[20] 6- Inputs X_i and Y_i of each full adder in a 4-bit arithmetic circuit have digital logic specified by the Boolean functions

$$X_i=A_i \qquad Y_i=B_i'S+B_iC_{in}'$$

where S is a selection variable, C_{in} is the input carry, and A_i and B_i are input data for stage i.
a-Determine the arithmetic operation performed for each of the four combinations of S and C_{in} :00, 01,10,and 11.
b-Draw the logic diagram for the 4-bit circuit, using full adders and multiplexers.

a)

S	$C_{in}=0$	$C_{in}=1$
0	F=A+B	F=A+1
1	F=A-1	F=A+B'+1

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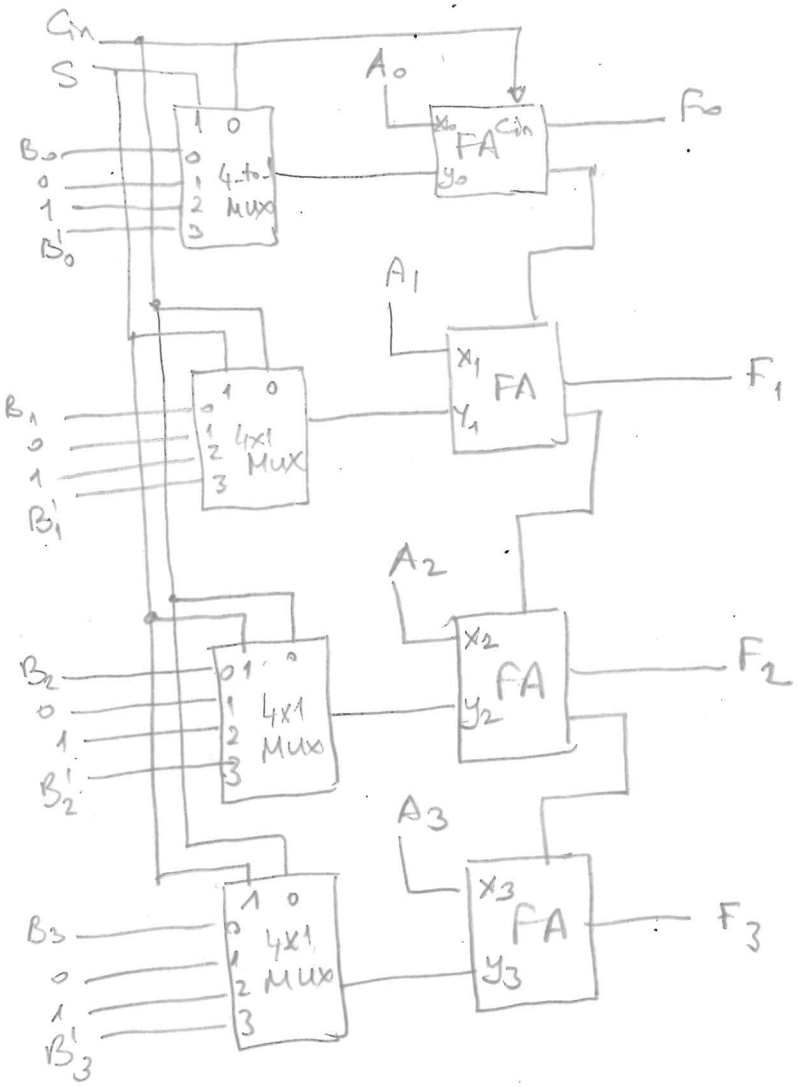
b)



12 P

Good Luck…