

# CS-E5360 Systems of Systems

## Examination May 25, 2018

Examiner: Kary Främling

*No written material is allowed in this exam. Calculators are not allowed. Submit at least one answer sheet, even if an empty one! Write on each answer sheet you submit the code of the course, the date, your name, and your student ID number.*

**1** (20 points)

Provide a description of the following concepts:

1. What does the concept “*network effect*” mean in the context of digital platforms?
2. What is the “*humpty-dumpty problem*” in digital platform architecture?

**2** (20 points)

Describe how Porter & Heppelmann define “*Smart, Connected Products*”. What components do Smart Connected Products consist of?

**3** (20 points)

What is the difference between an open and a closed (eco)system? What are the key factors determining their success and failure? When is which approach preferable and why? Give at least one example of a closed (eco)system and of an open (eco)system.

**4** (20 points)

What is a *Microservice Architecture*? When and why is a Microservice Architecture a good choice?

**5** (20 points)

What are the main challenges when building “secure Systems of Systems / secure IoT systems”? Explain at least what is meant by the concepts “identification”, “authentication”, “access control” (alternatively “authorization”) and “trust” and what is their role in building secure Systems of Systems.

***Good Luck!***