# COMP30660 In-class Quiz
October 2016

1) In a number system that is base *n* with digits 0,1,2,3,...,W,X,Y, what is the representation for the number *n*?

_____

2) An example MAC address represented in hex is 54:88:0e:0e:7d:49. How many unique device addresses can this format support?

_____

3) What higher level operation is enabled by a shift register?
   a) Addition
   b) Subtraction
   c) Multiplication
   d) Division
   e) Both a and b
   f) Both c and d.

4) Write down the logical expressions for S and C_{OUT} in the circuit below.
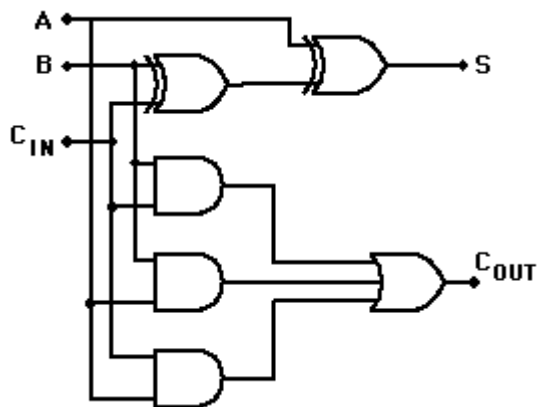
   a) S   _____

   b) C_{OUT} _____

5) Name three different types of register in a CPU.

   i. _____

   ii. _____

   iii. _____

6) The width of the address bus determines the amount of data that can be fetched in a single cycle:

       True ☐   False ☐

7) The width of the data bus determines the amount of memory addressable by the CPU:

       True ☐   False ☐

8) Name the three forms of locality that cause caching to be effective:

i. _____ ii. _____ iii. _____

9) Caching has become more important in recent years because memory access times are increasing faster than CPU speeds can keep up.

       True ☐   False ☐

10) The original Pentium 4 processor had a four-way set associative L1 data cache of 8 KB in size, with 64-byte cache blocks.

    a) Thus, how many blocks (lines) were there in the cache?   _____

    b) How many bytes could be stored in the cache altogether?   _____