

EE 2920

Dr. Johnson

Homework 1

1 – Write each of the following numbers using the designated representation you must show your work . 20pts

Decimal Value (convert to 8 bit unsigned binary)  
196

Decimal Value (convert to 8 bit sign-magnitude)  
120

Decimal Value (convert to 8 bit one's-complement)  
123

Decimal Value (convert to 8 bit two's-complement)  
-84

Decimal Value (convert to BCD)  
67

Decimal Value (convert to 8 bit two's-complement)  
98

## 2 – Write each of the numbers in the designated representation in base 10 you must show your work . 20pts

Binary to decimal problems

Binary Value (8 bit unsigned binary) --> Decimal  
1000 1101

Binary Value (8 bit sign-magnitude) --> Decimal  
1010 1010

Binary Value (8 bit one's-complement) --> Decimal  
1010 1100

Binary Value (8 bit two's-complement) --> Decimal  
1100 0001

Binary Value (BCD) --> Decimal  
1001 0110

Binary Value (8 bit two's-complement) --> Decimal  
0100 0001

### 3 – Convert the following numbers - you must show your work.

10pts

Decimal Value --> Hex  
-88

Binary Value (8 bit two's-complement) --> Hex  
1100 0001

Binary Value (8 bit unsigned binary) --> Hex  
1100 0001

Hex Value (8 bit unsigned binary) --> Decimal  
0xCC

Hex Value (8 bit two's-complement) --> Decimal  
\$CC

4 – do the following using 8 bit 2's complement arithmetic  
you must show your work – 20pts

$$11 + 8 =$$

$$32 - 18 =$$

$$35 - (-53) =$$

$$-70 - 60 =$$

$$-13 + 72 =$$

5 – do the following using 8 bit 2's complement arithmetic  
you must show your work – 30pts

$$7 \times 9 =$$

5pts

$$15 \times -12 =$$

10pts

$$-5 \times -11 =$$

15pts