LaKaii Wilson
February 08, 2006
Computer Organization

Assignment #4

1. Convert Decimal to Binary

A. 47.375_{10}

2/ 47 …1	.375 * 2 = 0.75 …0	**$47.375_{10} = 101111.011_2$**
2/ 23…1	.75 * 2 = 1.5 …...1	
2/ 11…1	.5 * 2 = 1.0 …….1	
2/ 5…1		
2/ 2…0		
1		

B. 901.125_{10}

2/ 901 …1	.125 * 2 = 0.25 …0	**$901.125_{10} = 1110000101.001_2$**
2/ 450 …0	.25 * 2 = 0.5 ……0	
2/ 225 …1	.5 * 2 = 1.0 ……..1	
2/ 112 …0		
2/ 56 …0		
2/ 28 …0		
2/ 14 …0		
2/ 7 …1		
2/ 3 …1		
1		

C. 721.18_{10}

2/ 721 …1	.18 * 2 = 0.36 …0	**$721.18_{10} = 1011010001.001011_2$**
2/ 360 …0	.36 * 2 = 0.72 …0	
2/ 180 …0	.72 * 2 = 1.44 …1	
2/ 90 …0	.44 * 2 = 0.88 …0	
2/ 45 …1	.88 * 2 =1.76 …1	
2/ 22 …0	.76 * 2 =1.52 …1	
2/ 11 ...1		
2/ 5 …1		
2/ 2 …0		
1		

2. Convert Hexadecimal to Decimal

A. C_{16} **$C_{16} = 12_{10}$**

$12 * 16^0 = 12_{10}$

B. $9F_{16}$

$15 * 16^0 + 9 * 16^1 =$ **$9F_{16} = 159_{10}$**

$15 + 144 = 159_{10}$

C. $D52_{16}$

$2 * 16^0 + 5 * 16^1 + 13 * 16^2 =$ **$D52_{16} = 3410_{10}$**

$2 + 80 + 3328 = 3410_{10}$

D. $67E_{16}$

$14 * 16^0 + 7 * 16^1 + 6 * 16^2 =$ **$67E_{16} = 1662_{10}$**

$14 + 112 + 1536 = 1662_{10}$

E. $ABCD_{16}$

$13 * 16^0 + 12 * 16^1 + 11 * 16^2 + 10 * 16^3 =$ **$ABCD_{16} = 43981_{10}$**

$13 + 192 + 2816 + 40964 = 43981_{10}$

3. Convert Hexadecimal to Decimal

A. $F.4_{16}$ **$F.4_{16} = 15.25_{10}$**

$15 * 16^0 = 15_{10}$ $.4 = 4 * 16^{-1} = .25_{10}$

B. $D3.E_{16}$

$3 * 16^0 + 13 * 16^1 = 211_{10}$ $.E = 14 * 16^{-1} = .875_{10}$ **$D3.E_{16} = 211.875_{10}$**

C. 1111.1_{16}

$1 * 16^0 + 1 * 16^1 + 1 * 16^2 + 1 * 16^3 =$ $.1 = 1 * 16^{-1}$

$1 + 16 + 256 + 4096 = 4369_{10}$ $= .0625_{10}$

$1111.1_{16} = 4369.0625_{10}$

D. 888.8_{16}

$8 * 16^0 + 8 * 16^1 + 8 * 16^2 =$ $.8 = 8 * 16^{-1}$ **$888.8_{16} = 2184.5_{10}$**

$8 + 128 + 2048 = 2184_{10}$ $= .5_{10}$

E. $EBA.C_{16}$

$10 * 16^0 + 11 * 16^1 + 14 * 16^2 =$ $.C = 12 * 16^{-1}$

$10 + 176 + 3584 = 3770_{10}$ $= .75$ **$EBA.C_{16} = 3770.75_{10}$**

4. Convert Decimal to Hexadecimal

A. 16_{10} **$16_{10} = 10_{16}$**

16/ 16 … 0

1

B. 80_{10} **$80_{10} = 50_{16}$**

16/ 80 …0

5

C. 2560_{10} **$2560_{10} = A00_{16}$**

16/ 2560 …0

16/ 160 …0

10

D. 3000_{10} **$3000_{10} = BB8_{16}$**

16/ 3000…8

16/ 187…11

11

E. 62500_{10} **$62500_{10} = F424_{16}$**

16/ 62500 …4

16/ 3906…2

16/ 244 ...4

15

5. Convert Decimal to Hexadecimal

A. 204.125_{10} $.125_{10} = .125 * 16$ **$204.125_{10} = CC.2_{16}$**

16/ 204 …12 $= 2_{16}$

12

B. 255.875_{10} $.875_{10} = .875 * 16$ **$255.875_{10} = FF.E_{16}$**

16/ 255 …15 $= 14_{16}$

15

C. 631.25_{10} $.25_{10} = .25 * 16$ **$631.25_{10} = 277.4_{16}$**

16/ 631 …7 $= 4$

16/ 39 …7

2

D. 10000.00390625_{10} $.00390625_{10} = .00390625 * 16$

16/ 10000 …0 $= 0.0625$ …….0

16/ 625 …1 $.0625 * 16 = 1$

16/ 39 …7

2 **$10000.00390625_{10} = 2710.01_{16}$**