Homework 5

Problem 1.

(25)

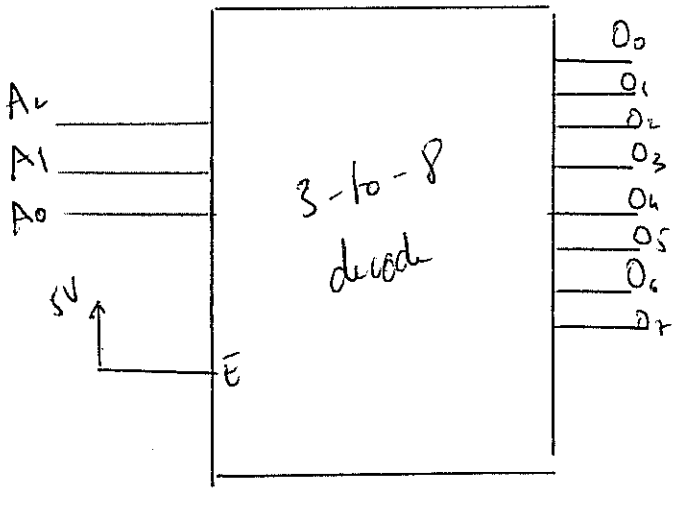
A_2	A_1	A_0	square	B_5	B_4	B_3	B_2	B_1	B_0
0	0	0	0	0	0	0	0	0	0
0	0	1	1	0	0	0	0	0	1
0	1	0	4	0	0	0	1	0	0
0	1	1	9	0	0	1	0	0	1
1	0	0	16	0	1	0	0	0	0
1	0	1	25	0	1	1	0	0	1
1	1	0	36	1	0	0	1	0	0
1	1	1	49	1	1	0	0	0	1

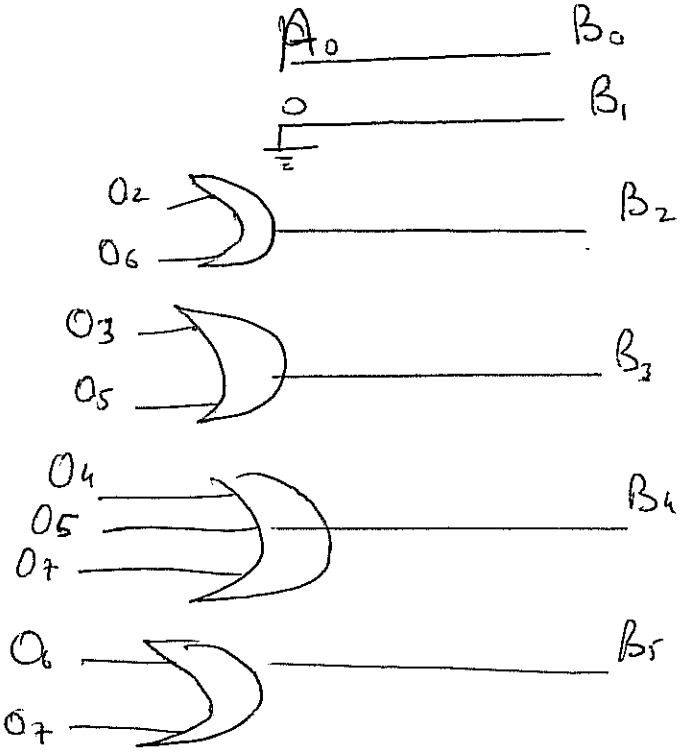
Now, $B_0 = A_0$; $B_2 = A_2' A_1 A_0' + A_2 A_1 A_0'$

$B_1 = 0$; $B_3 = A_2' A_1 A_0 + A_2 A_1' A_0$.

$B_4 = A_2 A_1' A_0' + A_2 A_1' A_0 + A_2 A_1 A_0$.

$B_5 = A_2 A_1 A_0' + A_2 A_1 A_0$

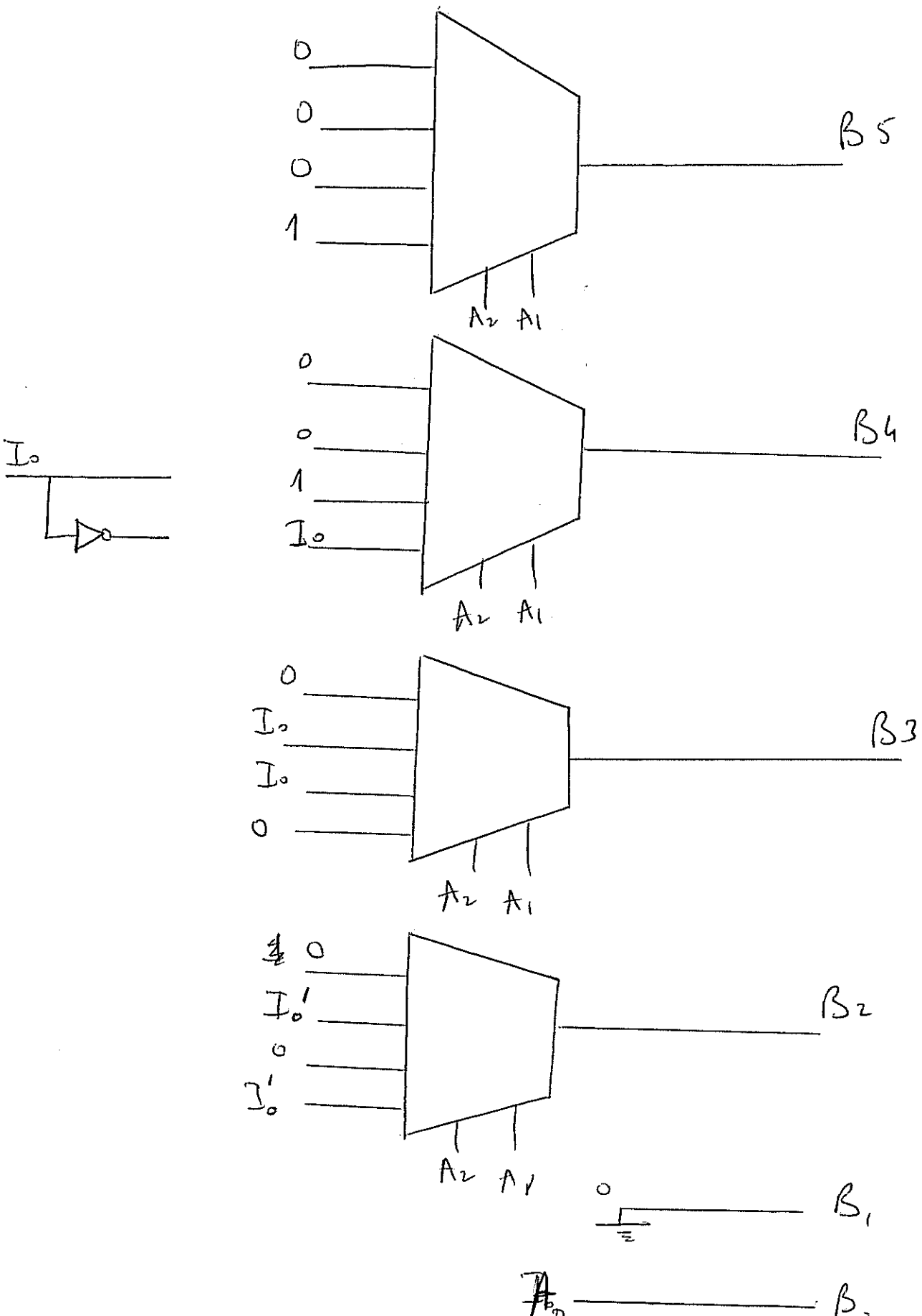




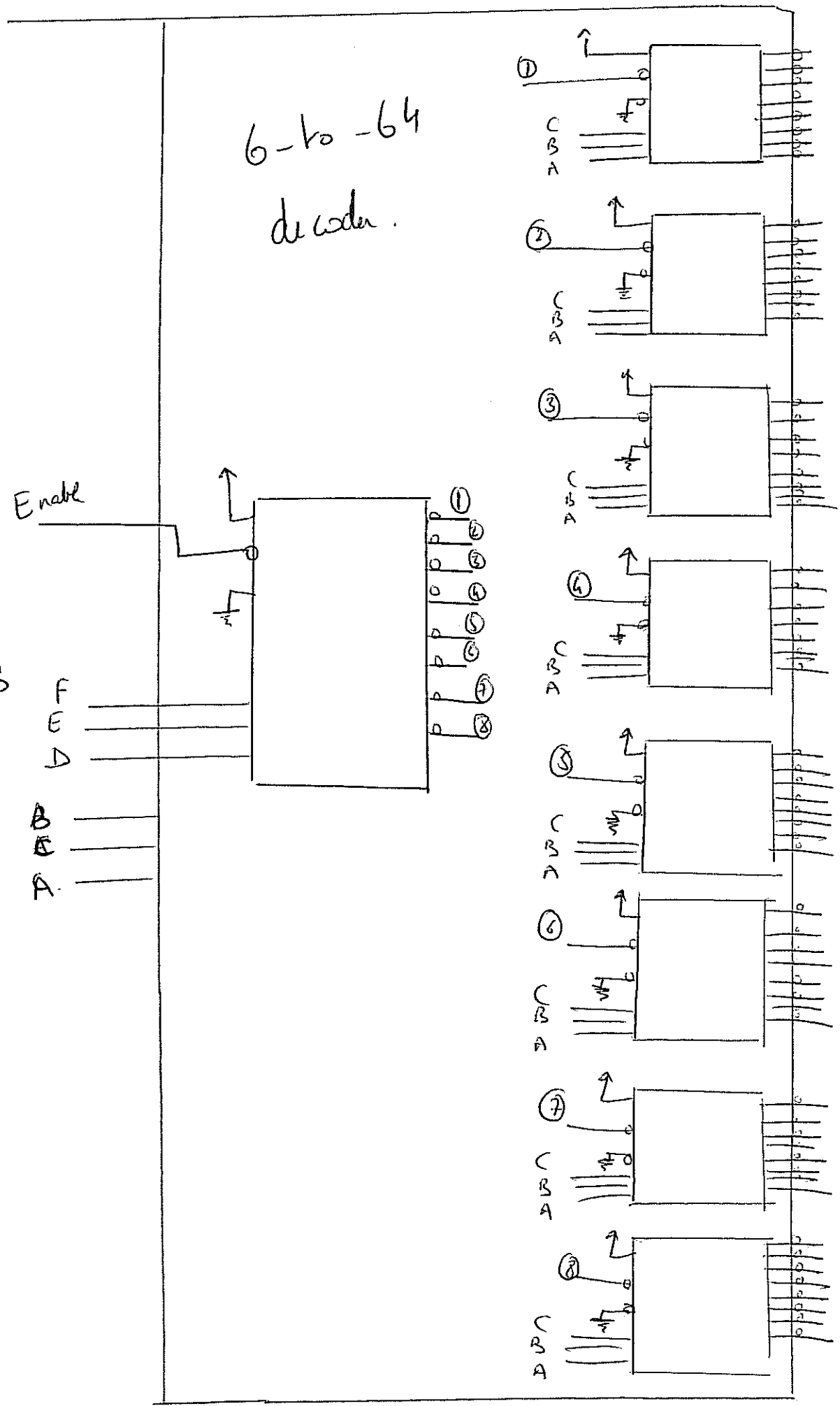
Problem 2

~~30~~ 25

From the table, we already have:



Problem 3 (25)



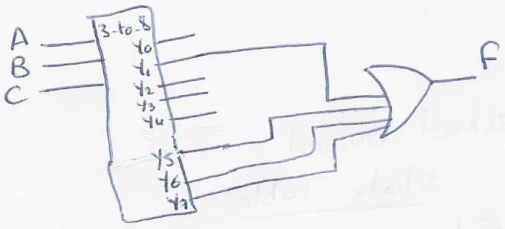
Problem Solving Session

Implement $F = AB + B'C$ using

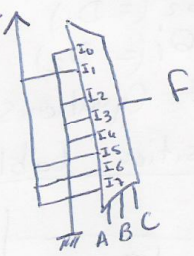
a- 3-to-8 decoder and additional gate.

b- 8-input MUX.

$= AB + B'C = ABC + ABC' + AB'C + A'B'C = \sum_m (1,5,6,7)$



b-



1- Implement the following function using 2-to-1 muxes only.

$Z = A'B'C'D + AG'H + AG + A'B'CE + A'BF'$

$Z = A(G + G'H) + A'(B'C'D + B'CE + BF')$

$Z = A(G + G'H) + A'(BF' + B'(C'D + CE))$