

MANAGEMENT ACCOUNTING

FORMATION 2 EXAMINATION - AUGUST 2015

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 2015

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.** Super Imagez Limited manufactures a range of picture frames which it supplies to retailers throughout Europe. The company uses a standard variable (marginal) costing system and this allows Super Imagez Limited to monitor costs effectively and also to simplify its pricing policy. The company's most popular picture frame is the 'Art Deco' which features gold geometric designs. Super Imagez purchases the pre-formed frame (which incorporates the front decorative part and a wood laminate back) from China and, using clear glass and brass plated hooks, assembles the complete frame. The following are the budgeted figures, relating to the 'Art Deco' frame for the month of March:

	Per unit €	Total €
Sales	14.50	72,500
Less costs:		
Pre-formed frame	3.55	(17,750)
Glass (0.25 square metres per frame @ €3.40 per square metre)	0.85	(4,250)
Brass plated hooks (2 hooks per frame @ €0.65 each)	1.30	(6,500)
Assembly labour (0.25 hr per frame @ €11 per hour)	2.75	(13,750)
Variable overhead (0.25 hr per frame @ €1.30 per assembly labour hour)	0.325	(1,625)
Fixed production overhead		(8,725)
Profit		19,900

For the month of March 2015, the company produced and sold 4,960 'Art Deco' frames and recorded the following actual results:

	€
Sales	72,912
Less costs:	
Pre-formed frame (@ €3.50 each)	(17,360)
Glass (based on 1,250 square metres)	(4,275)
Brass plated hooks (@ €0.625 each)	(6,200)
Assembly labour (based on 1,220 hours)	(13,481)
Variable overhead (based on assembly labour hours)	(1,647)
Fixed production overhead	(8,215)
Profit	21,734

The managing director of Super Imagez Limited was pleased to note that actual profit achieved exceeded budgeted profit and has asked for your assistance in explaining the factors that were responsible for this positive result.

REQUIREMENT:

Using the information provided for the month of March 2015:

- (a) Prepare a profit statement, based on variable (marginal) costing principles, showing the original budget, flexed budget and actual results. (6 marks)
- (b) Based on the information provided, calculate variances in as much detail as possible. (16 marks)
- (c) Prepare a statement reconciling the original budget profit to actual profit. (3 marks)

[Total: 25 Marks]

ANSWER PART (A) OR PART (B)

2.

- (A)** You have been approached for assistance by a new client, Rainbow Limited, which has recently commenced manufacturing operations in Cork. The company produces a specialised range of paint for period houses. The managing director, Joe Smyth, is aware that other paint manufacturers use process costing and has asked you to provide information about this method of assigning costs to production and inventory.

REQUIREMENT:

Prepare a report for Joe Smyth which:

- (a)** Differentiates process costing from job costing. (3 marks)
- (b)** Describes how a process costing system operates and provides examples of other industries where process costing is appropriate. (5 marks)
- (c)** Outlines the meaning of the following terms:
- Equivalent units
 - Normal loss
 - Abnormal loss
- (3 marks)
- (d)** Explains two different approaches that may be used where a company has opening work in progress as part of its inventory. (3 marks)

Format and Presentation (1 mark)

[Total: 15 Marks]

OR

- (B)** Trendy Table Limited, a manufacturer of tableware, has paid its workers on a time basis since the company commenced operations eight years ago. Due to the recession, the company is experiencing financial difficulties and is keen to cut costs wherever possible. A recent article in an accountancy journal suggested that alternative remuneration methods could help to reduce costs and improve productivity. You have been asked to provide more information to Trendy Table Limited.

REQUIREMENT:

Draft a memorandum for the management of Trendy Table Limited that:

- (a)** Lists the advantages and disadvantages of piece rate remuneration systems. (4 marks)
- (b)** Describes incentive schemes. (4 marks)
- (c)** Outlines the conditions necessary for successful operation of incentive schemes. (6 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 relation to Absorption Costing and Variable Costing, which of the following statements is FALSE?
- (a) If production is greater than sales, Variable Costing shows higher profits.
 - (b) If sales are greater than production, Variable Costing shows higher profits.
 - (c) If production is less than sales, Absorption Costing shows lower profits.
 - (d) If sales are less than production, Absorption Costing shows higher profits.
2. Leyton Limited, a manufacturing company is considering using the Economic Order Quantity (EOQ) in purchasing one of its key raw materials, B12. The purchasing department has calculated that it costs €25 to place one order for B12 material and that warehouse holding costs are estimated to be 15% of the purchase cost of the material. Material B12 costs €32 per unit. The company has a tight production schedule and needs to buy 15,000 units of material B12 per quarter to ensure that there are no delays.

For Leyton Limited the EOQ for material B12 is (to the nearest whole number):

- (a) 791 units
 - (b) 395 units
 - (c) 506 units
 - (d) 1,012 units.
3. Which of the following statements relating to cost behaviour is TRUE?
- (a) In the short-term, total variable costs are not linear and unit variable cost is variable.
 - (b) Total fixed costs remain constant over wide ranges of activity and unit fixed costs decrease proportionally with the level of activity.
 - (c) Typically, semi-fixed costs include both a fixed and variable element.
 - (d) It is not possible to split semi-variable costs into fixed and variable components.

THE FOLLOWING INFORMATION RELATES TO PARTS 4, 5 AND 6:

Dodge Limited is considering undertaking a short term contract to produce and supply special key rings for a conference organiser. In producing the key ring three materials are required and the company has these materials in inventory as shown in the table below:

Material	Units in inventory	Cost price per Kg	Scrap value per Kg	Current purchase price per Kg
AB	1,000 Kgs	€4.00	€3.00	€4.25
CD	250 Kgs	€2.75	€1.20	€3.20
EF	3,000 Kgs	€1.50	NIL	€2.95

4. Assume material AB is in regular use by Dodge Limited and the company requires 1,750 Kgs of this material to make the key rings. The relevant cost of this material to be included in the short term contract price is:
- (a) €7,000.00
 - (b) €7,437.50
 - (c) €7,187.50
 - (d) €3,187.50
5. Assume material CD is no longer used by Dodge Limited and the company requires 500 Kgs of this material to make the key rings. The relevant cost of this material to be included in the short term contract price is:
- (a) €1,600.00
 - (b) €1,487.50
 - (c) €800.00
 - (d) €1,100.00

6. Assume material EF is no longer used by Dodge Limited and the company requires 2,500 Kgs of this material to make the key rings. The relevant cost of this material to be included in the short term contract price is:

- (a) €3,750
- (b) €4,500
- (c) Nil
- (d) €7,375

7. Thunder Limited had the following information in its accounts for the year:

	January	July	November
Selling and administration expenses	€25,504	€34,189	€40,558
Sales volume in units	4,250	6,500	8,150

The fixed portion of the selling and administration expenses is:

- (a) €15,054
- (b) €8,685
- (c) €9,099
- (d) €19,135

8. In relation to the valuation of inventory and material issues to production, which of the following statements is TRUE?

- (a) During inflationary periods, cost of sales calculated using LIFO is lower than that calculated using FIFO or the Weighted Average cost methods.
- (b) During inflationary periods, closing inventory calculated using FIFO is valued at the lowest prices.
- (c) During inflationary periods, cost of sales calculated using FIFO is lower than that calculated using LIFO or the Weighted Average cost methods.
- (d) During inflationary periods closing inventory calculated using LIFO is valued at the highest prices.

[Total: 20 Marks]

4. Bryden Limited was established in Dublin in 1994 and currently manufactures two types of bookcase (medium and large) for the Irish and UK markets. The company uses variable costing to value production and inventory, and prepares its budgets in advance for each quarter. The accountant has provided a range of information for the next quarter to 31 December 2015 as follows:

Projected sales for the next four months:

	October	November	December	January
	€	€	€	€
Medium bookcases	495,000	369,000	540,000	432,000
Large bookcases	525,000	362,500	525,000	437,500

Medium bookcases sell for €90 each and large bookcases sell for €125 each.

The standard cost card for each of the bookcases is shown below:

	Medium	Large
	€	€
Direct materials:		
- Birch plywood sheets (@ €24 per sheet)	36.00	48.00
- Wooden dowels (@ €0.10 each)	2.80	3.60
Direct labour (@ €16.40 per hour)	20.50	28.70
Variable overheads (@ €6 per direct labour hour)	7.50	10.50
Total	66.80	90.80

The cost of the plywood sheets and wooden dowels has not changed in the past two years and is not expected to change until March 2016. Additionally, the direct labour and variable overhead rates above are applicable for the period from 1 June 2015 to 30 May 2016.

The company estimates that at 1 October 2015 inventory levels will be:

Medium bookcases	1,500
Large bookcases	1,100
Birch plywood sheets	2,000
Wooden dowels	5,000

To ensure that it maintains sufficient inventory of each type of bookcase company policy is to hold 20% of the next month's unit sales in closing inventory.

For the plywood sheets and wooden dowels the company intends to double inventory held at 1 October 2015 and maintain this level of closing inventory each month until 31 March 2015.

REQUIREMENT:

- Prepare a production budget in units for the quarter ending 31 December 2015. (5 marks)
- Prepare a materials purchase budget (in units and €) for each material for the quarter ending 31 December 2015. (6 marks)
- Prepare a labour cost budget (in hours and €) for the quarter ending 31 December 2015. (3 marks)
- Prepare a variable production overhead cost budget for the quarter ending 31 December 2015. (2 marks)
- Prepare a budgeted income statement for the quarter ending 31 December 2015 based on the results you have obtained in (a) to (d) above. (4 marks)

[Total: 20 Marks]

5. Green Limited produces a variety of biodegradable horticultural containers using a state of the art production process. The company has two production departments: moulding and finishing; and two service departments: stores and facility maintenance. The facility maintenance department has a key role in ensuring that the sophisticated machinery used in production is operational at all times. In calculating product costs, Green Limited compiles direct cost data for each product and attributes production overhead using the traditional costing method. The following budgeted information for the month of August has been provided by the management accountant at Green Limited:

	Total	Moulding	Finishing	Stores	Facility Maintenance
	€	€	€	€	€
Direct labour	408,990	111,510	297,480	-	-
Indirect materials	52,390	25,100	17,250	1,800	8,240
Electricity	280,300				
Factory rent and rates	164,500				
Machine depreciation	84,800				
Factory insurance	26,200				
Factory security	42,500				
Administration costs	56,250				

Details relating to the company's budgeted activity for the month of August have also been provided:

	Total	Moulding	Finishing	Stores	Facility Maintenance
Machine hours	220,000	209,000	11,000		
Direct labour hours	33,050	8,260	24,790		
Floor area (square metres)	1,000	500	200	200	100
Value of stores issues (€)	200,000	180,000	20,000		
Kilowatt hours (% usage)	100	60	20	10	10
No. of employees	45	10	30	2	3

REQUIREMENT:

- (a) On the basis of the information provided above, prepare a schedule that presents figures for total budgeted overheads for each of the four departments, clearly showing the basis of apportionment. (8 marks)
- (b) Calculate the total budgeted overheads for both production departments after the service departments have been re-apportioned to them. (2 marks)
- (c) Calculate pre-determined overhead absorption rates for each of the production departments. (3 marks)
- (d) Details relating to one product, an extra-large plant container, are provided below. Using this information calculate the product cost of the container.
- | | | |
|------------------|-------------|-----------|
| Direct materials | €0.33 | |
| Direct labour | | |
| - Moulding | 0.5 minute | |
| - Finishing | 1 minute | |
| Machine hours | | |
| - Moulding | 2 minutes | |
| - Finishing | 0.25 minute | (5 marks) |
- (e) Explain the difference between under-absorbed and over-absorbed overhead stating how each should be treated in the cost accounts. (2 marks)

[Total: 20 Marks]

6. Herald Sports Limited commenced trading two months ago and will provide a range of fitness activities for customers. The company operates a large purpose built premises located on the outskirts of Kildare. Facilities include a 25 metre swimming pool, two squash courts, an outdoor soccer pitch, a large fully equipped gymnasium, a multi-purpose activity hall, and an aerobics studio. The company has already made bookings for most of its facilities but has not decided what activities to run in the aerobics studio. Two proposals have been put forward, a mixed ability circuits class or a dance fitness class. Details relating to both activities are as follows:

	Mixed ability circuits	Dance fitness
Price charged per class	€7	€8
Annual insurance	€12,000	€12,000
Music and royalty licence fees	€3.20 per class	€3.20 per class
Other facility costs (electricity, administration, etc.)	€2,536	€2,536
Instructor cost	€50 per class	€3,300 per year
Expected number of participants per class	25	20

REQUIREMENT:

- (a) For each type of class:
- (i) Calculate the breakeven point in sales revenue. (6 marks)
- (ii) If Herald Sports Limited requires a profit of €10,000 how many classes must be held? (4 marks)
- (b) Assume that the price charged per class is €7 for both the mixed ability circuits and the dance fitness class. How many classes must be held for the profit earned from the mixed ability circuits class to equal the profit from the dance fitness class? (5 marks)
- (c) The company is considering paying the mixed ability circuits instructor a fixed fee of €2,600 for the year instead of a fee per class. Calculate the effect that this change will have on the breakeven point in sales revenue. Should the company make this change? (3 marks)
- (d) Outline TWO assumptions on which the Cost-Volume-Profit model is based. (2 marks)

[Total: 20 Marks]

END OF PAPER

SUGGESTED SOLUTIONS

THE INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS IN IRELAND

MANAGEMENT ACCOUNTING

FORMATION 2 EXAMINATION - AUGUST 2015

SOLUTION 1

a) Profit statement

Units	5,000 <u>Original budget</u> €	4,960 <u>Flexed budget</u> €	4,960 <u>Actual results</u> €	<u>Variance</u>
Sales	72,500	71,920	72,912	992
Less variable costs:				
Pre-formed decorated front	-17,750	-17,608	-17,360	248
Glass	-4,250	-4,216	-4,275	-59
Brass plated hooks	-6,500	-6,448	-6,200	248
Assembly labour	-13,750	-13,640	-13,481	159
Variable production overhead	-1,625	-1,612	-1,647	-35
Total variable costs	<u>-43,875</u>	<u>-43,524</u>	<u>-42,963</u>	<u>561</u>
Contribution	28,625	28,396	29,949	1,553
Fixed production overhead	<u>-8,725</u>	<u>-8,725</u>	<u>-8,215</u>	<u>510</u>
Profit	<u>19,900</u>	<u>19,671</u>	<u>21,734</u>	<u>2,063</u>

6 marks

b) Variance calculations

Pre-formed decorated frame

Price variance

$(SP - AP) \times AQ$

$= (\text{€}3.55 - \text{€}3.50) \times 4,960 = 248 \text{ F}$

Usage variance

$(SQ - AQ) \times SP$

$= (4,960 - 4,960) \times \text{€}3.5 = 0$

Glass

Price variance

$(SP - AP) \times AQ$

$= (\text{€}3.40 - (\text{€}4,275/1,250)) \times 1,250 = -25 \text{ A}$

Usage variance

$(SQ - AQ) \times SP$

$= ((4,960 \times 0.25) - 1,250) \times \text{€}3.40 = -34 \text{ A}$

Brass plated hooks

Price variance

$(SP - AP) \times AQ$

$= (\text{€}0.65 - \text{€}0.625) \times (4,960 \times 2) = 248 \text{ F}$

Usage variance

$(SQ - AQ) \times SP$

$= ((2 \times 4,960) - (2 \times 4,960)) \times \text{€}0.65 = 0$

Assembly labour rate variance

$(SR - AR) \times AH$

$= (\text{€}11 - (\text{€}13,481/1,220)) \times 1,220 = -61 \text{ A}$

Assembly labour efficiency variance

$(SH - AH) \times SR$

$= ((0.25 \times 4,960) - 1,220) \times \text{€}11 = 220 \text{ F}$

Variable overhead expenditure variance

$(SR - AR) \times AH$

$= (\text{€}1.30 - (\text{€}1,647/1,220)) \times 1,220 = -61 \text{ A}$

Variable overhead efficiency variance

$(SH - AH) \times SR$

$= ((0.25 \times 4,960) - 1,220) \times \text{€}1.30 = 26 \text{ F}$

Fixed production overhead expenditure variance

$(BFO - AFO)$

$= (8,725 - 8,215) = 510 \text{ F}$

Sales price variance

$(AP - SP) \times AV$

$= ((\text{€}72,912/4,960) - \text{€}14.50) \times 4,960 = 992 \text{ F}$

Total variances excluding sales volume variance

2,063 F

Sales volume variance

$(AV - BV) \times SM$

$= (4,960 - 5,000) \times \text{€}5.725^{**} = -229 \text{ A}$

Total of variances 1,834 F

16 marks

**** Standard margin = €28,625 Budgeted contribution/5,000 units = €5.725 per unit**

c) Reconciliation of Actual and Budgeted Profit

€

Budgeted profit (5,000 frames)

19,900

Sales volume variance

-229 A

Profit per flexed budget (4,960 frames)

19,671

3 marks

Total of other variances excluding sales volume variance

2,063 F

Actual profit (4,960 frames)

21,734

Total

25 Marks

SOLUTION 2

(A)

REPORT

TO: Mr Joe Smyth, Managing Director, Rainbow Limited

FROM: Management Accountant

RE: Process Costing

DATE: August 2015

As requested I have prepared a report providing information about process costing. The first section of this report explains the difference between job costing and process costing. Next, a description of how a process costing system operates is presented including examples of industries where process costing is appropriate. Key terms used in process costing are then explained and finally, two approaches that may be used where there is opening work in progress in inventory are outlined.

(a) Difference between job costing and process costing

Job costing applies to situations where the individual cost unit is readily identifiable throughout the production process. In these situations, the costs incurred in respect of a particular job may be identified and accumulated with relative ease. However, in mass production environments, where outputs may not be separately identifiable until the end of the production process, assigning costs to units is more challenging. In these situations, rather than accumulating costs for the individual unit as it progresses through the production process, process costing is applied. Process costing ascertains cost per unit by dividing the costs incurred in respect of a process by the output from that process.

(3 marks)

(b) Description of how a process costing system operates including industry examples

Process costing is used by organisations where products are produced in the same way and consume the same amount of direct costs and overheads. In process costing, costs are accumulated for each identifiable process and these process costs are then divided by the output of the accounting period so as to provide the average cost per unit. Consequently, in order to facilitate the calculation of reliable unit costs, process costing systems require accurate information relating to costs incurred and output levels for each accounting period.

Process costing is appropriate for industries which produce mass volumes of similar products or services in a continuous production process. Examples of industries where the use of process costing is appropriate include oil refining, chemical processing, paint manufacturing, food processing and brewing (Note: only two examples are required).

(5 marks)

(c) Explanation of key terms used in process costing

Equivalent units

The concept of equivalent units is required in the context of process costing to overcome the problem of having partially complete output at the end of a period. When calculating total output from a process for a period it is necessary to include work on partially complete output as well as on fully completed output. By expressing work on partially complete output in terms of equivalent units it is possible to include work on partially complete units in output calculations. For example, if 100 units are 60% complete at the end of a period this may be expressed as 60 equivalent units and may be added to completed production to arrive at a meaningful measure of output for the period.

Normal losses

These are losses which are expected to occur as part of the manufacturing process and are therefore treated as part of the cost of the production process.

Abnormal losses

These are losses which exceed those normally expected to occur as part of the production process. The cost of abnormal losses is calculated separately and reported as part of the process costing exercise.

(3 marks)

(d) Two approaches that may be used where there is opening work in progress in inventory

In situations where there is opening work in progress in inventory at the start of the period a company may adopt either of two approaches depending on the assumption made regarding the opening work in progress and production during the period. If the assumption is that the opening work in progress cannot be separately identified from the current period production then a weighted average approach may be used. This approach calculates average cost per unit by totalling costs of opening work in progress and current production and dividing by the total number of equivalent units. Total cost of completed production is then calculated as the number of units completed multiplied by the average cost per unit.

An alternative approach assumes that the opening work in progress may be separately identified from production in the current period and in this case a first in first out method (FIFO) may be adopted. FIFO assumes that opening work in progress is the first group of units to be completed during the current period. The cost of opening work in progress is charged separately to completed production. Average cost per unit in the current period is based on production and costs incurred in the current period only. Total cost of completed production thus comprises cost of opening work in progress plus the additional cost to complete the opening work in progress.

(3 marks)

If you have any questions relating to information contained in this report I will be pleased to provide further clarification.

Yours sincerely,
Management Accountant

Marks awarded for report format and presentation (1 mark)

[Total: 15 Marks]

(B)

MEMORANDUM

TO: Management of Trendy Table Limited

FROM: Management Accountant

RE: Alternative Remuneration Methods

DATE: August 2015

Further to your recent request for information I have prepared this memorandum which outlines the advantages and disadvantages of piece rate remuneration schemes, describes how incentive schemes operate and presents the conditions necessary for incentive schemes to operate successfully.

(a) Piece rate remuneration systems

Piece rate remuneration systems are systems whereby workers are paid on the basis of output produced rather than hours worked. There are a number of different variations of piece rate remuneration systems including straight piece rate systems, piece rates with guaranteed minimum pay and differential piece rate systems.

Advantages of piece rate systems

Each worker is paid on his/her merits and hence individual effort is encouraged.

The employer knows in advance the direct labour cost of each job and this information is very useful in pricing or tendering for jobs.

Workers may be more careful with tools and equipment as they know that any damage to these will reduce their earning capacity.

Companies may ensure that time wasted by employees in production is not paid for.

Disadvantages of piece rate systems

It may be difficult to agree an equitable rate for units produced.

Slower workers may feel disgruntled at earning a lower wage and this may lead to demotivation.

There may be an adverse effect on quality as workers try to increase their output.

There may be excessive waste of material by workers trying to work as fast as possible and while the worker will not be paid for items scrapped there is a cost associated with these items.

(4 marks)

(b) Description of incentive schemes

Incentive schemes operate on the basis that a target is set and actual performance is compared with that target. If actual production is greater than the target employees are rewarded for their efficiency. Thus, employees are incentivised to work harder to increase production and their remuneration. While incentives may lead to higher labour costs the resulting efficiencies lead to a reduction in the overall cost per unit of output and higher profits. In this way both the employer and the employee may be better off from a financial perspective. Incentive schemes may impact favourably on employee morale as employees are seen to receive extra reward for extra effort.

(4 marks)

(c) Conditions necessary for incentive schemes to operate successfully.

For an incentive scheme to be successful there are a number of conditions that must be met. These include:
The objectives must be clearly stated and attainable.

The scheme should be clearly communicated to all participants.

Any rules or conditions should be easy to understand and not liable to misinterpretation or manipulation.

The reward should be as nearly related to effort as possible, both in amount and time.

The standard of performance set must be reasonably attainable by the average employee.

The scheme must have the support of all relevant parties - e.g. staff, employer, and unions.

The scheme should be seen to be fair from the perspective of the employees as well as from the employer's perspective.

Ideally incentives should be paid as near as possible to the time that they are earned so that the link between effort and reward is very apparent.

Only employees who invest effort in securing the incentives should receive them – employees should not be rewarded for the work of others.

Allowances should be made for factors outside employees' control which have impinged upon their performance.

(6 marks)

If you require any further clarification or information regarding anything contained in this memorandum please feel free to contact me.

Yours sincerely,
Management Accountant

Marks awarded for memorandum format and presentation (1 mark)

[Total: 15 Marks]

SOLUTION 3

- (1) Answer (a) is FALSE

If production is greater than sales then Variable Costing shows higher profit than absorption costing.

- (2) Answer (a)

$$\sqrt{2DO/H}$$

$$D = \text{annual demand} = 15,000 \times 4 = 60,000$$

$$O = \text{€}25$$

$$H = \text{Cost of holding stock in inventory for 1 year} = 15\% \times \text{€}32 = \text{€}4.80$$
$$= 790.56 \approx 791 \text{ units}$$

- (3) Answer (b)

Total fixed costs remain constant over wide ranges of activity and unit fixed costs decrease proportionally with the level of activity.

- (4) Answer (b) €7,437.50

The relevant cost of material AB for the short term contract is calculated as:

1,750 Kgs x €4.25 = €7,437.50 as the material is in regular use by Dodge Limited and any usage will be replenished.

- (5) Answer (d) €1,100

The relevant cost of material CD for the short term contract is calculated as:

$$(250 \text{ Kgs} \times \text{€}1.20) + (250 \text{ Kgs} \times \text{€}3.20) = \text{€}1,100.$$

This comprises the opportunity cost of the scrap value lost if the material is used on the contract plus the cost of purchasing the additional 250 Kgs required for the contract.

- (6) Answer (c) Nil

This is because Dodge Limited has no further use for the material and there is no scrap value.

- (7) Answer (c) €9,099.

	Sales volume	Selling & administration expenses
Highest month sales volume - November	8,150	€40,558
Lowest month sales volume – January	4,250	€25,504
Difference	3,900	€15,054
Variable overhead = €15,054/3,900 = €3.86 per unit		
Fixed overhead = €40,558 – (8,150 x €3.86) = €9,099		

- (8) Answer (c) TRUE

During inflationary periods, cost of sales calculated using FIFO is lower than LIFO or Average (Weighted Average) cost methods.

[Total: 20 Marks]

SOLUTION 4

(W1) Sales in units

	October €495,000	November €369,000	December €540,000	January €432,000
Medium bookcases - sales value				
Medium bookcases - units @ €90 each	5,500	4,100	6,000	4,800
Large bookcases - sales value	€525,000	€362,500	€525,000	€437,500
Large bookcases - units @ €125 each	4,200	2,900	4,200	3,500

(a) Production Budget in units

Medium bookcases

	October	November	December
Sales (W1)	5,500	4,100	6,000
Closing Stock	820	1,200	960
	6,320	5,300	6,960
Less opening Stock	1,500	820	1,200
Production required	4,820	4,480	5,760

Large bookcases

	October	November	December
Sales (W1)	4,200	2,900	4,200
Closing Stock	580	840	700
	4,780	3,740	4,900
Less opening Stock	1,100	580	840
Production required	3,680	3,160	4,060

5 marks

(b) Materials Purchase Budget

Each bookcase is made from birch plywood and wooden dowels

Birch plywood

	October	November	December
Production in units - medium bookcases	4,820	4,480	5,760
Birch plywood per unit (€36/€24 = 1.5 sheets)	1.50	1.50	1.50
Birch plywood required - medium bookcases	7,230	6,720	8,640
Production in units - large bookcases	3,680	3,160	4,060
Birch plywood per unit (€48/€24 = 2 sheets)	2.00	2.00	2.00
Birch plywood required - large bookcases	7,360	6,320	8,120
Total birch plywood required for all bookcases	14,590	13,040	16,760
Closing Stock	4,000	4,000	4,000
	18,590	17,040	20,760
Less opening Stock	2,000	4,000	4,000
Total birch plywood purchases required	16,590	13,040	16,760
Cost @ €24 per sheet	€ 24.00	€ 24.00	€ 24.00
Total Cost	€ 398,160	€ 312,960	€ 402,240

3 marks

Total birch plywood purchases for the quarter

€ 1,113,360

Wooden dowels

	October	November	December
Production in units - medium bookcases	4,820	4,480	5,760
Wooden dowels per unit (€2.80/€0.10 = 28)	28	28	28
Wooden dowels required - medium bookcases	134,960	125,440	161,280
Production in units - large bookcases	3,680	3,160	4,060
Wooden dowels per unit (€3.60/€0.10 = 36)	36	36	36
Wooden dowels required - large bookcases	132,480	113,760	146,160
Total wooden dowels required for all bookcases	267,440	239,200	307,440
Closing Stock	10,000	10,000	10,000
	277,440	249,200	317,440
Less opening Stock	5,000	10,000	10,000
Purchases required	272,440	239,200	307,440
Cost @ €0.10 per dowel	€ 0.10	€ 0.10	€ 0.10
Total Cost	€ 27,244	€ 23,920	€ 30,744

Total wooden dowel purchases for the quarter

€ 81,908

3 marks

(c) Labour cost budget

	October	November	December
Production - medium bookcases	4,820	4,480	5,760
Time to produce each unit (€20.50/€16.40 = 1.25 hrs)	1.25	1.25	1.25
Total hours required to produce medium bookcases	6025	5600	7200
Production - large bookcases	3,680	3,160	4,060
Time to produce each unit (€28.70/€16.40 = 1.75 hrs)	1.75	1.75	1.75
Total hours required to produce medium bookcases	6440	5530	7105
Total hours required to produce all bookcases	12,465	11,130	14,305
Labour cost per hour @ €16.40	€ 16.40	€ 16.40	€ 16.40
Production labour cost	€ 204,426	€ 182,532	€ 234,602
Total production labour cost for the quarter	€ 621,560		

3 marks**(d) Variable overhead budget**

	October	November	December
Total labour hours required for production (from (c))	12,465	11,130	14,305
Variable overhead cost per direct labour hour	€ 6.00	€ 6.00	€ 6.00
Variable overhead cost	€ 74,790	€ 66,780	€ 85,830
Total variable overhead cost for the quarter	€ 227,400		

2 marks**(e) Income statement**

Sales	€	€
- Medium bookcases		1,404,000
- Large bookcases		1,412,500
		<u>2,816,500</u>
Cost of Sales		
Opening Inventory	note 1	€ 248,580
Production Cost	note 2	<u>€ 2,044,228</u>
		€ 2,292,808
-Closing Inventory	note 3	<u>€ 224,688</u>
Cost of sales		€ 2,068,120
Gross Profit		<u>€ 748,380</u>

4 marks**Note 1****Opening Inventory**

	Quantity	Cost	Value
Medium bookcases	1,500	€66.80	€100,200.00
Large bookcases	1,100	€90.80	€99,880.00
Birch plywood	2,000	€ 24.00	€48,000.00
Wooden dowels	5,000	€ 0.10	€500.00
			<u>€ 248,580</u>

Note 2**Production Cost**

Birch plywood	(from part (b))	€ 1,113,360
Wooden dowels	(from part (b))	€ 81,908
Labour	(from part (c))	€ 621,560
Variable overheads	(from part (d))	€ 227,400
		<u>€ 2,044,228</u>

Note 3**Closing Inventory**

	Quantity	Cost	Value
Medium bookcases	960	€ 66.80	€ 64,128
Large bookcases	700	€90.80	€ 63,560
Birch plywood	4,000	€ 24.00	€ 96,000
Wooden dowels	10,000	€ 0.10	€ 1,000
			<u>€ 224,688</u>

Total**20 Marks**

SOLUTION 5

a) Schedule of budgeted overheads

<u>Overhead expense</u>	<u>Basis</u>	<u>Total</u>	<u>Moulding</u>	<u>Finishing</u>	<u>Stores</u>	<u>Facility Maintenance</u>
		€	€	€	€	€
Excluding direct labour						
Excluding administration costs						
Indirect materials	Given	52,390	25,100	17,250	1,800	8,240
Electricity	Kilowatt hours	280,300	168,180	56,060	28,030	28,030
Factory rent and rates	Floor area	164,500	82,250	32,900	32,900	16,450
Machine depreciation	Machine hours	84,800	80,560	4,240		
Factory insurance	Floor area	26,200	13,100	5,240	5,240	2,620
Factory security	Floor area	42,500	21,250	8,500	8,500	4,250
		650,690	390,440	124,190	76,470	59,590

8 marks

b) Reapportionment of service departments

- Stores	Value of stores issues	68,823	7,647	-76,470	
		459,263	131,837	0	59,590
- Facility maintenance	Machine hours	56,610	2,980		-59,590
		515,873	134,817	0	0

2 marks

c) Calculation of predetermined overhead rates

Machine hours	209,000	
Labour hours		24,790
Overhead absorption rate	€2.47	€5.44
	Per machine hour	Per labour hour

3 marks

d) Cost of extra-large plant container

(W1) Direct labour rate per hour

	Moulding	Finishing
Total direct labour cost	€111,510	€297,480
Total direct labour hours	8,260	24,790
Direct labour rate per hour	€13.50	€12.00
	€	
Direct materials	0.33	
Direct labour		
- Moulding 0.5 min x €13.50 per hour (W1)	0.11	
- Finishing 1 minute x €12 per hour (W1)	0.20	
Production Overhead		
- Moulding 2 minutes x €2.47 per machine hour	0.08	
- Finishing 1 minute x €5.44 per labour hour	0.09	
Total cost of extra large container	0.81	

5 marks

e) Explanation of Under or Over absorbed overheads and how to treat it in the cost accounts.

Under absorbed overheads means that insufficient production overhead has been applied to production.

Over absorbed overheads means that too much production overhead has been applied to production.

2 marks

Any under or over absorbed overhead is treated as a period cost and written off in the income statement in the current period. It is not allocated to products.

Total 20 Marks

SOLUTION 6

(a)

(i) Break even point in sales revenue

Fixed costs

	Circuits €	Dance fitness €
Annual insurance	12,000	12,000
Other facility costs	2,536	2,536
Instructor cost		3,300
Total fixed costs	14,536	17,836

Expected participants per class	25	20
Price charged per class	7.00	8.00

Sales revenue per class	(y)	175.00	160.00
Less: variable costs			
Music licence fee		3.20	3.20
Instructor cost		50.00	
Contribution per class	(x)	121.80	156.80

Contribution margin ratio(CMR) = Contribution/Sales =	(x/y)	0.696	0.98
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Break even point in sales revenue = $\frac{\text{Total fixed costs}}{\text{CMR}}$		€20,885.06	€18,200.00
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(ii) If a profit of €10,000 is required how many classes must be held?

$$\text{Target profit in classes} = \frac{\text{Total fixed costs} + \text{Target profit}}{\text{Contribution per class}}$$

$$\text{For Circuit classes} = \frac{€14,536 + €10,000}{€121.80} = 201.44$$

202 classes

$$\text{For Dance Fitness classes} = \frac{€17,836 + €10,000}{€156.8} = 177.53$$

178 classes

Proof:

	Circuits €	Dance fitness €
Total revenue [202 x 25 x €7]/[(178 x 20 x €8)]	35,350.00	28,480.00
Less: total variable costs [202 x €53.20]/(178 x €3.20)	10,746.40	569.60
Total contribution	24,603.60	27,910.40
Less: total fixed costs (see (a) (i) above)	14,536.00	17,836.00
Profit (approximately €10,000)	10,067.60	10,074.40

10 marks

(b) Price of each class = €7, how many classes for profit of mixed ability class to equal profit of dance fitness class

$$\text{Profit} = \text{Revenue} - \text{Variable Cost} - \text{Fixed Cost}$$

Let y = number of classes

For mixed ability circuits class

$$= [(25 \times 7) - 53.20]y - 14,536$$

For dance fitness class

$$= [(20 \times 7) - 3.20]y - 17,836$$

Put these equal to each other and solve for y

$$(175 - 53.20)y - 14,536 = [(20 \times 7) - 3.20]y - 17,836$$

$$121.80y - 14,536 = 136.8y - 17,836$$

$$15y = 3,300$$

$$y = 220$$

220 classes must be held for the profits to be the same from both classes

Proof:

Total revenue [220 x 25 x €7]/(220 x 20 x €7)
 Less: total variable costs [220 x €53.20]/(220 x €3.20)
 Total contribution
 Less: total fixed costs (see (a) (i) above)
 Profit

Circuits	Dance fitness
€	€
38,500.00	30,800.00
11,704.00	704.00
26,796.00	30,096.00
14,536.00	17,836.00
12,260.00	12,260.00

5 marks

(c) Pay fixed fee to mixed ability circuits instructor

Fixed costs

	Circuits
	€
Annual insurance	12,000
Other facility costs	2,536
Instructor cost	2,600
Total fixed costs	17,136

Expected participants per class 25
 Price charged per class 7.00

Sales revenue per class	(y)	175.00
Less: variable costs		
Music licence fee		3.20
Contribution per class	(x)	171.80

Contribution margin ratio(CMR) = Contribution/Sales = (x/y) 0.982

Break even point in sales revenue = $\frac{\text{Total fixed costs}}{\text{CMR}}$ = €17,450.10

The breakeven point in sales revenue is lower if the instructor is paid a fixed fee.
 By increasing the fixed costs the company has a lower breakeven point but this also introduces more risk in that these costs may have to be paid even if there are less than 25 participants in the classes.
 The company should consider the reliability of its projections in relation to the number of participants per class.

3 marks

(d) TWO assumptions of CVP

Any two of the following:

- Volume is the only factor influencing cost
- Costs may be accurately classified into fixed costs and variable costs
- Selling price per unit remains constant
- Variable cost per unit remains constant
- If more than one product is sold, the sales mix is assumed to be constant
- Stock is valued at variable cost of production or if not all units are sold in the period when they are produced
- The CVP analysis applies to the relevant range and short term horizon

2 marks

Total 20 Marks