Assignment #1 – Quinn Roemer

Q1: Find the Hexadecimal Representation for each of the following Binary numbers (**5 points**)

1. **10101101**
   1010 = A in Hex, 1101 = D in Hex. Thus the number in Hex is = **AD**
2. **00100111**
   0010 = 2 in Hex, 0111 = 7 in Hex. Thus the number in Hex is = **27**

Q2: Find the Decimal Representation for each of the following Hexadecimal numbers (**5 points**)

1. **8EF**
   (8 * 256) + (14 * 16) + 15 = **2287**
2. **5CE**
   (5 * 256) + (12 * 16) + 14 = **1486**

Q3: Find the Binary Representation for each of the following Decimal numbers (**5 points**)

1. **53**
   53 in Binary = **110101**
2. **885**
   885 in Binary = **1101110101**

Q4: Each of the following hexadecimal numbers can be interpreted as representing a decimal number or a pair of ASCII codes. Give both interpretations (**5 points**).

1. **43 53**
   43 in Hex is equal to (4 * 16) + 3 = **67** in decimal.
   53 in Hex is equal to (5 * 16) + 3 = **83** in decimal
   43 = **C** in ASCII.
   53 = **S** in ASCII.
2. **31 36**
   31 in Hex is equal to (3 * 16) + 1 = **49** in decimal.
   36 in Hex is equal to (3 * 16) + 6 = **54** in decimal.
   31 = **1** in ASCII.
   36 = **6** in ASCII.

Q5: Find the double word-length 2's complement representation of each of the following decimal numbers (**5 points**)

1. **387**
   The 2's complement of 387 in double word = **0000 0000 0000 0000 0000 0001 1000 0011**
2. **-10**

The 2’s complement of -10 in double word = **1111 1111 1111 1111 1111 1111 1111 0110**

Q6: Find the word-length hexadecimal answers for the following (**5 points**)

1. **387A + 567B**
   The answer is **8EF5**.
2. **DF00 – 45A3**
   The answer is **995D**.