Practical-5

Design a 4 bit magnitude comparator using combinational circuits and truth table.

A3
B3

A2
B2

A1
B1

A0
B0

A > B

A3
B3   E3

A2
B2   E2

A1
B1   E1

A0
B0   E0

A = B

$\overline{A3}$
B3

$\overline{A2}$
B2

$\overline{A1}$
B1

$\overline{A0}$
B0

A < B
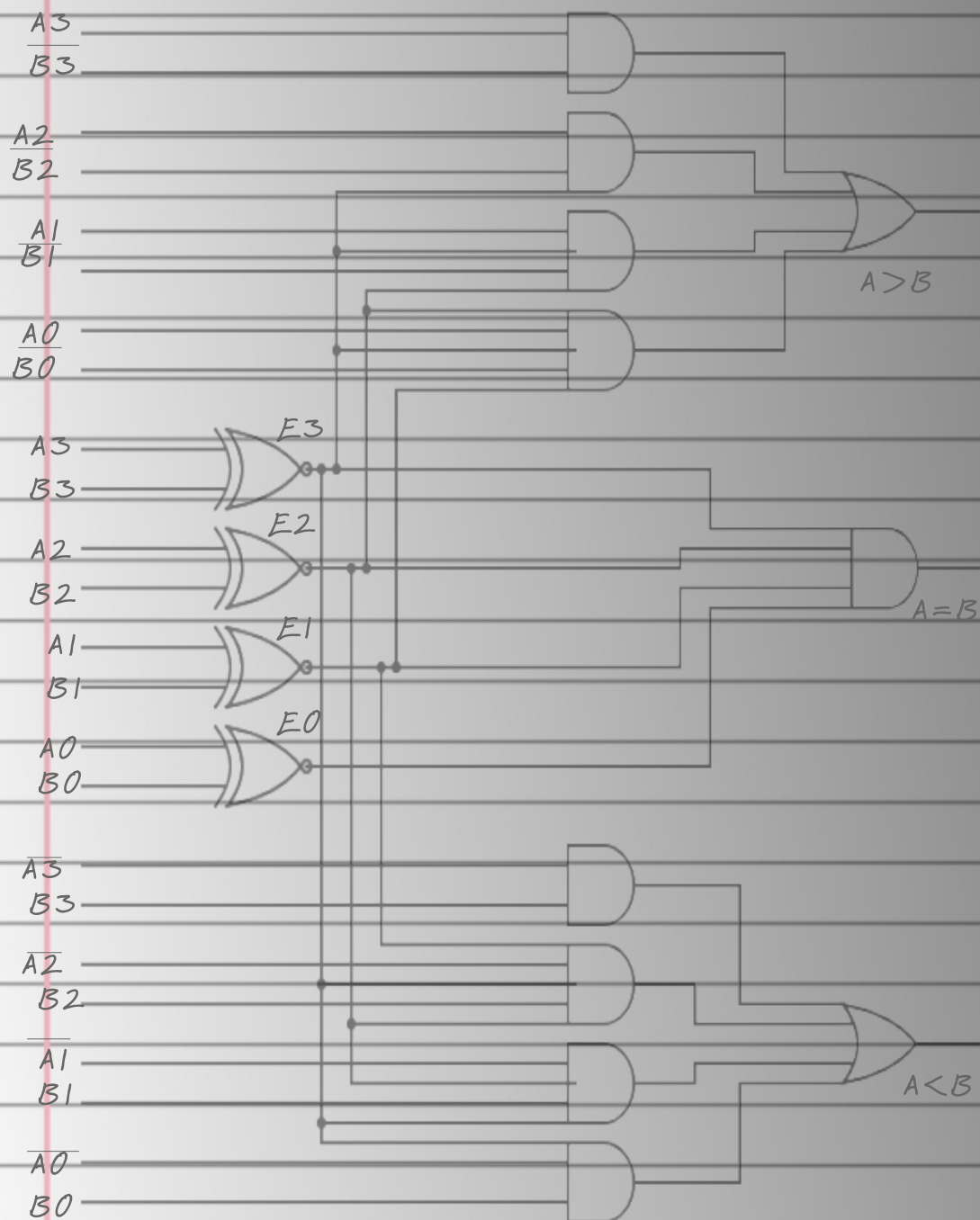
$A = A3 \quad A2 \quad A1 \quad A0$

$B = B3 \quad B2 \quad B1 \quad B0$

Truth Table :

Comparing Inputs				Output		
A3B3	A2B2	A1B1	A0B0	A>B	A<B	A=B
A3>B3	x	x	x	1	0	0
A3<B3	x	x	x	0	1	0
A3=B3	A2>B2	x	x	1	0	0
A3=B3	A2<B2	x	x	0	1	0
A3=B3	A2=B2	A1>B1	x	1	0	0
A3=B3	A2=B2	A1<B1	x	0	1	0
A3=B3	A2=B2	A1=B1	A0>B0	1	0	0
A3=B3	A2=B2	A1=B1	A0<B0	0	1	0