

# 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:** \_\_\_\_\_

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<b>A. Accounting</b>	<b>9 pt</b>
<b>B. Strategy</b>	<b>10 pt</b>
<b>C. Business Insights</b>	<b>10 pt</b>
<b>D. Finance</b>	<b>9 pt</b>
<b>E. Logic and Problem Solving</b>	<b>10 pt</b>
<b>F. Economics</b>	<b>12 pt</b>
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<b>Total</b>	<b>60 pt</b>

<b>GOOD LUCK!</b>
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## PART A - ACCOUNTING

(9 pt)

### A1 Income Statement / Cost of Goods Sold

(5 pt)

Mr. Smith runs a small boutique in the center of Vienna where he sells bio cotton T-shirts. The following table shows the inventory records for his boutique for November 2019:

Date	Quantity	Unit Cost
November 1 2019	35 units	€ 28
November 10 2019	7 units	€ 20
November 15 2019	20 units	€ 30
November 20 2019	15 units	€ 12

The records for November 2019 show sales of 55 units with the total revenue of € 4,600. Operating expenses for November were € 900.

**Please prepare the income statement for November 2019 using the FIFO and LIFO method. When creating the income statement, make sure you show the line items "cost of goods sold", "gross profit", "operating expenses" and "operating income".**

	<b>FIFO</b>	<b>LIFO</b>
Sales revenue	4,600.00	4,600.00
(1p) Cost of goods sold	-1,510.00	-1,284.00
(1p) Gross profit	3,090.00	3,316.00
Operating expenses	-900.00	-900.00
<b>(1p) Operating income</b>	<b>2,190.00</b>	<b>2,416.00</b>

Cost of goods sold:

(1p) FIFO:  $(35 \times 28) + (7 \times 20) + (13 \times 30) = 980 + 140 + 390 = 1,510$

(1P) LIFO:  $(15 \times 12) + (20 \times 30) + (7 \times 20) + (13 \times 28) = 180 + 600 + 140 + 364 = 1,284$

## **A2 Break-Even Analysis**

**(4 pt)**

Tucano, a company specialized in roasting world's finest coffee is analyzing the profitability of its new product, Taste of Ethiopia. The average price per package is €12, while the average variable cost per unit is €4. The company has a break-even turnover of €48,000.

**a) Calculate the contribution margin per package, the sales volume at the break-even point and the total fixed costs for the production of coffee packages. (3 pt)**

$$\text{Break Even Point} = \frac{FC}{P-VC}$$

$$(1p) \text{ Contribution Margin per package} = €12 - €4 = €8$$

$$(1p) \text{ Sales Volume at Break Even} = €48,000 / €12 = 4,000 \text{ packages}$$

$$(1p) \text{ Fixed costs} = €8 * 4,000 \text{ packages} = €32,000$$

**b) Assume that Tucano would like to reach the break-even point while selling only 3,200 packages. Neither the price nor the fixed costs can be altered. Determine the new average variable cost per package that is required to reach the break-even point while selling only 3,200 packages. (1 pt)**

$$\frac{€ 32,000}{€ 12 - VC} = 3,200 \text{ packages}$$

$$(1p) € 12 - \frac{€ 32,000}{3,200 \text{ units}} = VC = € 2$$

## PART B – STRATEGY

(10 pt)

### B1 Make or Buy Decision

(6 pt)

A firm's decision to perform an activity itself or to purchase it from an independent firm is called a make-or-buy decision. "Make" means that the firm performs the activity itself; "buy" means it relies on an independent firm to perform the activity, perhaps under contract. Deciding to buy an activity rather than making it in-house has advantages and disadvantages.

Due to the great results of the Austrian football national team at the qualifier campaign for the EURO 2020, the manufacturer of official merchandise wants to expand its range of products by a "hero's collection" of jerseys. As the company's CEO, you need to decide whether the production of the jerseys should be done in-house or whether it should be outsourced. The following figures are available:

- Net sales price per jersey is EUR 79.90
- Sales are estimated to reach 38,000 jerseys in the first year
- In case of in-house production, the following costs are incurred:
  - Cost of material per jersey EUR 19.70
  - Labor costs per jersey EUR 11.60
  - Other variable costs per jersey EUR 22.20
  - Fixed costs per year amount to EUR 800,000.
- Alternatively, the company "Football International" offers complete production for EUR 2,800,000.

**Would you consider producing the jerseys in-house or outsourcing this activity?  
Mark your decision with an X below and explain why.**

	Produce jerseys in-house
X	Outsource the production of jerseys <b>(2p)</b>

**Why? Please explain below.**

Produce jerseys in-house  
Calculation: --> Total Costs for Y1=  
 $(19.70+11.60+22.20)*38,000+800,000=2,833,000$  **(1p)**  
Net Sales for Y1=  $38,000*79.90=3,036,200$  **(1p)**  
**Profits for Y1=3,036,200-2,833,000= 203,200 (1p)**

Outsource the production of the jerseys  
Calculation: --> Total Costs for Y1= 2,800,000  
Net Sales for Y1=3,036,200  
**Profits for Y1=3,036,200-2,800,000=236,200 (1p)**

## **B2 The Challenge of Discontinuity**

**(4 pt)**

Organizations have to recognize that if they do not change their offerings and the ways they create and deliver those offerings, they run the risk of being overtaken. Changing conditions, such as discontinuous events might trigger this need for change. Discontinuous conditions can cause disruption to established players. This makes learning to anticipate and deal with such conditions a key strategic challenge for established players—and a wonderfully rich opportunity for new entrepreneurial players.

**Name at least 2 possible triggers/sources of discontinuity on the market, explain them and state why these changes might cause problems for established companies:**

### **New market emerges (1)**

**Explanation: (0,5)** Most markets evolve through a process of growth, segmentation, etc. But at certain times completely new markets emerge which cannot be analyzed or predicted in advance or explored through using conventional market research/analytical techniques.

**Problems posed: (0,5)** Established players don't see it because they are focused on their existing markets. May discount it as being too small or not representing their preferred target market—fringe/cranks dismissal. Originators of new product may not see potential in new markets and may ignore them—e.g. text messaging

### **New technology emerges**

**Explanation:** Step change takes place in product or process technology—may result from convergence and maturing of several streams (e.g. industrial automation, mobile phones) or as a result of a single breakthrough (e.g. LED as new white light source)

**Problems posed:** Don't see it because beyond the periphery of technology search environment.

Not an extension of current areas but completely new field or approach. Tipping point may not be a single breakthrough but convergence and maturing of established technological streams, whose combined effect is underestimated. Not invented here effect—new technology represents a different basis for delivering value—e.g. telephone vs. telegraphy

### **New political rules emerge**

**Explanation:** Political conditions which shape the economic and social rules may shift dramatically—for example, the collapse of communism meant an alternative model—capitalist, competition—as opposed to central planning—and many ex-state firms couldn't adapt their ways of thinking

**Problems posed:** Old mindset about how business is done, rules of the game, etc. are challenged and established firms fail to understand or learn new rules

### **Running out of road**

**Explanation:** Firms in mature industries may need to escape the constraints of diminishing space for product and process innovation and the increasing competition of industry structures by either exit or by radical reorientation of their business

**Problems posed:** Current system is built around a particular trajectory and embedded in a steady state set of innovation routines which militate against widespread search or risk-taking experiments

### **Sea change in market sentiment or behavior**

**Explanation:** Public opinion or behavior shifts slowly and then tips over into a new model—for example, the music industry is in the midst of a (technology-enabled) revolution in delivery systems from buying records, tapes, and CDs to direct download of tracks in MP3 and related formats. Long-standing issues of concern to a minority accumulate

momentum and suddenly the system switches/ tips over—for example, social attitudes to smoking or health concerns about obesity levels and fast foods

**Problems posed:** Don't pick up on it or persist in alternative explanations—cognitive dissonance—until it may be too late Rules of the game suddenly shift and then new pattern gathers rapid momentum wrong-footing existing players working with old assumptions

### **Business model innovation**

**Explanation:** Established business models are challenged by a reframing, usually by a new entrant who redefines/reframes the problem and the consequent 'rules of the game'

**Problems posed:** New entrants see opportunity to deliver product/service via new business model and rewrite rules—existing players have at best to be fast followers

### **Unthinkable events**

**Explanation:** Unimagined and therefore not prepared for events which—sometimes literally— change the world and set up new rules of the game.

**Problems posed:** New rules may disempower existing players or render competencies unnecessary

### **Shifts in 'techno-economic paradigm'—systemic changes which impact whole sectors or even whole societies**

**Explanation:** Change takes place at system level, involving technology and market shifts. This involves the convergence of a number of trends which result in a 'paradigm shift' where the old order is replaced.

**Problems posed:** Hard to see where new paradigm begins until rules become established. Existing players tend to reinforce their commitment to old model, reinforced by 'sailing ship' effects.

## PART C – BUSINESS INSIGHTS

(10 pt)

Please indicate whether the following statements are true (T) or false (F)

<b>F</b>	BRICS stands for Brasil, Russia, India, China and Singapore.
<b>F</b>	The « Big Three » Consulting Firms also known as MBB comprise McKinsey, Boston Consulting Group and BDO Consulting.
<b>T</b>	Christine Lagarde is currently the president of the European Central Bank.
<b>F</b>	The Worldbank is headquartered in New York.
<b>T</b>	Instagram was acquired by Facebook in 2012.
<b>F</b>	According to Fortune Global 500, Apple is by far the world's most profitable company.
<b>T</b>	Conglomerates are large companies that are made up of independent entities that operate in multiple industries. Many conglomerates are multinationals and multi-industry corporations.
<b>F</b>	Porter's Five Forces is a framework for analyzing a company's competitive environment, and it includes:  1. Competition in the industry 2. Potential of new entrants into the industry 3. Power of suppliers 4. Power of customers 5. Barriers for exiting the market
<b>T</b>	The Group of Seven (G7) is an international intergovernmental economic organization consisting of the seven largest IMF-described advanced economies in the world: Canada, France, Germany, Italy, Japan, the United Kingdom and the United States.
<b>T</b>	It is possible for a firm to make a profit but still have a negative Cash Flow.

## PART D – FINANCE

(9 pt)

**D1: An investment of €250 will result in €448.9 in two years. What is the annual interest rate? (2pt)**

$$250 * (1+r)^2 = 448.9 \text{ (1p)}$$

$$r = 34\% \text{ (1p)}$$

**D2: Net present value (NPV) (2pt)**

Please calculate the net present value (using the NPV method) for these two projects. The discount rate is 10%. Do not consider any terminal values. Projects X and Z have the following cash flows (in EUR).

	End-of-Year Cash Flows			
	0	1	2	3
Project X	-650	500	300	100
Project Z	-650	100	300	600

$$\text{NPV (project X)} = -650 + 500/1,1 + 300/(1,1^2) + 100/(1,1^3) = 127.6 \text{ EUR (1p)}$$

$$\text{NPV (project Z)} = -650 + 100/1,1 + 300/(1,1^2) + 600/(1,1^3) = 139.6 \text{ EUR (1p)}$$

**D3: Please indicate whether the following statements are true (T) or false (F) (5 pt)**

<b>T</b>	In a Discounted Cash Flow (DCF) analysis, the terminal value captures the value of a project beyond the projection period when future cash flows can be estimated.
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<b>T</b>	A derivative is a financial instrument / contract that derives its value from the performance of an underlying entity (interest rate, index, asset, etc.)
<b>T</b>	Payback period is defined as the period of time required to recover the cost of an investment.
<b>F</b>	Goodwill is a tangible asset that represents the value of a business' reputation.
<b>F</b>	EBITDA stands for Earnings Before Interest, Tax, Depreciation, and Amortization and is calculated by subtracting operating expenses, depreciation and amortization from revenue.

## PART E – LOGIC AND PROBLEM SOLVING (10 pt)

Please indicate the correct answers.

- a) "Paul went shopping with E-Euros. He spent 20 per cent of his money on a hoodie and 25 per cent of what was left on a pair of running shoes. What per cent of the original E-Euros did he spend?" (2)

	25%
x	40%
	45%
	47%
	50%

- b) Running at the same constant rate, 6 identical machines can produce a total of 33 casks per hour. At this rate, how many casks could 14 such machines produce in 4 hours? (2)

	66
	154
x	308
	616
	924

- c) The "Morning-Run Vienna" reported 45 starting teams of a dozen (12) runners each. By noon, four-ninths of the teams had finished the race, and 80 percent of the remaining teams finished the race by one o' clock. How many teams had not finished the race by one o' clock? (2)

	2
x	5
	8
	12
	24

- d) Of the 50 members of a manufacturer's staff, 40% worked the day shift and the remaining 60% worked the night shift in a given period. Of the staff members, 80% prefer working the day shift and the remaining 20% prefer working the night shift. What is the minimum number of staff members who failed to receive his or her preference of shift that period? (2)

	15
	17
x	20
	25
	30

- e) Anita's average (arithmetic mean) test score on 4 tests is 68. What must be the student's score on a 5th test for the average score on all 5 tests to be 70? **(2)**

	70
	72
	74
	76
x	78

## PART F – ECONOMICS

(12 pt)

### F1 Equilibrium price and quantity

(3) pt

The demand function for Dell computer monitors is:  $D = 2000 - 7 * P$ .

The supply function respectively is:  $S = -200 + 3 * P$ .

P represents the price.

**What is the price and quantity of monitors bought and sold at equilibrium?**

The equilibrium quantity will be where supply equals demand :

$$2000 - 7P = -200 + 3P \text{ (1p)}$$

$$2200 = 10P$$

$$P = 220 \text{ (1p)}$$

P = 220 into the supply or the demand equation:

$$S = 2000 - 7 * 220 = 2000 - 1540 = 460 \text{ (1p)}$$

**Thus, the equilibrium price is 220, and the equilibrium quantity is 460.**

### F2 Please tick the appropriate answer

(9 pt)

**a) If a firm's price is equal to the marginal revenue, the firm...**

	Maximizes profits
X	Faces a horizontal demand curve
	Should produce as much as possible
	Is operating at a loss

**b) What are the three factors of production?**

	Labor, capital, money
	Land, capital, money
	Capital, money, supply
X	Land, capital, labor

**c) What does the abbreviation „PPF“ means in economics?**

	Probable Production Frontier
X	Production Possibility Frontier
	Probable Projection Frontier
	Projected Possibilities Frontier

**d) What does the law of demand state?**

	The quantity demanded of a good or service does not vary with its availability
	The quantity demanded of a good or service does not vary with its price

X	The quantity demanded of a good or service varies inversely with its price
	The quantity demanded of a good or service varies inversely with its availability

**e) What is price elasticity of demand?**

X	The responsiveness of the quantity demanded of a good or service to increase in its price when nothing but the price changes.
	The responsiveness of the quantity demanded of a good or service to increase in its price when both price and demand changes.
	The responsiveness of the quantity demanded of a good or service to increase in its price when the price remains constant.
	The responsiveness of the quantity demanded of a good or service to increase in its price when the demand decreases.

**f) The Phillips Curve states that :**

	Higher inflation is associated with higher unemployment.
X	Higher inflation is associated with lower unemployment.
	There is no relationship between inflation and unemployment.
	Inflation and unemployment affect economic growth.

**g) Two products, for which an increase in demand for one leads to an increase in demand for the other are:**

	Bargain
	Substitute good
X	Complementary good
	Inferior good

**h) Sticky prices :**

	Are quick to change in response to a change in demand.
X	Are slow to change in response to changes in supply or demand.
	Are quick to change in response to a change in supply.
	Do not change at all in response to changes in supply or demand.

**i) Asymmetric information between a buyer and a seller prior to sealing a deal is often referred to as :**

X	Adverse selection
	Moral hazard
	Arbitrage
	Market failure