

## 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 are 3-bit numbers)

$S = X - Y$  (X and Y are 4-bit numbers)

$S = X + Y + Z + 1$  (X, Y and Z are 2-bit numbers)