

**Example paper III – 3E10 and MS5  
Lent 2009**

**Question 1. Process Improvement**

Lean Thinking and the Theory of Constraints (TOC) have been seen as competing approaches to process improvement.

- a. What is the basic philosophy behind the Theory of Constraints?
- b. What is the difference between a "floating bottleneck", and a "permanent bottleneck"? What implications does this have for your capacity planning?
- c. Where does TOC agree with Lean Thinking, where does it disagree?

**Question 2. Production Planning and Control**

Manufacturing Resource Planning and Just-in-Time are two different approaches to planning and scheduling operations.

- a. Describe the general difference between Push- and Pull-based scheduling systems.
- b. Outline the key advantages of JIT-based scheduling systems over MRP-based systems.
- c. What are the pre-requisites for JIT-based scheduling systems to work effectively?

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