

Accounting Department

Management Accounting I

MANAGEMENT

EXERCISE - BOOK 1

SOLUTIONS – EXERCISES 1 TO 5

School Year 2014/2015

EXERCISE 1 – PRODP Company

FIFO

a) Consumption and closing stock of the material M

Description	Quantity	Unit Cost	Value (€)
Opening stock	525	8	4 200€
+ Purchases	3 750	8.4	31 500€
- Consumption	4 000		33 390€
= Closing stock	275	8.4	2 310€

Consumption Material M = $525 \times 8 + 3\,475 \times 8.4 \text{ €} = 33\,390\text{€}$

b) Sales cost of P

c) Closing stock of the finished product P

Description	Quantity	Unit Cost	Value (€)
Opening stock	600	29	17 400€
+ Production	2 000	30	60 000€
- Sales	2 500		74 400€
= Closing stock	100	30	3 000€

MCPS = $600 \times 29 + 1\,900 \times 30 = 74\,400\text{€}$

LIFO

a) Consumption and closing stock of the material M

Description	Quantity	Unit Cost	Value (€)
Opening stock	525	8	4 200€
+ Purchases	3 750	8.4	31 500€
- Consumption	4 000		33 500€
= Closing stock	275	8	2 200€

Consumption Material M = $3\,750 \times 8.4 + 250 \times 8 = 33\,500\text{€}$

b) Sales cost of P

c) Closing stock of the finished product P

Description	Quantity	Unit Cost	Value (€)
Opening stock	600	29	17 400€
+ Production	2 000	30	60 000€
- Sales	2 500		74 500€
= Closing stock	100	29	2 900€

MCPS = $2\,000 \times 30 + 500 \times 29 = 74\,500$

WEIGHTED AVERAGE COST

a) Consumption and closing stock of the material M

$$\text{WAC} = (4\,200 + 31\,500) / 4\,275 = 8.35$$

Description	Quantity	Unit Cost	Value (€)
Opening stock	525	8	4 200€
+ Purchases	3 750	8.4	31 500€
- Consumption	4 000	8.35	33 400€
= Closing stock	275	8.35	2 296.25€

$$\text{Consumption Material M} = 4\,000 \times 8.35 = 33\,400$$

b) Sales cost of P

c) Closing stock of the finished product P

$$\text{WAC} = (17\,400 + 60\,000) / 2\,600 = 29.769$$

Description	Quantity	Unit Cost	Value (€)
Opening stock	600	29	17 400€
+ Production	2 000	30	60 000€
- Sales	2 500		74 423.08€
= Closing stock	100	29	2 976.92€

$$\text{MCPS of P} = 2\,500 (17\,400 + 60\,000 / 2\,600) = 74\,423.08$$

EXERCISE 2 – FACE company

LIFO

1. Consumption of the raw material M1

Description	Quantity	Unit Cost	Value (€)
Opening stock	2 000	30	60 000€
+ Purchases	10 000	36	360 000€
- Consumption	10 400		372 000€
= Closing stock	1600	30	48 000€

Consumption (Q) = 10 000 + 2 000 – 1 600 = 10 400

2. Manufacturing overheads of the month

Description	Value (€)
Consumption Other Materials	1 600€
Consumption of electricity	6 800€
Depreciation	4 600€
Total	13 000€

3. Conversion cost of the production

Conversion cost = DL + MO = 72 000 + 13 000 = 85 000€

4. Manufacturing cost of the finished product

Description	Value (€)
Opening stock PiP	2 800€
+ MCMP	457 000€
- Closing stock PiP	4 200€
= MCFP	455 600€

5. Value of the closing stocks of finished products

6. Manufacturing cost of the products sold

Description	Quantity	Unit Cost	Value (€)
Opening stock FP	800	140	112 000€
+ Production	4 000	113.9	455 600€
- Sales	4 200		483 600€
= Closing stock FP	600	140	84 000€

600 = 800 + Production – 4 200 (=) Production (Q) = 4 000

Unit MCFP = 455 600/4000 = 113.9

MCPS = 4 000 x 113.9 + 200 x 140 = 483 600€

7. Gross profit

Description	
Net sales	4200 x 200= 840 000 =
- MCPS	483 600 €
= Gross profit	356 400€

EXERCISE 3 – HAPPY company

Prepare the Profit and Loss Statements per natures and per functions

1. Calculation of the unit MCFP

$$\text{MCMP} = \text{RM} + \text{CC}$$

$$\text{RM} = 29\,425 - 1\,425 = 28\,000\text{€}$$

$$\text{CC} = 1\,425 + 9\,820 + 10\,000 \times 1.6 + 5\,405 = 32\,650\text{ €}$$

$$\text{MCMP} = \text{MCFP} = 28\,000 + 32\,650 = 60\,650\text{€}$$

$$\text{Unit MCFP} = 60\,650 / 7\,250 = 8.3655$$

2.Preparing P&L Stat. Per Functions

$$\text{MCPS} = 1\,500 \times 8.5 + (8\,000 - 1\,500) \times 8.3655 = 67\,125.75\text{ €}$$

Description	Sales 8 000 units	Supporting Calculations
Sales	96 000.00	8 000*12
MCPS	67 125.75	
Subtotal	28 874.25	
NPMC	0	
Gross Profit	28 874.25	
Selling (distribution) expenses	14 500.00	11 860 + 4 400 X 0.6
Administrative expenses	11 500.00	9 340 + 3 600 X 0.6
Operational profit	2 874.25	
Financial expenses	4 520	
Profit before Taxes	(1 645.75)	

Preparing the P&L Statement per Natures

Profits and Expenses	Value (€)	Supporting Calculations
Sales and services rendered	96 000	
Variation in the stocks of the production	- 6 475.875	
Closing Stocks Finished Product		6 274.125= 750x8.3655
Opening Stocks Finished Product		12 750 = 1 500x8.50
Cost of goods sold and of materials consumed	32 200	
Supplies and external services	14 720	
Expenses with personnel	28 800	
Stocks valuation		
Impairment		
Increases/reductions of fair value		
Other income		
Other expenses and losses		
Earnings before interests, taxes, depreciation and amortization (EBITDA)	13 804.125	
Depreciation and amortization	10 930	
Operational profit or earnings before interests and taxes (EBIT)	2 874.125	
Financial income		
Financial expenses	4 520	
Profits (earnings) before taxes	(1 645.875)	

EXERCISE 4 – FIXE COMPANY

1. Ascertain the global and unit cost of the finished production

MCMP = DM + DL + MO (Manufacturing overheads)

$$= 35\,000 + 23\,040 + (400 + 2\,200 + 1\,030 + 3\,600) = 65\,270$$

Consumption (Q) = 6 000 + 4 000 – 2 000 = 8 000 Ton

Consumption (V) = 4 000 x 4.75 + 4 000 x 4 = 35 000

MCFP = MCMP + Opening Stock PiP – Closing Stock PiP

$$= 65\,270 + 3\,600 - 4\,780 = 64\,000 \Rightarrow \text{unit MCFP} = 64\,000 / 8\,000 = 8\text{€/Ton}$$

2. Prepare the Profit and Loss Statement per natures and per functions

P&L Statement per Natures

Income and Expenses	Values (€)	
Sales and services rendered		120 000
Variation in the production stocks		(13 130)
Closing Stocks Finished Product	18 000 = 2 500x7.2	
Opening Stocks Finished Product	32 400 = 4 500x7.2	
Closing Stock PiP	4 870	
Opening Stock PiP	3 600	
Cost of goods sold and of materials consumed		35 400
Supplies and external services		3 250
Expenses with personnel		58 880
Other expenses and losses		1 900
Earnings before interests, taxes, depreciation and amortization (EBITDA)		7 440
Depreciation and amortization		6 900
Operational profit (Earnings before interests and taxes - EBIT)		540
Financial income		
Financial expenses		1 300
Profits (Earnings) before taxes		(760)

P&L Statement per Functions

Description	Sales 10 000 units	
Sales	120 000	
MCPS	78 400	=8 000x8 + 2 000x7.2
Subtotal	41 600	
NPMC	0	
Gross Profit	41 600	
Selling (distribution) expenses	20 790	
Administrative expenses	20 270	
Operational profit	540	
Financial expenses	1 300	
Profits before Taxes	(760)	

EXERCISE 5 –LIVING company

Prepare the Profit & Loss Statement per natures and per functions

$$\text{MCMP} = \text{RM} + \text{Conversion Cost}$$

$$\text{Quantities consumed} = 1\,000 + 2\,000 - 450 = 2\,550 \text{ tons}$$

$$\text{Raw Materials consumed} = 1\,000 \text{ tons} \times 25 + 1\,550 \times 20 = 25\,000 + 31\,000 = 56\,000 \text{ €}$$

$$\text{Conversion Costs} = 20\,000 \times 1.6 + 3\,550 + 21\,640 + 12\,810 = 32\,000 + 38\,000 = 70\,000 \text{ €}$$

$$\text{MCMP} = 56\,000 + 70\,000 = 126\,000 \text{ €}$$

$$\text{MCFP} = 126\,000 + 14\,000 - 5\,000 = 135\,000 \text{ €}$$

$$\text{Unit MCFP} = 135\,000 / 7\,500 = 18 \text{ €/Unit}$$

Preparation of the P&L Statement per Functions

Description	Sales 8 000 units	Supporting Calculations
Sales	200 000.00	8 000 x 25
MCPS	142 500.00	15 000x17+6 500x18 = 142 500 €
Subtotal	57 500.00	
NPMC	0	
Gross Profit	57 500.00	
Selling (distribution) expenses	29 320.00	4 250+5 180+9 000x1.6+5 490
Administrative expenses	22 680.00	1 300+4 620+7 000x1.6+5 560
Operational Profit	5 500.00	
Financial expenses	10 000.00	
Profits before taxes	(4 500.00)	

Preparation of the P&L Statement per Natures

Income and Expenses	Values (€)	Supporting Calculations
Sales and services rendered	200 000.00	
Variation in the stocks of the production of FP	-7 500.00	
Closing Stocks of FP		$(1\,500 + 7\,500 - 8\,000) \times 18 = 1\,000 \times 18 = 18\,000 \text{ €}$
Opening Stocks of FP		$1\,500 \times 17 = 25\,500 \text{ €}$
Variation in the stocks of the PiP	-9 000.00	$5\,000 - 14\,000$
Cost of goods sold and of materials consumed	65 100.00	$56\,000 + 9\,100 = 65\,100 \text{ €}$
Supplies and external services	31 440.00	
Expenses with employees	57 600.00	$36\,000 \times 1.6$
Earnings before interests, taxes, depreciation and amortization (EBITDA)	29 360.00	
Depreciation and amortization	23 860.00	
Operational profit (Earnings before interests and taxes - EBIT)	5 500.00	
Interests (financial expenses)	10 000.00	
Profits before taxes	(4 500.00)	

EXERCISE 6 – WSF Company

1. Identify the costing system

The only value which is different among the several profit and loss statements is the **Sales Cost (MCPS+NPMC)**.

MCPS and NPMC are ascertained using the several costing systems:

Variable Costing System:

$$\text{MCPS} = 1\,140\,000 / 15\,200\,000 * 15\,000\,000 = 1\,125\,000$$

$$\text{NPMC} = \text{Manufacturing fixed costs of the period} = 532\,000$$

$$\text{Total (MCPS+NPMC)} \qquad \qquad \qquad 1\,657\,000 \qquad \qquad \qquad \text{P\&L Stat. C}$$

Absorption Costing System:

$$\text{MCPS} = (1\,140\,000 + 532\,000) / 15\,200\,000 * 15\,000\,000 = 1\,650\,000$$

$$\text{NPMC} = \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad 0$$

$$\text{Total (MCPS+NPMC)} \qquad \qquad \qquad 1\,650\,000 \qquad \qquad \qquad \text{P\&L Stat. B}$$

Rational Costing System:

$$\text{MCFP} = 1\,140\,000 + 532\,000 * (15\,200\,000 / 19\,000\,000)$$

$$= 1\,140\,000 + 532\,000 * 0.8 = 1\,565\,600$$

$$\text{MCPS} = 1\,565\,600 / 15\,200\,000 * 15\,000\,000 = 1\,545\,000$$

$$\text{NPMC} = 532\,000 * 0.2 = \qquad \qquad \qquad 106\,400$$

$$\text{Total (MCPS+NPMC)} \qquad \qquad \qquad 1\,651\,400 \qquad \qquad \qquad \text{P\&L Stat. A}$$

2. Justification of the profits difference

2.1 Using the notion of fixed costs incorporated in the P&L Statement

	RC System	AC System	VC System
Manufacturing Costs incorporated in P&L Stat.			
In MCPS	420 000	525 000	0
In NPMC	106 400	0	532 000
Total	526 400	525 000	532 000
Dif. Manuf. Fixed costs	+1 400	0	+7 000
Dif. in Gross Profit	-1 400	0	-7 000

$$\text{AC System} = 532\,000 / 15\,200\,000 * 15\,000\,000 = 525\,000$$

RC System = $(532\,000 \cdot 0.8) / 15\,200\,000 \cdot 15\,000\,000 = 420\,000$

VC System = 0

2.2 Using the valuation of the stocks variation

On the other hand the closing stocks present different valuations, taking into account MCFP ascertained according to the different costing systems. The following table shows the direct relation between the stocks variation and the profit:

	RC System	AC System	VC System
Difference in the Gross Profit	-1 400	0	-7 000
Valuation Closing stock	20 600	22 000	15 000
Dif. in the stock valuation	-1 400	0	-7 000

Opening stock of finished products: There was not.

Production: 15 200 000

Sales: 15 000 000

Closing stock: 200 000 l

AC System = $(1\,140\,000 + 532\,000) / 15\,200\,000 \cdot 200\,000 = 22\,000$

RC System = $1\,565\,600 / 15\,200\,000 \cdot 200\,000 = 20\,600$

VC System = $1\,140\,000 / 15\,200\,000 \cdot 200\,000 = 15\,000$

EXERCISE 7 – SABOR Company

1. Prepare the profit and loss statements per functions using the rational costing system and the variable costing system.

Supporting calculations

Description	RC System	VC System
Variable manuf. costs	216 000	216 000
Fixed manuf. costs	18 000	0
MCFP	234 000	216 000
Quantity produced	1 800	1 800
Unit MCFP	130	120
Quantity sold	1 500	1 500
MCPS	195 000	180 000
NPMC	12 000	30 000

P&L Statements

Description	RC System	VC System
Sales	450 000	450 000
MCPS	195 000 ⁽¹⁾	180 000 ⁽²⁾
Subtotal	255 000	270 000
NPMC	12 000	30 000
Gross Profit	243 000	240 000
Selling (distribution) expenses		
• Variable	45 000	45 000
• Fixed	15 000	15 000
Administrative expenses	10 500	10 500
Operational profit	172 500	169 500
Financial expenses	4 500	4 500
Profit before taxes	168 000	165 000

$$AP/NP = 1\,800 / 3\,000 = 0.6$$

2. **Justify, taking into account the notion of fixed costs, the difference of profits obtained in the previous paragraph.**

- Using the manufacturing fixed costs incorporated in the P&L Statements

	RC System	VC System
In MCPS	15 000 ⁽¹⁾	0
In NPMC	12 000	30 000
Total	27 000	30 000
Dif. fixed manuf. costs	0	+3 000
Dif. in Gross Profit	0	-3 000

⁽¹⁾(30 000x0.6/1 800)x11 500

3. **Ascertain the value of MCPS and of NPMC using the absorption costing system**

Description	AC System
Variable manuf. Costs	216 000
Fixed manuf. Costs	30 000
MCPS	246 000
Quantity Produced	1 800
Unit MCFP	136.67
Quantity sold	1 500
MCPS	205 000
NPMC	0

EXERCISE 8 – WIND Company

1. CVP equation

$$P = 12 \times 21\,000 - (5+1) \times 21\,000 - (90\,000 + 20\,000 + 10\,000) = 6\,000 \text{ €}$$

2. Break-even point

$$Q' = 120\,000 / (12-6) = 20\,000$$

3. Using the CVP equation, calculate the number of units that must be sold to reach a profit before taxes of 3 000 €

$$3\,000 = (12Q - 6Q) - 120\,000 \quad (=) \quad Q = 20\,500$$

$$EP = (Q - Q') \times m \quad (=) \quad 3\,000 = (Q - 20\,000) \times 6 \quad (=) \quad Q = 20\,500$$

4. Ascertain the Margin of Safety of the current sales level and explain its meaning

$$MS = (21\,000 - 20\,000) / 20\,000 = 5\%$$

EXERCISE 9 – GOODLUCK Company

Question 1

Description	AC System	VC System
Sales	500 000	500 000
MCPS	400 000	200 000
Subtotal	100 000	300 000
NPMC	0	240 000
Gross Profit	100 000	60 000
Selling (distribution) expenses		
Variable	30 000	30 000
Fixed	16 000	16 000
Administrative expenses	12 000	12 000
Operational profit	42 000	2 000
Financial expenses	15 500	15 500
Profit before taxes	26 500	-13 500

$$aP/nP = 12\,000/16\,000 = 0.75$$

$$\text{Fixed manufacturing Costs of the month} = 60\,000/0.25 = 240\,000 \text{ €}$$

$$350\,000 = 10\,000 \times \text{variab. manuf. cost} + (240\,000 \times 0.75)/12\,000 \times 10\,000 \Rightarrow \text{variab.}$$

$$\text{manuf. cost} = 20 \text{ €/}$$

$$\text{MCFP (AC System)} = 12\,000 \times 20 + 240\,000 = 480\,000 \text{ €}$$

$$\text{Unit MCFP (AC System)} = 480\,000 / 12\,000 = 40 \text{ €/}$$

$$\text{MCPS (AC System)} = 10\,000 \times 40 = 400\,000 \text{ €}$$

Question 2

	AC System	VC System	RC System
Fixed manuf. costs incorporated in P&Loss Statement			
In MCPS	$240\,000/12\,000) \times 10\,000 = 200\,000$	0	$150\,000 = 0.75 \times (240\,000/12\,000) \times 10\,000$
In NPMC	0	240 000	60 000
Total	200 000	240 000	210 000
Dif. Fixed manuf. costs		-40 000	-10 000
Dif. in Gross Profit		+ 40 000 = 26 500 – (-13 000)	+ 10 000 = 26 500 – 16 500

	AC System	RC System	VC System
Difference in Gross Profit	0	+10 000	+40 000
Valuation of the closing stock	$2\,000 \times 40 = 80\,000$	$2\,000 \times 35 = 70\,000$	$2\,000 \times 20 = 40\,000$
Difference in the valuation of stocks		$10\,000 = 240\,000 \times 0.25 / 12\,000 \times 2\,000$	$40\,000 = 240\,000/12\,000 \times 2\,000$

Question 3

$$Q^* = (240\,000 + 16\,000 + 12\,000 + 15\,500) / 50 - (20 + 3) = 283\,500 / 27 = 10\,500 \text{ units}$$

$$MS = 10\,000 - 10\,500 / 10\,500 = -4.76\%$$

Question 4

$$EP = (12\,000 - 10\,500) \times 27 = 40\,500 \text{ €}$$

Question 5

$$2\,500 + 12\,000 = 14\,500 \Rightarrow \text{in the standard (installed) capacity}$$

$$\text{Margin} = 35 - (20 \times 1.2 + 3 \times 1.25) = 35 - 27.75 = 7.25$$

EXERCISE 10 – PLASTIC company

Question 1

P&L Statement per Functions

Description	Absorption Costing System (€)	Variable Costing System (€)
Sales	72 000	72 000
MCPS + NPMC	36 000	39 000
Gross Profit	36 000	33 000
Selling (Distribution) Expenses		
Variable	6 000	6 000
Fixed	8 000	8 000
Administrative Expenses (Fixed)	5 000	5 000
Financial Expenses (Fixed)	7 000	7 000
Profit Before Taxes	10 000	7 000

Quantities sold = $72\,000/60 = 1\,200$ Units

Quantities produced = $1\,200 + 300 = 1\,500$ Units

Absorption Costing System

MCFP = $18\,000 + 12\,000 + 15\,000 = 45\,000$ €

MCPS = $45\,000/1\,500 \times 1\,200 = 36\,000$ €

NPMC = 0

Variable Costing System

MCFP = $18\,000 + 12\,000 = 30\,000$ €

MCPS = $30\,000/1\,500 \times 1\,200 = 24\,000$ €

NPMC = $15\,000$ €

Question 2

	Absorption Costing System	Rational Costing System
Manufacturing fixed costs:		
In MCPS	(1) 12 000	(2) 9 600
In NPMC	0	(3) 3 000
Total	12 000	12 600
Dif. Manufacturing fixed costs	0	-600
Gross Profit	36 000	35 400
Dif. in the Gross Profit	0	+600

(1) $15\,000 / 1\,500 \times 1\,200 = 12\,000 \text{ €}$

(2) $15\,000 \times 0.8 / 1\,500 \times 1\,200 = 9\,600 \text{ €}$

(3) $15\,000 \times 0.2 = 3\,000 \text{ €}$

Question 3

$Q' = FC/m$
$m = \text{selling price} - \text{unit variable cost} = 60 - 25 = 35 \text{ €/Unit}$
$vc = \text{manuf.} + \text{non-manuf.} = (18\,000 + 12\,000) / 1\,500 + 6\,000 / 1\,200 = 20 + 5 = 25 \text{ €/Unit}$
$FC = 15\,000 + 8\,000 + 5\,000 + 7\,000 = 35\,000$
$Q' = 35\,000 / 35 = 1\,000 \text{ units}$
$\text{Margin of Safety} = (1\,200 - 1\,000) / 1\,000 \times 100 = 20\%$

Question 4

Estimated Profit = $(1\,500 - 1\,000) \times 35 = 17\,500 \text{ €}$
or
Estimated Profit = $1\,500 \times 60 - 1\,500 \times 25 - 35\,000 \text{ €} = 17\,500 \text{ €}$
$Q' = 800 \text{ Units} \rightarrow 800 = 35\,000 / \text{Sell.Pr.} - 25 \rightarrow \text{Selling Price} = 68.75 \text{ €/Unit}$

Question 5

Normal production = $1\,500 / 0.8 = 1\,875 \text{ Units}$
Current production + new production = $1\,500 + 250 = 1\,750 \text{ Units} < \text{Normal production}$
Contribution margin for isolated order = $50 - (25 + 2) = 23 \text{ €/Unit}$; therefore the company should accept this business