

CA PROFICIENCY 1  
MANAGEMENT ACCOUNTING  
INTERIM ASSESSMENT – APRIL 2017

**FINAL EXAM VERSION**

**PAPER AND SUGGESTED SOLUTION WITH  
EXAMINER'S COMMENTS**

**Information Note:**

This report contains the following documents:

Page 3: Exam question booklet (as sat on 1 April 2017)

Page 8: Formal suggested solution **with examiner's comments**

As with all examinations, the solution is a 'suggested' solution only. Candidates who present alternative, valid solutions to any question will always receive the appropriate credit in an examination.

**This suggested solution is written to the CAP2 Competency Statement 2016/2017**



**CHARTERED  
ACCOUNTANTS  
IRELAND**

Copyright of this document rests in entirety with Chartered Accountants Ireland. All rights reserved. No part of this text may be reproduced or transmitted in any form or by any means, including photocopying, Internet or e-mail dissemination, without the written permission of Chartered Accountants Ireland. Such written permission must also be obtained before any part of this document is stored in a retrieval system of any nature.

Products and services that are referred to within may either be trademarks and/or registered trademarks of their respective owners. Chartered Accountants Ireland makes no claim to these trademarks.

© Chartered Accountants Ireland 2017

*All references to the masculine gender within this document are intended to refer to both male and female as appropriate.*

# CA Proficiency 1



## MANAGEMENT ACCOUNTING

### INTERIM ASSESSMENT

SATURDAY 1 APRIL 2017: 2:00pm – 3:15pm

#### INSTRUCTIONS TO CANDIDATES

1. Answer **BOTH** questions.
2. Candidates should indicate clearly whether they are answering the paper in accordance with the law and practice of Northern Ireland or the Republic of Ireland.
3. Candidates should deem each monetary amount shown with the €/£ symbol to be stated in their relevant currency.
4. All workings should be shown.
5. Answers should be illustrated with examples, where appropriate.

## CASE STUDY: SOFA LTD

### COMPULSORY: ANSWER BOTH QUESTIONS ONE AND TWO

Sofa Limited (“SOFA”) is a family-owned business specialising in the production and sale of premium sofas to customers located throughout Ireland. Owing to the manual nature of their production process, each sofa requires a significant amount of direct labour to complete.

SOFA has recently appointed a new Managing Director, Mr. Paul Smith, who has been tasked with increasing the company’s unit sales and profitability. Following a number of challenging years due to the economic downturn, SOFA’s Board of Directors have recently decided to only accept orders for sofas that will allow the business to generate a minimum sales price of full-cost plus 30%.

**Material:**

Following his appointment, Mr. Smith discovered that SOFA uses a large number of direct materials in each sofa that they manufacture, all of which are re-ordered independently once a predetermined re-order point has been reached. Upon further investigation, Mr. Smith discovered that SOFA uses a common direct material named “XY” in all of their sofas and expects to purchase 28,600 units of “XY” in 2017. This direct material is budgeted to cost SOFA €/\$ 120 per unit in 2017 and is expected to have an annual carrying cost per unit equal to 15% of its purchase price. The cost of placing each order for “XY” is budgeted at €/\$ 17.50.

**Overhead:**

Mr. Smith has identified that production overheads within SOFA represent a significant and increasing cost for the company. Production overheads are currently absorbed between sofas on a company-wide direct machine hours basis. For 2017, SOFA’s production overheads are expected to be €/\$ 1,328,200 with 45,800 direct machine hours planned for the year. Direct labour hours for 2017 are budgeted at 79,500. All sofas pass through three production departments, “A”, “B” & “C”. Mr. Smith is wondering if SOFA should move to a system of separate departmental overhead absorption rates. To assist him in making this decision, the following information has been provided;

	A	B	C
% of SOFA’s 2017 budgeted direct labour hours	45%	30%	25%
% of SOFA’s 2017 budgeted direct machine hours	60%	20%	20%
% of SOFA’s 2017 budgeted production overheads (€/\$)	50%	30%	20%

**Sales quotation:**

Mr. Smith has recently been approached by a boutique hotel requesting a quotation to supply three individual sofas for the hotel’s reception area. Having met with the hotel owners, Mr. Smith believes the maximum they are prepared to pay for the three sofas is a total of €/\$ 35,000. SOFA has compiled the following projections in relation to the production of these three sofas:

	Sofa 1	Sofa 2	Sofa 3
Total direct production costs	€/\$ 7,650	€/\$ 6,250	€/\$ 4,500
Total direct machine hours (including department B)	100 hours	150 hours	150 hours
Direct labour hours – department A	40 hours	30 hours	20 hours
Direct machine hours – department B	15 hours	20 hours	25 hours
Direct labour hours – department C	30 hours	35 hours	50 hours

## COMPULSORY: ANSWER BOTH QUESTIONS ONE AND TWO

### QUESTION ONE

- a) Provide Mr. Smith with a definition of each of the following terms:
- i) A cost objective;
  - ii) A cost driver;
  - iii) Production costs;
  - iv) Cost allocation;
  - v) Contribution.
- 10 marks**
- b) Explain with the aid of a graph(s), how you would expect the different cost elements of SOFA's monthly natural gas expense (used in the production process) to behave on a total basis and on a per-unit basis if business activity increases. You should assume that SOFA's monthly natural gas expense is a semi-variable cost. (Graph paper is not required.)
- 15 marks**
- Total 25 marks**

### QUESTION TWO

- a) Advise Mr. Smith of THREE potential disadvantages associated with SOFA's current approach to re-ordering direct materials based upon a pre-determined re-order point.
- 9 marks**
- b) Outline and briefly explain the THREE types of cost that Mr. Smith should consider when deciding the optimal number of units of a direct material to order each time so as to maintain stock levels.
- 9 marks**
- c) Using the Economic Order Quantity (EOQ) formula approach, calculate the optimal number of orders that SOFA should place for direct material "XY" in 2017.
- 9 marks**
- d) Calculate SOFA's 2017 budgeted production overhead absorption rate using their current approach to absorbing production overheads.
- 3 marks**
- e) Calculate SOFA's 2017 budgeted departmental production overhead absorption rates for **each** of the three production departments using the following bases:

Department A	Direct labour hours
Department B	Direct machine hours
Department C	Direct labour hours

- 9 marks**
- f) Based upon your calculations in part **d)** and **e)** advise Mr. Smith as to whether or not SOFA should submit a quotation to try to secure the contract from the local hotel based upon:
- i) Their current approach to production overhead absorption; **and**
  - ii) A departmental approach to production overhead absorption.

Explain your answer fully.

**28 marks**

- g) Briefly advise Mr. Smith of TWO potential consequences if SOFA under-absorbed their "significant and increasing" production overheads.
- 8 marks**

**Total 75 marks**

**Total 100 marks**

**END OF ASSESSMENT**

**BLANK PAGE**

**PLEASE TURN OVER FOR FORMAL SUGGESTED SOLUTION WITH EXAMINER'S  
COMMENTS**

## SUGGESTED SOLUTION

### Examiner's general comments:

This year's average mark of 62% (2016: 60%; 2015: 65%; 2014: 67%) is higher than that achieved last year. Although the majority of candidates who sat this exam (634 in total) were well prepared for it, and hence, made a good attempt; a significant numbers of candidates were not, and their marks consequently reflect this lack of preparation. A thorough review of past exam papers should be a prerequisite for future candidates studying for this exam.

## QUESTION ONE

### Examiner's comments on Question One:

#### Part a) Definitions

Most candidates did well in this question with many candidates scoring high marks. Common mistakes included for example, mixing up "cost allocation" with "cost apportionment".

These definitions come up regularly so candidates should commit to fully understanding and learning them.

#### Part b) Cost behaviour

Candidates who lost marks here did not provide answers on a total and on a per-unit basis as requested to do so. Also, a significant number of candidates could not provide the appropriate graph(s), and even for those who did, not all cost lines and axes were labelled correctly.

#### Part a)

- i) **A cost objective** – this is the item that the firm is trying to determine the cost of. Examples would include; a product, a service, a customer, etc...
- ii) **A cost driver** – this refers to any element that affects costs in a significant way. For example – in a hospital setting – the greater the number of patients treated, the higher the total costs incurred by the hospital to treat those patients.
- iii) **Production costs** – these are costs incurred in producing a unit of output. They typically include the following three cost types – direct materials, direct labour and production overheads.
- iv) **Cost allocation** – occurs when a cost item can be assigned to a single cost objective, i.e. there is no need to divide the cost between a number of different cost objectives.
- v) **Contribution** – this is calculated as sales revenue less variable costs. If the balancing figure is positive, it indicates that there are funds available to cover fixed costs, and if these are subsequently covered from the funds available, then any balance outstanding represents profit.

**Part b)**

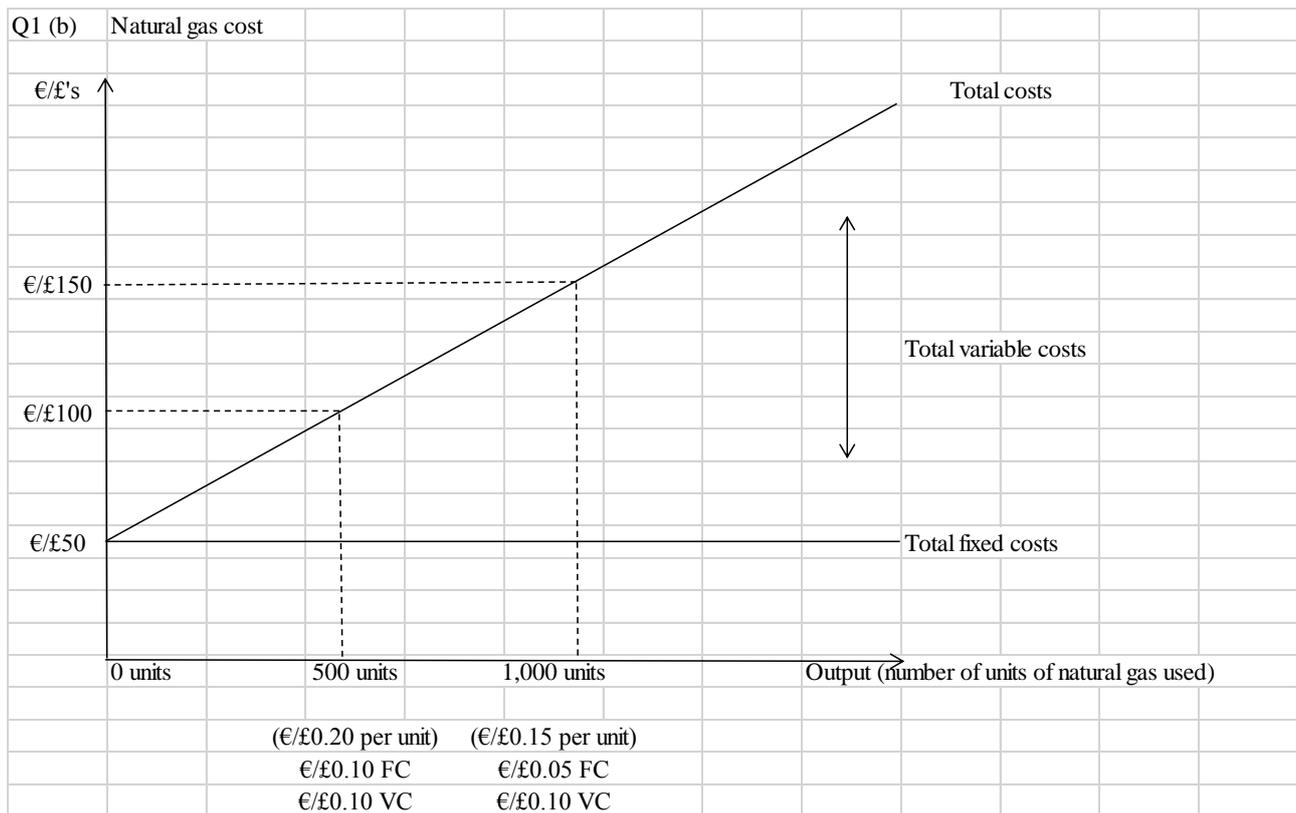
A semi-variable (i.e. mixed) cost is a cost which contains a fixed element as well as a variable element. In terms of SOFA – their monthly natural gas expense is an example of a mixed cost as they pay a fixed element as part of each bill received representing the costs associated with connecting them to the natural gas network, doing repairs, etc... as well as a variable element representing the cost of their use of natural gas during the billing period (i.e. monthly) in question.

If SOFA was to increase their business activity (i.e. production) in the future, then you would expect that their total monthly natural gas expense would also rise.

Specifically, the total fixed costs associated with their monthly natural gas expense will remain constant, whereas on a unit basis this figure will decrease as SOFA uses more natural gas each month.

From a variable cost perspective, SOFA’s total variable costs will increase in direct proportion with the amount of natural gas that they use in a particular accounting period. However, on a per unit basis, the variable cost per unit remains constant.

Please refer to the graph for an example of a mixed cost.



## QUESTION TWO

### Examiner's comments on Question Two:

#### Part a) Disadvantages of pre-determined re-order point

Many candidates did quite well here. However, marks were lost by not fully explaining the points made.

#### Part b) Costs to consider to maintain inventory levels

Overall – most candidates were able to identify two out of the three costs that needed to be considered. The cost of not carrying enough inventory was generally the cost item that candidates failed to identify.

#### Part c) EOQ calculation

The vast majority of candidates calculated the EOQ correctly but did not subsequently calculate the numbers of orders required based upon this EOQ figure, thus losing easy marks.

#### Part d) Budgeted production overhead absorption rate

The vast majority of candidates received full marks for this question.

#### Part e) Budgeted departmental production overhead absorption rate

Most candidates answered this question correctly.

#### Part f) Advice on whether to submit a quotation

Many candidates were awarded full or very high marks for the numerical dimension of this question. However, a lot of candidates lost marks for the qualitative advice offered to management by not adequately justifying their proposed actions. A significant number of candidates seemed to think that SOFA would be automatically awarded the contract from the hotel due to the fact that their proposed sales price was less than what the hotel were willing to pay. From the text of the case, this was not the reality.

#### Part g) Consequences of under-absorption of production overheads

Although many candidates were able to provide two consequences – insufficient explanations for each one reduced the marks awarded in many instances.

#### Part a)

Three potential disadvantages would include;

1. If an order for a sofa was placed by a customer and not enough of the direct materials needed to produce it were available from inventory – it may result in the sofa not being produced until the required direct materials are ordered and subsequently delivered. If the lead time for this to occur is very long; some potential customers may take their business elsewhere and hence, result in SOFA losing sales revenue and potentially market share if this was to occur on a regular basis.
2. As inventory is only ordered once the re-order point has been reached, it means that it is very difficult for SOFA to budget/plan for the future. For example, in terms of working capital management – SOFA would not know at the beginning of a year what quantity of direct materials they will need to order and how much these orders are likely to cost them.

3. Re-ordering direct materials just to maintain a certain level of inventory is very inefficient as it effectively means that these materials will be held in storage by SOFA until they are needed for production purposes. As this may take a long time (depending on what sofas customers order) – it means that for example, the storage space used to store these materials cannot be used for other potentially more productive purposes during this time.

### Part b)

The three costs to be considered by Mr. Smith would be:

1. Inventory ordering costs – these are incurred every time an inventory item is ordered. Examples would include; clerical, handling costs etc...They are driven by the number of orders placed and not by the size of each order.
2. Inventory carrying costs – these are incurred to keep units in inventory. Examples would include; storage costs, property taxes, insurance, etc...They are driven by the amount and value of inventory that is held by the firm (i.e. SOFA).
3. The costs of not carrying sufficient inventory, i.e. if there is not enough inventory to meet customers' needs. If so, this may result in lost sales, lost customers, etc... Alternatively, if such costs are high, managers will want to hold large amounts of inventory, so as not to disappoint certain customers who may order from SOFA in the future.

### Part c)

Applying the EOQ formula – the following is derived;

$$\text{EOQ} = \frac{\sqrt{2(28,600)(\text{€}/\text{£} 17.50)}}{\text{€}/\text{£} 18.00^*} = 236 \text{ units per order}$$

Therefore, in terms of the number of orders needed in 2017 to acquire 28,600 units of "XY";

28,600 units / 236 units per order = 122 orders in total should be placed in 2017

\* € / £ 18.00 = € / £ 120.00 x 15%

### Part d)

For 2017, the following applies;

Budgeted production overheads	=	€ / £ 1,328,200
Budgeted direct machine hours	=	45,800 hours
Predetermined rate per direct machine hour in 2017	=	€ / £ 29

### Part e)

"A" = €/ $\pounds$  1,328,200 x 50% = €/ $\pounds$  664,100

"B" = €/ $\pounds$  1,328,200 x 30% = €/ $\pounds$  398,460

"C" = €/ $\pounds$  1,328,200 x 20% = €/ $\pounds$  265,640

"A" = 79,500 x 45% = 35,775 direct labour hours

"B" = 45,800 x 20% = 9,160 direct machine hours

"C" = 79,500 x 25% = 19,875 direct labour hours

"A" = €/ $\pounds$  664,100 / 35,775 hours = €/ $\pounds$  18.56 per direct labour hour

"B" = €/ $\pounds$  398,460 / 9,160 hours = €/ $\pounds$  43.50 per direct machine hour

"C" = €/ $\pounds$  265,640 / 19,875 hours = €/ $\pounds$  13.37 per direct labour hour

### Part f)

#### Current approach to production overhead allocation:

Production overheads = €/ $\pounds$  29 x (100 + 150 + 150 = 400 direct machine hours) = €/ $\pounds$  11,600

Total direct production costs = €/ $\pounds$  7,650 + €/ $\pounds$  6,250 + €/ $\pounds$  4,500 = €/ $\pounds$  18,400

Total costs = €/ $\pounds$  30,000

Plus 30% mark-up = €/ $\pounds$  9,000

Total quotation for the hotel = €/ $\pounds$ 39,000

#### Departmental approach to production overhead allocation:

##### Sofa 1

Overheads:

"A" = €/ $\pounds$  18.56 per direct labour hour x 40 hours = €/ $\pounds$  742.40

"B" = €/ $\pounds$  43.50 per direct machine hour x 15 hours = €/ $\pounds$  652.50

"C" = €/ $\pounds$  13.37 per direct labour hour x 30 hours = €/ $\pounds$  401.10

Total direct production costs = €/ $\pounds$  7,650

Total costs = €/ $\pounds$  9,446

Plus 30% mark-up = €/ $\pounds$  2,833.80

Total price = €/ $\pounds$  12,279.80

##### Sofa 2

Overheads:

"A" = €/ $\pounds$  18.56 per direct labour hour x 30 hours = €/ $\pounds$  556.80

"B" = €/ $\pounds$  43.50 per direct machine hour x 20 hours = €/ $\pounds$  870

"C" = €/ $\pounds$  13.37 per direct labour hour x 35 hours = €/ $\pounds$  467.95

Total direct production costs = €/ $\pounds$  6,250

Total costs = €/ $\pounds$  8,144.75

Plus 30% mark-up = €/ $\pounds$  2,443.43

Total price = €/ $\pounds$  10,588.18

### **Sofa 3**

Overheads:

"A" = €/£ 18.56 per direct labour hour x 20 hours = €/£ 371.20

"B" = €/£ 43.50 per direct machine hour x 25 hours = €/£ 1,087.50

"C" = €/£ 13.37 per direct labour hour x 50 hours = €/£ 668.50

Total direct production costs = €/£ 4,500

Total costs = €/£ 6,627.20

Plus 30% mark-up = €/£ 1,988.16

Total price = €/£ 8,615.36

Total quotation price for the hotel = €/£ 31,483.34

The current approach to production overhead allocation suggests that SOFA should submit a quotation to the hotel for €/£ 39,000 which is in excess of the €/£ 35,000 total that the hotel management have already stated is the maximum amount that they are willing to spend on the three unique sofa's.

However, using the departmental approach (which is deemed to be more accurate as it apportions production overheads to each of SOFA's three production departments based on a specific cost driver) - the firm can submit a quotation to the hotel for an amount significantly less than the €/£ 35,000 that they are willing to spend (i.e. €/£ 31,483.34). Therefore, their quotation using the departmental approach stands a reasonable chance of success.

### **Part g)**

Two potential consequences for SOFA of under-absorption would include;

1. Lower sales prices per sofa than would ordinarily be expected (if calculated on a cost plus basis). This may result in increased sales vis-à-vis what competitors are charging for similar sofa's, leading SOFA to incorrectly believe that they are more competitive than they actually are.
2. Reduced profits as the sales price charged per sofa would not reflect the budgeted mark-up expected to be achieved by them (i.e. SOFA would be charging a 30% mark-up based on a reduced cost figure).

**END OF DOCUMENT**