**Entry Test**

In order to treat all students equally, no questions will be answered during the test. In case you do not understand a question, make an assumption. In any case, make sure that your assumption is explicitly stated in your solution.

Please, make sure you have all pages and your name is marked on each page, if you separate the pages. Answers will only be accepted if given on the solution sheets.

Please consider that each point is equivalent to approximately one minute of working time.

**NAME:**

**Index**

1. **Economics 9 pt**
2. **Accounting & Finance 20 pt**
3. **Management & Problem Solving 9 pt**
4. **Strategy & Entrepreneurship 12 pt**

**Total 50 pt**

**GOOD LUCK!**

1. **Economics (9 pt)**

From statistical studies we know that in 2005 the supply and the demand curve for milk was approximately as follows (price is measured in Euro per liter and quantities in millions of liters per year):

QS=4P-1

QD=-4P+7

**Calculate the market-clearing price and respective quantity.** (3 pt)

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| 4p-1=-4p+7  8p=8  p=1 q=3 |

Elasticity is defined as the relative change in quantity, given a relative change in prices.  
It is calculated as follows: E=P/Q \* Q’(P) (or E=P/Q \* dQ/dP)

**Calculate the elasticity of demand in the equilibrium.** (3 pt)

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| Q = 3 P = 1  Q’(P) = -4  E=1/3\*-4=-4/3 |

**The following table shows the energy independence rates in Simcomania:**

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| --- | --- | --- | --- | --- |
|  | **2012** | **2013** | **2014** | **2015** |
| **Coal** | 1.9% | 1.6% | 1.8% | 1.6% |
| **Oil** | 0.9% | 0.8% | 1.0% | 0.9% |
| **Gas** | 2.2% | 2.1% | 2.4% | 2.3% |
| **Nuclear** | 0.5% | 0.6% | 0.4% | 0.4% |
| **Renewable energy** | 1.1% | 1.0% | 1.0% | 1.1% |

**In what type of energy did energy independence see the highest relative growth between 2013 and 2014? Show your calculations.** (3 pt)

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| Variation for oil: (1-0.8)/0.8=0.25  Variation for gas: (2.4-2.1)/2.1=0.14  Oil independence shows the highest relative growth! |

1. **Accounting & Finance (20 pt)**

The newly founded company *Balu* started operating on March 1st, 2016.

Until March 31st, 2015 it recorded the following transactions:

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| --- | --- | --- |
| March 1st |  | Deposited EUR 45,000 as capital in the company bank account |
| March 4th |  | Prepaid EUR 3,000 insurance for the next 3 months |
| March 8th |  | Purchased supplies, EUR 2,000, and furniture, EUR 6,000, on account; The furniture will be useful for 5 years and depreciated on a monthly basis. |
| March 17th |  | Performed services for client A and received cash EUR 2,500 |
| March 25th |  | Paid for the furniture purchased on March, 8th |
| March 30th |  | Sold products and services worth EUR 5,000 on account |
| March 31st |  | During March, EUR 1,000 of the supplies were used |

The relevant tax rate is 25%.

**Please prepare the profit and loss statement of *Balu* for the first month of operations. Is the company profitable? Indicate the following sub-totals: Operating profit, EBIT, net income.** (8 pt)

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| +2,500 (service revenue)  + 5,000 (products and services sold)  -100 (depreciation furniture)  - 1,000 (supplies used)  -1,000 (insurance)  = 5,400 Operating profit = EBIT  1,350 (taxes)  4,050 net income  The company is profitable! |

**What does the cash flow statement look like on March 31st, 2016?** (5 pt)

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| 45,000 (deposit capital)  -3,000 (prepaid insurance)  + 2,500 (service provided, cash received) - 6,000 (furniture paid)  = 38,500 |

**Investment in machinery:**

*Balu* has to acquire new machinery. After some consultation, they find two possible options. The discount rate for both options is 10 %.

Option 1:

*Investment:* EUR 5,000; *operating cost per year:* EUR 1,000; *useful life:* 5 years;

*income per year:* EUR 10,000

Option 2:

*Investment:* EUR 3,500; *operating cost per year:* EUR 700; *useful life:* 5 years;   
*income per year*: EUR 9,000; Salvage Value: EUR 500

**Which investment will be preferred by *Balu*? Assume that their decision is based on the Net Present Value (NPV) and that the machinery is not depreciated.** (7 pt)

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| * According to the NPV, *Balu* will prefer Option 1 |

1. **Management & Problem Solving (9 pt)**

The CFO of the microchip company *Lukxis* announced that the company is targeting a variable costs to fixed costs ratio of 9 to 2.

1. **If the company has overall costs of €600,000, what are the maximum fixed costs it should incur to meet the targeted ratio?** (3 pt)

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| 600,000 / 11 = 54,545.45  54,545.45 \* 2 = 109,090.9 |

Last year, *MarsPuzzle* spent 15% of its revenues on employee health care expenses. This year the company’s revenues were 20% greater, and it spent 10% of its revenue on employee health care expenses.

1. **The amount *MarsPuzzle* spent on health care expenses last year is what percent greater than it spent this year?** (3 pt)

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| 1,2 \* 0,1 = 0,12  0,15 / 0,12 = 1,25 => 25% |

A group of your friends has a spare ticket and asks if you want to join them for the opera. They bought 5 adult tickets and 4 student tickets for 92€. The student tickets are 1/3 cheaper than the adult tickets.

1. **How much is an adult ticket?** (3 pt)

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| 5x + 4 \* (2/3x) = 92  x = 12 |

1. **Strategy & Entrepreneurship (12 pt)**

You are a management consultant in a company, which focuses on start-up consulting. Your first client is the successful, Vienna-based start-up *MunchyMoe*. The company has been contacted by various institutions, which want to invest in their company.

**a) Which types of start-up financing do you know? Name 4 different types of financing?** (4 pt)

**b) How can they be classified regarding equity/debt?** (4 pt)

**c) Name one advantage and one disadvantage for each.** (4 pt)

Keywords are sufficient. You do not need to write full sentences.

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| Bank loans (debt)  + at the moment, debt is very cheap + no real share in your company (however, share could be taken as a security for the debt) - highly bureaucratic - difficult to get  Governmental subsidies (both equity and debt possible) + sometimes offer additional service  + grants can be offered as non-repayable + access to additional sources / network / experts  - can be highly bureaucratic to apply for grants / subsidies  - require intensive reports  Business angel (equity) + offers “smart money”: industry and functional expertise;  + can function as a mentor / offers his/her network also to provide additional funding - wants share in your company - personal fit highly important – can have sometimes more impact on your company than other members/founders!  Venture Capital (equity) + sufficient funding + access to other resources / start-ups in its portfolio + predetermined exit - high requirements regarding reporting/corporate governance - share in your company - can see the investment from a short-term perspective and influence decisions in a rather short-term oriented way  Family & Foes (mostly debt) + easy to get  + often no other requirements to be fulfilled - if you can’t repay 🡪 personal issues |