

Exam 1 Sample Solutions: CS 2318 (Assembly Language, §251,5&6, Spring 2025) *by Lee S Koh*

Q1-5 (should be clear from graded exam paper)

Q6 -11 11011 10101 10011
 13 01101 01101 overflow
 -5 10101 11011 11001
 -16 overflow 10000 01110

Q7 $110.011_2 = 0110.0110_2 = 6.8h$

Q8 Carry bits: 111110110
 Sum bits: 00010100
 Overflow: No
 Explain: C, H

Q9 Overflow: Yes
 Explain: B

Q10 $((1*4 + 2)*4 + 0)*4 + 3 = 99$

Q11 (should be clear from graded exam paper)

Q12 "bitwise-AND"ing result: 101010
 "bitwise-OR"ing result: 101010
 "bitwise-XOR"ing result: 000000

Q13 FF8A
 007B

Q14 011 1111
 10 0001

Q15 1 ("smaller" of the 2 -ve: 1 less contribution @ 25th position, 1 more @ 11th position)
 2 ("larger" of the 2 -ve: 1 more contribution @ 25th position, 1 less @ 11th position)
 4 ("larger" of the 2 +ve: 1 more contribution @ 11th position)
 3 ("smaller" of the 2 +ve: 1 less contribution @ 11th position)

Q16 C282CCCC $65.4 = 1000001.0110_2 = 1.00000100110_2 \times 2^6$
 sign bit: 1; biased exponent: $6+127 = 10000101_2$; fraction: 00000100110
 1 10000101 00000101100110011001100_2

