Tampere University of Technology
Computer and Digital Systems Lab
Prof. Dr. Reiner Creutzburg

March 19, 2001
Exam: Parallel Memory Architectures (8403920)

Family Name: **First Name:**

Student Number:

Email address:

1. Explain the current situation and trends in processor speed and memory bandwidth development! Explain the memory hierarchy! Explain the memory latency and bandwidth!

2. Calculate the latency and the bandwidth of a memory system that takes 10 ns to service the access of a single 32-bit word!

3. Explain the basic structure of a parallel memory!

4. What relationships between linear, isotropic, regular, dyadic, periodic module assignment functions and diamond schemes do you know?

5. What is an isomorphism? Give an example for isomorphic linear module assignment functions for N = 12 and N = 23 memory modules!

6. Give an example of a dyadic module assignment function for N = 4 in a table form! What access formats can be derived?

7. Construct a module assignment function with basic domain of area 6! Study the possible access formats and corresponding placement sets! Try to improve this access scheme by introducing permutations towards a diamond scheme!