Course Name:计算机组成原理
Course Code:CS202
Spring Season 2021-2022

Assignment 2

Due Date : March, 15, 2021 (day)

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Score : _____

Problem 1 (2.10) Score: _____

Solution: The translated code into C is: f = 2*（&A） □

Problem 2 (2.12) Score: _____

Solution: 1. 0x50000000

2. overflow, not the desired answer.
3. 0xb0000000
4. It is the desired answer.
5. 0xd0000000
6. overflow, not the desired answer.

□

Problem 3 (2.14) Score: _____ 0000 0010 0001 0000 1000 0000 0010 0000

Solution: It is in r-type.
$\underset{\text{opcode-add}}{\underline{000000}}$ $\underset{\text{rs}}{\underline{10000}}$ $\underset{\text{rt}}{\underline{10000}}$ $\underset{\text{rd}}{\underline{10000}}$ $\underset{\text{shamt}}{\underline{00000}}$ $\underset{\text{funct}}{\underline{100000}}$
So the assembly language instruction i, add $s0, $s0, $s0 □

Problem 4 (2.16) Score: _____

Solution: From funct=34 and check the table we can know it is a sub operation. So the instruction in assembly language is:
sub $v1, $v1, $v0 (r-type) And it represent in binary form is: $0000\_0000\_0110\_0010\_0001\_1000\_0010\_0010_{(2)}$ □

Problem 5 (2.19) Score: _____

Solution: 1. The value stored in $t0 is shifted four places to the left and bitwise or with the value stored in $t1.
The answer is: 0xbabefef8.

2. The value stored in $t0 is shifted four places to the left and bitwise joined with 1111_1111_1111_1111_1111_1111_1111_1111
The answer is: 0xaaaaaaa0.
3. The value stored in $t0 is shifted three places to the right and bitwise joined with 0000_0000_0000_0000_1111_1111_1110_1111
The answer is: 0x00005545.

□

Problem 6 (2.23) Score: _____

Solution: The first instruction set $t2 to 1 because $t0 > 0 is true. Then go into the 'ELSE' branch and set $t2 to $t2 plus 2. So after that $t2 equal to 3. □