

1. (15%) (a) What is pipelined microprocessor? (b) What is superpipelined microprocessor? (c) What is superscalar microprocessor?
2. (15%) Explain why the operand and instruction must be aligned when stored in memory. What will happen if they are misaligned? If you're a programmer, what can you do to correct the misalignment.
3. (20%) Design a simple microprocessor-based system using a CPU, some RAMs, ROMs, I/O, address decoders and data buffer. (Draw the block diagram and explain the system).
4. (15%) What are the differences between RISC and CISC microprocessors?
5. (15%) There are three addressing types supported by bus: geographic addressing, logical addressing, and broadcast addressing. Describe their functions.
6. (10%) For cache performance, please define hit rate and miss rate.
7. (10%) describe virtual cache and what is the main problem for virtual cache.