CPE 390: Microprocessor Systems

HW1
Due: 2/8/18

1. What are +92 and -92 (decimal) as two's complement 8-bit <u>hexadecimal</u> numbers?

2. What is the difference between:

   ldaa   #83

   ldaa $83

   ldaa   83

   ldaa   #$83

3. Write an instruction sequence to store the sum of memory locations $4500 and $4504 into location $3000 and their difference into location $3001

4. Write an instruction sequence to swap the 16-bit data stored at location $3001~$3002 with the 16-bit data stored at $400C~$400D.

5. Write an instruction sequence to perform operations equivalent to the following high level language statements:

   i = 53;
   j = 36;
   k = i + j - 47 ;

   Assume that i, j and k are 8-bit signed integers stored in locations $5000, $5004 and $500C respectively. Also note that the first two statements should be thought of as <u>executable run-time assignments</u> – not compile-time initializations.

6. Repeat previous problem assuming that i, j and k are 16-bit signed integers. Which memory location will hold the least significant byte of the result k?

7. What will be contents of accumulator D after the following instruction sequence?

   movw #$9876, $3000
   movw #$CCA1, $3002
   ldx   #$3000
   ldab   3, X+
   ldaa   -1, X

8. What will be the contents of accumulators A and B and registers X and Y after the following instruction sequence?

   ldd   #$849C
   ldx   #260
   tfr   B, Y
   tfr   X, A
   exg   X, Y