



Academic Year 2019-2020

**Mid-term exam Management Accounting 1 for Economics  
(6012B0456)**

**+ Answers (marked yellow) and brief explanations**

**Date and time of the exam: 27 February 2020, 16.30 – 18.30**

**Duration of the exam: 2 hours**

**Identification:**

You have to identify yourself using your certificate of registration (UvA-identification card) and a valid proof of identity (passport, ID card) with a good resembling photograph. If you cannot identify yourself, access to the exam may be denied. Also, if you are not correctly registered via SIS for the course component, your exam will not be marked and registered.

**Please write your name and student number on every sheet of paper you hand in. Also make sure that you indicate the version number of your exam on your answer sheet! This is version number 1 (one). Exams without a version number will not be graded.**

**Warning against fraud/cheating:**

Students who are caught at any form of fraud/cheating will be punished.

Make sure that your mobile phone is switched off and put away in your briefcase/bag. This also applies for other audio equipment, headphones, digital watches (e.g. I-watches) and other electronic devices. Your briefcase/bag must be closed and placed on the floor beside your table.

**Tools allowed:**

You are allowed to use a normal calculator (not a graphic calculator or mobile phone calculator), and if necessary an unmarked dictionary.

**Bathroom visits:**

Because this an exam of 2 hours, it is not allowed to visit the bathroom during the exam.

**Specific information on this exam:**

The exam consists of 30 multiple choice questions. The exam grade is calculated using a guess correction of 6. Thus, the grade formula is

$$\text{Mid-term grade} = 10 * (\text{number of correct questions} - 6) / 24$$

The grade is set at 1 if this formula leads to a grade below 1. This means that having 8 or fewer good answers results in a grade of 1.0, 20 good answers results in a grade of 5.8, and 21 good answers in a grade of 6.3.

You are not allowed to take home any papers from the exam room. You may write on the exam questions, but hand in the exam questions and any sheets you used for doing calculations.. This exam will be posted on Canvas with the correct answers **after** the grades have been published, so there is no need to memorize your answers for early checking of your results.

cost  
monetary  
cost assignment  
cost object

cost allocation ← indirect cost  
cost tracing  
direct

Before you begin: please fill in your student number and version number on the multiple choice form. Do it now! This is version number 1 (one).

opportunity cost

Q1 Choose the correct definition of a cost object.

- 1 A cost object is a resource sacrificed or forgone to achieve a specific objective. Examples include direct materials, direct labour, and advertising.
- 2 A cost object is a cost incurred (historical or past cost), as distinguished from a budgeted cost, which is a predicted or forecasted cost (a future cost). Examples include materials, labour, and overhead.
- 3 A cost object is anything for which a separate measurement of costs is desired. Examples include a product, a service, and a customer.
- 4 None of the above.

E.g. Week 1 slide 9

Q2 A direct cost is a cost that:

- 1 can be identified in a cost-effective way with a cost object
- 2 is incurred as a direct consequence of a decision
- 3 is charged directly to the operating profit and never included in inventoriable costs
- 4 is always variable: fixed costs are never direct costs

E.g. week 1 slide 11

Q3 The following information is known regarding a production company for the year 2019:

Labor costs	€63,000
Manufacturing overhead costs	€179,500
Direct materials used	€150,000
Finished goods inventory 1 January 2018	€197,500
Finished goods inventory 31 December 2018	€221,000
Work-in-progress inventory 1 January 2018	€96,500
Work-in-progress inventory 31 December 2018	€109,000

What is the cost of goods manufactured in 2019?

- 1 €392,500
- 2 €369,000
- 3 €416,000
- 4 €380,000

Manufacturing costs (63,000 + 179,500 + 150,000) – increase in w-i-p inventory (since these are manufacturing costs incurred this year which did not end up in finished goods: 109,000 – 96,500) = 380,000

cost of manufacturing companies  
cost of goods manufactured – cost of sold finished goods

direct material  
direct labour  
manufacturing overhead

beginning WIP inventory + cost added in this period  
= cost of goods manufactured + ending WIP inventory  
 $96500 + 63000 + 179500 + 150000 = X + 109000$   
 $X = 380000$

$$\text{cost allocation} = \frac{\text{total cost to be allocated}}{\text{number of base}}$$

$$\text{cost allocation base rate} = \frac{\text{total cost to be allocated}}{\text{number of base}}$$

The following setting is used in questions 4 through 7

- Q4 Beta Manufacturing Co (BMC) produces heating radiators for large do-it-yourself chains. It uses a normal costing system with a single overhead cost pool, using machine hours as the cost allocation base. The following data is available:

\* Expected overhead costs in 2018: €4,500,000

\* Expected machine hours in 2018: 50,000

Job Nr 20 is started and completed in April 2018. It requires €40,000 in direct materials costs, €75,000 in direct labor costs, and 400 machine hours. What is the total manufacturing cost of this job?

- 1 €115,000
- 2 €40,000
- 3 €151,000
- 4 €36,000

$$4500000 / 50000 = 90$$

$$90 \times 400 + 40000 + 75000 = 151000$$

Overhead rate 4,500,000/50,000 = 90, allocated to job 400\*90 = 36,000, add 40,000+75,000

- Q5 At the end of 2018, the actual overhead costs of BMC are €4,600,000, and the actual number of machine hours are 52,000 hours. What is the amount of under- or overallocated overhead in 2018?

- 1 €80,000 overallocated
- 2 €180,000 overallocated
- 3 €100,000 underallocated
- 4 €100,000 overallocated

$$52000 \times 90 = 4680000$$

$$4680000 - 4600000 = 80000$$

Allocated: 52,000 hrs \* 90 = 4,680,000, so 80,000 too much

Assume (irrespective of your answer to question 5) that the amount of underallocated overhead over 2018 is €150,000. The following data is known regarding cost of goods sold and inventory at the end of 2018 for BMC:

Cost of goods sold: €11,250,000, for which 41,600 manufacturing hours have been used  
Finished goods: €2,250,000, for which 6,500 manufacturing hours have been used  
Work-in-progress: €1,500,000, for which 3,900 manufacturing hours have been used

- Q6 Using proration based on the allocated overhead amount in the end-of-year balances, the value of the finished goods inventory after proration of the €150,000 in underallocated overhead is

- 1 €2,268,750
- 2 €2,231,250
- 3 €2,272,500
- 4 €2,227,500

Allocated overhead in fin goods: 6,500/(41,600+6,500+3,900) = 12.5%, share of underallocated overhead 12.5% \* 150,000 = 18,750, add to inventory

- Q7 Using proration based on immediate write-off to cost of goods sold, the value of the work-in-progress inventory after proration of the €150,000 in underallocated overhead is

- 1 €1,515,000
- 2 €1,350,000
- 3 €1,650,000
- 4 €1,500,000

All underallocation to COGS, no change to w-i-p

**The following information applies to questions 8 through 10**

Consider the following data of WM Co, a yoghurt producer, for the month of May 2019:

	Litres	Materials costs	Conversion costs
Work-in-process, May 1	60,000	€320,000	€30,000
Degree of completion		100%	30%
Production started in May	410,000		
Production completed in May	420,000		
Ending work-in-process, May 31	50,000		
Degree of completion		100%	80%
Costs added during May		€2,460,000	€1,105,000

As a result, the total costs for producing the completed goods and the ending work-in-process in May is €3,915,000.

Q8 Using the weighted average method of process costing, what is the cost of the closing work-in-process at the end of this month (rounded at €1,000)?

- 1 €400,000
- 2 €394,000
- 3 €99,000
- 4 €296,000

Equivalent units materials:  $420,000 + 50,000 = 470,000$ , so cost per eq unit  $(2,460,000 + 320,000) / 470,000 = 5.91$ , in w-i-p  $50,000 * 5.91 = 295,745$

Equivalent units conversion:  $420,000 + 80\% * 50,000 = 460,000$ , so cost per eq unit  $(1,105,000 + 30,000) / 460,000 = 2.47$ , in w-i-p  $40,000 * 2.47 = 98,695$ , total 394,440

Q9 Using the FIFO method of process costing, what is the amount of equivalent units of conversion costs for which this month's conversion costs of €1,105,000 is incurred (rounded at 1,000 units)?

- 1 431,000 equivalent units
- 2 442,000 equivalent units
- 3 418,000 equivalent units
- 4 470,000 equivalent units

Work on opening w-i-p  $70\% * 60,000$ , started+compl 360,000, closing w-i-p  $80\% * 50,000$

Q10 Using the FIFO method of process costing, what is the value of the direct materials in the cost of the completed output (rounded at €1,000)?

- 1 €2,480,000
- 2 €2,160,000
- 3 €2,780,000
- 4 €2,520,000

Eq units materials:  $410,000$ , per unit  $2,460,000 / 410,000 = 6$ , in completed output  $320,000$  (opening inv) +  $360,000 * 6 = 2,480,000$

Equivalent unit for material =  $470,000 - 60,000 * 100\%$   
under FIFO =  $410,000$

unit cost =  $\frac{1,105,000}{442,000}$   
for conversion

$6 * (420,000 - 60,000) + 320,000 = 2,480,000$

Q11 Which one of the following statements is correct?

- 1 When input prices have increased in a month, the ending work-in-process is valued higher under the FIFO method than under the weighted average method
- 2 When input prices have increased in a month, the ending work-in-process is valued higher under the weighted average method than under the FIFO method
- 3 Differences in the value of the ending work-in-process under the weighted average method and the FIFO method can only occur when completion rates are lower than 100%
- 4 The weighted average method corrects for degree of completion in the input costs, while the FIFO method assumes that units are always fully completed.

Week 1, slide 56

Q12 What is the most appropriate product costing system for a manufacturing organization that makes a small number of unique products, which are different for each client?

- 1 Job costing
- 2 Process costing
- 3 Activity-based costing
- 4 Variable costing

Week 1 slide 23

The following information is relevant for questions 13 through 15

Western Co produces truck trailers for transportation companies. It has four departments, of which Assembly and Finishing are the operating departments, and General and Facilities the support departments. The following data are known:

	Facilities	General	Assembly	Finishing	Total
Department costs (€)	1,500,000	1,200,000	4,000,000	3,000,000	9,700,000
Square meters	500	1,000	2,000	3,000	6,500
Employees	10	20	30	60	120

So the Facilities department has costs of €1,500,000, uses 500 square meters, and has 10 employees. Facilities costs are allocated using square meters as an allocation basis, and General costs are allocated using the number of employees as an allocation basis.

Q13 Using the direct method, what amount of General department costs will be allocated to the Finishing department (rounded at €1,000)?

- 1 €400,000
- 2 €1,200,000
- 3 €600,000
- 4 €800,000

$80 / (30 + 60) * 1,200,000 = 800,000$

Q14 Using the step-down method with General costs allocated first, what is the cost of the Finishing department after allocation of all service department costs (rounded at €1,000)?

- 1 €1,692,000
- 2 €4,692,000
- 3 €4,700,000
- 4 €5,008,000

General to Facilities:  $10 / (10 + 30 + 60) * 1,200,000 = 120,000$ , to Finishing 60% = 720,000

Facilities to Finishing:  $3,000 / (2,000 + 3,000) * (1,500,000 + 120,000) = 972,000$

Finishing:  $3,000,000 + 720,000 + 972,000 = 4,692,000$



Equation method,  
the equivalent amount of General and Facilities be  
Gen and Fac

Q15 Using the reciprocal method, what amount of Facilities costs will be allocated to the Assembly department (rounded at €1,000)?

- 1 €600,000
- 2 €495,000
- 3 €659,000
- 4 €549,000

$$\begin{aligned} \text{Gen} &= 1,200,000 + \frac{1,000}{1,000+2,000+3,000} \times \text{Fac} \quad (1) \\ \text{Fac} &= 1,500,000 + \frac{10}{10+30+60} \times \text{Gen} \quad (2) \end{aligned}$$

$$\text{Fac} = 1,500,000 + (10/(10+30+60)) \times \text{Gen} = 1,500,000 + .1 \times \text{Gen}$$

$$\text{Gen} = 1,200,000 + (1,000/(1,000+2,000+3,000)) \times \text{Fac} = 1,200,000 + .167 \times \text{Fac}$$

$$\text{Fac} = 1,500,000 + .1 (1,200,000 + .167 \times \text{Fac})$$

$$.983 \times \text{Fac} = 1,620,000, \text{ so } \text{Fac} = 1,647,458$$

$$\text{To Assembly: } 2,000/(1,000+2,000+3,000) \times 1,647,458 = 549,153$$

$$\text{Fac} = 1,647,458$$

$$\frac{2,000}{1,000+2,000+3,000} \times 1,647,458$$

Q16 John Jaspers is an Amsterdam-based consultant who is about to leave for a client visit in Rome. A roundtrip ticket Amsterdam - Rome vv costs €750. Just before leaving, his manager informs him that after his job in Rome he has to continue to Athens for another client. The combined ticket Amsterdam - Rome - Athens - Amsterdam costs €1,100. A roundtrip to Athens from Amsterdam vv would cost €900. Using the stand-alone method to allocate common costs, what are the costs allocated to the Athens client?

- 1 €900
- 2 €1,100
- 3 €200
- 4 €600

stand alone method → original value  
as allocation base

$$1,100 \times \frac{900}{900+750} = 600$$

$$900/(750+900) \times 1,100 = 600, \text{ week 2, slide 22}$$

The following information applies to questions 17 and 18

Seoul Tomato Group (STG) buys tomatoes and processes them into canned peeled tomatoes and ketchup. Each 1000 kgs of tomatoes it buys results in 500 kgs of canned tomatoes, and 200 kgs ketchup. The remaining 300 kgs is lost during the joint process. The cost of 1000 kgs of tomatoes is €550 and the joint processing costs are €350, so the joint costs before the split-off point are €900. After the split-off point, specific costs are incurred for the canned tomatoes of €0.30 per kg, and for ketchup of €1.50 per kg. A kilogram of canned tomatoes sells for €1.50, and a kilogram of ketchup for €3.50.

Q17 Using the net realizable value as a basis for allocating the joint costs, what is the profit for the 500 kg of canned tomatoes that is produced from 1000 kg tomatoes?

- 1 €100
- 2 €60
- 3 €40
- 4 €52

Joint cost allocation Net realizable value  
= sale revenue - specific cost.

$$\text{NRV tom: } 500 \times (1.50 - 0.30) = 600, \text{ ketchup } 200 \times (3.50 - 1.50) = 400, \text{ so joint costs allocated to tom } 600/(600+400) \times 900 = 540, \text{ profit } 600 - 540 = 60$$

1000kg tomato — 500kg canned tomato  
=  $1.5 \times 500 - 0.3 \times 500 = 600$

200kg ketchup  
=  $200 \times (3.5 - 1.5) = 400$

900 ×  $\frac{600}{600+400} = 540$  Profit = NRV - Joint cost  
=  $600 - 540 = 60$

Whether to further process or not. relevant cost  
relevant value,

Q18 By further processing, STG can upgrade the quality of both canned tomatoes and ketchup. For canned tomatoes, an extra step costing €0.60 per kg (in addition to the current specific costs per kg of €0.30) will lead to a market price of €2.00 per kg of canned tomatoes. For ketchup, an extra step costing of €0.75 per kg (in addition to the current specific costs of €1.50 per kg) will lead to a market price of €4.50 per kg of ketchup. What should STG do regarding these upgrading possibilities?

Do not implement the canned tomatoes upgrade, do implement the ketchup upgrade

2 Do not implement the canned tomatoes upgrade, and also do not implement the ketchup upgrade

3 Implement the canned tomatoes upgrade, do not implement the ketchup upgrade

4 Implement the canned tomatoes upgrade, and also implement the ketchup upgrade

Incremental revenue tom  $2.00 - 1.50 = 0.50$ , incremental costs  $0.60$ , don't do it

Incremental revenues ketchup  $4.50 - 3.50 = 1.00$ , incremental costs  $0.75$ , do it

Q19 Why does absorption costing potentially result in an increased profit?

1 Since fixed costs are included in the unit cost, the unit cost decreases when production volume increases.

2 Fixed costs may be transferred to the inventory.

3 Since unit costs are higher, a firm can charge higher prices for its product.

4 It reduces product cost in the short term, as fixed costs are excluded.

Week 2 slide 46

The following information applies to question 20 and 21

Milano Motor produces motorcycles. It has a normal production level of 500 units per month, fixed costs of €1,000,000 per month, and variable cost per unit of €1,700 per unit. For the month of February 2020, actual production is 450 units, while sales equals 410 units. A motorcycle has a selling price of €4,500

Q20 What is the operating profit over February 2020 (rounded at €1,000) if Milano Motor uses variable costing?

1 €1,148,000

2 €148,000

3 €260,000

4 €228,000

Rev  $410 \times 4,500 = 1,845,000$ , var costs goods sold  $697,000$ , fixed  $1,000,000$ , so  $148,000$

Q21 What is the operating profit over February 2020 (rounded at €1,000) if Milano Motor uses absorption costing with a normal costing approach?

1 €80,000

2 €228,000

3 €237,000

4 €328,000

Unit cost  $1,700 + (1,000,000/500) = 3,700$ . Rev  $1,845,000$ , cost of goods sold  $410 \times 3,700 = 1,517,000$ , production volume variance  $50 \times 2,000 = 100,000$  unfavorable, so  $228,000$

Shortcut formula: operating profit under absorption method  
 $= \text{operating profit under variable costing} + \text{fixed cost in the inventory}$   
 $= 148,000 + 40 \times \frac{1,000,000}{500} = 228,000$

theoretical capacity

Q22 Which of the following denominator-level capacity concepts *both* emphasise the output customers demand for products produced by a plant, rather than the output the plant can supply?

- 1 The theoretical capacity and the practical capacity
  - 2 The theoretical capacity and the master-budget capacity
  - 3 The normal capacity and the practical capacity
  - 4 The normal capacity and the master-budget capacity
- Week 2 slide 48

average demand

peak demand

follow the demand

Q23 A company requires 600 kg of raw material Z for a contract it is evaluating. It has 400 kgs of material Z in stock which were purchased last month. Since then, the purchase price of Z has risen by 8% to €27 per kg. Z is used regularly by the company in normal production. What is the total relevant cost of Z for the contract?

- 1 €15,400
- 2 €5,400
- 3 €16,200
- 4 €15,000

$$600 \times 27$$

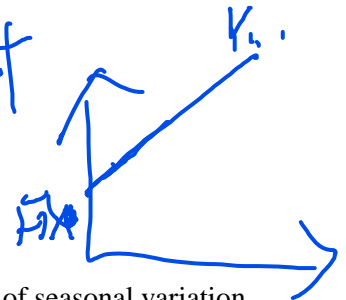
Replenish all used materials at market price:  $600 \times 27 = 16,200$ , since it's needed for regular production

Q24 Which of the following is an assumption of CVP analysis?

- 1 Total costs and revenues are equal
- 2 Output is the only cost and revenue driver
- 3 All variable costs are excluded
- 4 Total costs and revenues display a non-linear behaviour

Week 3 slide 11

break even profit



Q25 Ms Johnston runs a restaurant in a tourist area of Haarlem, with a lot of seasonal variation. The following information available regarding revenues and profits for each quarter of the year 2019:

	Revenues	Profit / loss
Quarter 1	€50,000	€-2,500
Quarter 2	€70,000	€4,500
Quarter 3	€100,000	€15,000
Quarter 4	€80,000	€8,000
Total	€300,000	€25,000

Fixed cost  
Contribution margin

fixed cost each quarter is the same

So in the first quarter, there was a loss of €2,500 on revenues of €50,000, while for the whole year profits were €25,000 on revenues of €300,000. What is the break-even sales (rounded at €1,000) per year for Ms Johnston's restaurant?

- 1 €80,000
- 2 €229,000
- 3 €0
- 4 €275,000

$$\text{Contribution margin} = \frac{4500 - (-2500)}{10000 - 5000} = \frac{7000}{5000} = 35\%$$

Change Q1-Q2: rev +20,000, profit +7,000, contribution margin on sales  $7,000/20,000 = 35\%$

In Q1: contribution =  $35\% \times 50,000 = 17,500$ , loss 2,500, fixed costs must be 20,000 per Q

Break-even sales =  $20,000/35\% = 57,143$  per Q, so 228,571 per year

$$50000 \times 35\% = 17500 - \text{Fixed cost} = -2500$$

$$\text{Fixed cost} = 20000$$

$$20000 / 35\% = 57143 \times 4 = 228571$$



Q26 Ms Johnston is aiming for an additional restaurant, where she wants to offer lunch menus in addition to evening menus. She estimates that this new location will involve fixed costs of € 100,000 per year. A lunch menu will generate €7 in contribution margin, and an evening menu €13. Ms Johnstone expects a mix of 40% lunch menus and 60% evening menus. How many lunch menus will be sold at the break-even point?

- 1 3,774
- 2 5,714
- 3 2,000
- 4 14,286

Average contribution at constant mix:  $40\% \times 7 + 60\% \times 13 = 10.60$ , break-even sales  $100,000 / 10.60 = 9,434$ , of which 40% lunch = 3,774

fixed cost  
contribution margin  
lunch menu.  
evening menu.

$$0.4 \times 7 + 0.6 \times 13 = 10.6$$

Q27 A company has three shops (R, S, and T) with the following budgets (in €1,000):

	R	S	T	Total
Sales	400	500	600	1,500
Variable costs	300	440	480	1,220
Fixed costs	60	70	70	200
Profit/loss	40	-10	50	80

Of the total fixed costs of €200,000, 60% is general company overheads, and these are allocated to the shops based on sales value. The other fixed costs are shop-specific and will be avoided if a shop closes down. If shop S is closed down, what will be the revised budgeted profit for the company as a whole?

- 1 €90,000
- 2 €60,000
- 3 €50,000
- 4 €70,000

$$60\% \times 200,000 = 120,000$$

$$120,000 \times \frac{500}{500 + 400 + 600} = 40,000$$

Allocated fixed overheads to stores:  $60\% \times 200 = 120$ , of which  $500 / (400 + 500 + 600) = 33\%$  to S = 40,000. So store-specific fixed costs for S are  $70 - 40 = 30$ . New sales  $1,500 - 500 = 1,000$ , new var costs  $1,220 - 440 = 780$ , new fixed costs  $200 - 30 = 170$ , new profit = 50

relevant cost relevant revenue

$$100,000 / 10.6 = 9,434$$

$$9,434 \times 40\% = 3,774$$

$$120,000 \times \frac{500}{500 + 400 + 600} = 40,000$$

$$70 - 40 = 30$$

**The following information applies to question 28 and 29**

A company has the following production planned for the next four weeks. The planned production is equal to the maximum demand for each product.

	A	B	C	D
Selling price	€160	€214	€100	€140
Raw material X	€48	€74	€46	€58
Direct labor costs	€66	€88	€33	€22
Fixed costs (allocated)	€24	€10	€8	€12
Profit	€22	€42	€13	€48
Planned production (units)	300	125	240	400
Direct labor hours per unit	6	8	3	2

*Constraint  
Contribution margin  
per constraint  
factor.*

Q28 Part of the direct labour force is threatening to go on strike in the next four weeks, reducing the available hours to 1,500 instead of the usual 4,320. If the strike goes ahead, which product or products should be produced to maximize the profit over this period? Remember that the planned production equals the maximum sales in the next four weeks.

- 1 D only
- 2 B and D
- 3 A and D
- 4 B and C

$$160 - 48 - 66 = 46 \quad 46/6$$

Contribution margin per unit = price minus (materials+direct labor), then calculate contr margin per labor hour as bottleneck

A:  $46/6 = 7.66$ , B:  $52/8 = 6.5$ , C:  $21/3 = 7$ , D:  $60/2 = 30$ . First D for 800 hours, then 700 hours for A

Q29 After negotiating with the employees, the company has managed to avoid a strike. However, a different problem has turned up: the material X used in producing the products is in short supply, and it is likely that the planned production cannot be met. All products use the same material X as input. Which product should receive priority from a financial perspective if there will be a shortage in material X?

- 1 A
- 2 B
- 3 C
- 4 D

Contr marg per euro of X: A:  $46/48 = .96$ , B:  $52/74 = .70$ , C:  $21/46 = .46$ , D:  $60/58 = 1.03$ , so D

Q30 One-time only orders should only be accepted if

- 1 There are no opportunity costs
- 2 Incremental revenues exceed fixed costs.
- 3 Total revenues exceed total costs.
- 4 Incremental revenues exceed incremental costs.

Week 3, slide 39

**This is the end of the exam.**

**Before you hand in your answer form and go home: did you fill in your student number and version number on the multiple choice form? This is version number 1 (one).**