



WRITTEN EXAMINATION

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

Sub-course

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

Date **251219** 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 Logistics and Supply Chain Management are related, explain with an example (you can make one up/imagine one, or use Realgame from the seminar). 5p
- b) What impact can logistics have on companies and organisations regarding their profitability? Describe how profitability can be calculated using a formula and describe a dilemma where the choices that a company makes (you can make one up/imagine one) *reduces* cost (cost goes down) and *increases* revenue/sales (go up). 5p
- c) Some implications for Logistics Strategy Drivers, important aspects that influences logistics strategy (from Harrison and van Hoek) gives input to how much a supply chain is flexible/responsive or efficient/lean. Explain what that means and describe what a highly efficient supply chain looks like and what the demand profile and competitive profile may look like for such a supply chain. 5p
- d) Use for example your experiences in Realgame, or your own previous experiences, and explain why a focus on flows of materials can provide great benefits if a company can create a balance in the overall flow of products. Is it important to pay attention to the overall flow as well as the details? 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 which area to focus on for the company to 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 lengthened with two steps in terms of:

- a step including a terminal is added to the supply chain, instead of using direct transportation between the supplier and the customer
- inventory levels are increased 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 on how the supply chain responds 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 strategic choices of the purchasing company producing highly innovative products. 5p

d) In production typically a series (a batch) of one type of products is 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 what effect very long setup times can have.

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 transports be reduced? **5p**

b) How did the management of inventory levels influence your profit during the realgame seminar? How did your choice of when to make changeover between products influence your profit (long or short production runs)? Describe and suggest how profits could be increased and greenhouse gas emissions be lowered if you had continued operating the company in realgame? It is possible to use another made up company in your answer. **5p**

c) Is it possible that a highly responsive low volume 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) Choose either biological or technical materials in the figure and describe how a company that produces products in the chosen category can increase recirculation of material and decrease waste in their processes. You can describe a real company or you can make one up/imagine one. **5p**

