

EE 2381 DIGITAL COMPUTER LOGIC

Homework #1 Revised
16 Jan 2007

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Due: 23 Jan 2007

Review Mano Text: Chapter 1, sections 1-4.

1. List the octal and hexadecimal numbers from 20_{10} to 36_{10} . Using A , B and C for the last three digits, list the numbers from 10_{10} to 26_{10} in base 13.
2. Convert the following numbers with the indicated bases to decimal: 4201_5 and $1A9_{12}$.
3. The solution to the quadratic equation $x^2 + 10x + 17$ is $x = 3$ and $x = 5$. What is the base of the numbers?
4. Express the following numbers in decimal: 1100111.0101_2 , $D8.9_{16}$ and 73.47_8 .
5. Convert the hexadecimal number $A5C7_{16}$ to binary and then from binary convert to octal.
6. Convert the decimal number 457_{10} to binary in two ways: (a) convert directly to binary; and (b) convert first to hexadecimal, then from hexadecimal to binary. Which method is faster?
7. Do the following conversion problems:
 - a. Convert 52.65625_{10} to binary.
 - b. Calculate the binary equivalent to $1/7$ (both are base 10 numbers) out to 8 places. Then convert from binary to decimal. How close is the result to $1/7$?
 - c. Convert the binary result in part (b) into hexadecimal. Then convert to decimal. Is the answer the same?
8. Add and multiply 1001_2 and 110_2 without converting them to decimal.
9. Perform the following division: $1011100_2 \div 1001_2$.