

# COMP 3350 Homework #1

Please show work (where needed) for each problem

1. How many bits are in:
  - a. A byte (8 bits)
  - b. A word (16 bits)
  - c. A doubleword (32 bits)
2. Convert the following unsigned base2 numbers (binary) to base 16 numbers (hexadecimal):
  - a. 0110 0001 1111 (61F)
  - b. 1000 1111 1100 (8FC)
  - c. 0001 0110 0100 0101 (1645)
3. Convert the following signed base 2 numbers to base 10 numbers:
  - a. 1100 1010 (-54)
  - b. 1111 0010 (-14)
  - c. 1000 0111 (-121)
4. What is the range of (e.g. range of an unsigned nibble is 0 to 15):
  - a. An unsigned 7-bit number? (0 to 127)
  - b. A signed 7-bit number? (-64 to +63)
5. Provide the answer to following problems ( $\wedge$  = AND  $\vee$  = OR)
  - a.  $1000 \wedge 1110$  (1000)
  - b.  $1000 \vee 1110$  (1110)
  - c.  $(1000 \wedge 1110) \vee (1001 \wedge 1110)$  (1000)
6. List all general purpose registers in 32-bit mode  
EAX, EBX, ECX, EDX, ESI, EDI, EBP, ESP
7. Find the hexadecimal ASCII values for the following characters:
  - a. g (67)
  - b. ^ (5E)
  - c. \$ (24)
8. In a typical personal computer list from largest size (i.e. most total memory) to smallest:
  - a. DRAM (main memory) (2<sup>nd</sup> biggest)
  - b. SRAM (cache memory) (3<sup>rd</sup> biggest)
  - c. Hard drive (biggest)
  - d. Registers (smallest)