

Lab 9: Gray to Binay Code

DIGITAL LOGIC DESIGN

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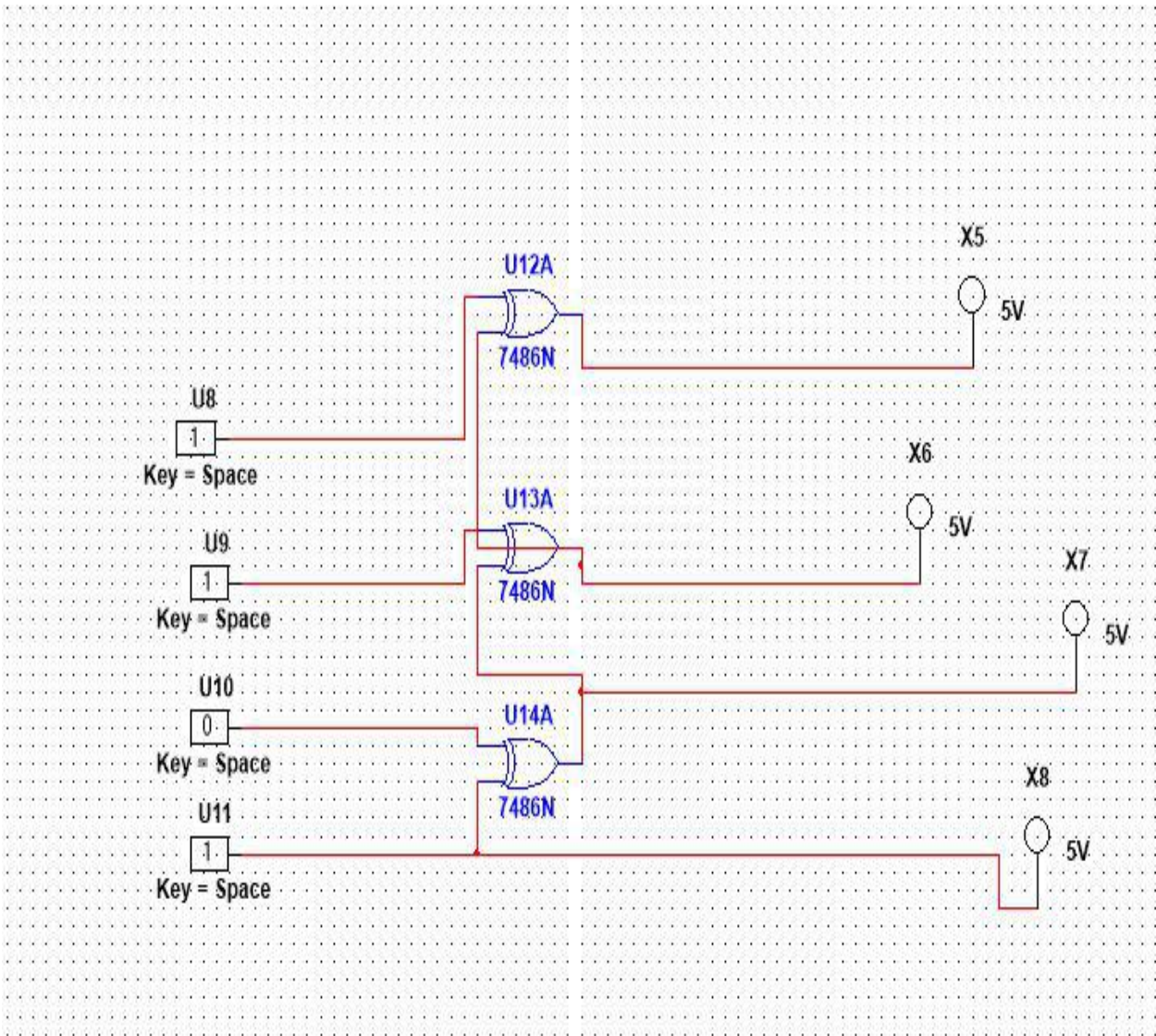
BS (SE) Section B (8th semester)



To Design and verify the truth table of code conversion from gray to binary code (4 bit) using basic Logic Gates

Observation Table:

: Input Variable: A B C D Output Variable: B3 B2 B1 B0 LED ON: RED Light: Logic 1
LED OFF: Green Light: Logic 0



K-Map for B3:

		G1G0			
		00	01	11	10
G3G2	00	0	0	0	0
	01	0	0	0	0
	11	1	1	1	1
	10	1	1	1	1

$$B3 = G3$$

K-Map for B2:

		G1G0			
		00	01	11	10
G3G2	00	0	0	0	0
	01	1	1	1	1
	11	0	0	0	0
	10	1	1	1	1

$$B2 = G3 \oplus G2$$

K-Map for B₁:

		G ₁ G ₀			
		00	01	11	10
G ₃ G ₂	00	0	0	1	1
	01	1	1	0	0
	11	0	0	1	1
	10	1	1	0	0

$$B_1 = G_3 \oplus G_2 \oplus G_1$$

K-Map for B₀:

		G ₁ G ₀			
		00	01	11	10
G ₃ G ₂	00	0	1	0	1
	01	1	0	1	0
	11	0	1	0	1
	10	1	0	1	0

$$B_0 = G_3 \oplus G_2 \oplus G_1 \oplus G_0$$

TRUTH TABLE:

| Gray Code to | Binary Code |

A	B	C	D	B3	B2	B1	B0
0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	1
0	0	1	1	0	0	1	0
0	0	1	0	0	0	1	1
0	1	1	0	0	1	0	0
0	1	1	1	0	1	0	1
0	1	0	1	0	1	1	0
0	1	0	0	0	1	1	1
1	1	0	0	1	0	0	0
1	1	0	1	1	0	0	1
1	1	1	1	1	0	1	0
1	1	1	0	1	0	1	1
1	0	1	0	1	1	0	0
1	0	1	1	1	1	0	1
1	0	0	1	1	1	1	0
1	0	0	0	1	1	1	1