# 2017年软院计组试卷简记

简答题：

1. Program-controlled I/O的优缺点
2. 中断嵌套是什么？
3. 画出memory hierarchy 并简述为什么这样组织
4. Condition： memory time of a word is 10ns，cache time is 1ns，hit ratio is 0.9

What’s average memory access time?

1. 这题计算磁盘容量 知道柱面个数等条件计算 把课本相关概念看熟就可以

综合题:

（1）条件：知道是余15码 用12位字长格式 6位是尾数

A：0 10010 011011 B：1 01111 101011

计算A+B

（2）设计指令格式的

条件: memory address 用15bits

register address 用3bits

有 7条 两个memory address和一个register address的指令

有 500条 一个memory address和一个register address的指令

有 50条 没有memory address和register address的指令

（3）给出了课本的图 让你写出 Store R6 30(R8）第二三四阶段的操作

（4）用 4Kx4 SARM chips设计 32Kx16 memory address

（5）

Load R1, 24(R2)

Load R2, 48(R2)

Add R3, R2, R1

Add R4, R3, #100

And R3, R3, #1

(1)Identify all the data dependencies. For each dependency, indicate the two instructions and the register that causes the dependency. (3 points)

(2)Assume that there is no forwarding path, draw a diagram to show the pipelined execution of the four instructions (3 points)

(3)Assume that there are separate forwarding paths from the outputs of stage-3 and stage-4 to the input of stage-3. Draw a diagram to show the pipelined execution of the four instructions. Indicate operand forwarding by arrows. (4 points)

（6）

条件：

8 blocks in main memory

Cache is 2-way set associate cache

There are 2 lines in a cache.

The line side 16bytes.

1. Format of main memory address
2. Format of main cache address
3. Access blocks:6 2 4 1 4 6 3 0 4 5 7 3

Use LRU

Ask you to calculate the hit rate