               | 21,000          |
| June | 26,000               | 24,000          |
| July | 25,000               | 30,000          |

*Cost data:*

|                               |                       |
|-------------------------------|-----------------------|
| Selling price per bottle      | €22                   |
| Direct materials per bottle   | €6.10                 |
| Direct labour per bottle      | €0.75                 |
| Variable production overheads | 200% of direct labour |
| Sales commission              | 5% of sales value     |

**Notes:**

1. There were 5,000 bottles of shampoo in inventory at 1 May.
2. Fixed production overheads are budgeted at €612,000 per annum and are absorbed into products based on normal output of 25,000 per month.

**REQUIREMENT:**

- (a) Prepare management accounts for the most recent period showing profit calculated using:
- (i) Variable (marginal) costing;
  - (ii) Absorption costing.
- (15 marks)
- (b) Reconcile the profit calculated at (a) (i) and (ii) above. (3 marks)
- (c) Suggest TWO reasons why JK Ltd. should use absorption costing. (2 marks)

**[Total: 20 Marks]**

**END OF PAPER**

## SUGGESTED SOLUTIONS

THE INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS IN IRELAND

# MANAGEMENT ACCOUNTING

FORMATION 2 EXAMINATION - AUGUST 2017

### SOLUTION 1: XY Storage Ltd.

**(a) Total product cost of the two storage products based on**

**(i) Current costing approach**

(W1) *Calculation of overhead absorption rate*

$$\text{Overhead absorption rate per machine hour} = \frac{\text{Total production overheads}}{\text{Total machine hours}} = \frac{\text{€ } 372,600}{73,125} = \text{€ } 5.10$$

(W2) *Calculation of direct labour rate per hour*

$$\text{Direct labour rate per hour} = \frac{\text{Direct wages}}{\text{Labour hours}} = \frac{\text{€ } 306,250}{24,500} = \text{€ } 12.50$$

*Product cost and selling price*

|                                                   | Medium 'storeganiser' | Large 'storeganiser' |
|---------------------------------------------------|-----------------------|----------------------|
|                                                   | €                     | €                    |
| Direct materials                                  | 1.050                 | 1.620                |
| Direct labour (2 mins & 2 mins x €12.50 per hour) | 0.417                 | 0.417                |
| Production overhead (6 mins & 8 mins x €5.10)     | <u>0.510</u>          | <u>0.680</u>         |
| Total product cost                                | 1.977                 | 2.717                |
| Add 60% mark-up on cost                           | <u>1.186</u>          | <u>1.630</u>         |
| Selling price                                     | <u>3.163</u>          | <u>4.347</u>         |

(7 marks)

**(ii) Activity based costing**

(W3) *Calculation of cost per driver*

| <u>Activity</u>       | <u>Cost driver</u>     | <u>Cost</u>    | <u>Total drivers</u> | <u>Cost per driver</u>  |
|-----------------------|------------------------|----------------|----------------------|-------------------------|
|                       |                        | €              |                      | €                       |
| Purchasing costs      | Purchase orders raised | 106,200        | 531,000              | 0.20 Per purchase order |
| Machine set up costs  | No of machine set ups  | 95,500         | 119,375              | 0.80 Per machine set up |
| Quality control costs | No of inspections      | 108,400        | 338,750              | 0.32 Per inspection     |
| Machine depreciation  | Machine hours          | <u>62,500</u>  | 73,125               | 0.85 Per machine hour   |
|                       |                        | <u>372,600</u> |                      |                         |

(W4) *Calculation of total overhead cost for each storage product*

|                       | Medium 'storeganiser' | Large 'storeganiser' |
|-----------------------|-----------------------|----------------------|
|                       | €                     | €                    |
| Purchasing costs      | 0.400                 | 0.600                |
| Machine set up costs  | 0.800                 | 0.800                |
| Quality control costs | 0.320                 | 0.640                |
| Machine depreciation  | <u>0.085</u>          | <u>0.113</u>         |
| Total overhead cost   | <u>1.605</u>          | <u>2.153</u>         |

Product cost and selling price

|                         | Medium 'storeganiser' | Large 'storeganiser' |
|-------------------------|-----------------------|----------------------|
|                         | €                     | €                    |
| Direct materials        | 1.050                 | 1.620                |
| Direct labour           | 0.417                 | 0.417                |
| Overheads (W4)          | 1.605                 | 2.153                |
| Total product cost      | 3.07                  | 4.19                 |
| Add 60% mark-up on cost | 1.84                  | 2.51                 |
| Selling price           | 4.91                  | 6.70                 |

(11 marks)

**(b) Compare and briefly discuss the answers in (a) (i) and (ii) above**

|                                   | Medium 'storeganiser' | Large 'storeganiser' |
|-----------------------------------|-----------------------|----------------------|
|                                   | €                     | €                    |
| Product cost using current method | 1.98                  | 2.72                 |
| Product cost using ABC            | 3.07                  | 4.19                 |
| Difference                        | -1.09                 | -1.47                |

The current method of allocating overheads undercosts both products by €1.09 and €1.47 respectively.

This means that when pricing the products the company is using inaccurate costs and applying a mark-up based on these costs and so will not achieve the desired profit on each product.

|                                    | Medium 'storeganiser' | Large 'storeganiser' |
|------------------------------------|-----------------------|----------------------|
|                                    | €                     | €                    |
| Selling price using current method | 3.16                  | 4.35                 |
| Selling price using ABC            | 4.91                  | 6.70                 |
| Difference                         | -1.75                 | -2.35                |

Using different costing systems results in quite different prices. The prices based on ABC are much higher than the prices obtained from the current absorption costing system. This may have implications for product competitiveness and customer demand. Are the products competitive compared to offerings from other companies? Will customers purchase the product at the revised prices?

Any other relevant points (4 marks)

**(c) Outline TWO reasons why XY Storage Ltd. may decide NOT to adopt ABC**

Any TWO of the following:

- ABC requires greater understanding of costs and cost drivers which may be time consuming to attain.
- It may not be possible to allocate all overhead costs to specific activities.
- There may be common costs i.e. costs that relate to many cost pools so that it is difficult to allocate them to specific functions.
- Any other relevant point

(3 marks)

**[Total: 25 Marks]**

## SOLUTION 2

(A)

### REPORT

To: Managing Director, ST Materials Ltd.

From: A Management Accountant

Subject: Inventory Management

Date: August 2017

Further to your request for assistance, the information regarding inventory valuation and management is provided below. Firstly, the report outlines the three different approaches to inventory valuation (FIFO, LIFO and Average Cost). Next, it describes the economic order quantity (EOQ) model highlighting its limitations. Finally, it provides a recommendation regarding the suitability of the EOQ model for ST Materials Ltd.

(i)

#### Three approaches to inventory valuation

##### *First In First Out (FIFO):*

FIFO assumes that materials purchased FIRST are used FIRST. It seems most logical as it makes the same assumptions as the physical flow of materials through an organisation. However, in periods of inflation early purchases of material will have lower prices and will be issued first. This will result in a lower cost of sales and higher profits. Closing inventory will also be valued using higher prices. FIFO is accepted by financial reporting standards as a suitable method of valuing inventory.

##### *Last In First Out (LIFO):*

LIFO assumes that materials purchased LAST are used FIRST. With LIFO the latest purchases of material, which will (generally) have higher prices, will be issued first. This means that the cost of sales will be higher so that profits will be lower. It also results in a lower valuation of inventory as older prices are applicable. LIFO is NOT accepted by financial reporting standards as a suitable method of valuing inventory

##### *Average Cost (also called Weighted Average):*

Average Cost calculates an average cost for all materials purchased. With Average Cost, material issues will be recorded at an average price based on purchases to date. Each time there is a purchase the average cost is calculated and this is the value used when pricing material issues to production. Average cost tends to produce a profit figure and inventory valuation that is in between FIFO and LIFO in monetary terms. Average Cost is accepted by financial reporting standards as a suitable method of valuing inventory

(6 marks)

(ii)

#### The economic order quantity (EOQ)

The EOQ is a mathematical model that addresses the question, 'in order to minimise cost how much inventory should be ordered?' The EOQ formula is shown below.

$$EOQ (Q) = \sqrt{\frac{2DO}{H}}$$

Where EOQ = Optimum inventory order size

D = Annual demand

O = Cost to place one order

H = Annual cost of holding one unit in inventory

There are a number of benefits of using the EOQ including:

- It is based on a mathematical model that can easily be applied.
- It calculates the optimum inventory order size to minimise total holding and total ordering costs.

However, the EOQ was developed based on a number of assumptions and these are limitations to the application of the model in business situations. The assumptions/limitations are:

- Sales demand is certain, constant and continuous.
- Holding cost per unit remains constant.
- The average balance in inventory equals half of the order quantity.
- If safety stocks are maintained, they remain the same regardless of order size.
- Inventory may be purchased in exactly the quantities required.
- Any other limitations

If a company in a particular industry wishes to use the EOQ to determine the optimal inventory size, these assumptions must hold/apply, otherwise the EOQ will not minimise total inventory costs.

(6 marks)

(iii)

Recommendation regarding use of EOQ model

- As ST Materials Ltd has certain, continuous demand from the educational institution (in terms of the five year contract) it may be possible for the company to use the EOQ to determine the optimum order quantity of paper from its suppliers. This would help to reduce storage costs. However, the company must ensure that the assumptions underlying the EOQ are applicable to its own particular circumstances.
- Any other relevant points (2 marks)

Should you require clarification or explanation in relation to any of the matters noted in this report, or require further assistance, I will be happy to assist you.

Yours sincerely,  
A Management Accountant.

(Format and presentation 1 mark)

**[Total: 15 Marks]**

**(B) BRIEFING NOTE**

**(i) Main purposes of budgeting**

The main purposes of budgeting are as follows:

- Co-ordination: there is better co-ordination of the various functions of the business as managers examine the operations of their departments relative to other departments.
- Communication: the budgeting process requires that all levels of the organisation are informed of long range plans, providing and receiving feedback throughout the budgeting process.
- Motivation: a budget, if it is realistic and prepared with the participation of managers, provides a standard of performance that managers will strive to achieve. However, if a budget is set by higher level managers and imposed on lower level managers it may be resisted and cause dissatisfaction and demotivation.
- Control: a budget assists managers in controlling the activities for which they are responsible by allowing them to compare actual performance with expected or budgeted performance. Any significant differences may then be investigated and inefficiencies highlighted for remedial action.
- Performance evaluation: a manager's performance may be evaluated by reference to how well budgeted results are achieved. Budgets thus allow managers to gauge how well they are meeting targets that they have been involved in setting.

(6 marks)

**(ii) The budgets that would be prepared for a manufacturing company**

In a manufacturing environment it is likely that the following budgets would be prepared:

- Sales budget: this is the starting point as it is based on what the company expects to sell in the year ahead. It is prepared showing sales in units and in value terms.
- Production budget: this budget is prepared in unit terms only and aims to ensure that production is sufficient to cover sales and planned inventory levels for the year ahead.
- Direct materials usage budget: this budget is based on the production budget and shows the materials required to meet budgeted production levels. It is expressed in units and cost terms.
- Direct materials purchase budget: this budget shows the quantity of materials that must be purchased to meet budgeted production levels and planned materials inventory levels. It shows material quantities and costs.
- Direct labour budget: this budget is based on the production budget and shows the labour hours required to achieve production levels and also the budgeted cost of that labour.
- Factory overhead budget: comprises fixed and variable factory overheads. Budgeted fixed factory overheads for the year ahead are included as are variable factory overheads based on production levels.
- Selling, distribution and administration budgets: these are prepared by the managers of the respective departments and show the budgeted overhead costs for the year ahead.
- Master budget: when all of the other budgets have been prepared they are then summarised into a budgeted profit and loss and balance sheet, which gives an overview of the expected performance for the year ahead.

(8 marks)

(Format and presentation 1 mark)

**[Total: 15 Marks]**

### SOLUTION 3

1. Answer **(d)** Supervisors' salaries.
2. Answer **(b)** Occurs under efficient operating conditions and is unavoidable.
3. Answer **(d)** Management accounting information is prepared for a wider range of users than financial accounting information.
4. Answer **(c)** €28,750.  
As material B6 is in regular use the company will have to replace it if it is used, hence replacement cost is applicable  
i.e.  $5,000 \text{ Kgs} \times €5.75/\text{Kg} = €28,750$ .
5. Answer **(b)** €66,000.  
Again, material D7 is in regular use and so must be replaced if used so the replacement cost is applicable i.e.  
 $6,000 \text{ Kgs} \times €11/\text{Kg} = €66,000$ .
6. Answer **(a)** €Nil.  
Material G10 is no longer used by the company and has no scrap value hence the cost of using the material on the customer order is NIL.
7. Answer **(d)** 1,450 bars.  
Break-even point in units (bars) = Total fixed costs/Contribution per unit.  
Break-even point in units (bars) =  $€10,730 / (€1.60 - €0.86) = 14,500 \text{ bars (units)}$   
Margin of safety in units (bars) = Expected sales - break-even sales  
Margin of safety in units (bars) =  $15,950 - 14,500 = 1,450 \text{ bars}$ .

8. Answer (a) €56,975

|                                                  | x<br>June | y<br>July | x-y<br>Change |
|--------------------------------------------------|-----------|-----------|---------------|
| Recording fees charged                           | €59,450   | €46,580   | €12,870       |
| Hours spent in studio                            | 1,650     | 1,260     | 390           |
| Variable recording cost per hour = €12,870/390 = |           |           | €33 per hr    |

Total recording fees = Fixed recording cost + variable recording cost  
 Say for July = €46,580 = Fixed recording cost + (€33 x 1,260 hrs)  
 $€46,580 = \text{Fixed recording cost} + €41,580$   
 $\Rightarrow \text{Fixed recording cost} = €46,580 - €41,580 = €5,000$ .

Total recording fees for 1,575 hours =  $€5,000 + (€33 \times 1,575)$   
 Total recording fees for 1,575 hours = €56,975.

**[Total: 20 Marks]**

**SOLUTION 4: Tasty Crumbe Ltd.****(a) Production capacity to meet demand**

|                             | <b>Sales demand</b> | <b>Labour hours<br/>required per loaf</b> | <b>Total Labour<br/>hours required</b> |
|-----------------------------|---------------------|-------------------------------------------|----------------------------------------|
| 100% Rye bread              | 27,100              | 0.05                                      | 1,355                                  |
| Multigrain bread            | 56,600              | 0.1                                       | 5,660                                  |
| Spelt bread                 | 31,500              | 0.1                                       | 3,150                                  |
|                             |                     |                                           | <u>10,165</u>                          |
| Total hours available       |                     |                                           | 9,792                                  |
| Excess/(shortfall) of hours |                     |                                           | <u>-373</u>                            |

The company does not have enough labour hours in the current year to meet sales demand

(4 marks)

**(b) Compute the optimal production plan and total profit for the year**

Calculate the contribution per unit of limiting factor

Limiting factor = labour hours

|                                            | <b>100% Rye bread</b> | <b>Multigrain bread</b> | <b>Spelt bread</b> |
|--------------------------------------------|-----------------------|-------------------------|--------------------|
|                                            | €                     | €                       | €                  |
| Selling price per unit                     | 4.6                   | 5.5                     | 5.7                |
| Less: variable costs per unit              |                       |                         |                    |
| Direct material: Flour                     | 0.3                   | 0.51                    | 0.45               |
| Direct labour @ €15 per hour               | 0.75                  | 1.5                     | 1.5                |
| Variable overhead: 100% Direct labour cost | <u>0.75</u>           | <u>1.5</u>              | <u>1.5</u>         |
| Total variable costs per unit              | 1.8                   | 3.51                    | 3.45               |
| Contribution per unit (x)                  | <u>2.8</u>            | <u>1.99</u>             | <u>2.25</u>        |
| Labour hours per unit (y)                  | 0.05                  | 0.1                     | 0.1                |
| Contribution per labour hour (x/y)         | 56                    | 19.9                    | 22.5               |
| Ranking                                    | 1                     | 3                       | 2                  |

(8 marks)

Optimal production plan

|                                                               | <b>Contribution<br/>per unit</b> | <b>Production<br/>in units</b> | <b>Total Labour<br/>hours required</b> | <b>Contribution</b> |
|---------------------------------------------------------------|----------------------------------|--------------------------------|----------------------------------------|---------------------|
|                                                               | €                                |                                |                                        | €                   |
| 100% Rye bread                                                | 2.8                              | 27,100                         | 1,355                                  | 75,880              |
| Spelt bread                                                   | 2.25                             | 31,500                         | 3,150                                  | 70,875              |
| Multigrain bread                                              | 1.99                             | *52,870                        | <u>5,287</u>                           | <u>105,211</u>      |
|                                                               |                                  |                                | <u>9,792</u>                           |                     |
| Total contribution                                            |                                  |                                |                                        | 251,966             |
| Less fixed production overheads (€9,450 x 12 months)          |                                  |                                |                                        | 113,400             |
| Less selling and distribution expenses (€13,860 x 4 quarters) |                                  |                                |                                        | <u>55,440</u>       |
|                                                               |                                  |                                |                                        | <u>83,126</u>       |

\* Balancing figure  $9,792 - 1,355 - 3,150 = 5,287 / 0.1 \text{ hr per loaf} = 52,870 \text{ loaves}$

(5 marks)

**(c) Another artisan bakery has offered to supply loaves. Should Tasty Crumbe Ltd. avail of the offer?**

Tasty Crumbe Ltd. should avail of the offer because:

- Each loaf will generate a contribution of €0.50 towards fixed costs
- By taking the offer customers will not be disappointed
- Any other relevant points

Tasty Crumbe Ltd. should not avail of the offer because:

- The loaves may not be of the same high quality which may deter customer purchase in the future
- The bakers working for Tasty Crumbe Ltd. may be concerned about their jobs if the company outsources
- Will the other bakery be reliable in delivering the required loaves?
- What if customers find out about this - it may adversely affect the company's reputation
- Any other relevant points

(3 marks)

**[Total: 20 Marks]**

## SOLUTION 5: Float On Ltd.

### (a) Standard cost card for ONE kickboard

|                                                                      | €             |
|----------------------------------------------------------------------|---------------|
| Direct materials @ (€6,615/189) €35 per Kg x 0.135 Kg (189Kgs/1,400) | 4.725         |
| Direct labour @ (€4,480/280) €16 per hour x 0.2 hr (280hrs/1,400)    | 3.200         |
| Variable production overhead @ (€910/280) €3.25 per hour x 0.2 hr    | 0.650         |
| Fixed production overhead @ €2.10 ** per unit                        | <u>2.100</u>  |
| Total standard product cost                                          | <u>10.675</u> |
| <br>Selling price per unit                                           | <br>18.00     |
| Standard profit per unit                                             | <u>7.325</u>  |

\*\*Budgeted fixed production overhead per unit =

$$\frac{\text{Total budgeted fixed production overhead}}{\text{Budgeted production/normal production}} = \frac{€ 35,280}{16,800} = €2.10 \text{ per unit}$$

(4 marks)

### (b) Variances

$$\begin{aligned} &\text{Direct material price variance} \\ &(\text{SP} - \text{AP}) \times \text{AQ} \\ &= (€35 - (€7,140/210)) \times 210 = 210.0 \text{ F} \end{aligned}$$

$$\begin{aligned} &\text{Direct material usage variance} \\ &(\text{SQ} - \text{AQ}) \times \text{SP} \\ &= ((0.135 \times 1500) - 210) \times €35 = -262.5 \text{ A} \end{aligned}$$

$$\begin{aligned} &\text{Direct labour rate variance} \\ &(\text{SR} - \text{AR}) \times \text{AH} \\ &= (€16 - (€3,969/325)) \times 325 = 1,231.0 \text{ F} \end{aligned}$$

$$\begin{aligned} &\text{Direct labour efficiency variance} \\ &(\text{SH} - \text{AH}) \times \text{SR} \\ &= ((0.20 \times 1,500) - 325) \times €16 = -400 \text{ A} \end{aligned}$$

$$\begin{aligned} &\text{Variable overhead expenditure variance} \\ &(\text{SR} - \text{AR}) \times \text{AH} \\ &= (€3.25 - (€1,170/325)) \times 325 = -113.75 \text{ A} \end{aligned}$$

$$\begin{aligned} &\text{Variable overhead efficiency variance} \\ &(\text{SH} - \text{AH}) \times \text{SR} \\ &= ((0.20 \times 1,500) - 325) \times €3.25 = -81.25 \text{ A} \end{aligned}$$

$$\begin{aligned} &\text{Fixed production overhead expenditure variance} \\ &(\text{BFO} - \text{AFO}) \\ &= ((€35,280 / 12) - €3,800) = -860 \text{ A} \end{aligned}$$

$$\begin{aligned} &\text{Fixed production overhead volume variance} \\ &(\text{AP} - \text{BP}) \times \text{SR per unit} \\ &= (1,500 - 1,400) \times €2.10 = 210 \text{ F} \end{aligned}$$

$$\begin{aligned} &\text{Sales price variance} \\ &(\text{AP} - \text{SP}) \times \text{AV} \\ &= ((€26,250/1,500) - (€25,200/1,400)) \times 1,500 = -750 \text{ A} \\ &\text{Total of variances excl. sales volume variance} \quad \underline{-816.5} \end{aligned}$$

$$\begin{aligned} &\text{Sales volume variance} \\ &(\text{AV} - \text{BV}) \times \text{SM} \\ &= (1,500 - 1,400) \times €7.325 = 732.5 \text{ F} \end{aligned}$$

(11 marks)

**(c) Reconciliation of budgeted profit to actual profit**

|                                              |                  |
|----------------------------------------------|------------------|
|                                              | €                |
| Budgeted profit 1,400 x €7.325               | 10,255.00        |
| Sales volume variance                        | <u>732.50</u>    |
| Flexed budgeted profit 1,500 x €7.325        | 10,987.50        |
| Total variances (excl sales volume variance) | <u>-816.50</u>   |
| Actual profit                                | <u>10,171.00</u> |
| <br><u>Calculation of actual profit</u>      |                  |
| Sales as per question                        | 26,250.00        |
| Less: total product costs                    | <u>16,079.00</u> |
| Profit                                       | <u>10,171.00</u> |

(3 marks)

**(d) Reasons for direct materials variances**

Any TWO of the following reasons may be given:

Direct materials price variance

This may arise due to:

- Unexpected price decrease
- Purchase of inferior quality materials
- Any other relevant point

Direct materials usage variance

This may arise due to:

- Careless handling of materials by staff
- Purchase of inferior quality materials
- Theft of materials
- Changes in production methods
- Changes in quality control requirements
- Any other relevant point

(2 marks)

**[Total: 20 Marks]**

**SOLUTION 6:** JK Ltd.Workings**W1 Calculation of product cost**

| <u>Under Absorption costing</u> | €            |
|---------------------------------|--------------|
| Direct materials                | 6.10         |
| Direct labour                   | 0.75         |
| Variable production overhead    | 1.50         |
| Fixed production overhead **    | <u>2.04</u>  |
| Total product cost per unit     | <u>10.39</u> |

|                                                        |          |
|--------------------------------------------------------|----------|
| Fixed production overheads per year                    | €612,000 |
| Normal production capacity per year (25,000 units x12) | 300,000  |
| Fixed production overhead absorption rate per unit **  | €2.04    |

Under Variable costing

|                              | €           |
|------------------------------|-------------|
| Direct materials             | 6.10        |
| Direct labour                | 0.75        |
| Variable production overhead | <u>1.50</u> |
| Total product cost per unit  | <u>8.35</u> |

| <b>W2 Calculation of changes in inventory</b> | <b>May<br/>units</b> | <b>June<br/>units</b> | <b>July<br/>units</b> |
|-----------------------------------------------|----------------------|-----------------------|-----------------------|
| Opening inventory                             | 5,000                | 8,000                 | 10,000                |
| Production                                    | <u>24,000</u>        | <u>26,000</u>         | <u>25,000</u>         |
| Total inventory available                     | 29,000               | 34,000                | 35,000                |
| Sales                                         | <u>21,000</u>        | <u>24,000</u>         | <u>30,000</u>         |
| Closing inventory                             | <u>8,000</u>         | <u>10,000</u>         | <u>5,000</u>          |

**W3 Calculation of Under/Over absorbed overhead**

|                                    | <b>May<br/>€</b> | <b>June<br/>€</b> | <b>July</b>   |
|------------------------------------|------------------|-------------------|---------------|
| Actual fixed production overhead   | 51,000           | 51,000            | 51,000        |
| Absorbed fixed production overhead | <u>48,960</u>    | <u>53,040</u>     | <u>51,000</u> |
| Under/(over) absorbed overhead     | <u>2,040</u>     | <u>-2,040</u>     | <u>0</u>      |

**(a) Profit statements for JK Ltd. for the months of May, June and July  
Using Absorption costing (Product cost = €10.39 see W1)**

|                                         | <b>May<br/>€</b> | <b>June<br/>€</b> | <b>July<br/>€</b> |
|-----------------------------------------|------------------|-------------------|-------------------|
| Sales                                   | 462,000          | 528,000           | 660,000           |
| Cost of Sales:                          |                  |                   |                   |
| Opening stock                           | 51,950           | 83,120            | 103,900           |
| + Production                            | 249,360          | 270,140           | 259,750           |
| - Closing stock (see W2)                | <u>83,120</u>    | <u>103,900</u>    | <u>51,950</u>     |
|                                         | 218,190          | 249,360           | 311,700           |
| Under/(over) absorbed overhead (see W3) | <u>2,040</u>     | <u>-2,040</u>     | <u>0</u>          |
| Gross profit                            | 241,770          | 280,680           | 348,300           |
| Sales commission (5% of sales value)    | <u>23,100</u>    | <u>26,400</u>     | <u>33,000</u>     |
| Profit                                  | <u>218,670</u>   | <u>254,280</u>    | <u>315,300</u>    |

**Using Variable costing****(Product cost = €8.35 see W1)**

|                                      | May<br>€       | June<br>€      | July<br>€      |
|--------------------------------------|----------------|----------------|----------------|
| Sales                                | 462,000        | 528,000        | 660,000        |
| Cost of Sales:                       |                |                |                |
| Opening stock                        | 41,750         | 66,800         | 83,500         |
| + Production                         | 200,400        | 217,100        | 208,750        |
| - Closing stock (see W2)             | <u>66,800</u>  | <u>83,500</u>  | <u>41,750</u>  |
| Production cost of sales             | 175,350        | 200,400        | 250,500        |
| Sales commission (5% of sales value) | <u>23,100</u>  | <u>26,400</u>  | <u>33,000</u>  |
| Contribution                         | 263,550        | 301,200        | 376,500        |
| Fixed production overheads           | <u>51,000</u>  | <u>51,000</u>  | <u>51,000</u>  |
| Profit                               | <u>212,550</u> | <u>250,200</u> | <u>325,500</u> |

(15 marks)

**(b) Reconciliation of Absorption and Variable costing profit figures**

|                                             | May<br>€       | June<br>€      | July<br>€      |
|---------------------------------------------|----------------|----------------|----------------|
| Profit per absorption costing               | 218,670        | 254,280        | 315,300        |
| Less fixed production overhead in inventory |                |                |                |
| (5,000 - 8,000) * €2.04                     | -6,120         |                |                |
| (8,000 - 10,000) * €2.04                    |                | -4,080         |                |
| (10,000 - 5,000) * €2.04                    |                |                | 10,200         |
| Profit per variable costing                 | <u>212,550</u> | <u>250,200</u> | <u>325,500</u> |

(3 marks)

**(c) Suggest TWO reasons why JK Ltd. should use Absorption Costing**

Any TWO of the following reasons:

- For financial reporting purposes absorption costing is preferred to variable costing.
- Absorption costing avoids having to separate costs into their fixed and variable elements.
- Absorption costing does not underestimate the importance of fixed production overheads.
- By calculating and analysing under/over absorbed overheads in absorption costing, inefficient utilisation of resources may be revealed.
- Absorption or full costing is a better basis for calculating selling prices.
- Any other relevant point

(2 marks)

**[Total: 20 Marks]**