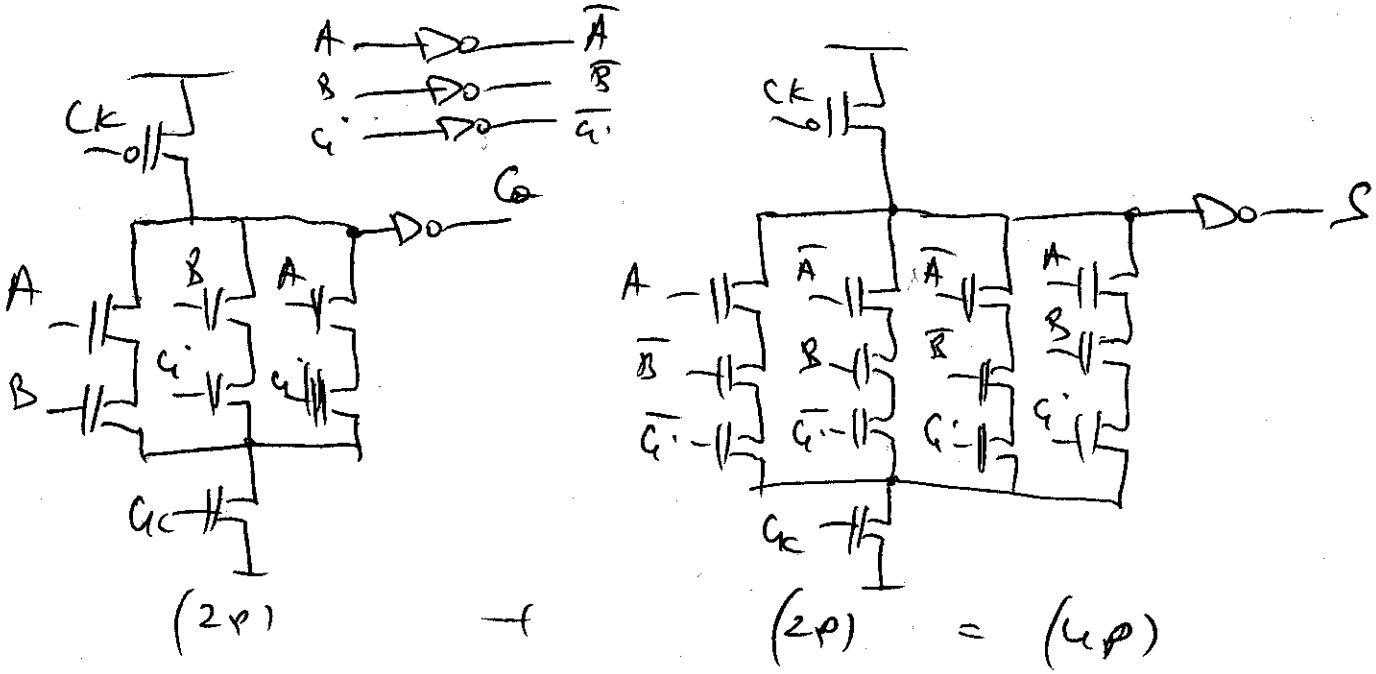
SOLUTION PB.3

1. • Tx Gates: CIRCUIT IN LECTURE 16, LAST SLIDE
(4p) (or equivalent)

• Domino:

$C_0 = AB + BC_i + AC_i$

$S = A \oplus B \oplus C_i = A\bar{B}\bar{C_i} + \bar{A}B\bar{C_i} + \bar{A}\bar{B}C_i + ABC_i$



(2p) + (2p) = (4p)

Other solutions are possible.

NOTE: 1p/4p if your circuit contains illegal connections.

b) (2p) 1. XOR is difficult to implement in domino and cannot guarantee monotonicity.

(=> need multiple clocks to implement!)

(2p) 2. Multiple paths with unequal lengths =>
=> glitching -> fatal for dynamic gates

NOTE → Half credit for: [redacted] power, need to distribute clocks etc.
No credit for: area, number of transistors, etc.