

**National Sun Yat-Sen University**  
**ASSEMBLY LANGUAGE AND MICROCOMPUTER**  
**Program #2**  
**Due 11:59 PM Dec 3 2020**

1. <**Programming Problem II**> Write an ARM assembly code to implement a *arithm* program which can compute the specified arithmetic function and output the result to the screen. The execution format of this program is: *arithm intA intB op*. The function of the program is specified in the following table:

op	Operation	function
0	addition	$intA + intB$
1	subtraction	$intA - intB$
2	Bit-reverse	$intA_{[0:31]} (intB \text{ ignored})$
3	division	$intA / intB$
4	maximum	$max(intA, intB)$
5	exponent	$intA^{intB}$
6	greatest common divisor	$gcd(intA, intB)$
7	multiplication	$intA * intB_{[31:0]}$
8	least common multiply	$lcm(intA, intB)$

The input arguments *intA*, *intB* and *op* are all **positive integers**. For example, if you execute the program as follows:

*arithm 4 3 8*

Then the screen should display the following results

**Function 8: least common multiply of 4 and 3 is 12.**

If you execute

*arithm 4 3 4*

Then the screen should display the following results

**Function 4: maximum of 4 and 3 is 4.**

If you execute something like:

*arithm 4.2 -3 1*

Then the screen should display the following results

**Invalid input operands: 4.2, -3**

For bit-reverse operation, you can display the reverse result in either binary or decimal format.

Your code should follow the coding style for **switch** as shown in the bottom of page 171 of the textbook. For the division operation, you just need to calculate the quotient.

Note:

- (a) Your assembly code should follow the APCS rules described in the textbook.

- (b) The submission of your homework should follow the method announced by TA before the deadline. Homework submitted after the deadline will not receive any score.