CS-225 TARUSI MITTAL 1901CS65

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1901CS65

Que 1 :-

Truth Table

Control Bits			Operation
S_2	S_1	S_0	(A, B → 4 bit inputs)
0	0	0	F = A + B
0	0	1	F = A − B
0	1	0	F = A & B
0	1	1	F = A | B
1	0	0	F = A ⊕ B
1	0	1	F = A > B ? A : B
1	1	0	F = A < B ? A : B
1	1	1	A = B outputs A or B

For ith bit

A_i	B_i	000		001		010	011	100	101	110	111
		Sum (+)	Carry	D (−)	Borrow	&	|	⊕	>	<	=
0	0	0	0	0	0	0	0	0	0	0	A
0	1	1	0	1	0	0	1	1	B; 1	A; 0	0
1	0	1	0	1	1	0	1	1	A; 1	B; 0	0
1	1	0	1	0	0	1	1	0	1	1	B

This is the truth Table for a single bit (i)th.

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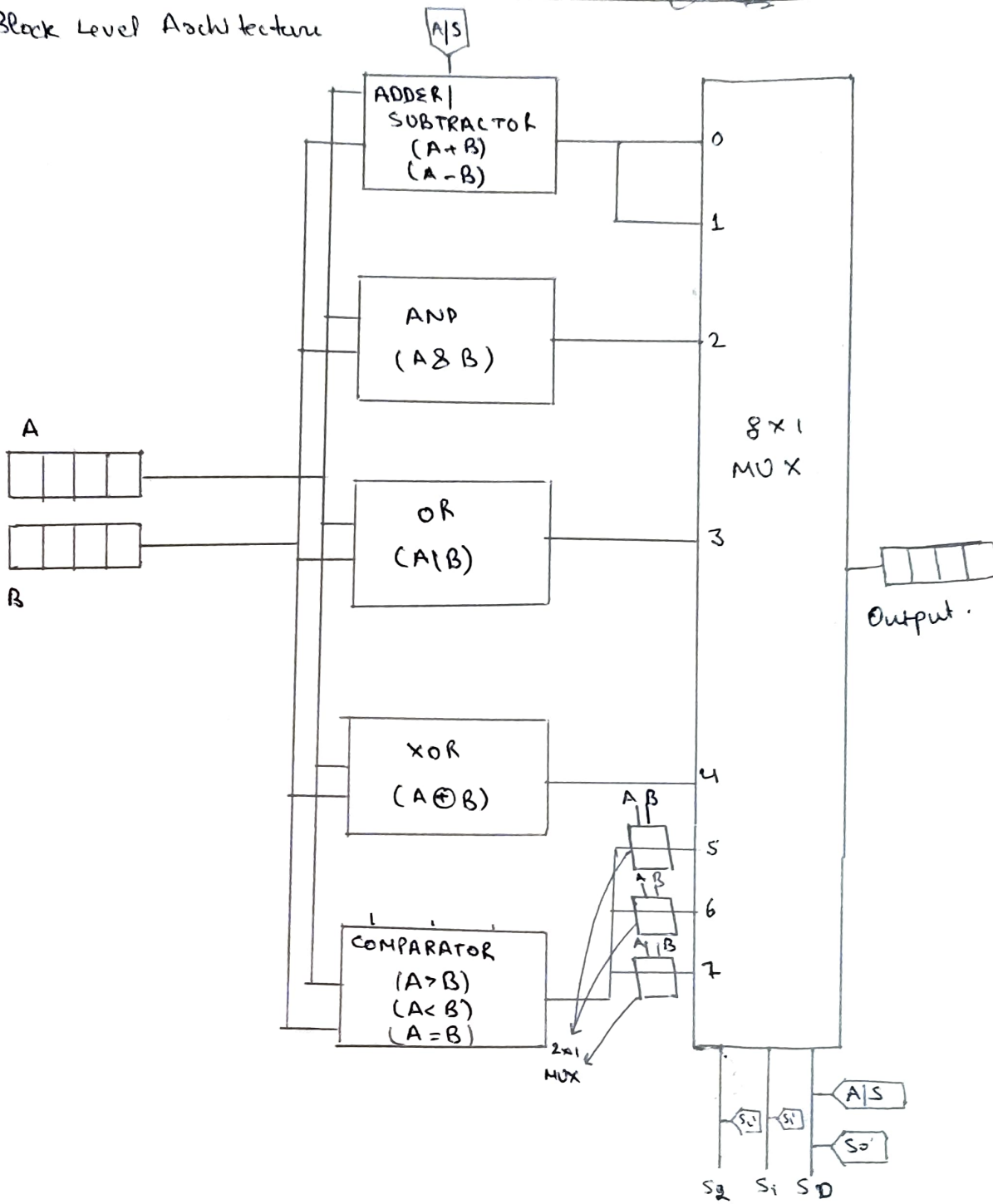
Que 2:-

Block Level Architecture



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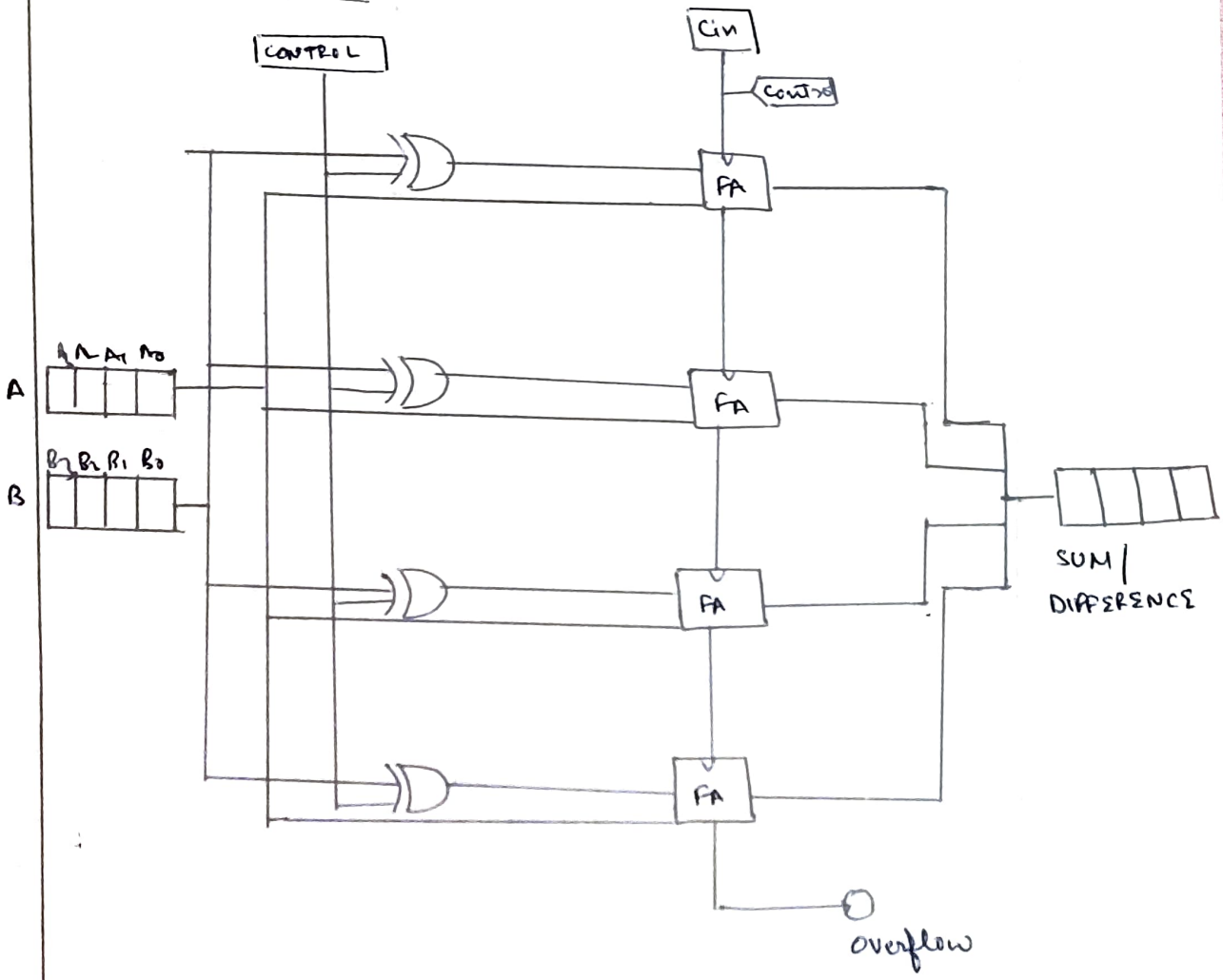
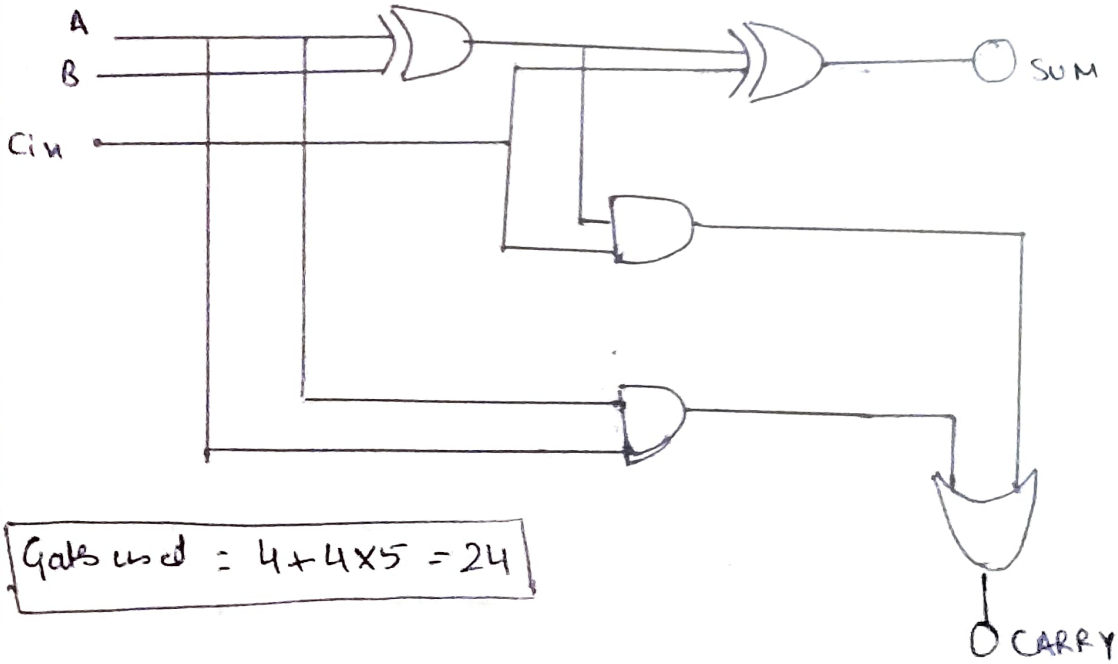
Ques 3:- (a) Adder | Subtractor



Full Adder



Gates used : 4+4×5 = 24

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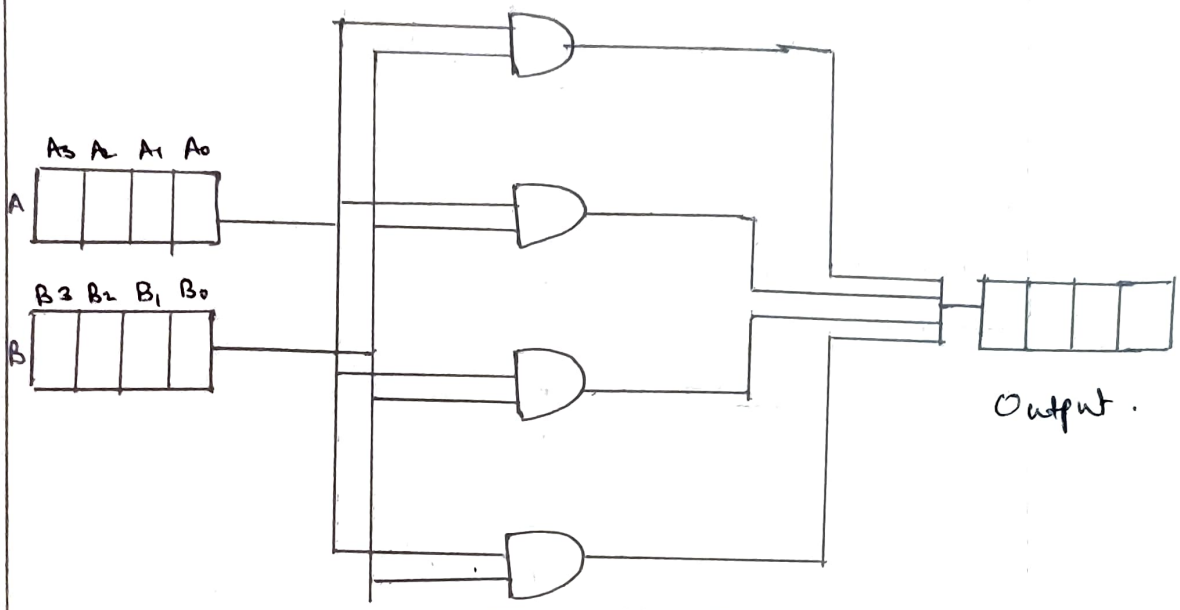
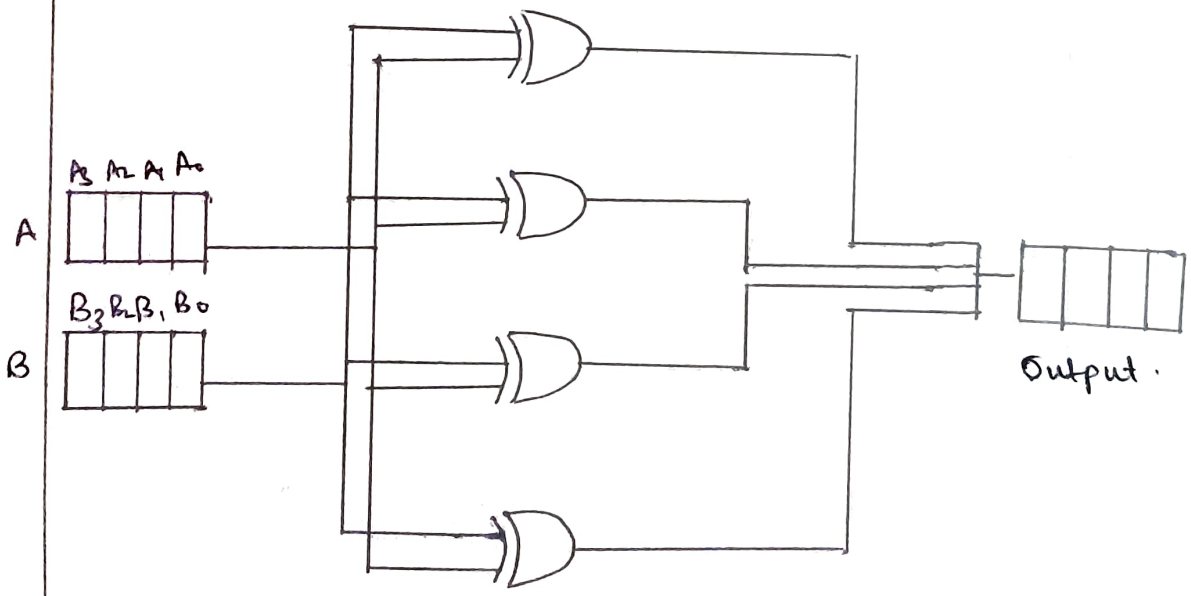
b) AND (A & B)



No. of gates = 4

d) XOR ($A \oplus B$)



No. of gates = 4

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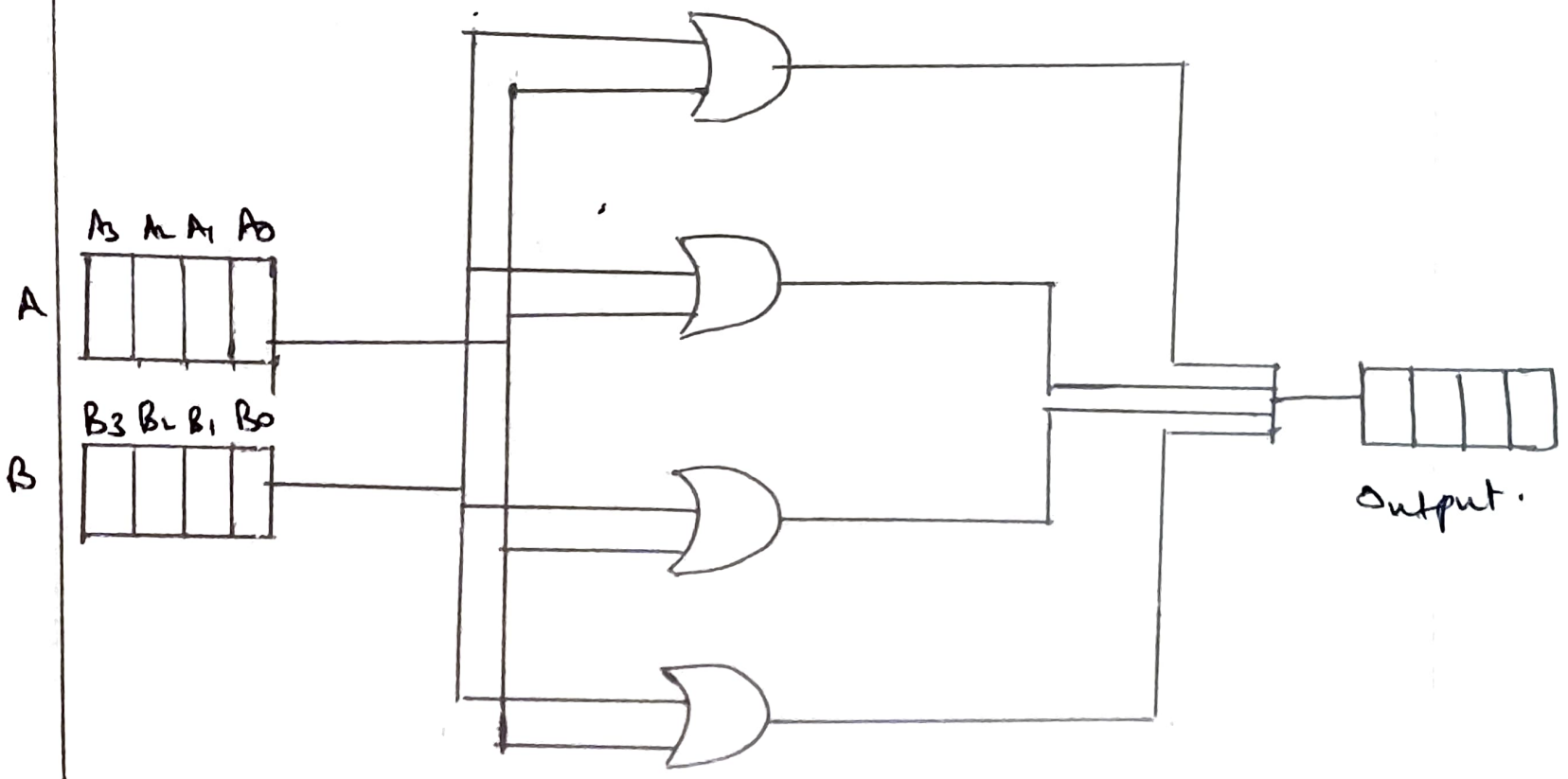
c) OR (A|B)



No. of gates = 4

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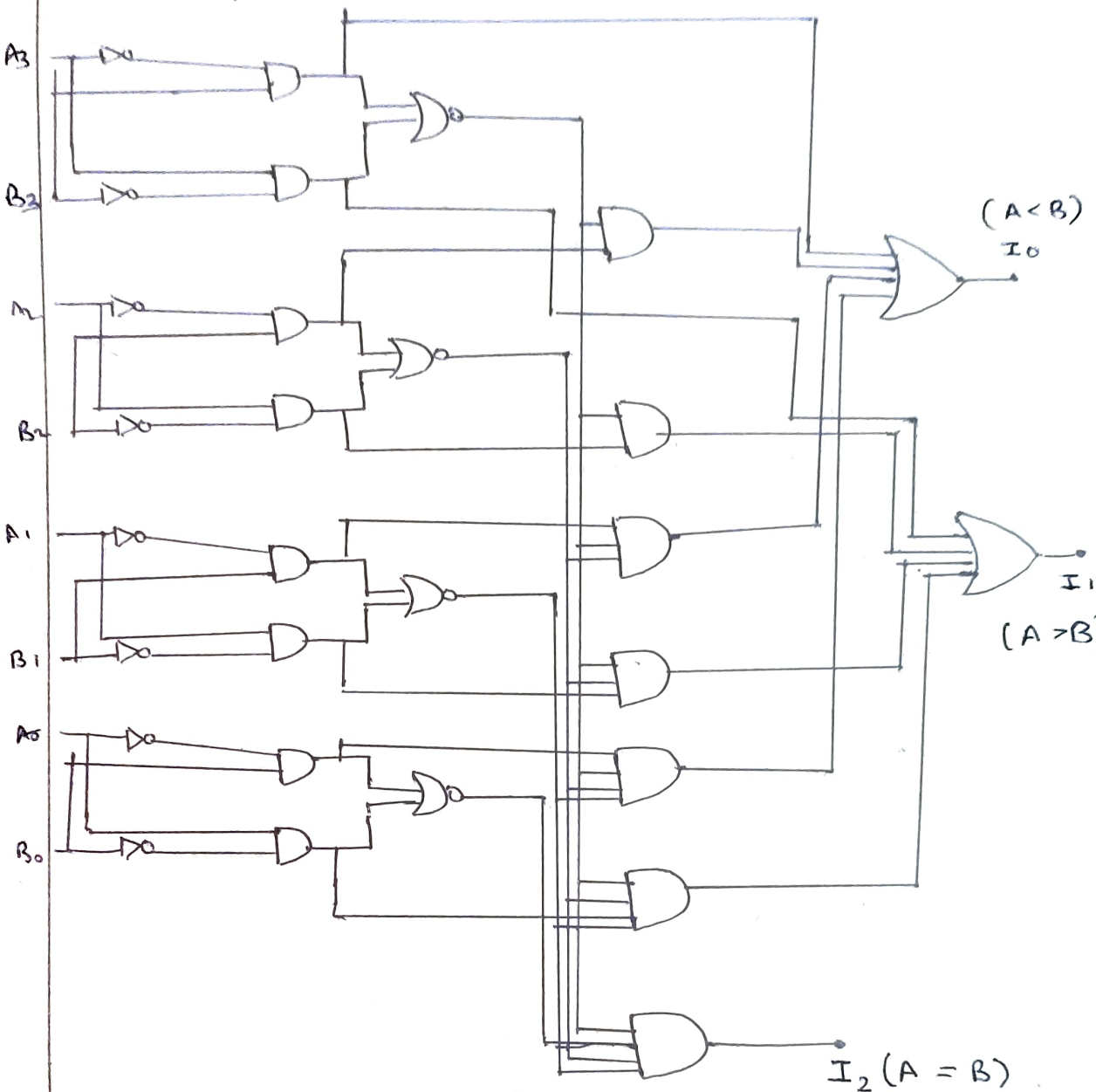
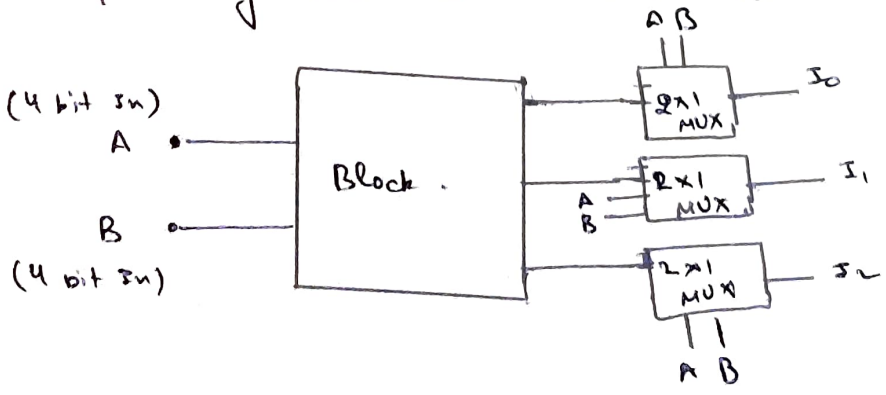
c) Comparator



The following block can be considered as.



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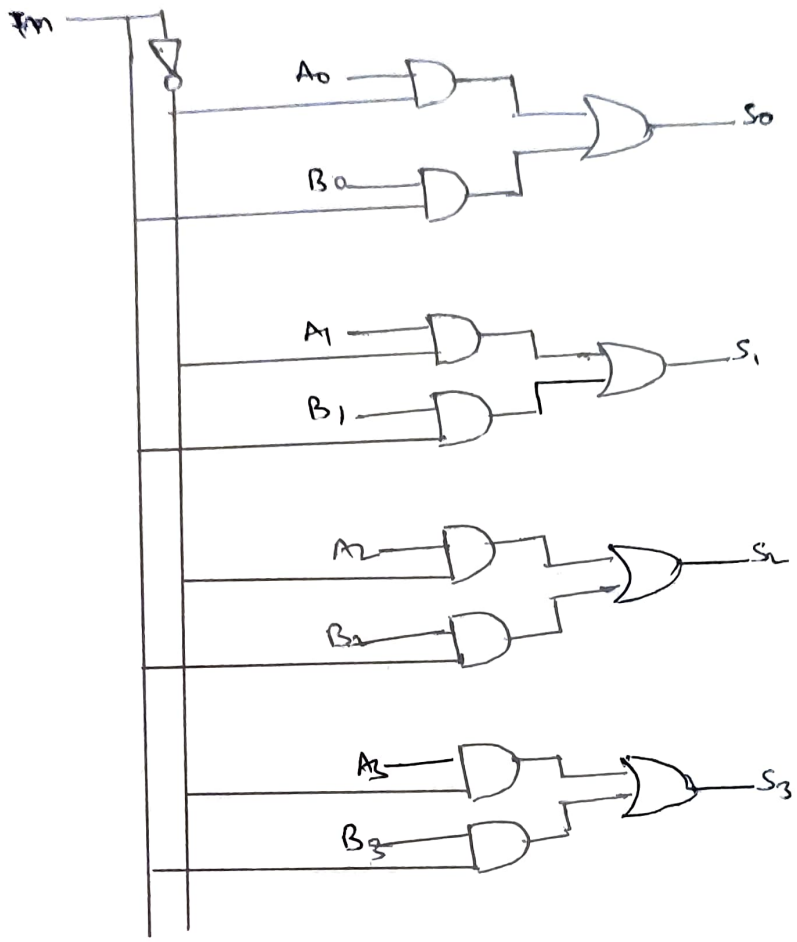
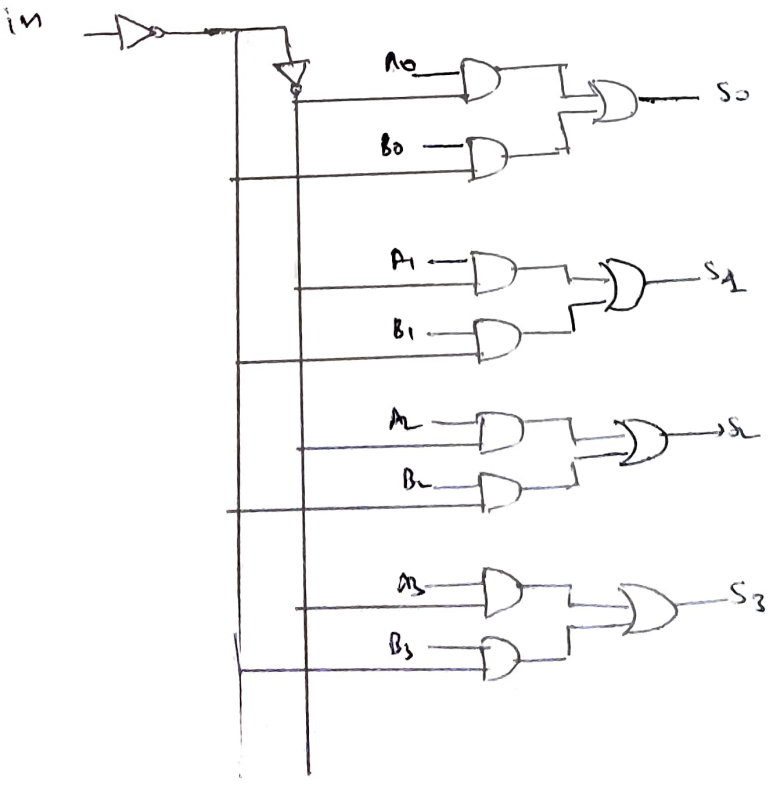
MUX 2x1





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Ques 4:-

	Block	No of gates
1)	Adder / Subtractor	24
2)	AND	4
3)	OR	4
4)	XOR	4
5)	Comparator + 3x(2x1 MUX)	41 + (13x3) = 80

—x—x—x END OF ASSIGNMENT —x—x—x—x