


Item 1

 Calculator

PART I

Pear is a tech manufacturer company for children, which sells two types of toys (Aphone and Apad), some components of the company's P&L for the month of January 2025 was as follows:

	Aphone	Apad	Pear Company
Sales	100,000 €	36,000 €	136,000 €
Direct materials	40,000 €	16,000 €	56,000 €
Conversion Costs	?	?	?
Gross Profit	?	?	?
Selling Costs			34,000 €
G&A Costs			24,000 €
Financial costs			10,000 €
PBT			?

- Selling price of Aphone: 10 €; Selling price of Apad: 9 €

Current indirect costs	€
Miscellaneous	30,000
Personnel costs*	19,125
Depreciation costs	10,000

Costs	Manufacturing Costs	Selling Costs	General and Administrative Costs
Miscellaneous	65%	15%	5%
Personnel costs	60%	15%	25%
Depreciation costs	80%	10%	10%

*Personnel costs include real social charges in the period of 27,5%, however theoretical social charges are 50%.

Assignment:

1. How much is the difference in profits between P&L by Financial Accounting and P&L by function. Explain this difference and calculate the personnel costs with the theoretical social charges.

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**2. Assume that personnel costs with theoretical social charges are 25,000€.
Assuming the company uses a blanket rate for conversion costs based on the
units sold, calculate the Overhead rate to be used in the COGM computation.**


ANSWER ON PAPER

3. Now, assume the budget overhead rate for January is 2.5€. Present the P&L.

***If you were not able to compute 1.2 assume the actual overhead rate is 3€.**

ANSWER ON PAPER

Item 2

 Calculator

Multiple choice questions include a **penalty for wrong answers (-0.2)**, but no justification is required. For each question, there is one and **only one correct answer**.

A company switches from traditional costing to activity-based costing (ABC). It notices that some products now appear much more expensive to produce than before. The most likely reason for this is:

- ☒ ABC assigns overhead more accurately based on actual resource consumption ✓
- ☐ Traditional costing underestimates direct material costs
- ☐ The company made an error when transitioning costing systems
- ☐ ABC eliminates all indirect costs, making the products seem costlier
- ☐ None of the others

Which of the following is **most likely** to use a **hybrid** costing system?

- ☐ A custom furniture manufacturer
- ☐ A petroleum refinery
- ☒ A car manufacturing plant using customization ✓
- ☐ A legal consulting firm
- ☐ None of the others

A company is evaluating different costing methods. From which of the following circumstances would it benefit the most from adopting a traditional costing system?

- ☒ The company produces a single standardized product with uniform production requirements. ✓
- ☐ The company manufactures customized products with highly variable overhead consumption.
- ☐ Overhead costs are high and include diverse activities such as engineering, setup, and material handling.
- ☐ The company has different cost drivers, and overhead is a significant portion of total costs.
- ☐ The company operates in a lean manufacturing environment with minimal direct labour involvement.
- ☐ None of the others

Águias Da Luz is a Portuguese-based company that dedicates its activity to selling merchandise and tickets to sport events. After buying the merchandise from its suppliers, Águias Da Luz allows for a personalization of the different merchandise. Keeping this in mind, the company had several types of costs in March with merchandise disclosed below:

Merchandise items	T-shirts (units)	Scarfs (units)
Opening Stock	3,000 at 15€ p/ unit	10,000 at 5€ p/ unit
Sales	5,000	20,000
Closing Stock	2,000	12,000
Cost of Merchandise sold	85,000 €	90,000 €

Given that the company uses the LIFO as the method of inventory valuation:

The cost per unit of each t-shirt and scarf purchased during the month of March is, respectively

- ☒ 17.5 € and 4.5 € ✓
- ☐ 14 € and 5 €
- ☐ 20 € and 4 €
- ☐ 17 € and 4.5€
- ☐ None of the others

AutoTech Ltd. is currently using LIFO as its inventory valuation method; however, the company is considering switching to FIFO.

Last month, **AutoTech Ltd.** sold 90,000 engine parts. The inventory movements were as follows:

	Quantity	Value (€)
Opening Inventory (Finished Goods)	25,000	100,000 €
Opening inventory (WIP)		40,000 €
Production	80,000	?
Closing Inventory (Finished Goods)		60,000 €
Closing Inventory (WIP)	15,000	30,000 €

Manufacturing costs for the period were 370 000 €.

Knowing that AutoTech Ltd. applies a markup of 30% on the cost of goods sold (COGS), what would be the price charged last month using **(1) LIFO** and **(2) FIFO**?

☐ (1) 494,000€; (2) 482,000€

☐ (1) 481,000€; (2) 470,000€

☐ (1) 533,000€; (2) 520,813€

☒ (1) 546,000€; (2) 531,375€



☐ None of the others

A company using traditional costing allocates overhead based on direct labor hours. The company's total budgeted overheads are €500,000, and total expected direct labor hours are 25,000. A client's job uses 1,000 labour hours and incurs €20,000 in prime costs.

A detailed analysis reveals that the client's job actually generates €50,000 in total overhead costs. The company also incurs 15 000 € of non-manufacturing costs related to this client.

How much is the under/over recovery of OH associated with the client's order? How much ate the COGM of the order?

☒ Under-recovery of 30,000 €; COGM 40,000 €



☐ Over-recovery of 30,000 €; COGM 85,000 €

☐ Under-recovery of 30,000 €; COGM 55,000 €

☐ Over-recovery of 30,000€; COGM 70,000€

Boreberry & Co is a high-end fashion brand specializing in handcrafted luxury bags. The company operates with **three service departments** and **two production departments**, to manufacture two products: Clutch and Shoulder Bag.

Manufacturing overhead costs and quantities of activities for each department are shown as follows:

	Leather Crafting	Finishing & Embellishment	Logistics	Maintenance	Cleaning
Directly Assigned Manufacturing Costs (€)	1,700€	2,500€	3,300€	2,500€	1,800€

Suppliers Users	Leather Crafting	Finishing & Embellishment	Maintenance	Cleaning
Clutch	150 Mh	1,300 Lh		
Shoulder bag	150 Mh	700 Lh		
Leather Crafting			100Mh	200 Lh
Finishing & Embellishment			300 MH	100 Lh
Maintenance				
Cleaning				
Logistics			200 mH	
Total	300 Mh	2,000 Lh	600 Mh	300 Lh

The Logistics Department allocates its costs proportionally to their directly assigned costs to all departments except Cleaning.

Using the **sequential allocation method**, what is the **total cost allocated to the Leather Crafting department**?

☐ 4,019.33€

☐ 4,253.56€

☒ 4,670.15€

☐ 4,359.20€

☐ None of the others



Item 3

PART III

Fresh Fruits, Ltd is a UK-based company that dedicates its activity to buying and selling fruits. After buying fruits from farmers, fruits are stored in refrigerating chambers until they are packed to be sold to supermarkets. These manufacture and sell two types of products: **Apple Packs and Orange Packs**.

The company uses the homogeneous cost pool method to calculate the costs it supports in these operations.

For the well-functioning of the process, the company also has three service cost centres:

- **Power Station** – Ensures the energy supply for the manufacturing equipment. It uses labour-hours (Lh) as the unit of work.
- **Maintenance** - Carries out the maintenance of the mechanical and electrical equipment. Its unit of work is machine hours (Mh)
- **General manufacturing overheads** – Its total costs are allocated in equal parts to the remaining four cost pools.

The activity of each of these homogeneous cost pools (or cost centres) regarding December as well as some additional information is available below:

Consumption of Materials:

Apples	Apple Pack Material	Oranges	Orange Pack Material
139,306€	2,200€	111,394€	4,005€

Movements of Products

	Apple Packs	Orange Packs
Opening Stock	50 tonnes at 700 €	30 tonnes at 350€
Sales	300 tonnes	350 tonnes
Closing Stock	10 tonnes	35 tonnes

Direct labour consumed in the manufacturing process:

Apple Packs: 5.000 €

Orange Packs: 2,000 €

Manufacturing overheads directly assigned

	Refrigerating Chambers	Calibration & Packing	Power Station	Maintenance	General Manuf. Overheads
Directly Assigned Manufacturing Costs (€)	4 400€	9 060€	2 350€	7 525€	4 600€


Activity of the homogeneous cost pools

Suppliers Users	Refrigerating Chambers	Calibration & Packing	Power Station	Maintenance
Refrigerating Chambers	-	-	19,000 Kwh	180 Lh
Calibration & Packing	-	-	7,350 Kwh	170 Lh
Power Station	-	-	-	50 Lh
Maintenance	-	-	10,500 Kwh	-
Orange Packs	3,000 m3	350 Mh	-	-
Apple Packs	5,000 m3	180 Mh	-	-
Total	8,000 m3	530 Mh	36,850 Kwh	400 Lh

Given that the company uses the WAC as the method of inventory valuation.

1. Prepare the map with the costs of each cost centre using the simultaneous equation method.

ANSWER ON PAPER

 Calculator

Item 4

PART IV

TechNova Eletronics is a Portuguese-based company that dedicates its activity to manufacturing and selling two product lines: **Smartphones** and **Laptops**. The company had several types of costs in March disclosed below:

	Smartphones	Laptops
Selling Price	700€ p/ unit	900€ p/ unit
Nr of calls	80,000	50,000
Nr of assembly hours	2,000	12,000
Nr of sales units	10,000	15,000
Number of custom orders	500	1,000

Activity	Cost Driver	Total Cost
Orders Processing	Nr of units sold	600,000€
Assembly	Nr of assembly hours	500,000€
Customization	Nr of custom orders	?
Customer support	Nr of calls	700,000€

Consider also this information:

Movements of Materials

Tech components (DM)	Smartphones	Laptops
Opening Stock	3,000 at 300€ p/ unit	4,000 at 500€ p/ unit
Purchases	15,000 at 305€ p/ unit	20,000 at 495€ p/ unit
Closing Stock	2,000 units	1,000 units


Other information

- Direct labour for smartphones is 500,000€ and for laptops is 600,000€
- There were 10,000 units produced of smartphones and 15,000 units of laptops.
- Consider that production was equal to sales.

Given that the company uses FIFO as the method of inventory valuation:

1. Knowing that the company uses Activity-Based Costing (ABC), and that the Operating Profit for the Smartphone segment is 700,000€, how much is the total cost of the **Customization activity**?

ANSWER ON PAPER

 Calculator

1.1 (2 points) How much is the difference in profits between P&L by Financial Accounting and P&L by function. Explain this difference and calculate the personnel costs with the theoretical social charges.

$$19\,125\text{€} / (1+27,5\%) = 15\,000\text{€}$$

$$15\,000\text{€} \times (50\% - 27,5\%) = \mathbf{3\,375\text{€}}$$

$$\text{Personnel costs with TSC} = 15\,000\text{€} \times (1+50\%) = \mathbf{22\,500\text{€}}$$

1.2 (2.5 points) Assume that personnel costs with theoretical social charges are 25,000€. Assuming the company uses a blanket rate for conversion costs based on the units sold, calculate the Overhead rate to be used in the COGM computation.

$$100\,000\text{€} / 10\text{€} = 10\,000 \text{ units}$$

$$36\,000\text{€} / 9\text{€} = 4\,000 \text{ units}$$

$$30\,000\text{€} \times 65\% + 25\,000\text{€} \times 60\% + 10\,000\text{€} \times 80\% = 42\,500\text{€}$$

$$42\,500\text{€} / 14\,000 \text{ units} = \mathbf{3,0357\text{€}}$$

1.3 (2.5 points) Now, assume the budget overhead rate for January is 2.5€. Present the P&L. If you were not able to compute 1.2 assume the actual overhead rate is 3€.

$$\text{MOH} = 14\,000 \times 2,5\text{€} = 35\,000\text{€}$$

$$\text{UROH} = 42\,500\text{€} - 35\,000\text{€} = \mathbf{7\,500\text{€}}$$
 (or 7 000€ if you used an actual overhead rate of 3€ instead)
$$\text{COGS} = 56\,000\text{€} + 35\,000\text{€} = 91\,000\text{€}$$

P&L By Function	January 2025
Sales	136 000 €
COGS	91 000 €
Gross Profit	45 000 €
Under-recovery of overheads	7 500 €
Selling Costs	34 000 €
Administrative Costs	24 000 €
Operating Profit	-20 500 €
Financial Costs	10 000 €
EBT	-30 500 €

3.1 (3 points) Prepare the map with the costs of each cost centre using the simultaneous equation method.

Description	Refrigerating Chambers	C&B	Power	Maint.	GMO
1- MO directly assigned	4,400 €	9,060 €	2,350 €	7,525 €	4,600 €
Total 1.	4,400 €	9,060 €	2,350 €	7,525 €	4,600 €
2- Reallocation of costs					
GMO	1,150 €	1,150 €	1,150 €	1,150 €	
Power Station	2,451.02 €	948.16 €		1,354.51 €	
Maintenance	4,513.28 €	4,262.54 €	1,253.69 €		
Total 2.	8,114.30 €	6,360.70 €	2,403.69 €	2,504.51 €	0
TOTAL (1+2)	12.514.30€	15,420.70 €	4,753.69 €	10,030 €	4,600 €
Unit cost	1.56 €	29.10 €	0.13 €	25.07 €	

4.1 Knowing that the company uses Activity-Based Costing (ABC), and that the Operating Profit for the Smartphone segment is 700,000€, how much is the total cost of the Customization activity?

Sales revenues = 700€ × 10 000 units = 7 000 000€

DM consumption = 3 000 × 300€ + 13 000 × 305€ = 4 865 000€

Order processing rate = 600 000€ / (10 000 + 25 000) = 24€

Assembly rate = 500 000€ / (12 000 + 2 000) = 35.7143€

Customer support rate = 700 000€ / (50 000 + 80 000) = 5.3846€

$700\,000\text{€} = 7\,000\,000\text{€} - [4\,865\,000\text{€} + 500\,000\text{€} + 24\text{€} \times 10\,000 + 35.7143 \times 2\,000 + 5.3846 \times 80\,000 + \textbf{Total Cost Customization} \times (500 / 1500)]$

Total cost customization activity = 578 406.59€