四川大学期末考试试题（闭卷）

（2016~2017 学年第 1 学期）　　　　B 卷

课程号：311077030　课程名称：计算机组成和体系结构　任课教师：

适用专业年级：软件工程 2015 级　学号：　姓名：

考生承诺

我已认真阅读并知晓《四川大学考场规则》和《四川大学本科学生考试违纪作弊处分规定（修订）》，郑重承诺：

1、已按要求将考试禁止携带的文具用品或与考试有关的物品放置在指定地点；

2、不带手机进入考场；

3、考试期间遵守以上两项规定，若有违规行为，同意按照有关条款接受处理。

考生签名：

题　号	一(30%)		二(40%)	三(18%)		四(12%)
得　分						
阅卷时间		教师签名		阅卷时间		

注意事项： 1. 请务必将本人所在学院、姓名、学号、任课教师姓名等信息准确填写在试题纸和添卷纸上；

2. **请将答案全部填写在本试题纸上；**

3. 考试结束，请将试题纸、添卷纸和草稿纸一并交给监考老师。

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评阅教师	得分

一、简答题（本大题共 6 小题，每小题 5 分，共 30 分）。

提示：解释每小题所给名词的含义，若解释正确则给分，若解释错误则无分，若解释不准确或不全面，则酌情扣分。

1.（共 5 分）What is RISC and CISC?

2.（共 5 分）What is pipelining?

3.（共 5 分）What is interrupts?

4.（共 5 分） Explain Indirect Addressing.

5.（共 5 分）Explain the Spatial locality.

6.（共 5 分）What is the two types of cache write policies?

评阅教师	得分

二、填空题（本大题共 20 空，每空 2 分，共 40 分）。

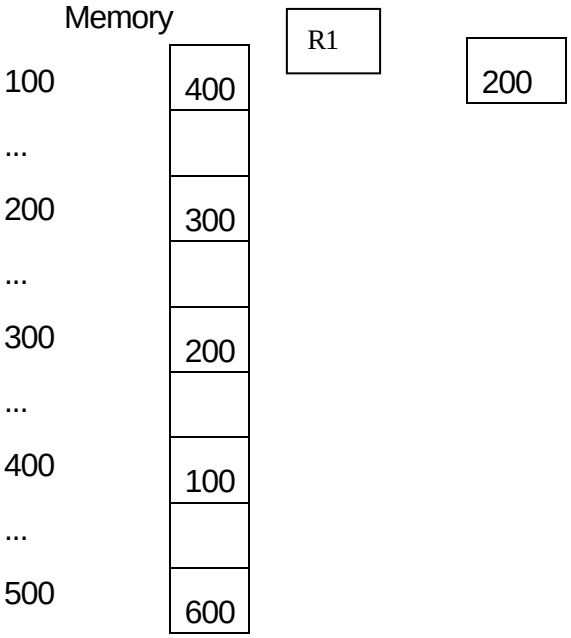
1. The main components of a von Neumann computer is _____ ,_____ ,_____.
2. The architecture runs programs known as the Von Neumann execution cycle is : _____, _____ ,_____ cycle.
3. A 4M × 16 main memory required _____ bits to address if it's byte-addressable, and _____bits to address if it's word-addressable
4. A 2M × 16 main memory is built using 256KB × 8 RAM chips and memory is word-addressable, it required _____RAM chips; the address 14 (dec) would be located bank_____for high-order interleaving , and bank _____for low-order interleaving counting from 0.
5. The first two bytes of a 2M x 16 main memory have the following hex values: Byte 0 is FE, Byte 1 is 01, these bytes hold a 16-bit two's complement integer. If the memory is big-endian, its actual decimal value is_____, if the memory is little-endian, its actual decimal value is _____
6. A digital computer has a memory unit with 24 bits per word. The instruction set consists of 150 different operations. All instructions have an operation code part (opcode) and an address part (allowing for only one address). Each instruction is stored in one word of memory. The opcode needed_____ bits, the address part has _____ bits, and the maximum allowable size for memory is _____.
7. Suppose a computer using direct mapped cache has 2^{20} words of main memory, and a cache of 32 blocks, where each cache block contains 16 words. There are _____blocks of the main memory, and the format of memory address as_____ bits for tag, bits for block, _____ bits for word fields.

评阅教师	得分

三、问答题（本大题共 3 小题，每小题 6 分，共 18 分）。

1.（共 6 分）Explain the difference between programmed I/O and interrupt-driven I/O.

2.（共 6 分）Suppose we have the instruction Load 100. Given that memory and register R1 contain the values below:



Assuming R1 is implied in the indexed addressing mode, determine the actual value loaded into the accumulator and fill in the table below:

Mode	Value Loaded into AC
Immediate	
Direct	
Indirect	
Indexed	

3.（共 6 分）Define the terms seek time, rotational delay, and transfer time. Explain their relationship.

评阅教师	得分

四、计算题（本大题共1小题，每小题12分，共12分）。

提示：计算过程中重复性、类似的计算步骤不必全部列出。但若只给出计算结果，则酌情扣分。

1.（3分）Convert the following expressions from reverse Polish notation to infix notation.

a. W X Y Z - + *

b. U V W X Y Z + * + * +

c. X Y Z + V W - * Z + +

2.（共9分）Use Huffman algorithm to create Huffman codes for the following rhyme. Use <ws> for whitespace instead of underscores:

GET_THE_WISH_I_WISH_TONIGHT_FIRST_STAR_I_SEE_TONIGHT