

# MANAGEMENT ACCOUNTING

## FORMATION 2 EXAMINATION - APRIL 2019

### 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 - APRIL 2019

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

1. Glas Dezign (GD) DAC is a landscape gardening business based in Wicklow offering tailored design, landscaping and consultancy services to businesses and private customers. The company's accountants have recommended the introduction of activity based costing (ABC) to replace the existing traditional overhead costing method used by GD DAC. The existing costing method allocates overhead costs to clients based on total labour hours recorded. Clients are invoiced for services provided based on cost plus a mark-up of 50%. GD's management accountant has compiled a range of data for the previous accounting period to facilitate the introduction of ABC and this is shown below. Details relating to two clients of the company are also provided.

**Cost activity relationships:**

**Cost pool**

Design costs  
 Planning and consultation costs  
 Supervision costs  
 Administration (telephone, postage, etc.)

**Cost driver**

Number of design drafts  
 Number of client meetings  
 Number of site visits  
 Administration staff labour hours

**Cost and activity data:**

Garden designer salaries	€133,200
Gardening staff wages	€271,200
Administration staff wages	€45,200
Design costs	€3,859
Supervision costs	€3,705
Administration costs	€12,400
Planning and consultation costs	€2,844
Garden designer labour hours	1,480
Gardening staff labour hours	4,800
Administration staff hours	1,600
Total number of design drafts	85
Total number of site visits	52
Total number of client meetings	90

**Details relating to two clients:**

	TX Ltd	A.O'Brien
Number of design drafts	7	3
Garden designer time	8 hours	5 hours
Gardening staff time	64 hours	25 hours
Administration staff time	4 hours	1 hour
Number of client meetings	4	2
Number of site visits	6	2

**REQUIREMENT:**

- (a) Calculate the amount to be invoiced by GD DAC to each of the clients noted above using:
- (i) The existing costing method;
  - (ii) Activity based costing (ABC). (18 marks)
- (b) Compare your answers at (a) (i) and (ii) above and comment on your results. (3 marks)
- (c) Describe TWO advantages and TWO disadvantages of using ABC. (4 marks)

**[Total: 25 Marks]**

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

**2.**

- (A)** You work for the accounting firm of Lennon and Morris and have recently been approached by Ms Julie Day, a client, for advice regarding some aspects of budgeting. Last week, Julie attended a networking business event and when discussing the annual budgeting process, some of the attendees mentioned incremental budgeting and zero base budgeting. The behavioural effects of the budgeting process were also mentioned. As Julie has only recently been involved with the annual budgeting process, she is unsure about what these terms mean and has asked you for information.

### REQUIREMENT:

Prepare a memorandum for Ms Julie Day that:

- (a)** Outlines incremental budgeting including advantages and disadvantages. (4 marks)
- (b)** Explains zero base budgeting including advantages and disadvantages. (5 marks)
- (c)** Discusses behavioural issues that may arise as part of the annual budgeting process. (5 marks)

Format and Presentation (1 mark)

**[Total: 15 Marks]**

## OR

- (B)** You are a trainee Certified Public Accountant and have been asked by the managing partner of your firm to develop a series of briefing notes that would be suitable for both staff and clients. The first briefing note is to be prepared on the subject of cost-volume-profit (CVP) analysis. The managing partner has requested that the briefing notes should be clear and concise, highlighting the key aspects of each topic.

### REQUIREMENT:

Prepare a briefing note:

- (a)** Outlining the key aspects of CVP analysis. (9 marks)
- (b)** Briefly explaining FIVE assumptions of CVP. (5 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 fixed costs, which of the following is TRUE?
  - (a) Fixed costs are constant per unit of output.
  - (b) Fixed costs are unaffected by inflation.
  - (c) Fixed costs are outside the control of the production manager.
  - (d) Fixed costs are constant over a relevant range of output.
  
2. Which of the following are PERIOD costs?
  - (a) Depreciation on factory equipment.
  - (b) Factory rent.
  - (c) Selling and administration costs.
  - (d) Wages of factory workers.

The following information relates to Question 3 and Question 4

Machining department	Budget	Actual
Production overhead	€256,000	€280,320
Direct labour hours	25,000	25,600

3. The production overhead absorption rate for the machining department (to nearest two decimal places) is:
  - (a) €10.95
  - (b) €10.24
  - (c) €10.00
  - (d) €11.21.
  
4. The under/over absorbed production overhead for the machining department is:
  - (a) €18,176 Over-absorbed
  - (b) €24,320 Under-absorbed
  - (c) €70 Under-absorbed
  - (d) €18,176 Under-absorbed.
  
5. A company pays its marketing and sales staff a fixed salary each month plus commission based on the number of units of a product that are sold during the month. An analysis of the marketing and sales salaries for three months of the previous year is shown below.

	January	June	October
Monthly sales and marketing salaries	€163,800	€111,300	€233,800
Monthly sales in units	42,000	21,000	70,000

The sales commission payable per unit is:

- (a) €7.80
- (b) €3.34
- (c) €5.30
- (d) €2.50.

6. When using the Last In First Out (LIFO) method to value inventory which of the following statements is TRUE?
- (a) When prices are increasing, cost of issues to production calculated using LIFO is lower than First In First Out (FIFO) or Average cost methods.
  - (b) LIFO makes the same assumptions as the physical flow of materials through an organisation.
  - (c) LIFO is accepted by accounting standards as suitable for valuing inventory.
  - (d) When prices are increasing, closing inventory calculated using LIFO is valued at the lowest prices.

7. In process costing, which of the following statements is FALSE:

- (a) Normal losses are also called controllable losses.
- (b) An abnormal gain occurs when the actual loss in a process is less than expected.
- (c) Abnormal losses are also called controllable losses.
- (d) Normal losses are an inherent part of the production process.

8. ZY DAC uses process costing to value its production and all materials are input at the start of the process. The following information relates to the process for one month:

Input	3,000 units
Opening work in progress inventory	400 units
Normal loss expected	10% of input
Closing work in progress inventory	200 units

The total actual losses in the month were 400 units. The number of completed units transferred from the process was:

- (a) 2,800 units
- (b) 2,900 units
- (c) 3,000 units
- (d) 3,200 units.

**[Total: 20 Marks]**

4. Gorm DAC produces a range of high quality jigsaw puzzles for adults and children. The company is based in Waterford and has been in operation for over twenty years. It produces three types of jigsaw, 30 piece and 250 piece for children and 1,000 piece for teenagers and adults.

In the past two years, the company has experienced increasing demand for its products and has expanded production to meet demand. However, sales forecasts for the current year suggest that demand for all types of jigsaw puzzles is much higher than in previous years.

The production manager has indicated that the company has a total of 32,000 machine hours and 18,000 direct labour hours available for the current year. Production and sales details relating to three types of jigsaw are shown below.

	30 piece jigsaw	250 piece jigsaw	1,000 piece jigsaw
Direct materials:			
Paperboard @ €1.60 per metre	0.25 metres	0.5 metres	0.75 metres
Direct labour: @ €14.40 per hour	6 mins	8 mins	10 mins
Variable overhead: 75% Direct labour cost			
Machine hours required	0.2 hour	0.25 hour	0.5 hour
Sales demand for the year (units)	50,000	27,000	36,600
Selling price per unit	€3.60	€5.45	€7.85

Budgeted fixed production overhead is estimated to be €5,700 per month and the company has also budgeted for selling and administration expenses of €26,500 for the year.

**REQUIREMENT:**

- (a) Based on the information provided above, state whether Gorm DAC has sufficient production capacity to satisfy sales demand for the coming year. You should provide calculations to support your answer. (4 marks)
- (b) Compute the optimal production plan for Gorm DAC for the current year, clearly showing total profit expected. (13 marks)
- (c) Explain the meaning of the following terms:
- (i) Relevant cost.
  - (ii) Sunk cost. (3 marks)

**[Total: 20 Marks]**

5. Dearg DAC produces one type of strong and affordable rucksack for the Irish and European hiking market. The company has been operating for the past five years from its manufacturing base in Kerry.

During the year, to improve its management accounting information, the company invested in a new information technology system but unfortunately there have been problems with the software. The standard cost card, which provides details of the standard production cost to make one rucksack, has been lost and the company is unable to produce its budget for the year ahead.

The management accountant has retrieved some information relating to actual costs and variances for the year. The budgeted production for the year was 21,000 rucksacks. Other relevant information is shown below:

**Actual data**

Actual production	21,600 rucksacks
Direct materials costs:16,200 square metres	€81,000
Direct labour costs: 8,640 hours	€108,864
Variable production overhead costs	€54,000
Fixed production overhead costs	€85,200

**Variances**

Direct material price variance	€4,050 F
Direct material usage variance	€5,670 F
Direct labour rate variance	€864 F
Direct labour efficiency variance	€27,432 F
Variable production overhead expenditure variance	€432 A
Variable production overhead efficiency variance	€13,392 F
Fixed production overhead variance	€3,775 A

Dearg DAC operates a standard variable costing system.

**REQUIREMENT:**

- (a) Using the information provided above, prepare:
- (i) The standard cost card for one rucksack. (12 marks)
  - (ii) A cost statement showing original budget, flexed budget and actual results for the year. (5 marks)
- (b) Describe TWO criticisms of standard costing. (3 marks)

**[Total: 20 Marks]**

6. Dubh DAC is based in Dundalk and manufactures one product, a storage unit made from recycled plastic which sells for €58 per unit. Production and sales data for each of the first three months of 2019 are as follows:

	January	February	March
Sales in units (actual)	4,800	5,000	7,600
Production in units (actual)	5,400	4,800	8,000

Budgeted cost information for each month

Product cost:

Direct materials: 2 square metres @ €4.20 per square metre.

Direct labour: 2 hours @ €10.25 per hour.

Variable production overheads: 50% of direct labour.

Actual cost information for each month

Fixed production overheads: €12,000.

Fixed selling overheads: €22,500.

Sales commission: 10% of sales value.

There was no opening inventory at 1 January 2019. Fixed production overheads are budgeted at €120,000 per annum and are absorbed into products based on budgeted normal output of 60,000 units per annum.

**REQUIREMENT:**

- (a) Prepare a profit statement for each of the three months using absorption costing principles. (6 marks)
- (b) Prepare a profit statement for each of the three months using variable (marginal) costing principles. (8 marks)
- (c) Present a reconciliation of the profit or loss figures given in your answer to (a) and (b) together with an explanation of the reason for the difference. (3 marks)
- (d) The managing director of Dubh DAC wants to use variable (marginal) costing principles as the basis for both management accounts and the company's financial statements. Outline TWO reasons against this course of action. (3 marks)

**[Total: 20 Marks]**

**END OF PAPER**



# SUGGESTED SOLUTIONS

THE INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS IN IRELAND

## MANAGEMENT ACCOUNTING

FORMATION 2 EXAMINATION - APRIL 2019

### SOLUTION 1

#### Glas Dezign DAC

- (a) Calculate amount to be invoiced to clients  
 (i) Total invoiced to clients using traditional overhead costing approach

Workings:

#### W1 Labour rates per hour

	Garden designer	Gardening staff	Administration staff	Total
Total labour cost	€133,200	€271,200	€45,200	€449,600
Total labour hours	1,480	4,800	1,600	7,880
Labour rate per hour	<u>€90.00</u>	<u>€56.50</u>	<u>€28.25</u>	

#### W2 Overhead rate per hour

	€
Design costs	3,859
Planning and consultation costs	2,844
Supervision costs	3,705
Administration costs	12,400
Total overhead cost	<u>22,808</u>
Total labour hours (technical & support)	7,880
Overhead rate per labour hour	<u>€2.89</u>

#### Amount invoiced using traditional overhead absorption

	TX Ltd	A O'Brien
	€	€
Garden designer cost (@ €90 per hr) (W1)	720.00	450.00
Gardening staff cost (@€56.50 per hr) (W1)	3,616.00	1,412.50
Administration staff cost (@ €28.25 per hr) (W1)	113.00	28.25
Overheads(@ €2.89 per hr) (W2)	<u>219.64</u>	<u>89.59</u>
Total job cost	4,668.64	1,980.34
Add 50% mark up on cost	<u>2,334.32</u>	<u>990.17</u>
Total amount invoiced	<u>7,002.96</u>	<u>2,970.51</u>

- (ii) Total invoiced to clients using activity based costing approach

#### W3 Calculation of cost per driver

Activity	Cost driver	Cost	Total of drivers	Cost per driver
		€		€
Design costs	No of design drafts	3,859	85	45.40
Planning and consultation costs	No of client meetings	2,844	90	31.60
Supervision costs	No of site visits	3,705	52	71.25
Administration	Admin staff hours	12,400	1,600	7.75
		<u>22,808</u>		

**W4 Calculation of total overhead cost for each job**

	TX Ltd €	A O'Brien €
Design costs (@€45.40 per draft) (W4)	317.80	136.20
Planning costs (@€31.60 per meeting) (W4)	126.40	63.20
Supervision costs (@€71.25 per visit) (W4)	427.50	142.50
Administration costs (@ €7.75 per hr)(W4)	31.00	7.75
Total overhead cost	902.70	349.65

Calculation of total amount invoiced to clients

	TX Ltd €	A O'Brien €
Garden designer labour cost (as for (a) (i))	720.00	450.00
Gardening staff labour cost (as for (a) (i))	3,616.00	1,412.50
Secretarial support labour cost (as for (a)(i))	113.00	28.25
Overheads (W4)	902.70	349.65
Total job cost	5,351.70	2,240.40
Add 50% mark up on cost	2,675.85	1,120.70
Total amount invoiced	8,027.55	3,360.60

(18 marks)

**(b) Comparison of results**

	Traditional/ Existing approach €	ABC approach €	Difference €
Invoiced to clients			
TX Ltd	7,002.96	8,027.55	(1,024.59)
A O'Brien	2,970.51	3,360.60	(390.09)
Cost of jobs			
TX Ltd	4,668.64	5,351.70	(683.06)
A O'Brien	1,980.34	2,240.40	(260.06)

Comments

ABC is a more accurate method of absorbing overheads onto products. In relation to the 2 jobs undertaken by Glas Deizgn

- Using traditional overhead absorption costing both jobs are undercosted compared to using ABC.
- This has a knock on effect as the price invoiced to the client is dependent on the cost and so the company is losing out on profit that it could have earned if the jobs were costed more accurately by using ABC.
- Any other relevant comments.

(3 marks)

**(c) TWO advantages and TWO disadvantages of using ABC**

Any TWO advantages and disadvantages

Advantages

- ABC provides more realistic product costs.
- ABC allows more overhead to be traced to products.
- ABC focuses attention on the nature of cost behaviour and can help to reduce costs and identify activities that do not add value to products.
- ABC recognises the complexity and diversity of modern production allowing the use of multiple cost drivers.
- Any other relevant point.

Disadvantages

- ABC is more complex than traditional absorption costing systems and consequently more expensive to develop and administer.
- It may be difficult to select appropriate cost drivers.
- It may be difficult to accurately split/spread costs that are shared across activities.
- Any other relevant point.

(4 marks)

**[Total: 25 Marks]**

## SOLUTION 2

(A)

### MEMORANDUM

TO: Ms Julie Day

FROM: A certified public accountant

RE: Aspects of budgeting

DATE: April 2019

As requested I have prepared a memorandum to address your queries in relation to budgeting. Firstly, an outline of incremental budgeting and its associated advantages and disadvantages is presented. Next, the main features of zero based budgeting including advantages and disadvantages are outlined. Finally, some behavioural issues that may arise as a result of the annual budgeting process are discussed briefly.

**(a) Incremental budgeting**

This starts with the budget from the previous period and adds or subtracts an incremental amount to cover inflation and other known expenses. It is suitable for stable businesses, where costs are not expected to change significantly and where there is good cost control and limited discretionary expenses.

Advantages

- It is a quick and easy method of budgeting.
- Only the increment (extra amount) needs to be justified in organisations that have stable and historic figures.
- Any other relevant point.

Disadvantages

- Incremental budgeting carries forward previous problems and inefficiencies to the next budgeting period.
- Using incremental budgeting may result in uneconomic activities being continued.
- Managers may spend unnecessarily to use up their budgeted expenditure to ensure that they will get the same or a larger budget next year.
- Any other relevant point.

(4 marks)

**(b) Zero based budgeting (ZBB)**

Zero based budgeting (ZBB) emerged in the late 1960s as a response to incremental budgeting. With ZBB, all budgets start at zero and activities/costs are only allowed if they are justified under investigation. All requests for resources must be presented and they are evaluated on the basis of cost-benefit – i.e. where is the value in the spend? ZBB is best suited to discretionary spending where there is no clearly defined input-output relationship (e.g. marketing, research & development, training, etc.) or public sector organisations such as local councils.

Advantages

- ZBB should reduce inefficiencies as past waste is not carried into the next year. Questions are asked about costs, rather than just accepting figures.
- ZBB requires a cost-benefit analysis approach and thus promotes focus on organisational activities and costs.
- ZBB leads to increased staff involvement as more information and work is required to complete the budget.
- ZBB responds to changes in the business environment.
- Inefficient or obsolete operations can be identified and discontinued.
- Any other relevant point.

Disadvantages

- It is an expensive and time consuming process.
- In a highly pressured environment ZBB may become overly competitive and can give rise to a short-term focus to the detriment of long term goals.
- Managers may feel demotivated due to the large amount of time spent on the budgeting process.
- The budgeting process using ZBB may become too rigid and unable to react to unforeseen opportunities or threats.
- The necessary management skills to apply ZBB may be absent.
- Any other relevant point.

(5 marks)

**(c) Behavioural issues arising from the annual budgeting process**

There are many reasons for preparing budgets. Three of these reasons, control, evaluation and motivation, often cause behavioural issues. Budgets facilitate control over costs by highlighting any differences arising between actual costs and budgeted costs. Budgets are used to evaluate managerial performance and also to motivate staff to perform better. It is important to address these three aspects when developing budgets otherwise behavioural problems may arise. Examples of potential problems/issues that may arise are:

1. Budgets facilitate comparison of planned outcomes with actual results allowing the organisation to improve sales performance, monitor capital expenditure projects, forecast cash flows and control expenditure levels. In terms of behavioural consequences, it is important that managers understand the budgeting process when the organisation is trying to reduce and control its expenditures. Better understanding of the budgeting process should promote a more questioning approach towards potential costs and discourage inefficiencies from being carried forward from one year to the next.
2. If managers are being evaluated and possibly remunerated based on budgeted outcomes, these outcomes must be within managerial control i.e. controllable by the manager rather than by head office for example. If the manager has limited or no control over budgeted outcomes he/she may consider any evaluation based on these outcomes as unfair and become less motivated to improve performance.
3. If managers are not involved in developing the overall budget for the organisation they will be less committed and motivated to achieve the desired results. However, sometimes when managers are involved in the budgeting process they may attempt to secure easier, less challenging targets. Managers may include some 'budgetary slack', which means that budgeted costs may be overstated and budgeted revenues may be understated.
4. Any other relevant issue.

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

Yours sincerely,  
A certified public accountant

(5 marks)

(Format and presentation 1 mark)

**[Total: 15 marks]**

**(B) BRIEFING NOTE**

**(a) Key aspects of cost-volume-profit (CVP) analysis**

Cost-volume-profit (CVP) analysis is based on the relationship between volume and sales revenue, cost and profits in the short run which is usually a period of one year or less and where the output of the firm is limited to current operating capacity. CVP aims to establish what happens to the financial results of a company if activity or volume fluctuates. Questions that may be answered using CVP analysis include:

- What would be the effect on profit if selling price is reduced and more units are sold?
- What sales volume must be achieved to cover the additional costs arising from an advertising campaign?
- If the company seeks to attain a specific profit level what sales volume must be reached?

There are a number of important terms and formulae used in CVP analysis and each of these is described below.

**Contribution:** Shows the amount that is available to pay fixed costs and provide a profit after variable costs have been paid. The formula used is sales minus variable costs and this may be calculated in total or for each unit.

Contribution = Sales – Variable Costs

**Break-even point:** This is the point at which the organisation covers all of its costs but does not make a profit i.e. does not make a profit or a loss. The break-even point may be calculated in units or sales value. In units, the formula is calculated as total fixed costs divided by contribution per unit.

$$\text{Break-even point in units} = \frac{\text{Total fixed costs}}{\text{Contribution per unit}}$$

In sales value, the formula is calculated as total fixed costs divided by the contribution to sales ratio. The contribution to sales ratio shows the percentage contribution earned on the selling price of one unit. The formulae for the contribution to sales ratio and the break-even point in sales value are shown below:

$$\text{Contribution to sales ratio} = \frac{\text{Contribution (total or per unit)}}{\text{Sales (total or per unit)}}$$

$$\text{Break-even point in sales value} = \frac{\text{Total fixed costs}}{\text{Contribution to sales ratio}}$$

Margin of safety: This shows by how much sales may decrease before a loss occurs. It is calculated using units or sales value. The formula is calculated as expected sales minus break-even sales divided by expected sales and this may also be expressed in percentage terms.

$$\text{Margin of safety (in units or sales value)} = \frac{\text{Expected sales} - \text{break-even sales}}{\text{Expected sales}} \times 100$$

Target profit: This shows the number of units that must be sold or the sales revenue that must be generated to achieve a desired or target profit

$$\text{Target profit (in units)} = \frac{\text{Total fixed costs} + \text{Target profit}}{\text{Contribution per unit}}$$

$$\text{Target profit (in sales revenue)} = \text{Target profit in units} \times \text{selling price per unit}$$

OR

$$= \frac{\text{Total fixed costs} + \text{Target profit}}{\text{Contribution margin ratio (CMR)}}$$

(9 marks)

**(b) Assumptions of CVP analysis**

(Any FIVE of the following is required):

CVP analysis is based on a number of assumptions and these are as follows:

- It is assumed that 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.
- CVP analysis applies to the relevant range and short term horizon.
- Inventory is valued at variable cost of production. If this is not the case then it is assumed that all units are sold in the period when they are produced.

(5 marks)

Format and presentation (1 mark)

[Total: 15 marks]

### SOLUTION 3

1. Answer (d) Fixed costs are constant over a relevant range of output.

2. Answer (c) Selling and administration costs.

3. Answer (b) €10.24.

$$\begin{aligned} \text{Production overhead absorption rate} &= \frac{\text{Budgeted production overhead}}{\text{Budgeted direct labour hours}} \\ &= \frac{\text{€256,000}}{25,000} = \text{€10.24} \end{aligned}$$

4. Answer (d) €18,176 under-absorbed.

	€
Actual production overhead	280,320
Absorbed production overhead	
25,600 actual hours x €10.24 =	<u>262,144</u>
Under-absorbed overhead	<u>18,176</u>

5. Answer (d) €2.50.

	x	y	x-y
June	October	Change	
Sales and marketing salaries	€111,300	€233,800	€122,500
Sales in units	21,000	70,000	49,000
Sales commission per unit			
= €122,500/49,000			€2.50

6. Answer (d) When prices are increasing, closing inventory calculated using LIFO is valued at the lowest prices.

7. Answer (a) Normal losses are also called controllable losses.

8. Answer (a) €2,800.

Units		
Opening inventory	400	
Input	<u>3,000</u>	
Total inputs	<u>3,400</u>	
Actual losses	400	(normal = 300 & abnormal = 100)
Closing inventory	200	
Completed and transferred	<u>2,800</u>	(balancing figure)
Total outputs	<u>3,400</u>	

[Total: 20 marks]

## SOLUTION 4

### (a) Production capacity to meet demand

	Sales demand	Labour hours required	Machine hours required
30 piece puzzle	50,000	5,000	10,000
250 piece puzzle	27,000	3,600	6,750
1,000 piece puzzle	36,600	<u>6,100</u>	<u>18,300</u>
		14,700	35,050
Total hours available		<u>18,000</u>	<u>32,000</u>
Excess/(shortfall) of hours		3,300	(3,050)

The company does not have enough machine 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 = machine hours

	30 piece €	250 piece €	1,000 piece €
Selling price per unit	3.60	5.45	7.85
Less: variable costs per unit			
Direct material @ €1.60 per metre	0.40	0.80	1.20
Direct labour @ €14.40 per hour	1.44	1.92	2.40
Variable overhead: 75% Direct labour cost	<u>1.08</u>	<u>1.44</u>	<u>1.80</u>
Total variable costs per unit	<u>2.92</u>	<u>4.16</u>	<u>5.40</u>
Contribution per unit	0.68	1.29	2.45
Machine hours per unit	0.20	0.25	0.50
Contribution per machine hour	3.40	5.16	4.90
Ranking	3	1	2

(8 marks)

Puzzle	Contribution per unit €	Production in units	Machine hours per unit	Total Machine hours required	Contribution
250 piece	1.29	27,000	0.25	6,750	34,830
1000 piece	2.45	36,600	0.50	18,300	89,670
30 piece	0.68	34,750	0.20	<u>6,950</u>	23,630
				<u>32,000</u>	
Total contribution					<u>148,130</u>
Less fixed production overheads (€5,700 x 12 months)					68,400
Selling and administrative expenses					<u>26,500</u>
Profit					<u>53,230</u>

(5 marks)



**(c) Explain the following terms:**

Relevant cost

A relevant cost is a cost that is pertinent to a particular decision in that it will influence which decision alternative is chosen. It is an incremental, attributable future cost.

Sunk cost

A sunk cost is associated with the past, and is unaltered by current and future decisions. It is irrelevant to current and future decisions.

(3 marks)

**[Total: 20 Marks]**

## SOLUTION 5: Dearg DAC

### Workings

#### Materials price variance

$$\begin{aligned} &= (\text{SP} - \text{AP}) \times \text{AQ} &= & \text{€}4,050 \\ &= (\text{SP} - \text{€}81,000/16,200) \times 16,200 &= & \text{€}4,050 \\ &\quad \Rightarrow 16,200 \text{ SP} &= & \text{€}81,000 + \text{€}4,050 \\ &\quad \Rightarrow \text{SP} &= & \text{€} 5.25 \quad \text{per square metre} \end{aligned}$$

#### Materials usage variance

$$\begin{aligned} &= (\text{SQ} - \text{AQ}) \times \text{SP} &= & \text{€}5,670 \\ &= (\text{SQ} - 16,200) \times \text{€}5.25 &= & \text{€}5,670 \\ &\quad \Rightarrow 5.25 \text{ SQ} &= & \text{€}85,050 + \text{€}5,670 \\ &\quad \Rightarrow \text{SQ} &= & 17,280 \quad \text{square metres} \end{aligned}$$

SQ = Total standard materials quantity for actual production

=> need to get standard quantity to produce one unit

$$= 17,280 \text{ square metres} / 21,600 \text{ units} = 0.80 \text{ square metres per unit}$$

#### Labour rate variance

$$\begin{aligned} &= (\text{SR} - \text{AR}) \times \text{AH} &= & \text{€} 864 \\ &= (\text{SR} - \text{€}108,864/8,640) \times 8,640 &= & \text{€} 864 \\ &\quad \Rightarrow 8,640 \text{ SR} &= & \text{€}108,864 + \text{€}864 \\ &\quad \Rightarrow \text{SR} &= & \text{€} 12.70 \text{ per hour} \end{aligned}$$

#### Labour efficiency variance

$$\begin{aligned} &= (\text{SH} - \text{AH}) \times \text{SR} &= & \text{€} 27,432 \\ &= (\text{SH} - 8,640) \times \text{€}12.70 &= & \text{€} 27,432 \\ &\quad \Rightarrow 12.70 \text{ SH} &= & \text{€}109,728 + \text{€}27,432 \\ &\quad \Rightarrow \text{SH} &= & 10,800 \quad \text{hours} \end{aligned}$$

SH = Total standard hours required for actual production

=> need to get standard quantity to produce one unit

$$' = 10,800 / 21,600 \text{ units} = 0.5 \text{ hours per unit}$$

#### Variable overhead expenditure variance

$$\begin{aligned} &= (\text{SR} - \text{AR}) \times \text{AH} &= & -\text{€}432 \\ &= (\text{SR} - \text{€}54,000/8,640) \times 8,640 &= & -\text{€}432 \\ &\quad \Rightarrow 8,640 \text{ SR} &= & \text{€}54,000 - \text{€}432 \\ &\quad \Rightarrow \text{SR} &= & \text{€} 6.20 \quad \text{per hour} \end{aligned}$$

#### Variable overhead efficiency variance

$$\begin{aligned} &= (\text{SH} - \text{AH}) \times \text{SR} &= & \text{€}13,392 \\ &= (\text{SH} - 8,640) \times \text{€}6.20 &= & \text{€}13,392 \\ &\quad \Rightarrow 6.20 \text{ SH} &= & \text{€}53,568 + \text{€}13,392 \\ &\quad \Rightarrow \text{SH} &= & 10,800 \end{aligned}$$

Variable overhead is applied to products based on labour hours

=> standard quantity to produce one unit = 0.50 hours

#### Fixed production overhead expenditure variance

$$\begin{aligned} &= (\text{BFO} - \text{AFO}) &= & (\text{€}3,775) \\ &= (\text{BFO} - \text{€}85,200) &= & (\text{€}3,775) \\ &\quad \Rightarrow \text{BFO} &= & \text{€}85,200 + (\text{€}3,775) \\ &\quad \Rightarrow \text{BFO} &= & \text{€}81,425 \end{aligned}$$

(a)

(i) **Standard cost card for one rucksack**

	<b>Per Unit</b>
	€
Direct materials: 0.80 sq mtrs x €5.25	4.20
Direct labour: 0.50 hrs x €12.70	6.35
Variable production overhead: 0.50 hrs x €6.20	3.10
Total product cost	<u>13.65</u>

(12 marks)

(ii) **Cost statement**

	<b>Original Budget</b>	<b>Flexed Budget</b>	<b>Actual</b>
	<b>21,000</b>	<b>21,600</b>	<b>21,600</b>
	€	€	€
Direct materials:	88,200	90,720	81,000
Direct labour: 0.50 hrs x €12.70	133,350	137,160	108,864
Variable production overhead: 0.50 hrs x €6.20	65,100	66,960	54,000
Fixed production overhead	81,425	81,425	85,200
Total production cost	<u>368,075</u>	<u>376,025</u>	<u>329,064</u>

(5 marks)

(b) **TWO criticisms of standard costing**

Any TWO of the following:

- Standard costing was developed when the business environment was more stable and operating conditions were less likely to change. This is not the case in the current dynamic business environment.
- For a business, performing to achieve standards was considered satisfactory in the past but now constant improvement must be attained in order to remain competitive.
- When standard costing was developed there was greater emphasis on labour variances as there was much less automated production. Now modern manufacturing is highly automated and the emphasis on labour variances is less appropriate.
- In today's fast paced business environment, performance reports showing standard cost variances are prepared weekly or monthly and this is often too late to be of value in controlling production operations on a daily basis.
- Any other relevant point.

(3 marks)

**[Total : 20 Marks]**

## SOLUTION 6: Dubh DAC

### Workings

#### W1 Calculation of product cost

##### Under Absorption costing

	€
Direct materials: 2 sq mtrs x €4.20 per sq mtr	8.40
Direct labour: 2 hrs x €10.25 per hr	20.50
Variable production overhead: 50% Direct labour	10.25
Fixed production overhead **	2.00
Total product cost per unit	<u>41.15</u>
Fixed production overheads per year (x)	€120,000
Normal production capacity per year in units (y)	60,000
Fixed production overhead absorption rate per unit (x/y)**	€2.00

##### Under Variable costing

	€
Direct materials	8.40
Direct labour	20.50
Variable production overhead	10.25
Total product cost per unit	<u>39.15</u>

#### W2 Calculation of changes in inventory

	January units	February units	March units
Opening inventory	0	600	400
Production	<u>5,400</u>	<u>4,800</u>	<u>8,000</u>
Total inventory available	5,400	5,400	8,400
Sales	<u>4,800</u>	<u>5,000</u>	<u>7,600</u>
Closing inventory	<u>600</u>	<u>400</u>	<u>800</u>

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

	January €	February €	March €
Actual fixed production overhead	12,000	12,000	12,000
Absorbed fixed production overhead	<u>10,800</u>	<u>9,600</u>	<u>16,000</u>
Under/(over) absorbed overhead	<u>1,200</u>	<u>2,400</u>	<u>-4,000</u>

**(a) Profit statements for Dubh DAC for the months of January, February and March  
Using absorption costing (Product cost = €41.15 see W1)**

	January		February		March	
	€	€	€	€	€	€
Sales		278,400		290,000		440,800
Cost of Sales:						
Opening inventory	0		24,690		16,460	
+ Production	222,210		197,520		329,200	
- Closing inventory (see W2)	<u>24,690</u>	197,520	<u>16,460</u>	205,750	<u>32,920</u>	312,740
Under/(over) absorbed overhead (see W3)		<u>1,200</u>		<u>2,400</u>		<u>(4,000)</u>
Gross profit		79,680		81,850		132,060
Variable Sales Commission (10% sales value)	27,840		29,000		44,080	
Fixed selling overheads	<u>22,500</u>	<u>50,340</u>	<u>22,500</u>	<u>51,500</u>	<u>22,500</u>	<u>66,580</u>
Profit		<u>29,340</u>		<u>30,350</u>		<u>65,480</u>

(6 marks)

**(b) Profit statements for Dubh DAC for the months of January, February and March using variable  
(marginal) costing (Product cost = €39.15 see W1)**

	January		February		March	
	€	€	€	€	€	€
Sales		278,400		290,000		440,800
Variable Cost of Sales:						
Opening inventory	0		23,490		15,660	
+ Production	211,410		187,920		313,200	
- Closing inventory (see W2)	<u>23,490</u>	187,920	<u>15,660</u>	195,750	<u>31,320</u>	297,540
Variable Production cost of sales						
Sales commission (10% sales value)		<u>27,840</u>		<u>29,000</u>		<u>44,080</u>
Contribution		62,640		65,250		99,180
Less: Fixed Costs						
Fixed production overhead costs	12,000		12,000		12,000	
Fixed selling overhead costs	<u>22,500</u>	<u>34,500</u>	<u>22,500</u>	<u>34,500</u>	<u>22,500</u>	<u>34,500</u>
Profit		<u>28,140</u>		<u>30,750</u>		<u>64,680</u>

(8 marks)

**(c) Reconciliation of absorption and variable (marginal) costing profit figures**

	January	February	March
	€	€	€
Profit per absorption costing	29,340	30,350	65,480
Less fixed production overhead in inventory			
(0 - 600) * €2	(1,200)		
(600 - 400) * €2		400	
(400 - 800) * €2			(800)
Profit per variable costing	<u>28,140</u>	<u>30,750</u>	<u>64,680</u>

The reason for the difference in profit between absorption and variable (marginal) costing relates to the treatment of fixed production overheads.

In variable (marginal) costing all of the fixed production overheads are included as a period expense however with absorption costing part of the fixed production overheads are included in unsold inventory and carried forward to the next accounting period.

(3 marks)

**(d) TWO reasons against using variable (marginal) costing**

- Variable (marginal) costing is not an acceptable basis for valuation of inventory for financial reporting purposes as it is contrary to accounting standards.
- It may cause a business to accept work or price contracts such that fixed costs will not be covered and losses may be incurred.
- It may cause difficulties in pricing products as pricing policies are often based on product cost plus an appropriate mark up. If variable costing is used the mark up selected must be sufficient to cover fixed costs and desired profit, which makes calculation of selling prices difficult.
- Any other relevant point.

(3 marks)

[Total : 20 Marks]