NOVA SCHOOL OF BUSINESS & ECONOMICS

1202 – Management Accounting

Semester 1 - 2022/2023

Midterm

November 12, 2022

Lenght: 90 minutes (+ 30 minutes extra-time)

NAME: _____

NUMBER:_____ CLASS: _____

- The questions must be answered in the set of sheets attached to the test. You are required to keep the answer sheets stapled.
- You can use the back of each sheet for rough draft.

PART I - (5,50 Marks)

LEAD Company, which produces Product A, presents the following bimonthly manufacturing output during year N:

Month	Production in Tonnes	Cost of Goods Manufactured	COGM per Tonne
January/February	3.000	60.000€	20,00€
March/April	3.500	71.750€	20,50€
May/June	2.500	52.500€	21,00€
July/August	3.000	63.000€	21,00€
September/October	3.200	67.200€	21,00€
November/December	3.300	72.600€	22,00€
Total …	**18.500**	**387.050€**	

Other available information:

- Opening stocks: Product A (1/January/N) = 5.000 tonnes at 20 €/tonne
- Closing stocks: Product A (31/December/N) = 6.000 tonnes
- All tonnes of Product A were sold only at the end of December/N

REQUIRED:

1. What is the value of the closing stocks at December 31, of Product A under the FIFO (First In, First Out) method?

2. What is the cost of goods sold (COGS) under LIFO (Last In, First Out) method?

3. Discuss when and why theoretical (and not real) social charges need to be considered in the calculation of COGM. How should the rate of theoretical social charges be calculated? (Maximum: 10 lines);

PART II- (4,00 Marks)

Hospital EXTRACARE is a **non-for-profit organization**. Currently**, it bills its patients according to the single overhead rate Patient-day**. This rate was set at the beginning of the year to cover the costs of running the hospital based on the expected level of activity. The costs at this activity level have been estimated at:

Medical Staff	4.000.000€
Nursing Staff	6.000.000€
Other overhead costs:	
• Patient records	500.000€
• Radiology	2.000.000€
• Kitchen	1.500.000€
• Other indirect costs	1.000.000€
Estimated total overhead costs …	**15.000.000€**

The expected level of activity in the hospital is measured in patient-days, and was estimated as follows:

	Patient-days	**Number of patients**
Surgical Ward	10.000	1.000
Maternity Ward	6.000	1.200
General Ward	14.000	2.000
Total …	**30.000**	**4.200**

REQUIRED:

1. Calculate the cost to charge a maternity patient that was 5 days in the Hospital, according to the current billing system.

2. Present the hospital's **actual profit and loss account by function** (it is not needed by type of services rendered, only by function) assuming its current/actual costs are 14.000.000 € and the current level of activity is 9.000 patient-days, 5.000 patient-days and 19.200 patient days, respectively in the Surgical, Maternity and General wards. Even if you have answered the previous question, assume (for this question) that the estimated Patient-day value is €505. Since this is a non-profit organization, what this means is that **the amount charged per patient-day (sales price per day) is the same as the expected cost per patient-day**.

The billing system had been well accepted within the local community. However, one day, on being discharged from the Maternity Ward, a patient lodged a complaint over the fee. She claimed that as a maternity patient she should have been charged less than a surgical patient, as she required less care from both the medical and nursing staff.

Also unlike surgical patients, maternity patients rarely require radiology support or special meals from the kitchen.

It is expected that the medical and nursing staff will work 100.000 hours and 200.000 hours respectively during the year, and that their time will be spent as follows:

	Surgical Ward	Maternity Ward	General Ward	Total Staff Hours
Medical staff hours	70.000	10.000	20.000	100.000
Nursing staff hours	130.000	20.000	50.000	200.000

Based only in budgeted values, estimate the cost to charge a maternity patient that will be 5 days in the Hospital, assuming that medical and nursing staff costs are allocated together to the three wards using the total amount of staff hours, and all other overhead costs are allocated using patient-days as the allocation base.

Indicate how the hospital’s traditional cost accounting system could be improved (Maximum: 10 lines)

PART III - (3,75 Marks)

SHINY METAL, Ltd.is a company that produces two models of metal structures ('Structures 1' and 'Structures 2'). The manufacturing process is as follows: (i) metal sheets and angles are cut and folded in the appropriate dimensions, so that the basic components for structures are obtained; (ii) the components are assembled to get the structures; and (iii) structures are painted.

The components of the structures are profiles and plates which, as they are produced, are entered into storage for further use. Assembly and painting operations are performed immediately without any intermediate storage. For costing purposes, the following cost centres are defined:

Production cost centres

- Cutting and Folding (Unit of work: Machine-Hour)
- Assembly (Unit of work: Labour-Hour)
- Painting (Unit of work: number of structures produced in the month)

Service cost centres

- General Manufacturing Overheads - the total costs of this cost centre should be allocated in equal parts to the following two cost centres:
    - Cutting/Folding.
    - Maintenance
- Maintenance (Unit of work: Labour-Hour) – see in the table below how this cost centre allocates its activity to the remaining cost centres

For the month of May the following information is available:

Costs and activity of cost centres

Description	**Physical Unit**	**Cutting and Folding**	**Assembly**	**Painting**	**General Manufact. Overheads**	**Maintenance**
1. Direct costs	€	43.900	30.000	40.000	9.250	3.240
2. Reallocation of costs						
Maintenance	LH	300	380	400	120	----

The company has adopted Total Full Costing and the LIFO as the method of inventory valuation.

REQUIRED:

1.Calculate **only the cost of Assembly centre** based on the simultaneous equation method

Description	**Physical Unit**	**Cutting and Folding**	**Assembly**	**Painting**	**General Manufact. Overheads**	**Maintenance**
1. Direct costs	€	43.900	30.000	40.000	9.250	3.240
2. Reallocation of costs						

PART IV - (4,25 Marks)

The **FOLLY Company** produces shoes. Concerning the month of December, the company prepared the following P&L based on the **variable costing system**:

DESCRIPTION	Amounts in euros
1 - Sales	164.000
2 - Cost of sales	92.250
3 - Gross margin	71.750
4 - Non-manufacturing variable costs	6.150
5 - Contribution margin	65.600
6 - Fixed costs:	
- Under-recovery of overheads	42.000
- Non-manufacturing costs	20.000
7 - Operating profit	3.600

Other information:

Practical capacity of production	2.000 Shoes
Real production	2.100 Shoes
Sales	2.050 Shoes

Given that the method of inventory valuation used by the company is the **LIFO**:

1. Calculate the Folly Company Profit using **full costing based on practical capacity**.

2. Calculate the operating leverage and explaining its significance.

PART V - (2,50 Marks)

MaxMachine Company, Inc. is considering purchasing a new machine to replace another acquired four years ago for 40.000 €. Despite the existing machine to continue to operate under conditions appropriate, the president admits getting a new machine that came on the market and is electronically operated (lower maintenance costs).

The information collected by the two machines is the following:

	Old Machine	**New Machine**
Purchase value	40.000€	60.000€
Years of useful life at the acquisition date	10 Years	6 Years
Accumulated depreciation	16.000€	-
Annual cost to operate the machines	25.000€	19.000€
Value of current disposal	18.000€	-
Disposal value in 6 years	0€	10.000

Using only relevant costs in your analysis prepare calculations for a period of six years that show the advantage or disadvantage in acquiring the new machine. Explain your answer with the support of calculations.