EE 1910

Dr. Johnson

Homework 3

1 – Write each of the following numbers using the designated representation you must show your work .   30pts

Decimal 67 to unsigned 8 bit binary

128	64	32	16	8	4	2	1
0	1	0	0	0	0	1	1

Decimal -67 to signed 8 bit binary

67 → x 64 32 16 8 4 2 1
        0   1 0 0 0 0 1 1
flip 1   0 1 1 1 1 0 0
add   1
      1   0 1 1 1 1 0 1

Decimal 93 to signed 8 bit binary

93 → x 64 32 16 8 4 2 1
        0   1 0 1 1 1 0 1
positive → no flip and add

2 – Write each of the following numbers using the designated representation you must show your work .   30pts

unsigned 8 bit binary 10011001 to decimal

$$128 + 0 + 0 + 16 + 8 + 0 + 0 + 1 = 153$$

signed 8 bit binary 10011001 to decimal

negative (msb is 1) - write down the – sign now
flip →   0 1 1 0 0 1 1 0
add   1
          0 1 1 0 0 1 1 1 → 0 + 64 + 32 + 0 + 0 + 4 + 2 + 1 = -103

signed 8 bit binary 01100110 to decimal

positive (msb is 0)
0 + 64 + 32 + 0 + 0 + 4 + 2 + 0 = 102

3 – Write each of the following numbers using the designated representation you must show your work .   40pts

unsigned 8 bit binary 10011001 to hex

                    0x   9   9

signed 8 bit binary 10011001 to hex

                    0x   9   9

hex 0x3B to unsigned 8 bit binary
                    0x   3   B
                         0011 1011

hex 0xB3 to signed 8 bit binary

                    0x   B   3
                         1011 0011