ESE224 Homework 1

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**Chapter 1.**

**6.** (b) **7.** (c) **9.** (a)

**10.** Converting each group of 3 binary digits:

**b)** (111 101 001 101 111)2 =

1x22+1x21+1x20 | 1x22+0x21+1x20 | 0x22+0x21+1x20 | 1x22+0x21+1x20 | 1x22+1x21+1x20=(75157)8

**c)** (1 010 111 001)2 = 1x20 | 0x22+1x21+0x20 | 1x22+1x21+1x20 | 0x22+0x21+1x20 = (1271)8

**d)** (1 000 000 001)2 = 1x20 | 0x22+0x21+0x20 | 0x22+0x21+0x20 | 0x22+0x21+1x20 = (1001)8

**11.** Converting each group of 4 binary digits, we have:

**a)** (1000 1010 1011)2 = 1x23+0x22+0x21+0x20 | 1x23+0x22+1x21+0x20 | 1x23+0x22+1x21+1x20 = (8AB)16

**b)** (1110 0111 1111 0101)2 = 1x23+1x22+1x21+0x20 | 0x23+1x22+1x21+1x20 | 1x23+1x22+1x21+1x20 | 0x23+1x22+0x21+1x20 = (E7F5)16

**c)** (10 1011 1001)2 = 1x21+0x20 | 1x23+0x22+1x21+1x20 | 1x23+0x22+0x21+1x20 = (2B9)16

**12. b)** 607/8 = 75(remainder **7**); 75/8 = 9 (remainder **3**); 9/8 = 1(remainder **1**); 1/8 = 0 (remainder **1**).

So: 607 = (1137)8

**c)** 9350/8 = 1168 (remainder **6**); 1168/8 = 146 (remainder **0**); 146/8 = 18 (remainder **2**); 18/8 = 2 (remainder **2**); 2/8 = 0 (remainder **2**).

So: 9350 = (22206)8

**d)** 1000010/8 = 125001 (remainder **2**); 125001/8 = 15625 (remainder **1**); 15625/8 = 1953 (remainder **1**); 1953/8 = 244 (remainder **1**); 244/8 = 30 (remainder **4**); 30/8 = 3 (remainder **6**); 3/8 = 0 (remainder **3**).

So: 1000010 = (3641112)8

**13. a)** (11010101)2 = 1x27+1x26+0x25+1x24+0x23+1x22+0x21+1x20 = 213

**b)** (4762)8 = 4x83+7x82+6x81+2x80 = 2546

**d)** (4103)5 = 4x53+1x52+0x51+3x50 = 528