



11048 Introduction to Management – Final Exam (ST 2012)

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You have 120 minutes time in which you can reach a maximum of 120 points. The final exam accounts for 50 percent of your final grade. There are a few pieces of advice we can offer at this stage:

1. Use the theoretical tools and terminology you have learned in class and from the textbook.
2. Make sure there is a clear structure in your argument. Use some time to sort your ideas before you start writing the version you want to submit.
3. Use the time you have! If you are ready much earlier than we planned, you should wonder if you forgot something.
4. Write legibly. The less we can read your handwriting, the fewer points you will receive.
5. Leave a margin for our comments.
6. You are welcome to use a non-programmable calculator.
7. Dictionaries and translators are not allowed.

Last Name, First Name: _____

Student ID-number: _____

Please solve four (4) – and only four – of the following five (5) problems (maximum of 30 points per problem). If you present solutions to more than four problems, only the first four solutions in your answer sheet will be graded. Therefore, make sure to cancel out clearly what should not be graded.

1. Strategy

- a) M. E. Porter is one of the leading authorities in the field of corporate strategy.
 - i) Explain Porter's concept of "generic strategies" and name the generic strategies. (6 points)
 - ii) Give real life examples for each of the generic strategies. (3 points)
 - iii) What does Porter mean by "stuck in the middle"? (1 point)
- b) Another well-known framework proposed by Porter is the "Five Forces analysis".
 - i) Explain the "Five Forces" framework by Porter. Use a figure to illustrate your explanation and label all the elements clearly. (10 points)
 - ii) What is the purpose of the framework? (2 points)

- c) Assume that the FauWeh Company can produce an automobile at a constant marginal cost of €4,000. The demand for the car in the Magdeburg area is: $P = 60,000 - 100Q$.
 - i) What is the profit-maximizing price and quantity? (6 points)
 - ii) What is the profit from this activity? (2 points)

2. Basics of Accounting

Pear Inc. is a leading producer of consumer electronics. In the following you can see the balance sheet at the beginning of the year 2011.

Pear Inc.
Balance sheet
For the year beginning January 01, 2011
(in millions of U.S. dollar)

| Resources | | Sources | |
|-------------------------------|-------|---------------------|-------|
| Cash | 450 | Accounts payable | 300 |
| Accounts receivable | 50 | Notes payable | 400 |
| Inventory (finished goods) | 520 | Contributed capital | 250 |
| Property, plant and equipment | 380 | Retained earnings | 500 |
| Other assets | 50 | | |
| | 1.450 | | 1.450 |

Over the course of the year the following activities occur:

1. Pear Inc. pays out \$60 million in cash as dividends to its shareholders.
 2. Pear Inc. sells half of its inventory for \$400 million on credit.
 3. Two weeks before buying new machines, Pear Inc. takes out a loan of \$150 million from a bank to finance the next transaction (4.).
 4. To produce the latest version of its mePad, Pear Inc. purchases the new machines for \$150 million in cash.
 5. Pear Inc. pays out \$90 million in cash as wages to its workers.
 6. One of the managers of Pear Inc. buys himself a private jet worth \$25 million, paying in cash with his own money.
 7. Pear Inc. receives \$30 million in cash due from customers.
 8. Pear Inc. repays a bank loan of \$80 million in cash.
- No other activities have to be considered.

- i) Pear Inc. asks you to prepare the balance sheet for the year that ended on December 31, 2011. Please do also calculate the net income of the company! (12 points)
- ii) Name the three types of main business activities that can be distinguished in the statement of cash flows and assign activities number 3, 4 and 5 to one of these types! Which of the eight activities outlined does not represent a business activity? (7 points)
- iii) What kind of information does the debt-to-equity ratio provide? Calculate this ratio for Pear Inc. at the beginning and the end of the year 2011! What does the difference tell you about the company? (5 points)
- iv) Financial ratios like the debt-to-equity ratio are helpful to quickly assess the information contained in financial statements. Give two further examples of such ratios and explain briefly, what they mean and how they are calculated in general. (6 points)

3. Incorporating your Business

- a) Explain the tax subject (Who pays?) and the tax object (Based on what?) of the income tax, corporate tax, trade tax and turnover tax. (6 points)
- b) Name four possible legal forms of organizations. (4 points)
- c) What are the ten crucial questions with respect to choosing the right legal form for a company? Answer them for one of the legal forms from part b). (20 points)

4. Production and Logistics

- a) Define the term supply chain and provide a brief graphical illustration. (3 points)
- b) Production functions vary in terms of how easily inputs can be substituted for one another. Explain the term isoquant and provide graphical presentations of an isoquant for (i) fixed proportion production, (ii) perfect substitutes, and (iii) the normal case. Briefly explain each of the three cases and give a real life example. (11 points)
- c) A company manufactures two types A and B of bicycles. Each bicycle consists of two wheels and one frame. The frames are type-specific (A and B, respectively), while the wheels for each bicycle are common. To its suppliers the company has to pay 10 € per wheel. A frame costs 100 € for type A and 250 € for type B per unit. The selling price for a bicycle amounts to 250 € for type A and 450 € for type B. Potential sales are limited by 50 bicycles of type A and 20 bicycles of type B. There exists a sales obligation of 10 units of bicycle type A. The number of wheels that can be supplied is limited by 240 units, and the supply of frames for type B is restricted to 15 units.
 - i) Describe the managerial production function for the company while using the following notation: (4 points)
 - F_A/F_B : number of frames type A/B
 - W : number of wheels
 - Q_A/Q_B : number of bicycles type A/B
 - ii) Calculate the marginal profits m_A and m_B for a single bicycle of type A and B. (4 points)
 - iii) Use the information given in the problem description and formulate the company's profit (TP) maximization problem as a Linear Program (Note: A solution is not required). (8 points)

5. Staffing

- a) Name and explain the three main problem areas of personnel planning. (10 points)
- b) The owner of a restaurant has estimated how much staff she needs throughout the week. The restaurant is open seven days ($p = 1, 2, \dots, 7$) a week. The daily personnel requirement (PR_p) recurs in a weekly rhythm which is shown below. (20 points)

| p | Mon | Tue | Wed | Thu | Fri | Sat | Sun |
|--------|-----|-----|-----|-----|-----|-----|-----|
| PR_p | 8 | 11 | 12 | 6 | 10 | 7 | 5 |

Your task is to find a roster which covers the daily personnel requirements in compliance with the restriction that each employee works 5 consecutive days and has 2 days in a row off. Use the First Period Principle to solve this problem!

| p | Mon | Tue | Wed | Thu | Fri | Sat | Sun |
|--------|-----|-----|-----|-----|-----|-----|-----|
| PR_p | 8 | 11 | 12 | 6 | 10 | 7 | 5 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| p | Mon | Tue | Wed | Thu | Fri | Sat | Sun |
|--------------------|-----|-----|-----|-----|-----|-----|-----|
| arithmetic average | | | | | | | |

| p | Mon | Tue | Wed | Thu | Fri | Sat | Sun |
|----------------|-----|-----|-----|-----|-----|-----|-----|
| cumulative sum | | | | | | | |
| integer | | | | | | | |

| p | Mon | Tue | Wed | Thu | Fri | Sat | Sun |
|-------------------------|-----|-----|-----|-----|-----|-----|-----|
| sum of the previous day | | | | | | | |
| difference | | | | | | | |

Roster:

| p | Mon | Tue | Wed | Thu | Fri | Sat | Sun |
|------------------------------|-----|-----|-----|-----|-----|-----|-----|
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Number of assigned employees | | | | | | | |
| PR_p | | | | | | | |