

MANAGEMENT ACCOUNTING

FORMATION 2 EXAMINATION - AUGUST 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 - AUGUST 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.** Outdoorz DAC (Outdoorz) is based in Cork and manufactures a range of garden furniture for the Irish market. The company commenced trading five years ago and its sales have increased substantially since then. The garden furniture is made from wood that has been treated to withstand Irish weather conditions. There are two production departments: Cutting and Assembly, and two support departments: Stores and Machine Maintenance.

Direct materials and direct labour costs have already been identified and Outdoorz uses a traditional absorption costing system to allocate production overheads to products.

The following budgeted cost information is available for the month:

	Total	Cutting	Assembly	Stores	Machine Maintenance
	€	€	€	€	€
Direct wages	371,480	83,880	201,600	39,000	47,000
Indirect wages	69,000	21,000	15,000	15,000	18,000
Power	28,360				
Factory security	10,500				
Factory rent and rates	36,200				
Machine depreciation	6,600				
Light and heat	6,240				
Factory insurance	12,400				
Supervisors' salaries	16,480				

The company has also supplied details of its budgeted activity for the month:

	Total	Cutting	Assembly	Stores	Machine Maintenance
Machine hours	38,600	30,880	7,720		
Direct labour hours	24,000	7,200	16,800		
Value of stores issues (€)	186,400	139,800	46,600		
Kilowatt hours (% usage)	100	60	25	5	10
Number of employees	32	8	18	3	3
Value of machinery (€)	400,000	240,000	100,000	40,000	20,000
Floor area (square metres)	1,000	300	400	200	100

REQUIREMENT:

- (a) On the basis of the information provided, prepare a schedule of the total budgeted overheads for each of the four departments, clearly showing the basis of apportionment. (9 marks)
- (b) Calculate the total budgeted overheads for each of the production departments after the service departments have been re-apportioned. (3 marks)
- (c) Compute the budgeted overhead absorption rates for each of the production departments. (4 marks)

- (d) At the end of the period the actual production overhead cost incurred by the Cutting department was €117,240. Actual labour hours worked in that department were 7,050 and actual machine hours recorded were 31,500. Calculate the under or over absorbed production overhead for the Cutting department. (2 marks)
- (e) One of the company's most popular products is a garden bench and cost information relating to this product is shown below.

Direct materials	€15.25
Direct labour hours: Cutting Assembly	0.25 hour 0.75 hour
Machine hours Cutting Assembly	0.25 hour 0.25 hour

Calculate the total product cost per garden bench.

(7 marks)

[Total: 25 Marks]

ANSWER PART (A) OR PART (B)

2.

- (A) David Cullen commenced his manufacturing business earlier this year and has been preparing management accounts using variable (marginal) costing. He has approached you as a Certified Public Accountant, to prepare financial statements for his company for the first year of trading. As part of your discussions with him, you mentioned that you will use absorption costing to prepare the financial statements. David said that he was unfamiliar with this method of costing and has asked you for more information about it.

REQUIREMENT:

Draft a memorandum for David Cullen that:

- (a) Briefly describes the basis of variable (marginal) and absorption costing systems. (4 marks)
- (b) Explains the effect on profit of using variable (marginal) and absorption costing. (5 marks)
- (c) Outlines TWO advantages and TWO disadvantages of both variable (marginal) AND absorption costing systems. (5 marks)

Format and Presentation (1 mark)

[Total: 15 Marks]

OR

- (B) You are a Certified Public Accountant in the firm of Henry & French. The firm has a number of small business clients who often require advice and information regarding monthly management accounting matters. Recently, one client asked about the purposes of, and procedures involved in, the annual budgeting process. To address this request, one of the partners in the firm has asked you to prepare a briefing note to outline the main features of budgeting.

REQUIREMENT:

Prepare a briefing note that:

- (a) Describes the SIX main purposes of budgeting. (6 marks)
- (b) Explains the difference between fixed and flexible budgets. (2 marks)
- (c) Briefly outlines the functional budgets that may be prepared as part of the budgeting process. (4 marks)
- (d) Describes TWO behavioural issues that may arise from the budgeting process. (2 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. Which of the following costs is a DIRECT cost:

- (a) Factory maintenance.
- (b) Wood for a furniture maker.
- (c) Brushes and materials used by factory cleaners.
- (d) Oil for factory machinery.

2. The following information relates to the output level in units and corresponding production overhead costs for Grey Ltd for the past 3 months:

	Output (Units)	Production overhead costs
January	80,000	€278,000
February	55,000	€208,000
March	120,000	€390,000

Production overheads include both a fixed and variable element. Total fixed production overhead costs are estimated to be:

- (a) €70,000
- (b) €54,000
- (c) €112,000
- (d) €154,000.

3. When using the First in First Out (FIFO) method to value inventory which of the following statements is FALSE?

- (a) When prices are increasing, the cost of issues to production calculated using FIFO is higher than if using Last In First Out (LIFO) or Average Cost methods.
- (b) FIFO makes the same assumptions as the physical flow of materials through an organisation.
- (c) FIFO is accepted by IFRS as suitable for valuing inventory.
- (d) When prices are increasing, closing inventory calculated using FIFO is valued at the highest prices.

4. XY Ltd. had the following stores records for the month of July:

July 1 Receipt 100 units, cost €1.00 per unit
July 2 Issue 60 units
July 3 Receipt 40 units, cost €1.20 per unit
July 10 Issue 60 units
July 13 Receipt 20 units, cost €1.30 per unit
July 24 Receipt 20 units, cost €1.50 per unit
July 29 Issue 60 units

Assuming that XY Ltd. uses a FIFO costing approach, the value of the issue to production on July 10 is:

- (a) €60
- (b) €64
- (c) €72
- (d) €75.

5. Zed Ltd. operates an incentive scheme to pay its staff. Workers are paid based either a piecework rate (number of units produced) or 80% of pay based on the hourly rate, whichever is higher. The company produces one product, X5, and the standard time to make this product is 7 minutes. For the purposes of piecework calculations each minute is valued at €0.12. The following information for a week in December relates to one worker:

Hours worked	37
Rate of pay per hour	€12.20
Units of X5 produced	505

The amount of pay that the worker will receive is:

- (a) €451.40
 (b) €361.12
 (c) €424.20
 (d) €339.36.
6. DS Ltd. uses the Economic Order Quantity (EOQ) to calculate the amount of inventory that it should order. The following details have been extracted from the company's accounting system:

Monthly demand	490 units
Purchase price per unit	€10
Cost of placing an order	€15
Costs of holding one unit of inventory for one year	1% of purchase price

The amount of inventory (in units) that the company should order (rounded to nearest whole number) is:

- (a) 1,212
 (b) 1,328
 (c) 383
 (d) 4,200.

The following information relates to Question 7 and Question 8.

Red DAC is considering using Material C and Material D to produce a new product. Material C is no longer used by the company in its production activities, while Material D is in regular use. The following details are available for Materials C and D:

Material	Quantity available	Original Cost per kg	Current cost per kg	Scrap value per kg
C	4,200 kg	€3.50	€3.25	€0.90
D	3,000 kg	€2.10	€2.40	€0.50

Production of the new product requires 6,000 kg of Material C and 2,000 kg of material D.

7. The relevant cost of Material C to be included in the new product cost is:

- (a) €20,550
 (b) €9,630
 (c) €10,080
 (d) €19,500.

8. The relevant cost of Material D to be included in the new product cost is:

- (a) €2,900
 (b) €6,300
 (c) €4,800
 (d) €4,200.

[Total: 20 Marks]

4. Beachy DAC has developed a new range of high quality affordable sandals for beachwear. The sandals are based on an innovative design that protects feet from the effects of sun, salt and sand. The company has already received some sales orders for the sandals and production is due to commence next month. The management accountant has prepared the following projections for the trading year ahead:

(Production and sales of 100,000 pairs of sandals)	€	€
Sales		2,750,000
Cost of sales		
Direct materials	619,000	
Direct labour (Note 1)	411,000	
Production overhead (Note 2)	<u>236,000</u>	<u>1,266,000</u>
Gross profit		1,484,000
Administration expenses (Note 2)	336,500	
Selling and distribution expenses (Note 2)	<u>145,000</u>	<u>481,500</u>
Profit		<u>1,002,500</u>

Notes:

1. It is assumed that the company will pay workers based on a fixed time basis i.e. hours worked regardless of output achieved.
2. The production, administration, and selling and distribution costs have been analysed and the cost behaviour is shown below:

	Fixed element	Variable element
Production overhead	25%	75%
Administration expenses	100%	n/a
Selling and distribution expenses	80%	20%

REQUIREMENT:

- (a) Calculate the break-even point in units (pairs of sandals) and revenue. (5 marks)
- (b) Calculate the margin of safety in units (pairs of sandals) and revenue. (3 marks)
- (c) How many pairs of sandals must Beachy DAC sell to make a profit of €1,500,000? (3 marks)
- (d) Beachy DAC is considering changing the basis of paying staff from a fixed time basis to a piece rate system. Under the new system employees will be paid €4.25 per pair of sandals produced. If the company introduces this new system it will have to employ an extra production supervisor who will be paid a salary of €60,000 per year.

Assuming that the company implements the new pay system:

- (i) What is the new break-even point in units (pairs of sandals)? (4 marks)
- (ii) How many pairs of sandals must be sold to achieve the current level of profit (i.e. €1,002,500)? (2 marks)
- (iii) Which of the pay systems (fixed time or piece rate) would you recommend for the company? Give reasons for your answer. (3 marks)

[Total: 20 Marks]

5. Tabletopz DAC (Tabletopz) manufactures high quality wooden table mats using beech sourced from sustainable forests. The company began trading two years ago having identified a niche market for the product, both in Ireland and Europe. During the year, Tabletopz was forced to purchase wood from a different company as the usual supplier did not have sufficient stock available.

The company operates a standard variable (marginal) costing system and details relating to the most recent financial period are shown below.

Actual information:

Production in units	135,000
Direct materials: 10,800 square metres beech wood	€300,240
Direct labour hours: 27,000 hours	€486,000
Variable production overhead	€194,400
Fixed production overhead	€30,150

Budgeted information:

Production in units	134,400
Direct materials: 10,080 square metres beech wood	€282,240
Direct labour: 33,600 hours	€483,840
Variable production overhead (based on direct labour hours)	€225,792
Fixed production overhead	€29,200

REQUIREMENT:

- (a) Prepare a standard cost card for one table mat. (4 marks)
- (b) Calculate relevant variances in as much detail as the information above permits. (10 marks)
- (c) For each of the materials variances calculated, suggest TWO reasons that may explain why the variance has occurred. (4 marks)
- (d) Briefly explain the following terms:
- Ideal standard.
 - Attainable standard. (2 marks)

[Total: 20 Marks]

6. Sweet Treatz DAC is based in Tipperary and makes a range of tasty confectionery, including toffee squares. Manufacturing toffee involves two production processes: mixing and cooking. All of the ingredients are added in the mixing process and combined thoroughly. Next, the toffee mix is cooked to the correct temperature and then poured into large trays. When the toffee is cool it is cut into squares and packaged. The company has adopted process costing based on the weighted average approach to value the toffee. Cost and other information relating to both processes for the month of March are provided below.

	Mixing Process	Cooking Process
Opening work in progress at 1 March	10,000 kg	16,000 kg
- Material	€24,200	€43,130
- Labour and production overhead	€6,924	€35,790
Costs incurred during the month		
- Materials input 40,000 kg	€108,800	Nil
- Direct labour cost	€84,600	€45,150
- Production overhead	€31,020	€14,820
Transferred from mixing to cooking process	41,000 kg	n/a
Transferred from cooking process to packaging	n/a	56,000 kg
Normal loss expected (% material input in the month)	5%	Nil
Scrap value	€0.50 per kg	Nil
Closing work in progress at 31 March	6,000 kg	Nil

Note 1: All materials are added immediately in the mixing process. The opening work in progress in the mixing process at 1 March was 60% complete in relation to labour and overheads. At 31 March it was 40% complete in relation to labour and overheads.

Note 2: The opening work in progress in the cooking process at 1 March was 50% complete.

REQUIREMENT:

Prepare the following accounts, where applicable, for the month of March. You should ensure that all workings are shown clearly:

- (a) Mixing process account.
- (b) Cooking process account.
- (c) Normal loss account.
- (d) Abnormal loss/abnormal gain account.

[Total: 20 Marks]

END OF PAPER

SUGGESTED SOLUTIONS

THE INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS IN IRELAND

MANAGEMENT ACCOUNTING

FORMATION 2 EXAMINATION - AUGUST 2019

SOLUTION 1

(a) Schedule of budgeted overheads

<u>Overhead expense</u>	<u>Basis</u>	Total	<u>Cutting</u>	<u>Assembly</u>	<u>Stores</u>	<u>Machine maintenance</u>
		€	€	€	€	€
Exclude direct wages	Not a production overhead					
Indirect labour	Given	69,000	21,000	15,000	15,000	18,000
Power	Kilowatt hours	28,360	17,016	7,090	1,418	2,836
Factory security	Floor area	10,500	3,150	4,200	2,100	1,050
Factory rent and rates	Floor area	36,200	10,860	14,480	7,240	3,620
Machine depreciation	Value of machinery	6,600	3,960	1,650	660	330
Light and heat	Floor area	6,240	1,872	2,496	1,248	624
Factory insurance	Floor area**	12,400	3,720	4,960	2,480	1,240
Supervisors' salaries	Number of employees	16,480	4,120	9,270	1,545	1,545
		185,780	65,698	59,146	31,691	29,245

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(b) Reapportionment of service departments

- Stores	Value of stores issues		23,768	7,923	-31,691
			89,466	67,069	0
			23,396	5,849	-29,245
			112,862	72,918	0

3

(c) Calculation of budgeted overhead rates

Machine hours	30,880
Labour hours	16,800
Overhead absorption rate	€3.65
	€4.34
	Per machine hour
	Per direct labour hour

4

(d) Under/over absorption of production overhead

	<u>Cutting dept</u>
	€
Actual production overhead cost	117,240
Absorbed production overhead cost	
31,500 x €3.65	114,975
Under absorbed production overhead	2,265

2

(e) Total Product Cost for garden bench

	€
Direct materials	15.25
Direct labour (see Note 1 below)	
- Cutting department: 0.25 hr x €11.65	2.91
- Assembly department: 0.75 hr x €12.00	9.00
Production overhead	
- Cutting department: 0.25 machine hrs x €3.65	0.91
- Assembly department: 0.75 labour hours x €4.34	3.26
Total product cost per garden bench	31.33

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Note 1

Direct labour rate per hour = Direct wages/direct labour hours

Cutting department = €83,880/7,200 = €11.65 per hour
 Assembly department = €201,600/16,800 = €12.00 per hour

Total **25**

**Note: Kilowatt hours may also be used as the basis of apportionment of light and heat.

SOLUTION 2

(A)

MEMORANDUM

To: Mr David Cullen

From: A Certified Public Accountant

Subject: Absorption and variable (marginal) costing systems

Date: August 2019

Further to your request, some information regarding absorption and variable (marginal) costing systems is presented below. First, the basis of variable (marginal) and absorption costing systems is explained. Next, the effect on profit of using variable (marginal) and absorption costing systems is described. Finally, some advantages and disadvantages of both costing systems are outlined.

(a) Description of basis of variable (marginal) costing and absorption costing systems

Variable (marginal) costing

Variable costing (also called marginal costing) refers to a system in which only variable production costs are assigned to products. Product costs comprise direct materials, direct labour, direct expenses and variable production overheads.

Absorption costing

Absorption costing refers to a system in which fixed production overheads are allocated to products. Product costs then comprise, direct materials, direct labour, direct expenses, variable production overhead and an allocation of fixed production overheads.

(4 marks)

(b) Effect on profit of using variable (marginal) costing and absorption costing

Profit is affected by three situations that may arise, production levels are greater than sales levels, sales levels are greater than production levels, and sales levels equal production levels. The effect of each of these situations is described below.

Where the production level exceeds the sales level

In this case the profit in an absorption costing system will be higher than in a variable (marginal) costing system. This is because absorption costing only includes that portion of the fixed manufacturing overheads allocated to the units sold and the remaining fixed manufacturing costs are included in the closing inventory valuation and carried forward to the next accounting period. Variable (marginal) costing on the other hand includes ALL fixed manufacturing costs relating to this particular accounting period.

Where the sales level exceeds the production level

In this case the profit in an absorption costing system will be lower than in a variable (marginal) costing system. This arises due to the fact that more fixed manufacturing overheads are being charged against profit than were actually incurred during the period. These fixed manufacturing costs are included in the product cost and if sales exceed production, inventories decline and less fixed costs are thus deferred.

Where the sales level equals the production level

In this case profit as calculated under both costing systems will be the same. In an absorption costing system, the only fixed manufacturing overhead that will be included in cost of sales will be the amount of fixed manufacturing overhead that is incurred for the period.

(5 marks)

(c) Some advantages and disadvantages of variable (marginal) costing and absorption costing

(Any TWO advantages and disadvantages)

Variable (Marginal) Costing

Advantages

It provides more useful information for decision making as it requires separation of variable and fixed costs. This separation of costs allows greater understanding of cost behaviour, facilitating projection of future costs and revenues for different activity levels and the use of relevant cost decision making techniques.

It removes the effect of inventory changes on profit giving a more logical, constant picture of operations.

It avoids fixed manufacturing overheads being included in unsaleable inventories as products are not charged with any share of such overheads.

Under or over absorption of fixed manufacturing overheads does not arise with variable (marginal) costing and so a false impression of profit is not be created which could then be totally altered by an adjustment for under/over absorbed overheads.

Any other relevant point.

Disadvantages

It is not an acceptable basis for valuation of inventory for financial reporting purposes as it is contrary to financial reporting 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. Over time this may affect the survival of the business.

It may cause difficulties in pricing products. Pricing policies are often based on calculation of product cost and adding on an appropriate mark up. If variable (marginal) costing is used this mark up must be sufficient to cover fixed costs and desired profit, which makes the selling price very difficult to calculate.

Any other relevant point.

Absorption Costing

Advantages

It does not understate the importance of fixed costs. The allocation of fixed manufacturing costs to products recognises that sufficient revenue must be generated to cover fixed costs in the long run.

It causes fewer profit fluctuations than variable (marginal) costing when inventory is being increased to match sales demand.

It is based on the revenue production concept, which assumes that any cost essential in making a product that may reasonably be expected to be sold represents a cost of obtaining sales revenue. Hence these costs should be deferred and included in inventory valuation so that they may be matched with revenue in calculating profit for the period of sale. Absorption costing is thus acceptable under financial reporting standards which require that the cost of inventory includes all costs incurred in bringing the inventory to its present condition.

It is theoretically superior to variable costing. Theory suggests that fixed manufacturing costs are just as much expended in the production of goods as variable manufacturing costs and consequently all costs expended in the manufacture of a product should be charged to the goods produced.

Any other relevant point.

Disadvantages

It does not require separation of variable and fixed costs and consequently is not as useful as variable (marginal) costing in decision making situations where relevant costs must be highlighted.

If inventory levels fluctuate significantly, profit may be distorted as changes in inventory will affect the amount of fixed manufacturing overheads allocated to an accounting period.

If absorption costing is used, any unsold inventory will include a share of fixed manufacturing overheads. This defers fixed manufacturing overheads from one accounting period to subsequent periods. If inventory cannot be sold without a significant decrease in the selling price then inventory will be over-valued requiring a write down.

Any other relevant point.

(5 marks)

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

Format and Presentation (1 mark)
[Total: 15 marks]

(B) BRIEFING NOTE

(a) The SIX purposes of budgeting

There are many reasons for preparing budgets, the SIX main purposes may be summarised as follows:

Planning: budgeting facilitates planning for future operations as managers become aware of the long range objectives of the company. It also encourages managers to anticipate potential problems that may occur and plan their resolution.

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)

(b) Difference between fixed and flexible budgets

A fixed budget, once developed and agreed, is not changed or altered if actual activity differs from budgeted activity. A flexible budget is prepared based on actual activity and shows what the budgeted costs and revenues would have been if the budget had been based on actual activity achieved. A flexible budget thus allows comparison of actual and budgeted costs and revenues based on the same activity level. It is much more useful than a fixed budget as it allows more meaningful variances to be calculated.

(2 marks)

(c) Functional budgets that may be prepared

Sales budget: this is the first budget to be prepared and forms the basis for other budgets. It shows sales in units and monetary value.

Production budget: this includes information from the sales budget and opening and closing inventories to establish production for the period. It shows only units to be produced.

Direct materials usage budget: having obtained production in units this budget is prepared for each material required and shows how many units of each material is required. It shows only units (kg, litres, etc.) required for production.

Direct materials purchases budget: this budget is produced for each material. It includes the materials that are required for production and the opening and closing inventories allowing calculation of those materials that must be purchased for the period. It is prepared in units and monetary value.

Direct labour budget: based on the production budget, this budget shows the labour hours required and the cost of those labour hours to achieve the necessary production.

Production overhead budget: this budget compiles indirect production expenses so that departmental absorption rates may be calculated using suitable bases such as labour hours or machine hours. It is prepared in monetary value terms.

Selling and administration expenses budget: this budget uses information from the sales budget and other operating information to establish the selling and administration expenses for the period in monetary value.

Master budget: compiling information from the other subsidiary budgets, a budgeted profit and loss account and balance sheet is prepared.

(4 marks)

(d) Behavioural issues that may arise from the budgeting process

(Any TWO of the following)

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. Failure to fully understand the budgeting process may result in inefficiencies being carried forward from one year to the next.

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.

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. 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.

Any other relevant point.

(2 marks)

Format and Presentation (1 mark)

[Total: 15 marks]

SOLUTION 3: Multiple choice questions – solutions

1. Answer **(b)** Wood for a furniture maker.

2. Answer **(b)** €54,000.

	x February	y March	y-x Change
Production overhead	€208,000	€390,000	€182,000
Output in units	55,000	120,000	65,000
Variable production overhead per unit = €182,000/65,000			€2.80

Fixed overhead = €208,000 – (55,000 x €2.80) = €54,000.

3. Answer **(a)** When prices are increasing, the cost of issues to production calculated using FIFO is higher than if using LIFO or Average cost methods.

4. Answer **(b)** €64.

Date	Receipt	Issue €	Inventory
July 1	100 units x €1 = €100		100 units €100
July 2		60 units x €1 = €60	40 units € 40
July 3	40 units x €1.20 = €48		80 units € 88
July 10		40 units x €1 = €40	
		20 units x €1.20 = €24	
		<u>€64</u>	

5. Answer **(c)** €424.20.

Pay based on piece rate = 505 units x 7 mins x €0.12 = €424.20

80% pay based on hourly rate = 80% x 37 hours x €12.20 = €361.12

6. Answer **(b)** 1,328.

Square Root $[(2 \times D \times O) / H]$

D = annual demand = 490 units x 12 = 5,880 units

O = €15

H = Cost of holding stock in inventory for 1 year = 1% x €10 = €0.10

Square Root $[(2 \times 5,880 \times 15) / 0.10] = 1,328$

7. Answer **(b)** 9,630.

The original cost of material C is a sunk cost. Material C is no longer used in production by the company but it does have a scrap value of €0.90 per kg. If the company were to use all 4,200 kg in inventory for the new product it would lose out on earning income from selling the material for scrap of €3,780 (4,200 kg x €0.90 per kg). However, the contract requires 6,000 kg of material C so it must purchase an additional 1,800 kg at the current purchase price of €3.25 per kg. Hence the relevant cost of using material C for the contract is: €3,780 + (1,800 kg x €3.25) = €9,630.

8. Answer **(c)** €4,800.

The original cost of material D is a sunk cost. Material D is in regular use by the company in its production activities. If 2,000 kg are taken to produce a new product then more supplies of this material must be purchased at the current cost price. Hence the relevant cost of using material D for the contract is: 2,000 kg x €2.40 = €4,800.

[20 marks]

SOLUTION 4

(a) Break even point in sales units (pairs of sandals) and revenue

Workings

Sales in units (pairs of sandals)	Per unit €	100,000 Total €
Sales	27.50	2,750,000
<u>Variable costs</u>		
Direct materials	6.19	619,000
Variable production overhead (75% of total)	1.77	177,000
Variable selling and distribution expenses (20% of total)	0.29	29,000
Total variable costs	8.25	825,000
<i>Contribution</i>	19.25	1,925,000
<u>Fixed costs</u>		
Direct labour		411,000
Fixed production overhead (25% of total)		59,000
Administration expenses		336,500
Fixed selling and distribution expenses (80% of total)		116,000
Total fixed costs		922,500
Profit		1,002,500

Break even point in units

$$\begin{aligned} \text{Formula} &= \text{Total fixed costs} / \text{contribution per unit} \\ &= €922,500 / €19.25 = 47,922 \text{ units} \end{aligned}$$

Break even point in sales revenue

$$\text{Formula} = \text{Total fixed costs} / \text{contribution to sales ratio}$$

OR Break even point in units x selling price per unit

$$\text{Contribution to sales ratio} = €19.25 / €27.50 = 0.70$$

$$\text{Break even point in sales revenue} = €922,500 / 0.70 = \underline{\underline{€1,317,857}}$$

$$\text{or } 47,922 \text{ units} \times €27.50 = €1,317,855$$

(b) Margin of safety in units (pairs of sandals) and revenue

Assuming actual sales = expected sales

$$\text{Margin of Safety} = \text{Expected sales} - \text{Break Even sales}$$

$$\text{Margin of safety in units} = 100,000 \text{ units} - 47,922 \text{ units} = 52,078 \text{ units}$$

$$\text{Margin of safety in sales revenue} = €2,750,000 - €1,317,857 = \underline{\underline{€1,432,143}}$$

5

3

(c) How many pairs of sandals (units) must be sold to make a profit of €1,500,000?

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

$$= \frac{€922,500 + €1,500,000}{€19.25} = 125,844 \text{ pairs of sandals}$$

3

PROOF: Not required by question

	€
Total sales revenue: 125,844 x €27.50 per pair	3,460,710.00
Less: total variable costs 125,844 x €8.25 per pair	1,038,213.00
Total contribution	2,422,497.00
Less: total fixed costs	922,500.00
Profit (approximately €1,500,000)	1,499,997.00

(d) Change in basis of paying staff

Workings

	Per unit €
Selling price per pair of sandals	27.50
<u>Revised variable costs</u>	
Direct materials	6.19
Direct labour	4.25
Variable production overhead (75% of total)	1.77
Variable selling and distribution expenses (20% of total)	0.29
Total variable costs	12.50
<i>Revised Contribution</i>	15.00

Revised fixed costs

	Total €
Fixed production overhead (25% of total)	59,000
Salary of extra supervisor	60,000
Administration expenses	336,500
Fixed selling and distribution expenses (80% of total)	116,000
Total fixed costs	571,500

4

i) New break even point in units

$$\text{Formula} = \frac{\text{Total fixed costs}}{\text{contribution per unit}} = \frac{€571,500}{€15} = 38,100 \text{ pairs of sandals}$$

ii) How many pairs must be sold to achieve current/expected profit level?

Target profit = expected profit of €1,002,500

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

$$= \frac{€571,500 + €1,002,500}{€15.00} = 104,933 \text{ pairs of sandals}$$

2

iii) Which of the pay systems (fixed time or piece rate) would you recommend for the company? Give reasons for your answer

Recommendation and any TWO reasons:

The company may prefer the piece rate pay system as:

- Fixed costs are lower, which puts less pressure on the company to make profits
- The break-even point in units is lower - the company needs to sell a lower quantity to cover its costs
- Staff may be motivated to produce more units so as to increase their pay
- Any other relevant point

The company may prefer the fixed time system as:

- The company needs to sell a lower quantity to achieve its current profit level (100,000 pairs compared to 104,933 pairs)
- Staff may feel more secure and motivated to work as they have a fixed amount of pay
- Product quality may be better so the quality control costs/inspection costs should be cheaper
- Any other relevant point

3

Total **20**

SOLUTION 5

(a) Standard cost card for one table mat

	Per unit	
	€	
Direct materials (10,080 sq mtrs/134,400 units) = 0.075 x (€282,240/10,080 sq mtrs) = €28/sq mt	2.10	
Direct labour (33,600 hrs/134,400 units) = 0.25hr x (€483,840/33,600 hrs) = €14.40/hr	3.60	
Variable production overhead 0.25hr x (€225,792/33,600 hrs) = €6.72/hr	1.68	
Total product cost	<u>7.38</u>	4

(b) Variances

Direct material price variance (SP - AP) x AQ = (€28 - (€300,240/10,800)) x 10,800 =	€ 2,160 F	
Direct material usage variance (SQ - AQ) x SP = ((0.075sq mtrs x 135,000) - 10,800) x €28 =	 -18,900 A	
Direct labour rate variance (SR - AR) x AH = (€14.40 - (€486,000/27,000)) x 27,000 =	 -97,200 A	
Direct labour efficiency variance (SH - AH) x SR = ((0.25 hr x 135,000) - 27,000) x €14.40 =	 97,200 F	
Variable overhead expenditure variance (SR - AR) x AH = (€6.72 - (€194,400/27,000)) x 27,000 =	 -12,960 A	
Variable overhead efficiency variance (SH - AH) x SR = ((0.25 hr x 135,000) - 27,000) x €6.72 =	 45,360 F	
Fixed production overhead expenditure variance (BFO - AFO) = (€29,200 - €30,150) =	 -950 A	10

(c) For each of the materials variances, suggest TWO reasons that may explain why the variance occurred

Materials price variance

Any TWO of the following:

- The company had to purchase from a different supplier and so obtained a lower price than expected.
- There may have been a change in market conditions that resulted in a decrease in the price of wood.
- The company may have purchased lower quality beech wood at cheaper prices.

4

Materials usage variance

Any TWO of the following:

- The materials purchased from the different supplier were of a poorer quality than the regular supplier and caused more wastage.
- The staff may have been careless in handling the wood resulting in more wastage than expected.
- The company may have introduced changes in quality control procedures or in the production process during the year that caused more rejection/wastage of materials.

(d) Briefly explain the following terms

Ideal standard - this is a standard based on ideal operating conditions i.e. 100% efficiency is expected from staff, machinery and management. This standard is unlikely to be used in practice as it may adversely affect staff motivation.

2

Attainable standard - this is a standard based on efficient operating conditions. It allows for normal wastage, machine breakdown and lost time. This standard is difficult but not impossible for staff to achieve.

Total 20

SOLUTION 6

Workings

Mixing process

Inputs

	Total Physical Units kg	Equivalent units	
		Materials kg	Conversion costs kg
Opening WIP	10,000		
Materials input	40,000		
	<u>50,000</u>		
Outputs			
Closing WIP	6,000	6,000	2,400
Normal loss (5% x materials input)	2,000	0	0
Abnormal loss	1,000	1,000	1,000
Transferred to Cooking process	41,000	41,000	41,000
	<u>50,000</u>	<u>48,000</u>	<u>44,400</u>

Costs

Opening inventory		€24,200	€6,924
Total costs incurred		€108,800	€115,620
Less scrap value (2,000 kgs @ €0.50 per kg)		-€1,000	
Total costs to be allocated	€254,544	€132,000	€122,544

Cost per equivalent unit		<u>€2.75</u>	<u>€2.76</u>	<u>€5.51</u>
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Allocation of costs

Valuation of output transferred to cooking process = 41,000 kg x €5.51 per kg =	€225,910
Valuation of abnormal loss = 1,000 kg x €5.51 per kg	€5,510
Valuation of closing WIP (6,000 kg)	
Materials: 6,000 kg x €2.75 =	€16,500
Conversion costs: 6,000kg x 40% x €2.76 =	€6,624
	<u>€23,124</u>
	<u>€254,544</u>

Cooking process

Inputs

	Total Physical Units kg	Equivalent units	
		Mixing process costs kg	Labour & overheads kg
Opening WIP	16,000		
Materials transferred from mixing	41,000		
	<u>57,000</u>		
Outputs			
Completed and transferred	56,000	56,000	56,000
Closing WIP	0	0	0
Abnormal loss	1,000	1,000	1,000
	<u>57,000</u>	<u>57,000</u>	<u>57,000</u>

Opening WIP		€43,130	€35,790
Prior process costs transferred in		€225,910	
Costs incurred			€59,970
Total costs to be allocated	€364,800	€269,040	€95,760

Cost per equivalent unit		<u>€4.72</u>	<u>€1.68</u>	<u>€6.40</u>
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Valuation of finished output transferred: 56,000 kg @ €6.40 per kg =	€358,400
Valuation of abnormal loss : 1,000 kg x €6.40 per kg =	€6,400
Total cost	<u>€364,800</u>

a) Mixing process account

	kg	€		kg	€
Opening inventory	10,000	31,124			
Inputs	40,000		Normal loss	2,000	1,000
Materials		108,800	Transferred to Cooking		
Labour & overhead		115,620	Process	41,000	225,910
			Abnormal loss	1,000	5,510
			Closing WIP	6,000	23,124
	<u>50,000</u>	<u>255,544</u>		<u>50,000</u>	<u>255,544</u>

b) Cooking process account

	kg	€		kg	€
Opening WIP	16,000		Completed & transferred	56,000	358,400
- Prior process costs		43,130	Abnormal loss	1,000	6,400
- Conversion costs		35,790	Closing WIP	0	0
Transferred in from mixing	41,000	225,910			
Conversion costs		59,970			
	<u>57,000</u>	<u>364,800</u>		<u>57,000</u>	<u>364,800</u>

c) Normal loss account

	kg	€		kg	€
Mixing process account	2,000	1,000	Cash for units scrapped	2,000	1,000
	<u>2,000</u>	<u>1,000</u>		<u>2,000</u>	<u>1,000</u>

d) Abnormal loss account

	kg	€		kg	€
Mixing process account	1,000	5,510	Cash for Units Scrapped *	2,000	500
Cooking process account	1,000	6,400	Income statement		11,410
	<u>2,000</u>	<u>11,910</u>			<u>11,910</u>

Total 6
20

*Note: Cash is only received for 1,000 units scrapped from the Cooking process but all units scrapped are included here to balance the account.