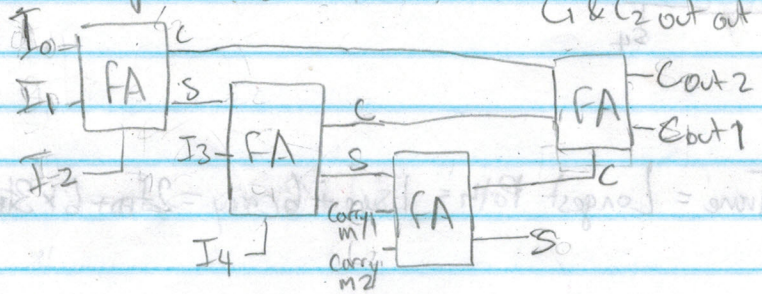
Yunjing Zheng 304806663

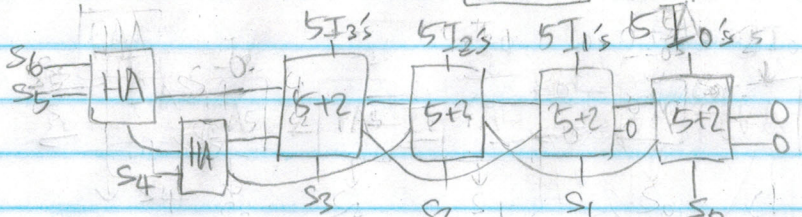
Collaborators:
Haoyu Yun, Kyle Wong.
Online Resources:

1. Five Input Adder (Assumes C_1 & C_2 are one's place)
C_1 & C_2 out out ones and two's place

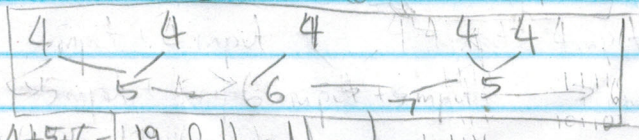


Propagation Delay = $4 \times FA = 4 \times 3t_{PD} = \boxed{12t_{PD}}$

1.2 The sum should have $4+3 = \boxed{7 \text{ bits.}}$



Propagation Delay = $2HA + 4 \times FA5 = 6t_{PD} + 4 \times 12t_{PD} = \boxed{54t_{PD}}$
Full Adders: $1 + 4 \times 4 = 18$ full adders total
Other method:



Requires $4+4+5+6 = \boxed{19 \text{ full adders}}$
Time is longest path: $4 \times 3t_{PD} + 5 \times 3t_{PD} + 6 \times 3t_{PD} = 45t_{PD}$