

School of Business

## WRITTEN EXAMINATION

Course **Logistics - Supply Chain Management and Sustainability G1F**

Sub-course

Course code **FÖ348G** Credits for written examination **5**

Date **241031** Examination time **08:15 – 12:30**

Examination responsible **Sandor Ujvari**

Teachers concerned

Aid at the exam/appendices

Other

- Instructions
- ☐ Take a new sheet of paper for each teacher.
  - ☐ Take a new sheet of paper when starting a new question.
  - ☒ Write only on one side of the paper.
  - ☒ Write your name and personal ID No. on all pages you hand in.
  - ☒ Use page numbering.
  - ☒ Don't use a red pen.
  - ☒ Mark answered questions with a cross on the cover sheet.

Grade points:

Each of three course goals is examined separately on the exam. For pass (E) at least 50% correct is required for each course goal or the whole exam is failed. If all course goals are answered at least 50% correct, the grade depends on the total score:

E: total score  $\geq 50\%$ ;

D: total score  $\geq 60\%$ ;

C: total score  $\geq 70\%$ ;

B: total score  $\geq 80\%$ ; and

A: total score  $\geq 90\%$ .

**Examination results should be made public within 18 working days**

*Good luck!*

Total number of pages: 4 including this one

**Learning Objective:**

**explain the basic concepts of logistics as well as explain the impact of logistics on companies and organizations,**

**Question 1**

**20p**

- a) Describe how Operations Management, Logistics, and Supply Chain Management are related, explain with an example (you can make one up/imagine one, or use Biocounter from the seminar with RealGame). 5p
- b) What impact can logistics have on companies and organizations regarding their profitability? Show with two examples from the lectures how logistics influence profitability. 5p
- c) The Logistics Strategy Drivers (from Harrison and van Hoek) shows important aspects that influences the logistics strategy of a supply chain. It gives input to how much a supply chain is efficient (and not flexible/responsive). Explain what that means and describe a highly efficient supply chain and what the demand profile and competitive profile may look like for the supply chain. 5p
- d) Describe the four V's of operations and processes (volume, variety, variation and visibility), and describe if and why it is possible to be excellent on all four? Also describe an organization (you can make one up/imagine one) with the four V's focused on very efficient and responsively designed operations. 5p

**Learning Objective:**

**describe and analyze logistics processes within and between companies**

**Question 2**

**20p**

- a) During the lectures several concepts have been presented such as measuring emissions in Scope 1, 2, and 3 in the supply chain, Cradle-to-cradle, and Life-cycle assessments (LCA). Use those concepts to explain the following quote from a company's sustainability report, also suggest what areas to focus on and in what ways could the company reduce its greenhouse-gas-emissions:

“Cradle-to-gate is the part of the product life-cycle before transferred to the customer. In the Volvo Group's overall GHG emission estimation, the use-phase emissions make up over 95% of the total life-cycle emission and is therefore top priority for decarbonization. The cradle- to-gate makes up approximately 4% of which the main part is made up by GHG scope 3: purchased goods and services.”

5p

- b) Assume that a supply chain is shortened with two steps in terms of:
- reduction of transportation, a step including a terminal is reduced to a direct transportation between the supplier and the customer
  - a production step is removed at the product producing company

What changes can be expected for the customer lead time (the time it takes for the end-customer to receive the product after order) and for the throughput time (the time it takes for the product to go through the supply chain)? You can make assumptions on the P:D-ratio for responding to demand.

5p

- c) Describe the procurement/purchasing process and also describe different types of relationships with suppliers and how the type of relationship can be related to the information flow between the companies in the relationship. What benefits/advantages can there be in sharing information more widely in the supply chain?

5p

- d) In production typically a series (a batch) of one type of products are produced followed by a setup/change-over. How does the size of a production batch (number of products of one type produced), the setup/change over time, and the flexibility of production (changing type of products produced) influence each other? Describe how this influenced the Realgame company (or some other company, you can make one up)?

5p

**Learning Objective:**

**understand the relationship between economic instruments and their relationship with inventory, and transports**

**Question 3**

**20p**

- a) What risks are there to use the concept of Just-In-Time with regard to transportation and low inventory levels? Also, how can the environmental impact of transportations be reduced. Does it appear to be reasonable to reach a fully sustainable transportation sector?  
5p
- b) How did the management of inventory levels influence your profit during the realgame seminar? How did your choice of transportation influence your profit. Describe and suggest how profits could be increased and greenhouse gas emissions be lowered in the future? You do not have to remember details, only the general aspects. (It is possible to use another made up company in your answer).  
5p
- c) Is it possible that a highly efficient product producing company has very short lead times (throughput times of material and goods) very high inventory levels, medium good quality levels and still be long term profitable? Motivate your answer. 5p
- d) What risks of waste can you see in companies keeping very high levels of inventory over long periods of time? Relate to a circular economy/closed-loop supply chain model and motivate your answer.  
5p