ECE-223, Assignment #8

Digital Design, M. Mano, 3rd Edition, Chapter 7

7.9) A DRAM chip uses two dimensional address multiplexing. It has 13 common address pins with the row address having 1 bit longer than column address. What is the capacity of the memory?

7.12) A 12-bit Hamming code word containing 8 bits of data and 4 parity bits is read from memory. What was the original 8-bit data word that was written into memory if the 12-bit word read out is as follows:

 a) 000011101010
 b) 101110000110
 c) 101111110100

7.19) Tabulate the truth table for an 8 × 4 ROM that implements the Boolean functions

A (x, y, z) = $\sum$ (1, 2, 4, 6)
B (x, y, z) = $\sum$ (0, 1, 6, 7)
C (x, y, z) = $\sum$ (2, 6)
D (x, y, z) = $\sum$ (1, 2, 3, 5, 7)

7.22) List the PLA programming table for the BCD to excess-3 code convert whose Boolean function are simplified in Fig. 4-3.

7.23) Repeat problem 7.22 using a PAL.

7.24) The following is a truth table of a 3-input, 4-output combinational circuit. Tabulate the PAL programming table for the circuit and mark the fuse map in a PAL diagram similar to the one shown in Fig. 7-17.