CPA IRELAND | CERTIFIED PUBLIC ACCOUNTANTS

MANAGEMENT ACCOUNTING

FORMATION 2 EXAMINATION - APRIL 2018

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.

THE INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS IN IRELAND

MANAGEMENT ACCOUNTING

FORMATION 2 EXAMINATION - APRIL 2018

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 - ANSWER QUESTION 1, 2 AND 3 IN THIS SECTION.

1. Sunny Dezigns DAC produces gifts for the tourism industry and has been operating in Ireland for ten years. By analysing its financial results over time to maximise profits the company has focused production on three main items, keyrings, drinks coasters and fridge magnets. As a consequence of the improvement in the economy, Sunny Dezigns DAC has recently received orders from new customers. While delighted with the orders, the production director is concerned about the company's capacity to produce the items required. Details extracted from the company's budgeted management accounts and other relevant information are shown below:

1. Product information (per unit):

	Keyrings	**Coasters**	**Fridge magnets**
	€	**€**	**€**
Selling price	1.40	2.65	1.20
Materials	0.50	0.75	0.40
Labour	0.30	0.45	0.15

2. Total budgeted production overheads for the year are expected to be €211,250. Twenty percent (20%) of all production overheads are variable and are allocated to products on the basis of labour hours. Fixed production overheads are considered to be period costs.

3. Budgeted annual demand for the three products, including the new orders received is as follows;

Keyrings	132,500 units
Coasters	60,400 units
Fridge magnets	100,000 units

4. The company has budgeted to pay its workers a fixed rate of €12 per hour and has included 6,500 labour hours for the year in its budget.

REQUIREMENT:

(a) Prepare calculations to show whether Sunny Dezigns DAC will have sufficient production capacity to meet budgeted demand for its products. (6 marks)

(b) Compute the optimal production plan for Sunny Dezigns DAC and show the annual profit expected. (15 marks)

(c) Briefly explain the following terms, providing examples to illustrate your answer:

(i) Sunk cost.
(ii) Opportunity cost. (4 marks)

[Total: 25 Marks]

ANSWER PART (A) OR PART (B)

2.

(A) A Local Enterprise Office has asked your employer, O'Brien & Driscoll, a firm of Certified Public Accountants based in Wicklow, to prepare a series of briefing documents suitable for small and medium sized businesses. You have been asked by the managing partner to develop the first briefing note as outlined in the following requirement.

REQUIREMENT:

Prepare a briefing note that:

(a) Presents the key differences between management accounting and financial accounting; (4 marks)

(b) Describes the role of the management accountant; and (6 marks)

(c) Outlines FOUR factors that influence a company's demand for management accounting information. (4 marks)

Format and Presentation (1 mark)

[Total: 15 Marks]

OR

(B) You are employed by Casey & Co. a firm of Certified Public Accountants based in Wexford. The firm has recently been engaged by a small manufacturing company to provide advice and recommendations to improve the company's costing system. The managing director of the manufacturing company is particularly interested in implementing standard costing.

REQUIREMENT:

Draft a memorandum for your client that:

(a) Outlines the purposes of standard costing; (5 marks)

(b) Describes how a standard costing system operates. (9 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 be awarded for the correct answer except where you select more than one answer for any question.

1. Which of the following statements correctly reflects a step cost?

   (a) The total cost increases in steps as the level of inflation increases.
   (b) The cost per unit increases in steps as the level of inflation increases.
   (c) The cost per unit increases in steps as the level of activity increases.
   (d) The total cost increases in steps as the level of activity increases.

2. Sellit DAC had the following information relating to its operations:

	February	**August**
Sales in units	31,250	64,750
Production in units	35,400	65,900
Sales commission expenses	€187,750	€277,530

   The sales commission expense per unit (to nearest two decimal places) is:

   (a) €2.59
   (b) €2.94
   (c) €2.68
   (d) €3.06

3. Fixed costs are generally considered to be:

   (a) Constant per unit of output.
   (b) Unaffected by inflation.
   (c) Outside the control of management.
   (d) Constant in total within a specific production volume.

4. The following information for the month of January was extracted from the accounts of Low DAC:

Budgeted labour hours	17,000
Budgeted production overhead cost	€297,500
Actual labour hours	15,856
Actual production overhead cost	€292,400

   The production overhead absorption rate is (to nearest two decimal places):

   (a) €17.20 per labour hour.
   (b) €17.50 per labour hour.
   (c) €18.76 per labour hour.
   (d) €18.44 per labour hour.

The following information relates to Questions 5, 6 and 7:

Budgeted sales in units	13,120
Selling price per unit	€40
Variable cost per unit	€24
Total fixed costs for the period	€156,000

5. The break-even sales (to the nearest €) is:

   (a) €260,000
   (b) €234,000
   (c) €390,000
   (d) €209,920

6. The margin of safety (to nearest two decimal places) is:

   (a) 70.27%
   (b) 25.69%
   (c) 50.45%
   (d) 88.57%

7. The revenue required to generate a profit of €18,000 is:

   (a) €290,000
   (b) €435,000
   (c) €174,000
   (d) €187,120

8. Which of the following statements is INCORRECT?

   (a) When production volume is greater than sales volume, profits using variable (marginal) costing are higher than using absorption costing.
   (b) In variable (marginal) costing there is no under or over absorption of fixed production overheads.
   (c) When sales volume is greater than production volume, profits are higher using variable (marginal) costing than using absorption costing.
   (d) When production volume is lower than sales volume, profits using variable (marginal) costing are higher than using absorption costing.

[Total: 20 Marks]

4. HangitAll DAC, based in Carlow, produces eco-friendly clothes hangers made from recycled cardboard. The company has developed a new process to manufacture the clothes hangers with minimal environmental impact. In November 2017, the manufacturing process was filmed by the company's marketing staff and uploaded to social media sites. This resulted in a substantial increase in sales in 2018. The managing director of HangitAll DAC is delighted with the increased sales and keen to see how this compares to the budgeted figures for 2018. Budgeted and actual information for the month of March is presented below.

Budgeted information:	
Production and sales in units	67,200
Selling price per hanger	€1.55
Direct materials: recycled cardboard 5,040 Kgs	€4,032
Direct labour 3,360 hours	€40,992
Variable production overhead (based on direct labour hours)	€4,032
Fixed production overhead (based on direct labour hours)	€10,752

Actual information:	
Production and sales in units	84,000
Selling price per hanger	€1.45
Direct materials: recycled cardboard 6,720 Kgs	€5,460
Direct labour hours 3,780 hours	€56,511
Variable production overhead	€4,536
Fixed production overhead	€12,663

REQUIREMENT:

(a) Prepare a profit statement showing the original budget, flexed budget and actual results. (5 marks)

(b) Calculate relevant variances in as much detail as the information above permits. (13 marks)

(c) Briefly explain how variances can be inter-related providing an example that supports your answer. (2 marks)

[Total: 20 Marks]

5. Jazzy Books DAC produces a range of notebooks and diaries that are sold exclusively online via the company's website. Customers have the opportunity to personalise their purchase by selecting designs for the front and back covers of the notebooks or diaries. The company currently uses a traditional overhead absorption costing system based on machine hours to allocate manufacturing overheads to products. This year, the company recorded a loss in its financial statements for the first time since it commenced trading six years ago. The managing director is very concerned and has suggested that the prices of all products should be increased by 25%. However, the management accountant has suggested that the problem relates to overhead allocation. He has argued for the adoption of activity based costing.

Activity based cost information obtained for the company shows that customers place individual orders and then discuss the design of the notebooks or diaries using emails. The artwork costs depend on the number of setups required to compile the notebook or diary. In addition, the company has a policy of despatching each order individually.

Financial information relating to the most recent trading period and two orders recently received are provided below.

<u>Overhead costs</u>	
Ordering costs	€7,200
Design expenses	€28,500
Artwork	€17,250
Despatch costs	€10,800
<u>Activity drivers</u>	
Total orders received	48,000
Total design consultation emails	356,250
Total artwork setups	115,000
Total packets despatched	90,000
Total machine hours	21,250

Details of two orders received		
Order reference	Notebook KJ34	Diary XT501
Direct materials – paper, binding, etc.	€1.86	€1.24
Direct labour	€0.52	€0.68
Machine hours required	0.20	0.30
Number of design consultations	3	5
Number of artwork setups required	4	8

REQUIREMENT:

(a) Calculate the cost of each of the orders received using:

(i) The existing overhead allocation method;
(ii) Activity based costing (ABC). (15 marks)

(b) Comment briefly on your answers at (a) (i) and (ii) above. (3 marks)

(c) Outline TWO disadvantages of ABC. (2 marks)

[Total: 20 Marks]

6. Nutty Fresh DAC, based in Limerick, commenced operations five years ago and produces a range of healthy muesli snack bars for the retail market. The company uses a process costing system based on the weighted average method to value production and inventory. Manufacturing comprises two simple processes: mixing and finishing. In the mixing process, the various ingredients are combined thoroughly and then transferred to the finishing process. In the finishing process the mixed ingredients are moulded into bars and cooked to create the finished product. All ingredients are added at the start of the mixing process and no additional ingredients are added in the finishing process. Labour and production overheads, also called conversion costs, are incurred evenly throughout both processes. Details relating to the company's most popular product, the Nut Crunch bar, for the most recent financial period are shown below:

	Mixing	**Finishing**
Opening inventory	60,000 Kgs	25,000 Kgs
- Degree of completion	40%	30%
- Previous process costs	-	€11,500
- Materials	€15,000	-
- Conversion costs	€10,625	€2,750
Input during the period to the process	160,000 Kgs	
- Materials	€38,400	-
- Conversion costs	€30,220	€20,650
Completed and transferred	175,000 Kgs	185,000 Kgs
Closing inventory	35,000 Kgs	10,000 Kgs
- Degree of completion	50%	50%

Note:
A normal loss of 5% of the materials input (during the period) to the mixing process is expected. Any waste material from the mixing process can be sold to a local farmer for €0.05 per Kg.

REQUIREMENT:

Prepare the following accounts, where applicable, for the most recent financial period. You should ensure that all workings are shown clearly:

(i) Mixing process account
(ii) Finishing process account
(iii) Normal loss account
(iv) Abnormal loss/Abnormal gain account.

[Total: 20 Marks]

END OF PAPER

SOLUTION 1

Workings

(W1) Labour hours per unit

		Keyring	Coaster	Fridge magnet
Labour cost per unit	(x)	€0.30	€0.45	€0.15
Labour cost per hour	(y)	€12.00	€12.00	€12.00
=> Labour hours per unit	(x)/(y)	0.025	0.0375	0.0125

(W2) Analysis of budgeted production overhead

	€
Total budgeted production overhead for the year	211,250
Less: budgeted fixed production overhead - 80% of total	169,000
Budgeted variable production overhead	42,250
Total budgeted labour hours	6,500
=> Budgeted variable overhead per labour hour	€6.50

(a) Calculations to show if sufficient capacity to meet demand

	Sales demand	Labour hours required per unit (W1)	Total Labour hours required
Keyrings	132,500	0.025	3,312.5
Coasters	60,400	0.0375	2,265.0
Fridge magnets	100,000	0.0125	1,250.0
		6,827.5	
Total hours available			6,500.0
Shortfall of hours			(327.5)

The company does not have enough budgeted labour hours to meet budgeted sales demand

(6 marks)

(b) Compute the optimal production plan and show the total annual profit expected

Calculate the contribution per unit of limiting factor
Limiting factor = labour hours

	Keyrings €	Coasters €	Fridge magnets €
Selling price per unit	1.400	2.650	1.200
Less: variable costs per unit			
Direct material	0.500	0.750	0.400
Direct labour	0.300	0.450	0.150
Variable overhead (@ €6.50 per lab hr (W2))	0.163	0.244	0.081
Total variable costs per unit	0.963	1.444	0.631
Contribution per unit	0.437	1.206	0.569
Labour hours per unit (W1)	0.025	0.0375	0.0125
Contribution per labour hour	17.5	32.2	45.5
Ranking	3	2	1

Optimal production plan

Product	Contribution per unit	Production in units	Total Labour hours required	Contribution
	€			€
Fridge magnets	0.569	100,000	1,250	56,900
Coasters	1.206	60,400	2,265	72,842
Keyrings **	0.437	119,400	2,985	52,178
			6,500	
Total contribution				181,920
Less fixed production overheads (W2)				169,000
Profit				12,920

** Total hours available/time to produce keyrings = (6,500 -1,250 -2,265 =) 2,985/0.025 = 119,400 units

(15 marks)

(c) Briefly explain the following terms, providing examples to illustrate your answer

Sunk cost
This is a past or committed cost. It is a cost that has been created by a decision made in the past and cannot be changed by any decision made in the future.

For example: if a company arranges for market research to be conducted to assess if is worthwhile to produce a product or not. The market research cost is a sunk cost as a commitment has been made and it must be paid whether or not the company produces the product.

Opportunity cost
Where an organisation has a number of possible courses of action/options, opportunity cost represents the cost of the benefit that is lost/sacrificed when the choice of one course of action requires that the next best course of action is given up.

For example: if a company uses a material in production that has no other use but does have a scrap value of €5 per unit, the opportunity cost is €5. This arises because by using the material the company is losing out on the money that it could have earned by selling it for scrap.

(4 marks)

[Total: 25 Marks]

SOLUTION 2

(A) BRIEFING NOTE

(a) Key differences between management accounting and financial accounting

Management Accounting	Financial Accounting
There is no legal requirement to prepare management accounts.	There is a legal requirement for companies to prepare financial statements.
Management accounting has an internal focus. It is designed to assist company managers in planning, controlling and decision-making activities.	Financial accounting has an external focus. It is designed to provide information to users who are external to an organisation.
Management accounting information may focus on many areas as required by the company.	Financial accounting focuses on the organisation as a whole.
The layout and substance of management accounting information is decided by company management.	Financial accounting information is presented in a format prescribed by law and by accounting standards.
Management accounting information may include both monetary and non-monetary information.	Most financial accounting information is expressed in monetary terms.
Management accounting may be used for planning purposes and also for presenting information on past activities.	Financial accounting information provides information on what has happened in the past.
Management accounting information may be prepared daily, monthly, weekly etc. as required.	A detailed set of financial statements for a business is produced annually and in some cases less detailed financial information may be produced semi-annually.

(4 marks)

(b) The role of the management accountant

As part of his/her role the management accountant provides information to facilitate a range of activities including planning and controlling, decision making, performance measurement and the allocation of costs between cost of goods sold and inventories.

Planning and controlling

To carry out their roles effectively the various managers in a business require information to assist them in planning and controlling the operations of the organisation. Planning involves translating goals and objectives into the specific activities and resources that are required to achieve the goals and objectives. The management accountant is involved in the preparation of both long term and short term plans. Budgets are short-term plans that are prepared in more detail than longer term plans. Control involves the process of ensuring that actual outcomes conform to planned or expected outcomes. Budgets may be used to support the controlling of activities by providing a measure against which actual performance may be compared.

Decision making

Managers also require information to assist them with routine and non-routine decision making. Routine decisions relate to issues such as assessing the profitability of different segments of an organisation in terms of products, services and customers. Non-routine decisions are made infrequently and may relate to strategic issues such as the introduction of new products or services. The information provided by the management accountant to support these decisions may be financial or non-financial in nature, depending on what best meets the needs of management. In many instances cost information accumulated by the management accountant is relied upon to inform decisions, and therefore it is critical that such information is of a high quality.

Performance measurement

The management accountant generates periodic reports, which compare actual performance to plan, and presents these to managers enabling them to determine if operations are proceeding as expected and to identify where corrective action may be required. These periodic reports also allow managerial performance to be evaluated and provide incentives for managers to try to achieve favourable results.

Allocation of costs between cost of goods sold and inventories
It is important to allocate costs to products as accurately as possible in order to establish the profitability of the business. The management accountant ensures that cost information is collected and correctly allocated to cost of sales or inventories as appropriate. The management accountant may use techniques such as activity based costing to allocate overheads to products, or the first in first out (FIFO) method to value inventory.

(6 marks)

(c) Factors that influence a company's demand for management accounting information
Management accounting has grown and become more important as a result of the following factors:

- *Increased competition* – it is now more important than ever to have accurate cost information as companies are competing not just in terms of product price but also based on other factors such as product quality and customer service. Access to accurate product cost information allows companies to focus attention away from pricing to other significant factors.
- *Global marketplace* – with improvements in transportation and communication the market for customers has expanded and so too have company operations. Management accounting enables cost information to be provided and analysed across divisions, segments and countries to support the overall activities of the company.
- *Focus on customer satisfaction* – customers have become more discerning and it is now more important to have pertinent information relating to customers and their profitability to a business. Management accounting allows companies to use cost information and techniques to obtain data on the cost of providing services to customers.
- *New management approaches* – to facilitate focusing on customer satisfaction, companies are adopting a variety of new management approaches such as Total Quality Management, Value Chain Analysis and Benchmarking. In addition, companies are adopting a philosophy of continuous improvement and promotion of employee empowerment. Consequently, more detailed information regarding organisational performance is available.
- *Changing product lifecycles* – due to intense competition and changing customer needs product lifecycles are becoming shorter. Companies need to be ready and able to introduce new products quickly and management accounting can facilitate this process by providing essential information for costing and decision making.
- *Changing cost structures* – in the past materials and labour comprised the highest product costs but this has changed, overheads are now more significant and need to be carefully monitored. Management accounting facilitates this monitoring and control of costs.
- *Information technology* – over the past few decades significant technological change has occurred in production design and technology, and in the delivery of products and services to customers. There have also been substantial changes in information preparation, processing and dissemination; reports and analyses that previously took days to produce may now be obtained at very short notice, sometimes in minutes. Hence, a greater volume of more detailed information is required and may be prepared and disseminated quickly.
- *Any other relevant point*

(4 marks)

(Format and presentation 1 mark)

[Total: 15 Marks]

(B) MEMORANDUM

To: Managing Director, Client Company
From: A Trainee CPA, Casey & Co.
Subject: Standard costing systems
Date: April 2018

Further to your request for information, this memorandum outlines the purposes of standard costing and also provides a brief description of how a standard costing system operates.

(a) Purposes of standard costing

A standard costing system:

- Assists in the preparation of budgets and evaluation of managerial performance.
- Serves as a control mechanism by highlighting activities which deviate from plan.
- Provides an estimate of future costs that may be used for decision making purposes.
- Facilitates the accumulation of product costs for stock valuation purposes.
- Provides a means of motivating individuals to achieve predetermined targets.

(5 marks)

(b) How a standard costing system operates

There are five steps involved in the standard costing process as follows:

Set standard costs

Standard costs should be established for each operation or aspect of production. The standard cost of a product is an accumulation of the standard costs of the operations necessary to make the product. Standard costs may be set using past historical data or using data from engineering studies.

Record actual results

The actual costs involved in the particular operation or activity should be carefully recorded so that they may be compared with their corresponding standard costs.

Compare results and calculate variances

Total actual costs should be compared with total standard costs for each operation; the differences between them are called variances. These variances may be analysed into those arising as a result of price differences and those arising from usage or efficiency differences.

Investigation of variances and corrective action

Variances arising may be investigated to ascertain their cause so that corrective action may be taken. For example, if investigation of a materials variance indicated that there was excessive usage of material, the production manager should try to establish the reasons for the problem. This should then result in remedial action being taken to ensure that the problem did not recur.

Monitoring of standards

As a result of investigating variances, it may be noted that the original standard was too stringent, in which case the standard should be adjusted to reflect a more attainable level. Standard costs should be monitored on an ongoing basis to ensure that they reflect currently attainable standards.

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

Yours sincerely,
A Trainee CPA

(9 marks)

(Format and presentation 1 mark)

[Total: 15 Marks]

Solution 3

1. **Answer (d)** The total cost increases in steps as the level of activity increases.

2. **Answer (c)** €2.68 per unit

	x February	y August	x-y Change
Sales commission expense	€187,750	€277,530	€89,780
Sales in units	31,250	64,750	33,500
Sales commission per unit = €89,780/33,500 =			€2.68

3. **Answer (d)** Constant in total within a specific production volume.

4. **Answer (b)** €17.50 per labour hour.

$$\text{Production overhead absorption rate} = \frac{\text{Budgeted production overhead cost}}{\text{Budgeted labour hours}} = \frac{€297,500}{1,700} = €17.50$$

5. **Answer (c)** €390,000.

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

Contribution to sales ratio = (€40-€24)/€40 = 0.40

$$\text{Break-even sales} = \frac{€156,000}{0.40} = €390,000$$

OR

Break even units x selling price per unit

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

Contribution per unit = €40 - €24 = €16

$$\text{Break even units} = \frac{€156,000}{€16} = 9,750 \text{ units}$$

Break even sales = 9,750 units x €40 = €390,000

6. **Answer (b)** 25.69%.

$$\text{Margin of safety \%} = \frac{\text{Actual or expected sales} - \text{break even sales}}{\text{Actual or expected sales}} \times 100$$

$$= \frac{(13,120 - (€390,000/€40)}{13,120} \times 100 = 25.69\%$$

OR

$$\text{Margin of safety \%} = \frac{(13,120 - 9,750)}{13,120} \times 100 = 25.69\%$$

7. **Answer (b)** €435,000.

Revenue to generate target profit $= \frac{\text{Total fixed costs + target profit}}{\text{Contribution to sales ratio}} = \frac{€156{,}000 + €18{,}000}{0.40} = €435{,}000$

OR

Revenue to generate target profit $= \frac{\text{Total fixed costs + target profit}}{\text{Contribution per unit}} \times \frac{\text{selling price}}{\text{per unit}}$

$= \frac{€156{,}000 + €18{,}000}{€16} \times €40 = €435{,}000$

8. **Answer (a)** If production volume is greater than sales volume, profits using variable (marginal) costing are higher than using absorption costing.

[Total: 20 Marks]

SOLUTION 4

Note: It is important to understand that the company is using absorption costing as there is a clear indication of how fixed production overhead costs are allocated to products - using direct labour hours. In terms of preparing variances this means that there will be two fixed production overhead variances (volume and expenditure variances) instead of just the expenditure variance; and that the sales volume variance will use standard profit per unit rather than standard contribution per unit.

(a) Profit statement

Workings

Standard cost card	**Per unit**
	€
Direct materials (5,040Kgs/67,200 units) = 0.075 Kgs x (€4,032/5,040 Kgs) = €0.80/Kg	0.06
Direct labour (3,360 hrs/67,200 units) = 0.05 hr x (€40,992/3,360 hrs) = €12.20/hr	0.61
Variable production overhead 0.05 hr x (€4,032/3,360 hrs) = €1.20/hr	0.06
Fixed production overhead 0.05 hr x (€10,752/3,360 hrs) = €3.20/hr	0.16
Total product cost	0.89
Selling price	1.55
Standard profit margin	0.66

Profit statement

Production and sales in units	**Per unit**	**67,200 Original Budget**	**84,000 Flexed Budget**	**84,000 Actual Results**
	€	**€**	**€**	**€**
Sales	1.55	104,160	130,200	121,800
Less:				
Direct materials	0.06	4,032	5,040	5,460
Direct labour	0.61	40,992	51,240	56,511
Variable production overhead	0.06	4,032	5,040	4,536
Fixed production overhead	0.16	10,752	13,440	12,663
Total production costs	0.89	59,808	74,760	79,170
Profit	0.66	44,352	55,440	42,630

(5 marks)

(b) Variances

Direct material price variance
(SP - AP) x AQ = (€0.80 - (€5,460/6,720)) x 6,720 = -84 A

Direct material usage variance
(SQ - AQ) x SP = ((0.075Kgs x 84,000) -6,720) x €0.80 = -336 A

Direct labour rate variance
(SR - AR) x AH = (€12.20 - (€56,511/3,780)) x 3,780 = -10,395 A

Direct labour efficiency variance
(SH - AH) x SR = ((0.05 hr x 84,000) - 3,780) x €12.20 = 5,124 F

Variable production overhead expenditure variance
(SR - AR) x AH = (€1.20 - (€4,536/3,780)) x 3,780 = 0

Variable production overhead efficiency variance
(SH - AH) x SR = ((0.05 hr x 84,000) - 3,780) x €1.20 = 504 F

Fixed production overhead expenditure variance
(BFO - AFO) = (€10,752 - €12,663) = -1,911 A

Fixed production overhead volume variance
(AP - BP) x SR per unit = (84,000 - 67,200) x €0.16 = 2,688 F

Sales price variance
(AP - SP) x AV = (€1.45 - €1.55) x 84,000 = -8,400 A

Sales volume variance
(AV - BV) x S(Profit)M = (84,000 - 67,200) x €0.66 = 11,088 F

(13 marks)

(c) Briefly explain how variances can be interrelated providing an example to support your answer.

It is important not to consider variances in isolation as they may be related by a connecting factor. Often a favourable variance for one cost item may result in an adverse variance for another cost item. For example if a company purchases lower quality materials there may be a favourable materials price variance. However, the cheaper material may be more difficult to work with and may result in production delays and difficulties causing an adverse labour efficiency variance.

(2 marks)

[Total: 20 Marks]

SOLUTION 5

(a) Total product cost of each of the orders received based on:

(i) The existing overhead allocation method

Workings
(W1) Calculation of overhead absorption rate

$$\text{Overhead absorption rate per machine hour} = \frac{\text{Total production overheads}}{\text{Total machine hours}} = \frac{€63{,}750}{21{,}250} = €3.00$$

Product cost

	Notebook KJ34	Diary XT501
	€	€
Direct materials	1.86	1.24
Direct labour	0.52	0.68
Production overhead (0.2 hr/0.3 hr x €3 (W1))	0.60	0.90
Total product cost	2.98	2.82

(6 marks)

(ii) Activity based costing

Workings
(W2) Calculation of cost per driver

Activity	Cost driver	Cost	Total drivers	Cost per driver €	
		€			
Ordering costs	No. of orders received	7,200	48,000	0.15	Per order received
Design expenses	No. of consultation emails	28,500	356,250	0.08	Per consultation email
Artwork	No. of set ups	17,250	115,000	0.15	Per artwork set up
Despatch costs	No. of packets despatched	10,800	90,000	0.12	Per packet despatched
		63,750			

(W3) Calculation of total overhead cost for each product

	Notebook KJ34	Diary XT501
	€	€
Ordering costs	0.15	0.15
Design expenses	0.24	0.40
Artwork	0.60	1.20
Despatch costs	0.12	0.12
Total overhead cost	1.11	1.87

Product cost

	Notebook KJ34	Diary XT501
	€	€
Direct materials	1.86	1.24
Direct labour	0.52	0.68
Overheads (W3)	1.11	1.87
Total product cost	3.49	3.79

(9 marks)

(b) Compare and comment on the answers in (a) (i) and (ii) above.

	Notebook KJ34	Diary XT501
	€	€
Product cost using current method	2.98	2.82
Product cost using ABC	3.49	3.79
Difference	(0.51)	(0.97)

The current method of allocating overheads undercosts both products by €0.51 and €0.97 respectively.
This represents an undercosting of 17.1% for the notebook and 34.4% for the diary.
This means that when pricing the products the company is using inaccurate figures and may be applying a mark-up based on these costs, which suggests that the company will not achieve the profit margin that it requires.
Any other relevant points

(3 marks)

(c) Outline TWO disadvantages of ABC.

Any TWO of the following:

- ABC requires greater understanding of costs and cost drivers which may be time consuming to attain.
- It may not be possible to allocate all overhead costs to specific activities.
- There may be common costs i.e. costs that relate to many cost pools so that it is difficult to allocate them to specific functions.
- Any other relevant point (2 marks)

[Total: 20 Marks]

SOLUTION 6

Workings
Mixing process

Inputs	**Total Physical Units**	**Equivalent units**	
		Materials	**Conversion Costs**
	Kgs	**Kgs**	**Kgs**
Opening WIP	60,000		
Materials input	160,000		
	220,000		
Outputs			
Closing WIP	35,000	35,000	17,500
Normal loss (5% x materials input)	8,000	0	0
Abnormal loss	2,000	2,000	2,000
Transferred to finishing process	175,000	175,000	175,000
	220,000	212,000	194,500
Costs			
Opening inventory		€15,000	€10,625
Total costs incurred		€38,400	€30,220
Less scrap value (€0.05 per Kg)		(€400)	
Total costs to be allocated	€93,845	€53,000	€40,845
Cost per equivalent unit	€0.46	€0.25	€0.21

Allocation of costs	
Valuation of output transferred to finishing process = 175,000 Kgs x €0.46 per Kg =	€80,500
Valuation of abnormal loss = 2,000 Kgs x €0.46 per Kg =	€920
Valuation of closing WIP (35,000 Kgs 50% complete)	
Materials: 35,000 Kgs x €0.25 =	€8,750
Conversion costs: 17,500 Kgs x €0.21 =	€3,675
	€12,425
	€93,845

Finishing process

Inputs	**Total Physical Units**	**Equivalent units**	
		Mixing process costs	**Labour & overheads**
	Kgs	**Kgs**	**Kgs**
Opening WIP	25,000		
Materials transferred from mixing	175,000		
	200,000		
Outputs			
Completed and transferred	185,000	185,000	185,000
Closing WIP	10,000	10,000	5,000
Abnormal loss	5,000	5,000	5,000
	200,000	200,000	195,000
Costs			
Opening WIP		€11,500	€2,750
Prior process costs transferred from mixing		€80,500	-
Costs incurred		-	€20,650
Total costs to be allocated	€115,400	€92,000	€23,400
Cost per equivalent unit	€0.58	€0.46	€0.12

Valuation of finished output transferred: 185,000 Kgs @ €0.58 per Kg =	€107,300

Allocation of Costs

Valuation of abnormal loss : 5,000 Kgs x €0.58 per Kg =	€2,900
Valuation of closing WIP (10,000 Kgs 50% complete)	
Prior process costs: 10,000 Kgs x €0.46 =	€4,600
Conversion costs: 5,000 Kgs x €0.12 =	€600
	€5,200
	€115,400

(10 marks)

(i)

Mixing process account

	Kgs	€		Kgs	€
Opening inventory	60,000	25,625			
			Normal loss	8,000	400
Inputs	160,000		Transferred to Finishing		
Materials		38,400	process	175,000	80,500
Labour & overhead		30,220	Abnormal loss	2,000	920
			Closing WIP	35,000	12,425
	220,000	94,245		220,000	94,245

(ii)

Finishing process account

	Kgs	€		Kgs	€
Opening WIP	25,000		Completed & transferred	185,000	107,300
- Prior process costs		11,500	Abnormal loss	5,000	2,900
- Conversion costs		2,750	Closing WIP	10,000	5,200
Transferred in from mixing	175,000	80,500			
Conversion costs		20,650			
	200,000	115,400		200,000	115,400

(iii)

Normal loss account

	Kgs	€		Kgs	€
Mixing process account	8,000	400	Cash for units scrapped	8,000	400
	8,000	400		8,000	400

(iv)

Abnormal loss account

	Kgs	€		Kgs	€
Mixing process account	2,000	920	Cash for units scrapped	2,000	100
Finishing process account	5,000	2,900	Income statement		3,720
	7,000	3,820		2,000	3,820

(10 marks)

[Total: 20 Marks]