

Tentamen: Finance and Accounting (194110020, 194110021, 2011000147)

Datum: Monday, 4 November 2013

Tijd: 08:45 – 12.15 hr.

Locatie:

- *Dit is het tentamen voor het vak Finance and Accounting 194110020, 194110021 en 201100147 evenals de herkansing voor een aantal eerdere vakken*
- *U mag gebruik maken van een eenvoudige rekenmachine (dus **geen grafische**), maar niet van een notebook computer of andere digitale informatiedragers e.d. You can use a simple calculator (so not a graphical) but not a notebook computer, digital equipment etc*
- *Het gebruik van een woordenboek is toegestaan, maar zonder annotaties. You may use a dictionary but without any annotations. Dit kan zijn een woordenboek Engels-NL vice versa of elke ander woordenboek van vreemde taal naar Engels en vice versa of vreemde taal- NL en vice versa*
- *Mobiele telefoon mag niet gebruikt worden. It is not allowed to use a Cell phone*
- *De vragen zijn in het Engels. U mag natuurlijk gewoon in het Nederlands antwoorden. U mag de surveillant vragen om een vertaling van een Engelse term You are allowed to answer in English or Dutch and can ask the surveyor for translation of Dutch words*
- *Schrijf uw antwoorden op uw tentamenpapier. Het tentamen bestaat uit veel vragen, houd uw antwoorden daarom zeer beknopt en duidelijk: licht redeneringen duidelijk toe, maak tabellen, schrijf leesbaar, kras niet teveel, etc. Write legible and give straight and to the point answers. Show the details of your calculations*
- *Lees eerst de gehele opgave en dus ook de vragen rustig door zodat u de gegeven informatie eenduidig begrijpt en dus doelgericht voor de beantwoording van de vragen gebruikt. Read exercises good and quietly and make sure you understand the contents.*
- *Indien uw uitkomst van een (rekenkundige) opgave u onwaarschijnlijk voorkomt geeft u dat aan en tevens wat er onwaarschijnlijk is en waarom. If an arithmetical answer does not seem correct but you cannot find the mistake, say so and explain that the answer seems odd.*
- *Indien u onverhoopt een berekening niet kunt maken maar de uitkomst voor de beantwoording van een volgende vraag nodig heeft schat u een zo relevant mogelijk antwoord, waarbij u vermeldt dat het een (noodzakelijke) schatting is. If you cannot make a calculation but need the outcome for the subsequent questions than simply state a figure and say so.*
- *Per vraag is de punten telling aangegeven. For each question the scores are given.*
- *Scores:*

U ziet dat het totaal punten niet gelijk is aan de optelsom van de individuele opgaven. Het totaal aantal punten is de optelsom van problem 1,2,3 en 4. U MAG, MAAR HOEFT DUS NIET OPGAVE 4 TE MAKEN. ALS U DIE WEL MAAKT KAN DAT EXTRA PUNTEN OPLEVEREN, MAAR U KUNT NOOIT HOGER SCOREN DAN EEN 10. You will see that the total points to be scored is not the addition of all 4 individual problems, but only problems 1,2 AND 3. YOU MAY, BUT IT IS NOT NECESSARY TO DO PROBLEM 4. WHEN YOU DO SO THAT CAN LEAD TO EXTRA POINTS, BUT NOT PASS THE MAXIMUM SCORE OF 10 POINTS.

	I	II	III	IV	
1	1	6	1	1	
2	1	19	3	1	
3	2	2	18	2	
4a	19	18	1	2	
4b	13				
5	2	16	4	5	
6	2		8	4	
7	2			2	
8	2			2	
9				2	
	44	61	35	21	140

- Leg uw collegekaart gereed op de hoek van uw tafel. Put your college card at the table top corner.
- Het gehele examen omvat 13 bladzijden. Total exam is 13 pages including this front pages
 - Front pages; 1-2
 - Problems 3- 10
 - Attachment I for problem 1 11
 - Attachment II for problem 3 12 - 13
- Lever het computerformulier¹ (als dat uitgereikt is) + uw uitwerking op tentamenpapier na afloop samen en als één geheel in. Indien een van die documenten ontbreekt, zal de uitwerking niet beoordeeld worden. Voeg alle documenten in één pak samen en schrijf op elk document uw naam en studentnummer. Vul het computerformulier nauwkeurig in en maak geen fouten met het zwart maken van de cellen, in het bijzonder en studentnummer. Hand in the computer form, if distributed², (complete cells properly, especially the student number) all paper with your solutions and the exam. If the set is not complete your exam will not be reviewed.
- Vergeet niet het worksheet van problem 1 in te leveren. Do not forget to hand in the worksheet as per problem 1.
- U mag het tentamen houden. You can keep the exam.

¹ Zal zeer waarschijnlijk niet gebruikt worden.

² Will most probably not be used.

EXAM

1: Worksheet and valuation.

Attachment I to this Exam is a Worksheet. This Worksheet has been partially completed.

The Balance Sheet at January 1, 2011 is provided as attachment I to this Exam. At this date, the amount of Finished Goods Inventory is 13.000 units. Material costs included in the valuation of Finished Goods are € 2,01 per unit and labor costs are € 0,60 per unit. The labor rate (=arbeidsuurtarief) for **future** production is € 0,65 per unit. The amount of Materials Inventory consists of 8.000 items that is sufficient for 8,000 units of the finished product. (So, 1 item material for 1 unit finished product) These material items are valued at € 2,03125 per item.

The company uses a **Direct costing system** for valuation of Finished Products. Production time is very short. Therefore, next to materials, **only** labor costs are defined as direct costs. The company uses the "first-in first out" (FIFO) for valuation of materials inventory and Finished Goods inventory.

The company does not have a detailed fixed assets accounting system. Instead, every year, 20% of the total **book value** of all fixed assets (value at the end of the year) is depreciated, and the depreciation costs are also considered **fixed** manufacturing costs.

In the financial year 2011 the following happened (not necessarily in this chronological order). Some of these transaction have already fully or partly been accounted for in the worksheet as attached in attachment I to this exam. For the transactions not accounted you have to complete the worksheet. **If you use the worksheet as per attachment I do not forget to hand it in as your solution. Also note your name and student number** If you want to design your own worksheet on exam paper, you have to do the full worksheet for all transactions. You do not need to rewrite the verbal version of the transaction (=overschrijven van de volledige bewoordingen van de transactie). It is easier to refer to the number of the transaction. Before accounting for the transactions as per question 4, answer questions 1 to 3 first.

Transactions relating to question 1.4

1. Buy and receive materials with a thirty days credit term for 124.000 units, for a total amount of € 254.200 (€ 2,05 per unit). Has already been accounted for in attachment I.
2. Pay materials for this year and the accounts payable balance at 1 January 2011: € 258.527. Has already been accounted for in attachment I. When negative cash results, a bank overdraft (=rekening courant = rood staan) facility exists
3. Start and complete the production of 120.000 units on a Direct Costing basis
4. Sell with 60 days credit term 126.000 units, for a total amount of € 681.400
5. Customers pay € 732.710 for sales last year and sales this year Has already been accounted for in attachment I.
6. Pay labor time € 78.000 spent for production of 120.000 units (Normal Production) of Finished Products.
7. Pay € 114.370 for fixed manufacturing costs, used in 2011 for production of 120.000 units (Normal Production)
8. Buy and pay € 456.000 for new machines and other equipment (fixed assets).
9. Pay € 88.900 for marketing and sales activities in 2011.
10. Depreciation on tangible (vastgoed) fixed assets is 20% of **total** book value
11. In order to keep an adequate provision (voorziening) for warranty costs the company accrues for future warranty cost of current sales, and this accrual ("voorziening") is increased with an amount equal to 0.5% of revenues. So, the increase of the warranty provision amounts to € 3.407
12. Pay € 8.660 for interest and other costs of debt financing and bank overdraft in 2011.
13. Identify, as far as applicable, using the following codes, the transaction numbers in the left column of the worksheet

A	Cash outflow no expense
B	Cash outflow and an expense
C	Expense but no cash outflow
D	Cash inflow but no revenue
E	Cash inflow and revenue
F	Revenue no cash inflow

Questions

Note: use or apply format as attached in attachment I

1. Describe what a **Direct Costing System** is and pay in particular attention to what sort of costs are accounted for as product costs or as period costs.
2. Explain whether a Direct Costs system is relevant for long term decisions, short term decisions or both kind of decisions
3. Explain, in general, one advantage and one disadvantage of such a crude (simple) system for fixed assets accounting and depreciation.
4.
 - a. Determine using the **Direct Costing** system the Balance Sheet for December 31, 2011 and determine Operating Profit and Profit-before-tax for 2011 using

above data (Advice: show details of your calculations, such as the numbers for Revenues, Cost of Goods Sold, Fixed manufacturing costs, and Non-manufacturing costs.) Use the sheet attached to this Exam or as handed out in A3 format or use Exam paper applying the format as per the attached sheet.

- b. Do item 13 as detailed on page 4
5. Proof that the Balance sheet "balances" and the Profit & Loss account reconciles (in overeenstemming is) with Equity account
 6. Make detailed calculation of the value of the Finished Product at December 31 2011.
 7. Suppose the company would have used Absorption Costing for valuation of Finished Products and that Normal Production level equals actual production level of 120.000 in 2011. Assuming that the company has also used Absorption Costing at the 1 January 2011 valuation of Finished Goods. Explain whether the profit over 2011 would have been more, would have been equal or would have been less compared to the Direct costing System used for 2011. (No need to make calculations)
 8. Irrespective of your answer per question 7, now assume that the company has used the Absorption Costing system for 2010 and 2011 for valuing Finished Goods but that actual **production** would have been 130.000 units instead of normal production of 120.000 units. Explain whether profit over 2011 would have been more, would have been equal or would have been less compared to the situation using Absorption Costing where actual production would equal normal production of 120.000 units.

2 Cost allocation

A company produces three products: A, B and C. Some data are given below. Material costs are direct product costs, labor costs can easily and accurately be allocated to products on basis of labor hours (labor is variable costs because of temporary employees) and are also direct costs for the products. Direct machine costs are directly allocated to the products and are variable costs. The other costs are fixed costs and indirect at the product level. These indirect costs are **currently** allocated to products on the basis of **machine hours**.

	A	B	C
Normal production and sales volume	80.000	25.000	5.000
material units per product eind product	1	1	1
direct material costs per unit	€ 35,00	€ 30,00	€ 25,00
direct labor hours per unit eind product	1	0,5	0,25
Normal machine hours per unit eind product	2	1	0,5
Sales price per unit eind product	€ 125	€ 75	€ 75

Direct Labour costs per hour	€ 30
Direct Machine cost per hour	€ 25
Indirect fixed production costs:	€ 1.560.000 fixed costs

- 1 Calculate for the current situation the standard (budgeted) product costs for products A, B, and C in total and per product. Make a distinction between direct costs, indirect costs and total costs and consequently also the contribution margin.

Despite these calculations the actual results cannot be properly analyzed with the current cost price calculations. Therefore a further analysis is done on what drives the fixed indirect production costs and consequently how these should be allocated to the individual products A, B and C

These analyses learns that indirect fixed costs are detailed as follows:

purchasing costs	€ 350.000	fixed costs
setting up machines	€ 85.000	fixed costs
general machine costs	€ 650.000	fixed costs
inspection costs	€ 320.000	fixed costs
packaging and distribution costs	€ 155.000	fixed costs
total	€ 1.560.000	fixed costs

The same analyses also learns that in addition to the data as given for question 2.1 the following costs drivers for the indirect fixed costs are relevant leading to the following overview of relevant production data:

	A	B	C	Total
Normal production and sales volume	80.000	25.000	5.000	
Unit material per unit end product	1	1	1	
material units	80.000	25.000	5.000	
direct material costs per unit	€ 35,00	€ 30,00	€ 25,00	
direct labor hours per unit	1	0,5	0,25	
number of purchase orders	10	12	16	38
Normal machine hours per unit	2	1	0,5	
number of inspections	100	200	300	600
number of set ups for production runs	10	20	40	70
number of sales orders	40	80	160	280
Sales price	€ 125	€ 75	€ 75	

Note that general machine costs cannot be related to a specific cost driver. So these have to be related to the machine capacity.

- Calculate the total direct costs and total indirect costs and the total costs for products A,B and C and than also calculate the direct cost, the indirect costs and total costs per unit A, B and C. (You need that information for questions 3 and 4.
- Now assume that the actual production and sales are very much in line with the budgeted production and sales and the budgeted amounts as well. Calculate for a one-off additional exceptional sales order for product C the minimum sales price that will be charged and explain your outcome.

Now the following data are given the end of the year when all sales, production and costs are known and have been accounted for.

Actuals				
	A	B	C	
Actual production and sales volume	85.000	20.000	5.000	
Actual material units used	90.000	18.000	5.000	
Actual Price for material per unit	€ 33	€ 36	€ 30	
				€
Actual amounts paid for materials	€ 2.970.000	€ 648.000	€ 150.000	3.768.000
Actual number of labour hours	80.000	11.000	1.500	
Actual price labour	€ 25	€ 25	€ 25	
Actual amounts paid for labour	€ 2.000.000	€ 275.000	€ 37.500	
Actual number of machine hours	170.000	20.000	2.500	192.500
Actual price per machine hour	€ 30	€ 30	€ 30	
Actual amount paid for direct machine hours	€ 5.100.000	€ 600.000	€ 75.000	5.775.000
				€
Actual Indirect fixed costs	€ 800.000	€ 400.000	€ 400.000	1.600.000

- 4 Calculate **only for product A** the total € amount for the **production variance** being the total of the production variance of each of following production factors. (so these have to be calculated) Also indicate whether the result is a profit or a loss. First explain in words what a production variance is.
- Direct material
 - Direct labour
 - Direct machine costs
 - Total indirect machine costs.
- 5 Calculate **only for product A** the following differences
- Occupancy difference on indirect fixed costs
 - Price variance on
 - Indirect fixed costs
 - Direct materials
 - Direct labour
 - Direct machine costs
 - Efficiency variance on
 - Direct materials
 - Direct labour
 - Direct machine costs

3 Cash flow statement

Attachment II to this exam is a Balance Sheet and an Income Statement (=Winst en Verliesrekening) and some additional information.

1. Calculate change in net cash position
2. Calculate the taxes paid
3. Prepare cash flow statement for the year 2012 starting with net profit of € 940. Split the cash flow statement in
 - a. Cash flow from operating activities (= bedrijfsactiviteiten)
 - b. Cash flow from investing activities
 - c. Cash flow from financing activities
4. Proof that the outcome of question 3. agrees with the outcome of question 1.
5. What is the main aim of a cash flow statement
6. How does cash flow from operating activities differ from operating activities as presented in the Income statement. Do not mention an amount but describe the principle origins of the difference.

4. Investment decisions and financial accounting

A company considers a project to develop and introduce a new product. Considerable efforts are required for the development of this product and for engineering the tools and production equipment. Also, marketing activities need to be conducted. The firm is comparing two different ways of executing this project. The table below contains data about expected cash flows. As you can see in the table, project-related cash flows are estimated separately per *quarter* for the first year (Quarter 1, 2, 3, 4), and are estimated per *year* for years 2 through 4 (Year 2, 3, 4). In your calculations, you may assume that all cash flows occur at the end of each quarter or year. Because of the project risk involved, the project warrants a discount rate of 16% per year. We ignore business taxation.

16.00%	Year 1				Year 2	Year 3	Year 4
	Quarter 1	Quarter 2	Quarter 3	Quarter 4			
Project A							
Product development	-€ 300,000	-€ 400,000	-€ 100,000				
Tools engineering		-€ 100,000	-€ 50,000	-€ 50,000			
Production equipment		-€ 200,000	-€ 50,000	-€ 200,000			
Marketing				-€ 500,000			
Materials					-€ 925,000	-€ 1,390,000	-€ 410,000
Cash inflow from sales					€ 1,959,357	€ 2,944,331	€ 868,472
Project B							
Product development	-€ 200,000	-€ 200,000	-€ 100,000	-€ 100,000			
Tools engineering			-€ 100,000	-€ 100,000			
Production equipment			-€ 350,000	-€ 200,000			
Marketing				-€ 350,000			
Materials					-€ 700,000	-€ 1,325,000	-€ 207,005
Cash inflow from sales					€ 1,434,736	€ 2,715,750	€ 424,282

1. If the discount rate is 16% per *year*, what is the equivalent discount rate per *quarter*?
2. Explain why, in general, the appropriate discount rate for a **particular** project could be higher or lower than the firm's **overall** weighted average cost of capital (wacc).
3. Explain why, in general, the risk for the shareholders increases (hence, the required return on equity increases) when the debt/equity ratio increases.
4. Explain why, in general, the required return on assets is largely independent of the debt/equity ratio.
5. Calculate the net present value (NPV) of each project, and explain which project is the most attractive one, based on the NPV criterion.
6. Calculate the payback time detailed in number of years and months (so for instance 3 years and 5 months) of each project (with discounting), and explain which project is the most attractive one, based on this criterion.

Suppose the internal rate of return (IRR) of Project A is 21.83%, and the IRR of Project B is 17.11%. I provide you with these numbers to save time during the examination. (no interpolation has to be done)

7. Explain, in general, the meaning of the internal rate of return. And explain which of the two projects (Project A or B) is the most attractive based on this criterion.

The NPV calculation for question 5 was done including the effect of inflation. That means: the cash flows in the table are nominal cash flows, and a nominal discount rate was used. Suppose we conduct the NPV analysis on the basis of real ("reële") cash flows, (so representing the effect of change in purchasing power) and a real discount rate.

8. Would this increase or decrease the discount rate compared to what you used for question 5 (assume positive inflation)? Explain why.

The NPV calculation for question 5 was done without considering payments to the tax authorities (although tax payments are cash flows). Suppose we do the NPV analysis on an after-tax basis.

9. Would this increase or decrease the discount rate compared to what you did for question 5 (assume debt as well as equity financing are used)? Explain why.

transac.	Assets				Equity and Liabilities				Profit and loss account				
	Cash	Materials Inventory; 8,000 units	Finished goods inventory; 13,000 units	Tangible Fixed assets	Accounts receivable	Owners' equity	Loans payable	Accounts payable	Wages payable for warrant	Accrual y costs	Revenues sold	Cost of goods manufacturi ng expenses	Fixed manufacturing expenses
T13	1,060,000	16,250	33,930	14,560	51,310	1,161,702	8,700	4,327	0	1,321			
1		254,200						254,200					
2	-258,527							-258,527					
3													
3													
4													
5	732,710				-732,710								
6													
7													
8													
9													
10													
11													
12													

Attachment II to Exam 4 November 2013

BALANCE SHEET BEZORGBEER BV

	2012	2011	2012	2011
Non-current assets (=vaste activa)				
Land&Buildings	125	50	580	480
Machinery	160	100	<u>570</u>	<u>200</u>
Motor vehicles	<u>250</u>	<u>160</u>	1.150	680
Total non-current assets	535	310	300	100
<i>VIA</i>				
Inventory (raw materials)	900	1.100	500	290
Receivables (debiteuren)	700	1.000	800	1.100
Cash	<u>1.115</u>	<u>60</u>	<u>500</u>	<u>300</u>
	2.715	2.160	1.800	1.690
Total	3.250	2.470	3.250	2.470

EV Share capital
 Retained profit (ingehouden winst)
VaP Long term loans
VIP bank overdraft (rek courant)
 Accounts payable
 Taxation

INCOME STATEMENT

	2012	2011
Sales	5500	5614
Cost of sales (raw materials)	<u>1800</u>	<u>2587</u>
Gross profit	3700	3027
Depreciation	150	122
Management fee	200	320
Hire of plant	50	20
Profit/Loss in sale of machinery	-30	40
Other operating costs	<u>2000</u>	<u>1950</u>
Total costs	2370	2452
Operating profit	1330	575
Interest charges	<u>40</u>	<u>5</u>
Profit before taxation	1290	570
Taxation	<u>350</u>	<u>292</u>
	<u>940</u>	<u>278</u>

Additional information

Investments in non current assets	435
A long term loan was issued amounting to	200
Shares were issued for an amount of	100
Dividend were paid	570
Bookvalue of non-current assets sold	60
Revenue for non-current assets sold	90
Bank overdraft is regarded to be negative cash	

