



Voor Nederlands z.o.z.

Every correctly answered question is good for at most 1 point. The final grade is the sum of the points for the questions. The midterm does not count.

1. Computer 1 has a 10-stage pipeline. The clock cycle is 1 nsec. Computer 2 has a 20-stage pipeline. The clock cycle is 4 nsec. If the execution time on computer 1 is 50 sec, how long is it on computer 2? Assume that there is no I/O. Ignore (conditional) branches.
2. What is the difference between interpretation and translation?
3. ASCII data with even parity is transmitted over a 56 kbps modem line. What percentage of the bits contains real data (in contrast to overhead)? Hint: think carefully.
4. Draw a circuit for a 4-bit comparator. You may use AND, OR, NOT, XOR, NAND, and NOR gates.
5. IJVM has a WIDE prefix. What is it for?
6. The Pentium uses out-of-order execution. Explain why this choice was made. Give an example of a problem this choice causes.
7. Convert the following postfix formula to infix: $A B + C D - * E / .$
8. The Windows NT file system, NTFS, uses a Master File Table (MFT). Explain how it works and what information it contains.
9. What is the difference between dynamic linking and static linking?
10. What is the difference between a multicomputer and a multiprocessor?