

Experiment – 3

Aim of the experiment – To design, implement and test Boolean expression using two level and multilevel function.

Objective – To implement following function –

$$1. F_1 = AB + CD \quad 2. F_2 = AB + \bar{C}(\bar{A} + B)$$

Apparatus required –

Serial No.	Name of Components	Specifications
1.	IC 7404 7432 7408	Hex Inverter Quad 2 input OR gate Quad 2 input AND gate
2.	Project Board	
3.	Connecting Wires	

Theory –

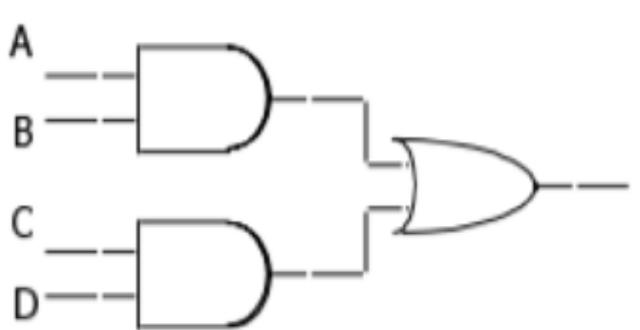
A two-level circuit component of a AND gate is followed by OR gate at the output. If no. of gates cascade in a network then it is called as a multilevel function.

Function table for F1 –

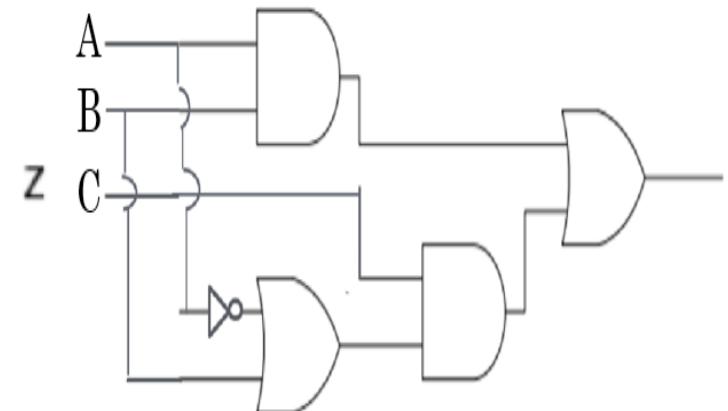
A	B	C	D	AB	CD	F1=AB+CD
0	0	0	0	0	0	0
0	0	0	1	0	0	0
0	0	1	0	0	0	0
0	0	1	1	0	1	1
0	1	0	0	0	0	0
0	1	0	1	0	0	0
0	1	1	0	0	0	0
0	1	1	1	0	1	1
1	0	0	0	0	0	0
1	0	0	1	0	0	0
1	0	1	0	0	0	0

1	0	1	1	0	1	1
1	1	0	0	1	0	1
1	1	0	1	1	0	1
1	1	1	0	1	0	1
1	1	1	1	1	1	1

$$F_1 = AB + CD$$



$$F_2 = AB + C(A' + B)$$



Function table for F2 –

A	A'	B	C	AB	$A' + B$	$C(A' + B)$	$F_2 = AB + C(A' + B)$
0	1	0	0	0	1	0	0
0	1	0	1	0	1	1	1
0	1	1	0	0	1	0	0
0	1	1	1	0	1	1	1
1	0	0	0	0	0	0	0
1	0	0	1	0	0	0	0
1	0	1	0	1	1	0	1
1	0	1	1	1	1	1	1

Observation table –

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

Conclusion– Hence the truth table of two level and multilevel function were verified by using basic gates and Boolean expressions.