ECE 150 Digital Logic Design, Fall 2024
Quiz 1, September 18th 2024

Problem 1 (5 pts).

(a) Write the Hexadecimal number, $A3C_{16}$, as a sum of symbols (their equivalent decimal value) times weighting-factors (*1pts*).

(b) Convert $A3C_{16}$ to binary (*1pt*) and compute its sum with $0101\ 1010\ 0111_2$ (*2pts*).

(c) Convert the result of (b) back to Hex (*1pt*).

Problem 2 (5pts). Simplify the following boolean expression using a Karnaugh-Map.

$$X = \bar{A}\bar{B}\bar{C}\bar{D} + A\bar{B}\bar{C}\bar{D} + \bar{A}\bar{B}\bar{C}D + \bar{A}\bar{B}CD + \bar{A}B\bar{C}D + \bar{A}BCD + A\bar{B}C\bar{D}$$