CS M51A, Sec. 1, Class Exercises No. 2

Ex. 2.41 Determine the sum of minterms and product of maxterms that are equivalent to
$$E(x, y, z) = x' + x(x'y + y'z)'$$

Ex. 2.49 Describe a 2x2-bits multiplier, that is each operand represents an integer in the range 0 to 3. Give the following descriptions:

a) High-level using arithmetic expressions.

b) Table of the arithmetic function.

c) A tabular representation of the switching functions, with the inputs and outputs in a binary code. Give also the one-set.

Ex. 2.50 An open stairwell has four floors and one switch per floor to control the light. If all switches are off, the light is off; any single change in the position of any switch changes the "state" of the light. Describe the combinational system required to control the light. Give

a) High-level description.

b) Table of switching functions.

c) Switching expressions.

Hint: the "state" of the light is also an input.