Experiment – 4

Aim of the experiment –

To design, implement and test a logic circuit to convert 4 bit Binary to Gray code and also make a circuit to convert 4bit Gray to Binary.

Objective :–

To verify the truth table.

Apparatus required –

Serial No.	Equipment	Specification
01.	Breadboard	
02.	IC'S EX-OR gate (7486)	Quad 2 input Ex-or gate
03.	Connecting wires	

Theory –

Binary code –

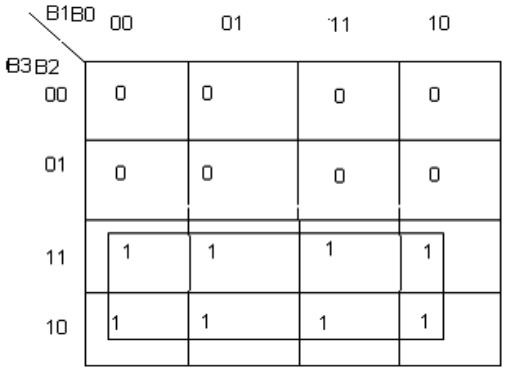
In binary code, the total number of symbols are 0 and 1, so the base and radix point is known as the binary point, the symbols 0, 1 are known as bit.

Gray code –

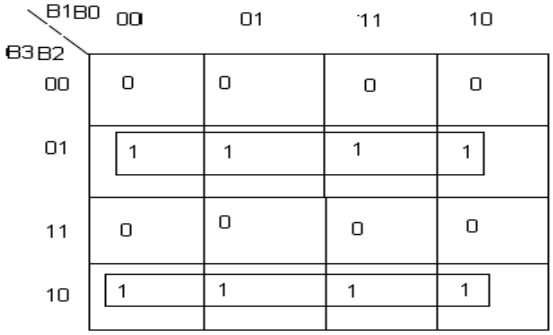
The gray code is un-weighted code. The gray code exhibits only a single bit change from one code number to the next, the gray code can have any numbers of bits.

BINARY INPUT				GRAY CODE OUTPUT			
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

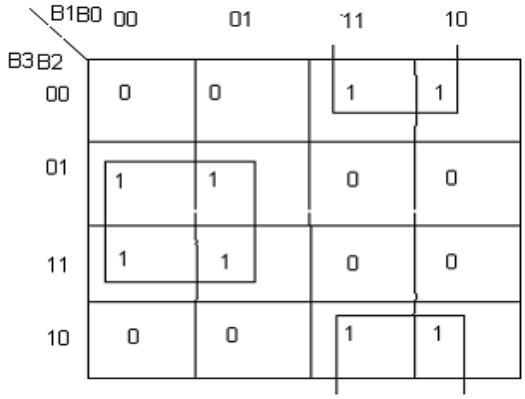
For G3 -



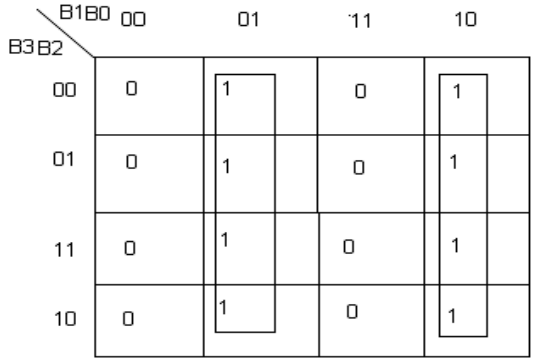
For G2 -

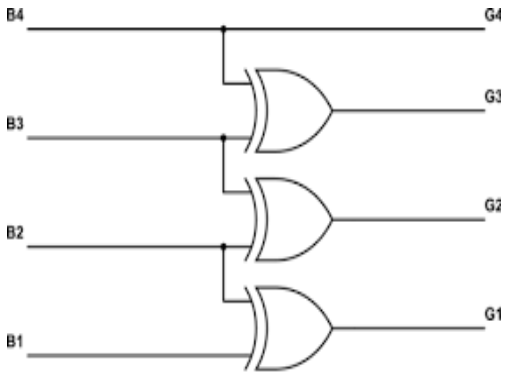


For G1 -

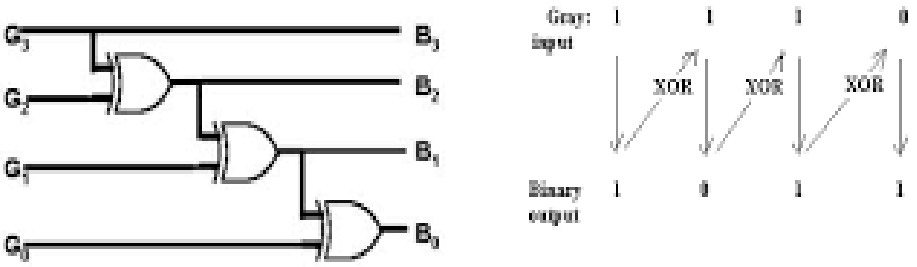


For G0 –





(Conversion of Binary to Gray code diagram)



(Conversion of Gray to Binary code diagram)

Observation table -

Write down the truth table in high and low format with the measured output voltages.

Conclusion -