Logic Design – Homework 8

(1) Using 3 half-adders, implement the following functions:

1) $D=A \oplus B \oplus C$
2) $A'BC+AB'C$
3) $ABC'+(A'+B')C$
4) $G=ABC$

(2) Design a full-adder (a) using a multiplexer (b) using a decoder.

(3) Using full-adders, design a circuit that adds two 2-bit numbers.

(4) Using full-adders, implement the following functions:
S= X+Y (X and Y 3-bit numbers)
S= X-Y (X and Y 4-bit numbers)
S= X +Y+Z+1 (X, Y, Z 2-bit numbers)