T-106.5250 Distributed systems

Examination 2011-03-10

Only writing tools are allowed in this exam. In each separate answer paper, write the name of the course, the date of the exam, the number of the answer paper and the total number of answer papers (in the form 'paper 1/2'), and your own name, study program, and student number.

Try to answer clearly. When preparing the answer for an essay, think first what you know about the subject and make some notes. Remember that the subject may have been described in several chapters of the book. Design an outline for your answer and only after that start writing. You can use subsection headers to make your answer clearer.

1. (12p) Give a short answer to following questions (max. 100 words per question):

   (a) What is an open distributed system?

   (b) What is name service and how it is implemented in the internet?

   (c) What are the ACID properties of transactions?

   (d) Why do we need middleware?

   (e) What are volatile systems?

   (f) In what circumstances can the byzantine generals problem be solved?

2. (6p) Essay: Implementation of remote method invocation (RMI).

3. (6p) Essay: Clocks and time in distributed systems.

4. (6p) Essay: The main classes of encryption algorithms and the use of cryptography in distributed systems.