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IO25 I1-1

Experiment No - 3

B to G and G to B Converter.

Aim :- To study B to G and G to B converter.

Apparatus :- TinkerCad.

Components :- 330 Ω resistor, led, 5V power supply, bread board, input pins, IC7486.

Description:-

1) Binary to Gray Code Converter.

Truth Table.	B3	B2	B1	B0	G3	G2	G1	G0
	0	0	0	0	0	0	0	0
	0	0	0	1	0	0	0	1
	0	0	1	0	0	0	1	1
	0	0	1	1	0	0	1	0
	0	1	0	0	0	1	1	0
	0	1	0	1	0	1	1	1
	0	1	1	0	0	1	0	1
	0	1	1	1	0	1	0	0
	1	0	0	0	1	1	0	0
	1	0	0	1	1	1	0	1
	1	0	1	0	1	1	1	1
	1	0	1	1	1	1	1	0
	1	1	0	0	1	0	1	0
	1	1	0	1	1	0	1	1
	1	1	1	0	1	0	0	1
	1	1	1	1	1	0	0	0

Equation $G_3 = B_3$

K-map for G_3

$B_3 B_2$	00	01	11	10
$B_1 B_0$				
00	0	0	1	1
01	0	0	1	1
11	0	0	1	1
10	0	0	1	1

K-map for G_2

$B_3 B_2$	00	01	11	10
$B_1 B_0$				
00	0	1	0	1
01	0	1	0	1
11	0	1	0	1
10	0	1	0	1

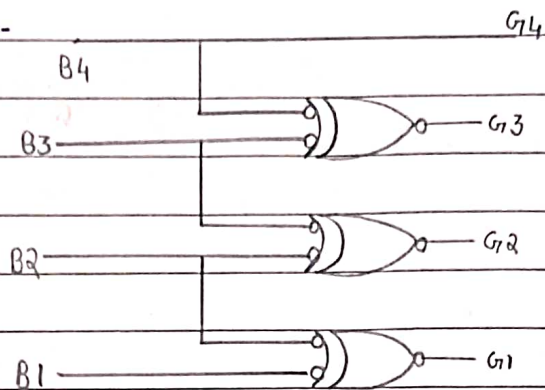
K-map for G_1

$B_3 B_2$	00	01	11	10
$B_1 B_0$				
00	0	1	1	0
01	0	1	1	0
11	1	0	0	1
10	1	0	0	1

K-map for G_0

$B_3 B_2$	00	01	11	10
$B_1 B_0$				
00	0	0	0	0
01	1	1	1	1
11	0	0	0	0
10	1	1	1	1

Symbol :-



2) Gray to Binary Code Converter.

Truth Table.

G ₃	G ₂	G ₁	G ₀	B ₃	B ₂	B ₁	B ₀
0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	1
0	0	1	0	0	0	1	1
0	0	1	1	0	0	1	0
0	1	0	0	0	1	1	1
0	1	0	1	0	1	1	0
0	1	1	0	0	1	0	0
0	1	1	1	0	1	0	1
1	0	0	0	1	1	1	1
1	0	0	1	1	1	1	0
1	0	1	0	1	1	0	0
1	0	1	1	1	1	0	1
1	1	0	0	1	0	0	0
1	1	0	1	1	0	0	1
1	1	1	0	1	0	1	1
1	1	1	1	1	0	1	0

Equation :- $B_0 = G_3 \oplus G_2 \oplus G_1 \oplus G_0$

Kmap for B_3

$G_3 G_2$ $G_1 G_0$	00	01	11	10
00	0	0	1	1
01	0	0	1	1
11	0	0	1	1
10	0	0	1	1

Kmap for B_2

$G_3 G_2$ $G_1 G_0$	00	01	11	10
00	0	1	0	1
01	0	1	0	1
11	0	1	0	1
10	0	1	0	1

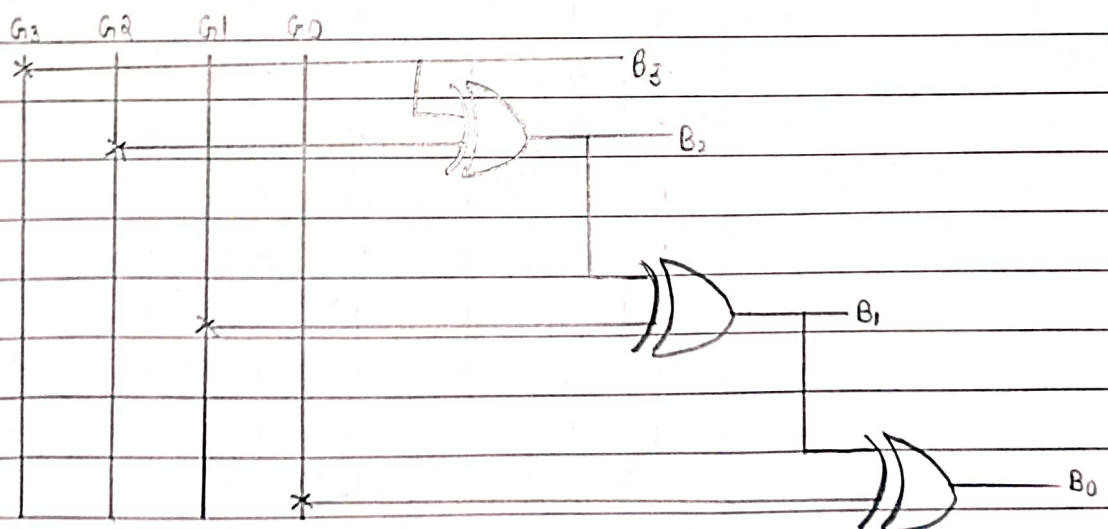
Kmap for B_1

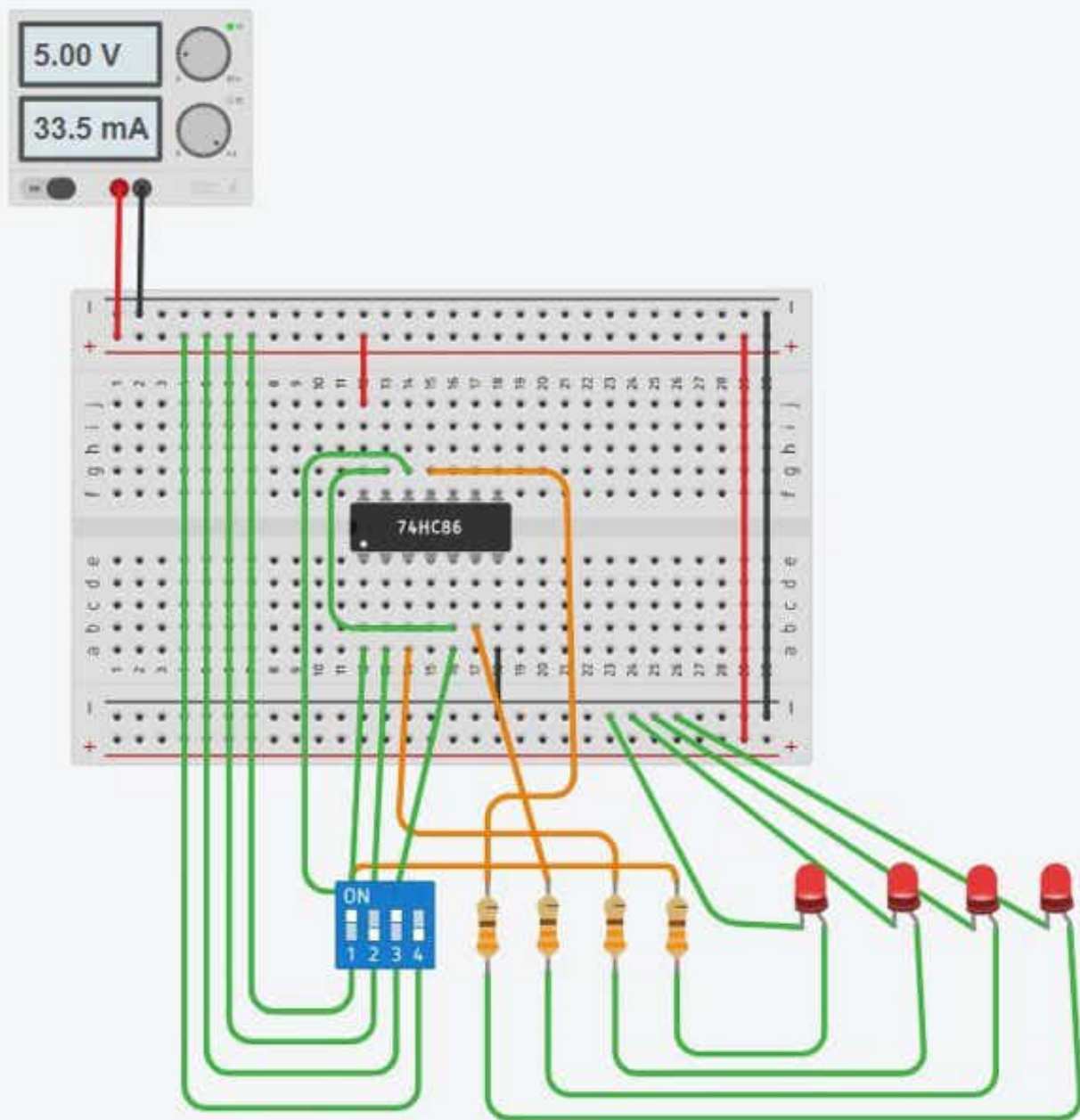
$G_3 G_2$ $G_1 G_0$	00	01	11	10
00	0	1	0	1
01	0	1	0	1
11	1	0	1	0
10	1	0	1	0

Kmap for B_0

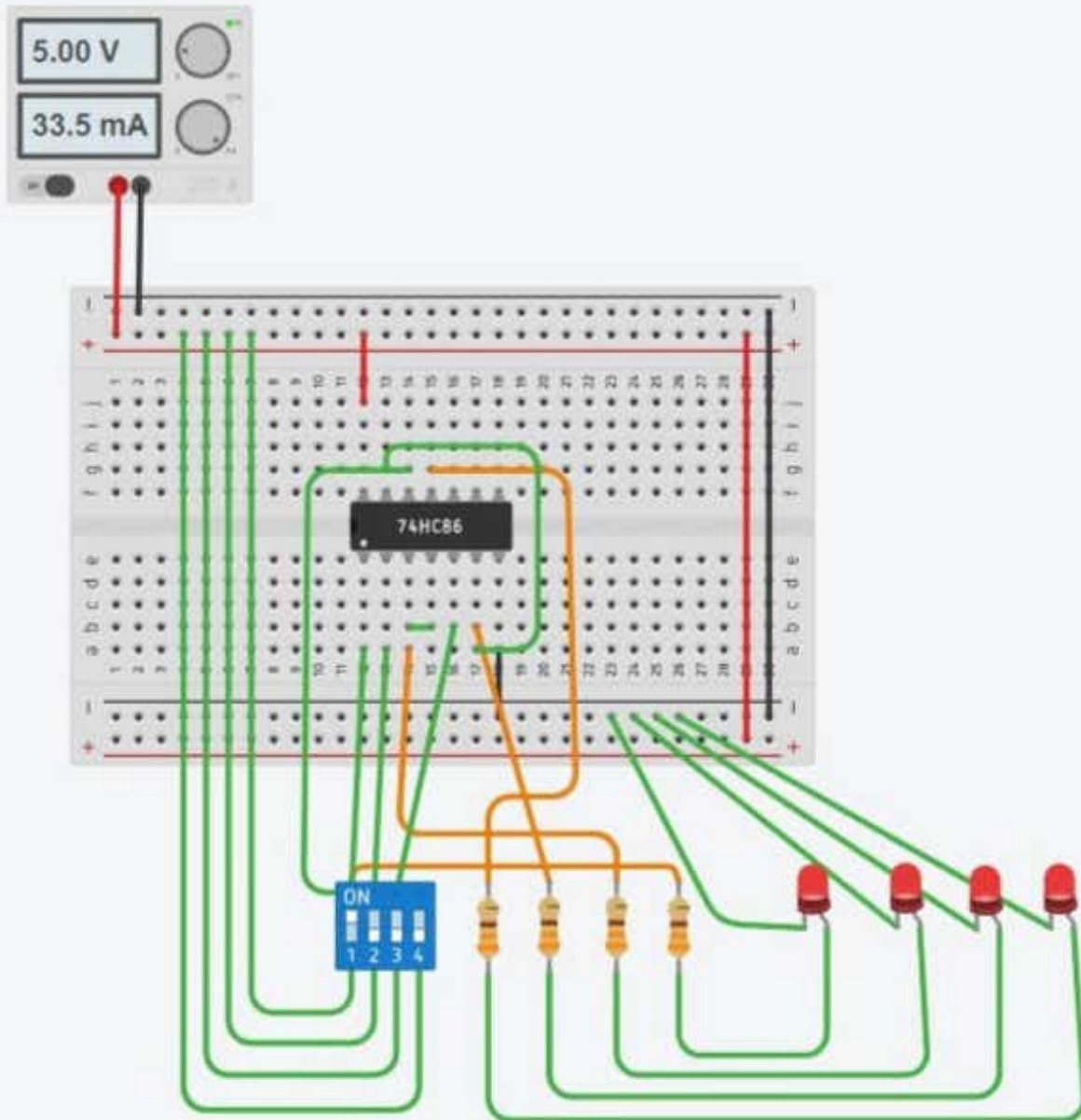
$G_3 G_2$ $G_1 G_0$	00	01	11	10
00	0	1	0	1
01	1	0	1	0
11	0	1	0	1
10	1	0	1	0

Symbol :-





B TO G CONVERTER



G TO B CONVERTER