

ECE 2300L
Digital Logic Design Laboratory

End of Semester Package

Choi Tim Antony Yung

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1 Postlab

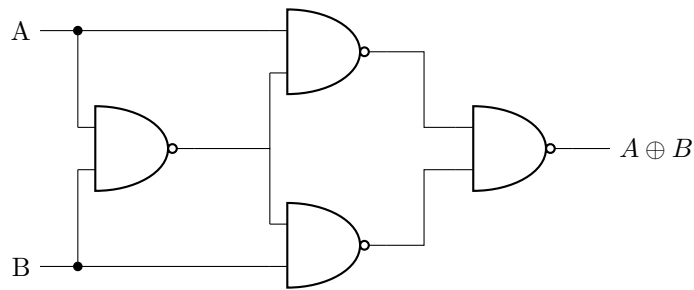
1.1

To prevent the LED from drawing too much current and power.

1.2

Two separate toggle switch that can toggle the same light;
Clear register e.g. XOR eax, eax

1.3



2 Postlab

2.1

Assuming $(561374)_{16}$, equivalent unpacked BCD would be $(050601030704)_{16}$
The ASCII equivalent is V for 56, Device Control 3 for 13, t for 74.

2.2

It is used in rotary encoder.

2.3

A	B	$A \oplus B$	$A \oplus (A \oplus B)$
0	0	0	0
0	1	1	1
1	0	1	0
1	1	0	1

As seen in the truth table above, $F = A \oplus (A \oplus B)$ resembles B .

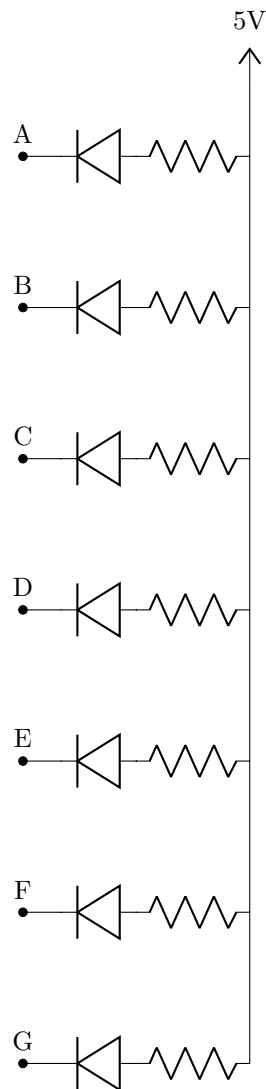
3 Postlab

3.1

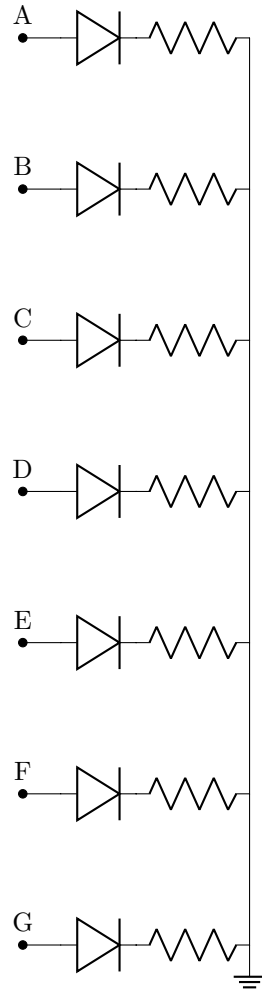
As common cathode display have the positive terminal of the LED as input, the output of the decoder would be active high instead of active low.

3.2

Common Anode



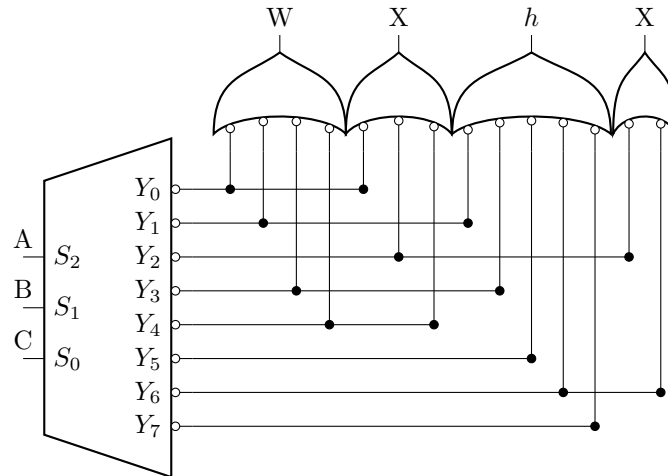
Common Cathode



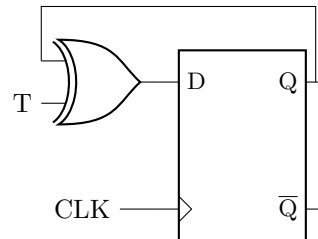
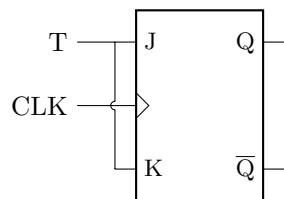
3.3

7447 drives common anode display while 7448 drive common cathode display

4 Postlab



11 Postlab



11 Postlab

As the maximum number 20 need at least 5 bits to be represented in binary, at least 5 flipflops is needed.