

ECE-150 Digital Logic Design, Fall 2025

Quiz 1, September 18th 2025

Problem 1 (5 pts).

- (a) Write the Octal number, 713_8 , as a sum of symbols (their equivalent decimal value) times weighting-factors (*1pts*).
- (b) Convert 713_8 to binary (*1pt*) and compute its sum with $0101\ 1010\ 0111_2$ (*2pts*).
- (c) Convert the result of (b) to Hexadecimal (*1pt*).

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

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