CSC-365 Computer Architecture
Fall 2008

Assignment #2 (10 points)

Due Sept 17, 2008

1) Practice with integer arithmetic: (use 10 bit word size)
   a) For the following, what is the result (show the binary representation and the decimal result and state when there was overflow or underflow and assume 2's complement for everything)
      i) What is the largest positive number possible?

      ii) What is the most negative number possible?

      iii) 256 + 300 =

      iv) 75 + 100 =

      v) -256 + 255 =

      vi) -400 – 200 =

      vii) 75 * (-5) =

2) Practice with IEEE Floating Point representation:

   a) What is the general equation for binary floating point representation?

   b) For a 10 bit number with 4 bit exponent and a 5 bit fractional part (1 sign bit) derive the following (for each item below show the bit representation, the bit fields for exponent and fraction, the work of plugging these into the equation from a) and the final decimal value if appropriate).

      i) What is the representation for ‘0’?

      ii) What is the representation for ‘1’?

      iii) What is the representation for infinity?

      iv) What is the smallest positive De-normalized value that is not zero?

      v) What is the largest positive De-normalized value that is not zero?

      vi) What is the smallest positive Normalized value?

      vii) What is the largest positive Normalized value?