컴퓨터구조 Assignment-2 (Fall 2015)

1. 문제는 쓰지 말고 풀이 과정과 답만 쓸 것. 문제 쓰면 감점!
2. Hand-written only.
3. Later submission is not allowed for any reason.

1. [modified EX. 3.12] Using a table similar to that shown in Figure 3.6, calculate the product of the unsigned 6-bit integers multiplicand=17_{ten}=010001_{two} and multiplier=46_{ten}=101110_{two} using the hardware described in Figure 3.5. You should show the contents of each register on each step. (2점)

2. Using a table similar to that shown in Lecture slide 7-18, calculate the product of the signed 6-bit integers multiplicand=+17_{ten}=010001_{two} and multiplier=-18_{ten}=101110_{two}, using Booth's algorithm. You should show the contents of each register on each step. Assume multiplicand and multiplier are 6-bit signed two's-complement integers. (2점)

3. [modified EX. 3.18 and EX. 3.19] Using a table similar to that shown in Figure 3.10, calculate A=000011 110110_{two} ÷ B=001110_{two} using the hardware described in Figure 3.11. You should show the contents of each register on each step. (2점)

4. Using a table similar to that shown in Lecture slide 8-15, calculate A=000011 110110_{two} ÷ B=001110_{two} with nonrestoring division algorithm. You should show the contents of each register on each step. (2점)

5. [modified EX. 3.23] Find the binary representation of the decimal number -19.125_{ten}, assuming the IEEE 754 single precision format. Change the binary representation into hexadecimal representation. (1점)

6. [modified EX. 3.22] What decimal number does the bit pattern 0x42290000 represent if it is a floating point number? Use the IEEE 754 standard. (1점)