Systems Engineering Department
SE 311:Design of Digital Systems

HOMEWORK ASSIGNMENT #2

Due to : Oct 3,2004   .

Instructions: read Chapter 2 and solve all the problems

01.	Write your first name in ASCII using 8-bit code.
02.	What is the largest integer that can be expressed with 8 bits?
03.	Obtain the 1's and 2's complement. <u>Assume 8 binary digits</u>:
  a. 00101101
  b. 10111100
04.	Perform subtraction of the following unsigned binary numbers using the 2's complement of the subtrahend. Where the result should be negative, 2's complement it and affix a minus sign. (Hint: Assume 8 bits representation)
  c. 10111101-10111000
  d. 0101101-00101110

05.	Simplify the following Boolean expressions:
  a. $(x + y)' (x' + y')'$
  b. $x'y'z + xyz + x'y'z$
  c. $x'y (v+z'v') + y' (x + x'zv)$

06.	Find the complement of the following expressions:
  a. $xy' + xy + y'z'$
  b. $(xy' + z)v' + xzv$
07.	List the truth table of the following functions:
  a. $xy + xy'$
  b. $xz + xy +y'x$

08.	Draw logic diagrams of
  a. $Y = A + C'D$
  b. $Y = (A+D') (A'+C) + A'B$

09.	Implement the following Boolean function $F = xy + x'y + x'z$ using AND/OR/NOT gates.

10.	Implement the following function as the sum of min terms and product max terms:
  a. $F (A, B, C, D) = B'D + BD + A'D$
  b. $F (A, B, C, D) = A' + A (A + B') (B + D')$