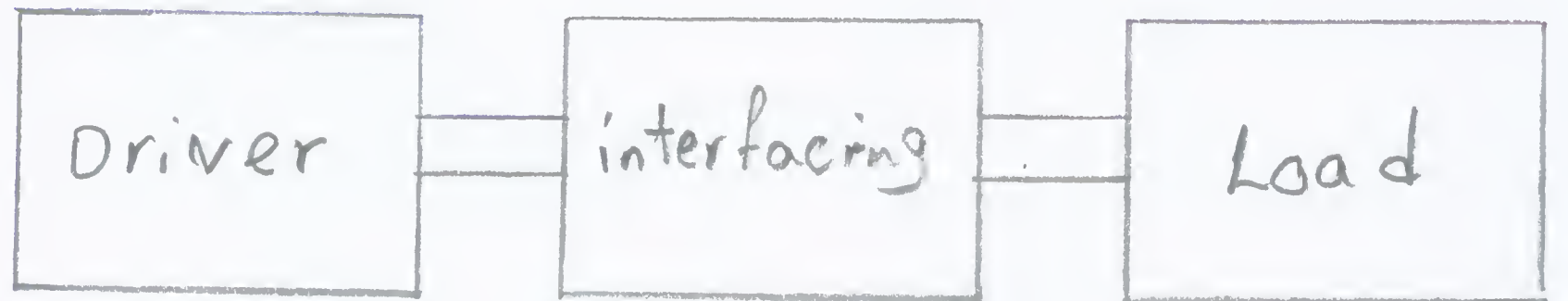


Interfacing CMOS & TTL families

Ref:

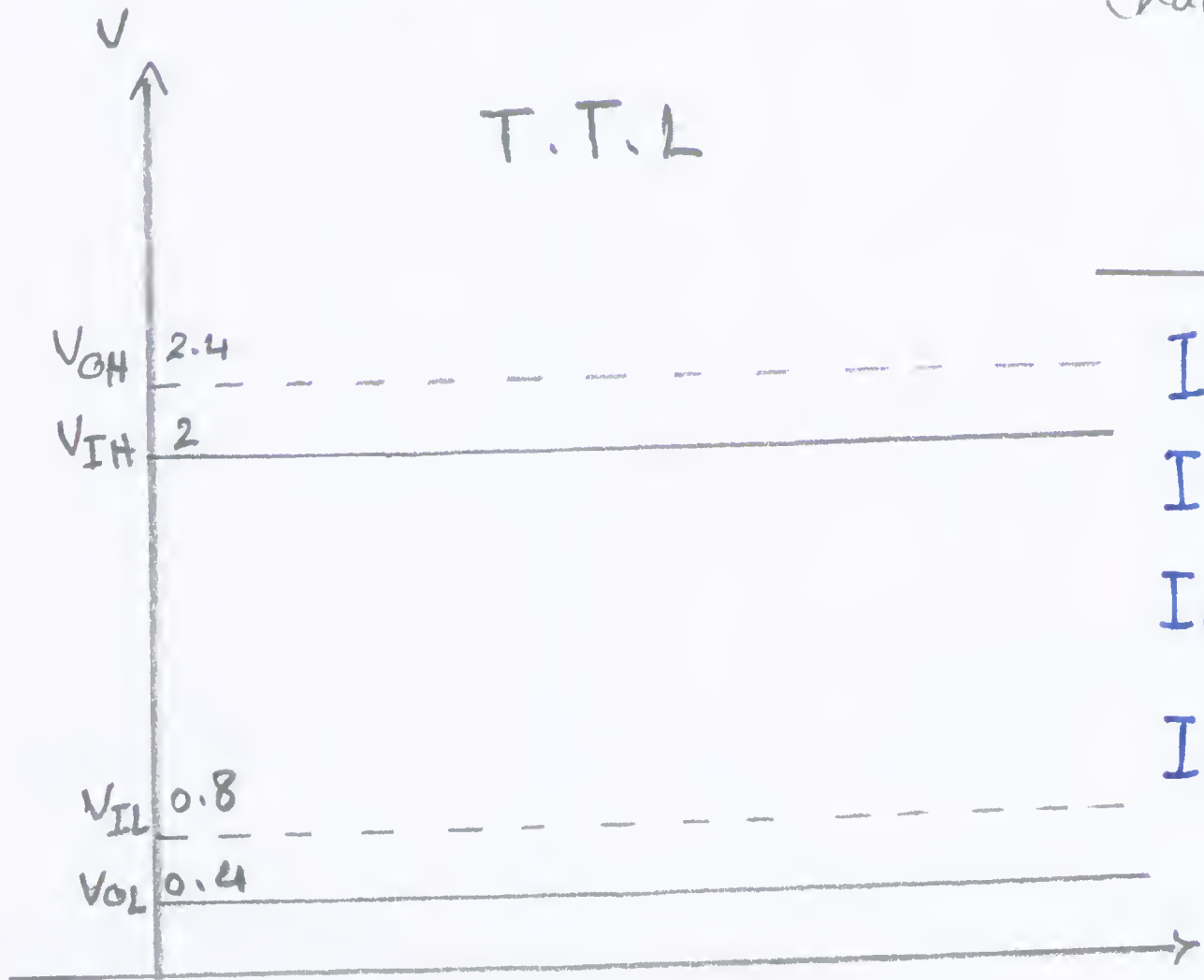
O/P Current

O/P Voltage

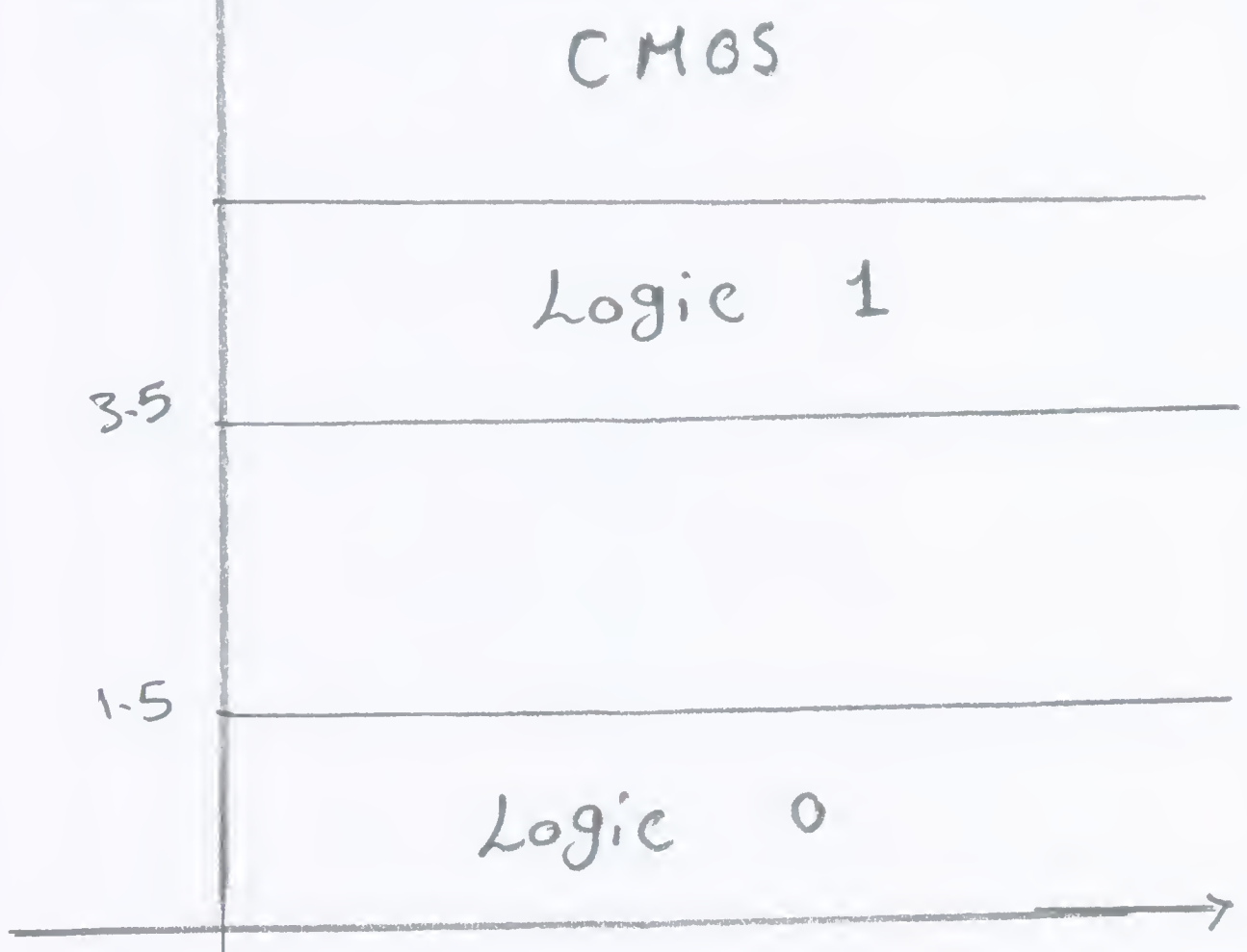


Characteristic

Characteristic

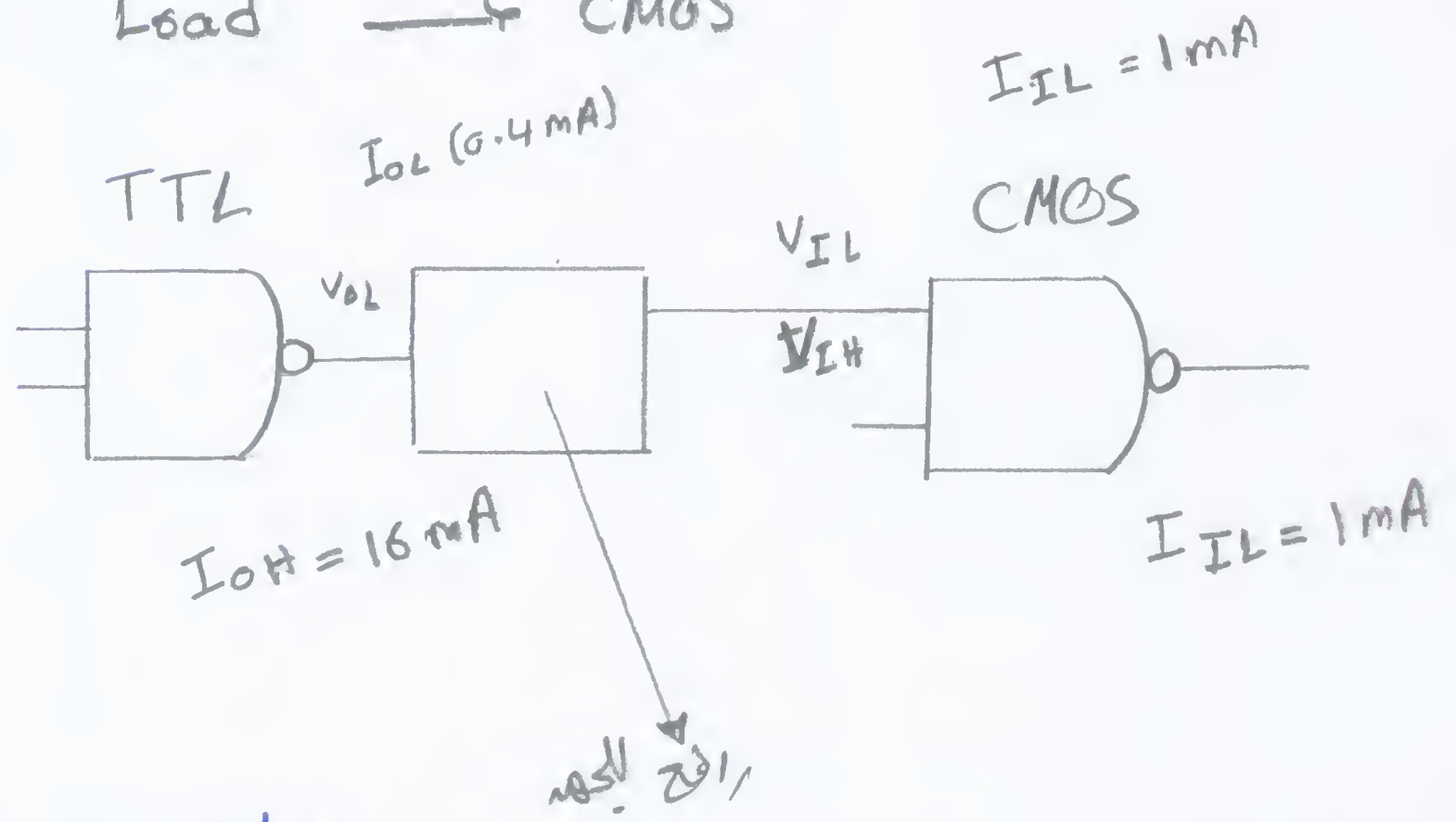


	CMOS		(TTL) 74XX
	4000	74CXX	
I_{IH}	1 mA	1 mA	40 mA
I_{IL}	1 mA	1 mA	1.6 mA
I_{OL}	0.4 mA	4 mA	16 mA
I_{OH}	0.4 mA	4 mA	0.4 mA

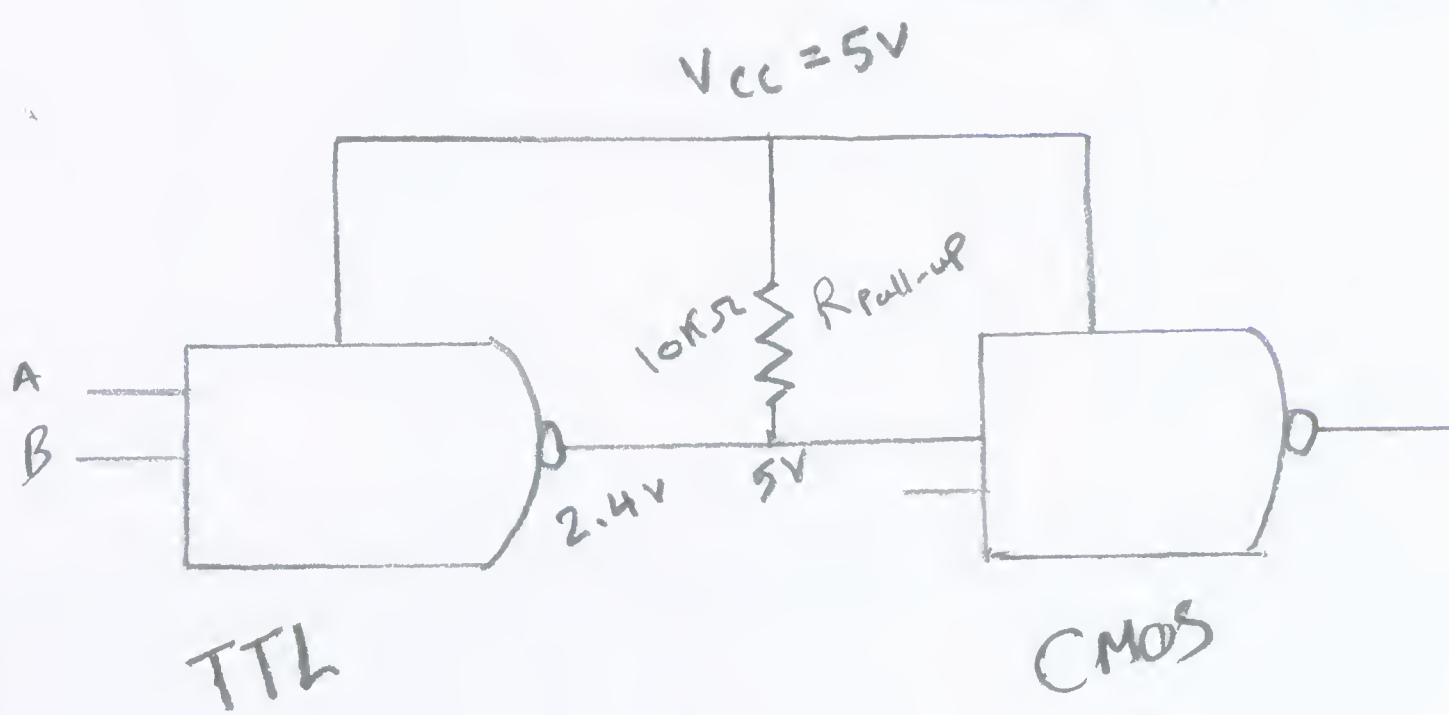


driver → TTL

Load → CMOS



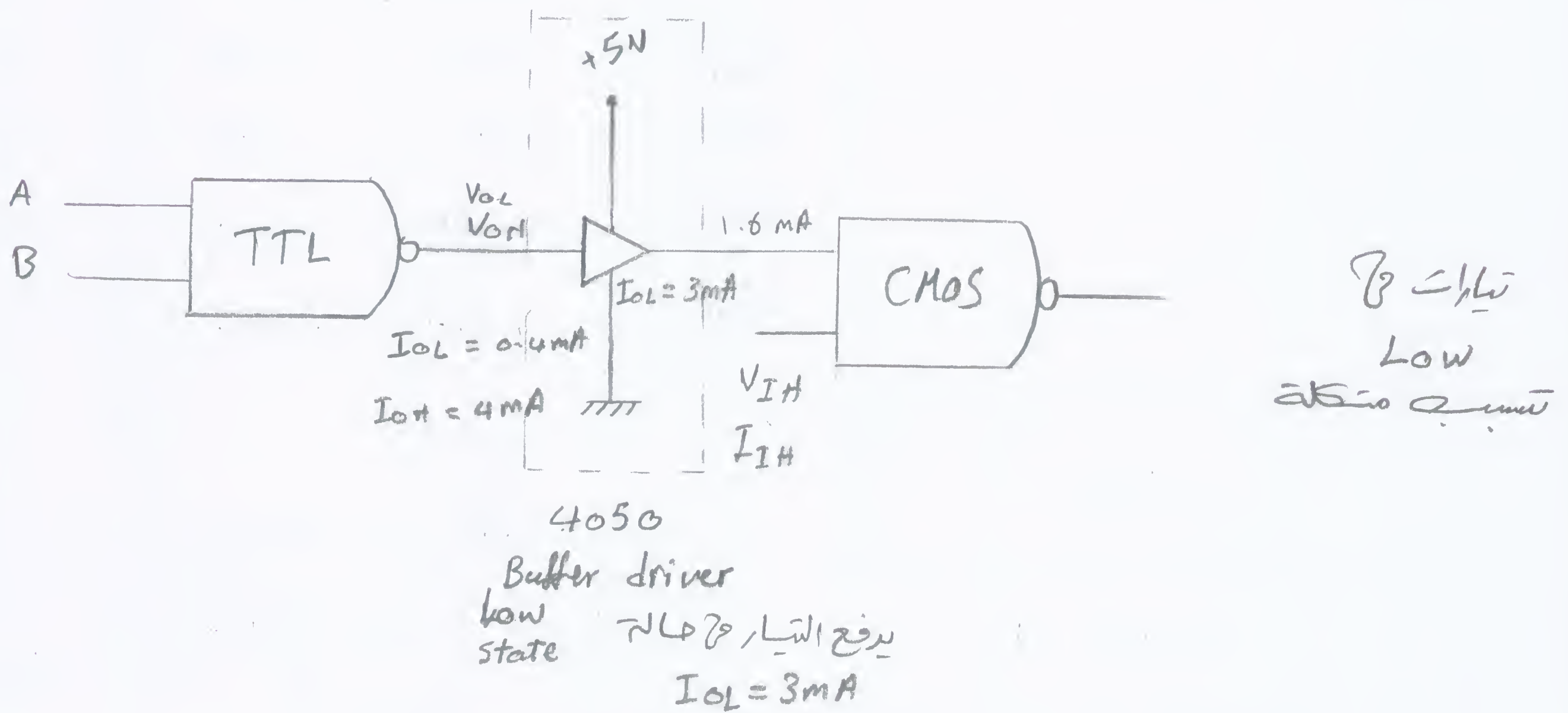
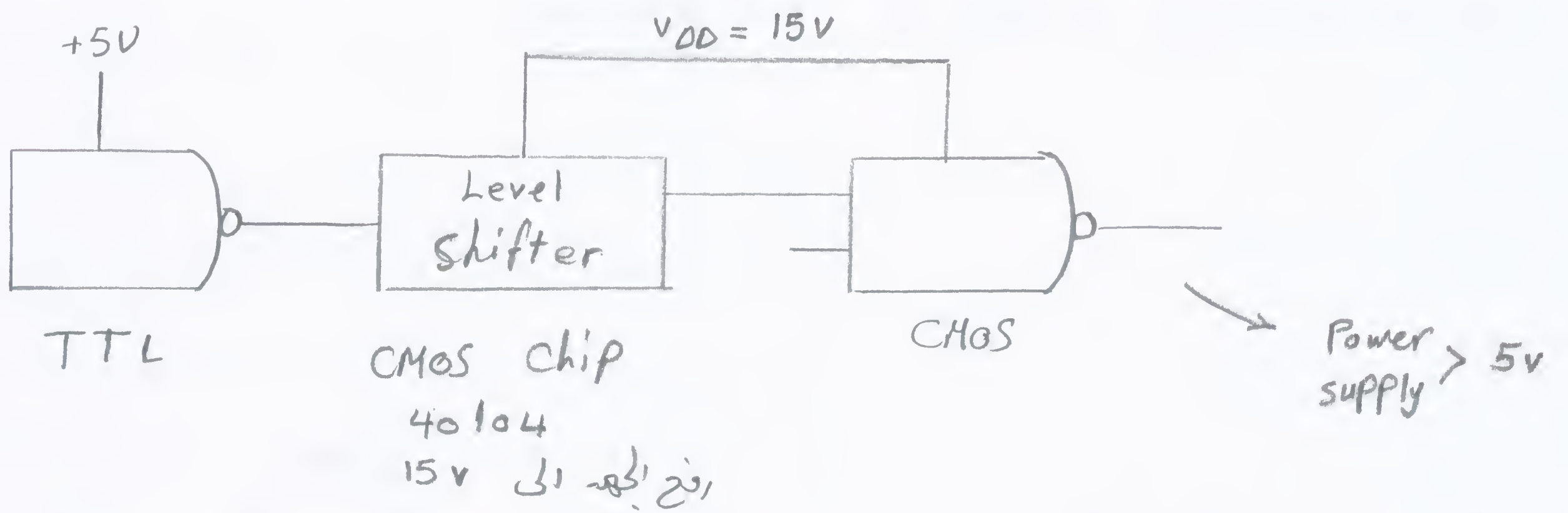
PULL-up Resistor



Power supply 5V

TTL → 5V (Power supply)
 CMOS → 3.15V (Power supply)

TTL driver for High voltage
 of CMOS (3 → 15V)



Emitter Coupled Logic (E.C.L)

$T_{pd} < 1ns \approx 0.8 ns$

* very fast than T.T.L

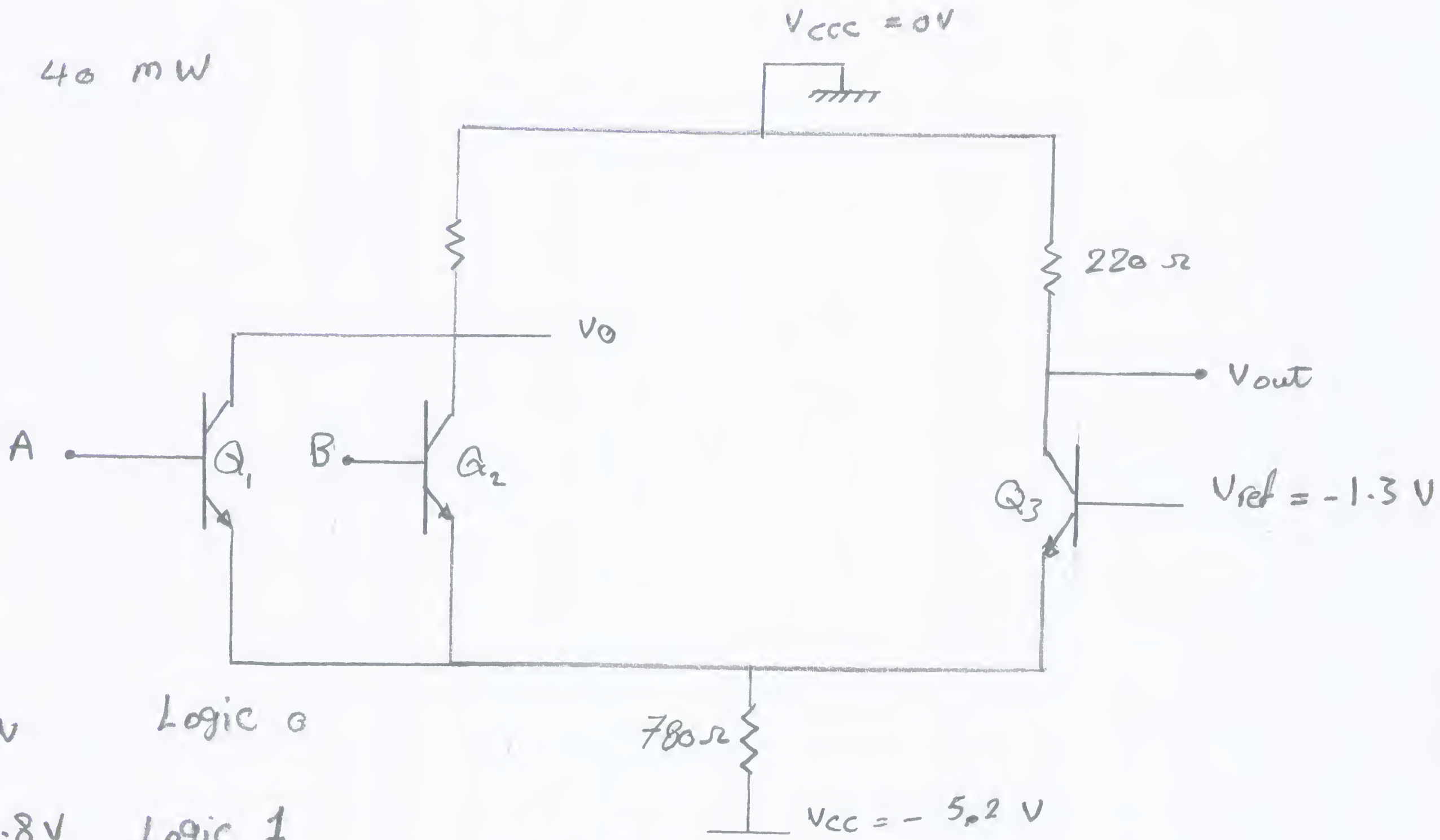
* Power supply (-)

- Hard to interface

- used in main Frame Coupler

$P_d = 40 mW$

Lower
diss



$V_o \leq -1.7V$ Logic 0

$V_o \geq -0.8V$ Logic 1

(OR/NOR gate for ECL)

A, B (Low state $\leq -1.7V$)

at

$-1.3 > -1.7$

$V_B > V_E$

$Q_3 \rightarrow on$

$Q_3 \rightarrow on$

$Q_1, Q_2 \rightarrow off$

Conduction \rightarrow Logic 0

A, B (High state $\geq -0.8V$)

$-0.8 > -1.3$

$V_E > V_B$

$Q_1, Q_2 \rightarrow on$

$Q_3 \rightarrow off$

output

(Q_1, Q_2)
low

Logic 0

(Q_3)
Low

Logic 1