Lab Report - 01

Course No: 206

Course Title: Digital Logic Design

Submitted To:

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Section: 07

Dept: CSE

Lab report :- 01

Name of Expriment :-

verify the Behavior of Logic Gates using Truth Tables and familization with Digital Logic Gate. on proteus

Logic Gates below :-

① OR Gate
② AND Gate
③ NOT Gate
④ NOR Gate
⑤ NAND Gate
⑥ X-OR Gate
⑦ X-NOR Gate.

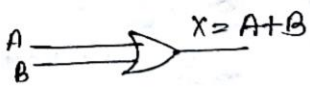
Experiment Equipment

Logic Gates
Logic probe
Logic State.

Table for Truth of OR Gates

input		output
A	B	X
0	0	0
0	1	1
1	0	1
1	1	1

$X = A + B$



(2)

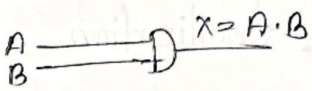
Truth table for AND Gates

$X = A \cdot B$

Input

A	B	$X = A \cdot B$
0	0	0
0	1	0
1	0	0
1	1	1

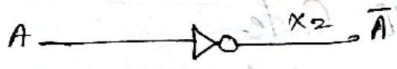
output



Truth table of NOT Gate

$X = \overline{A}$

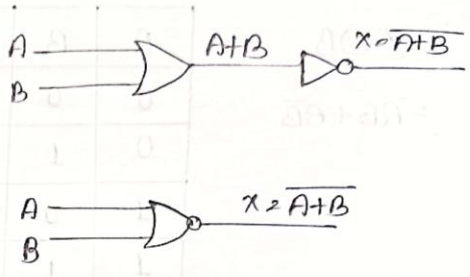
A	$X = \overline{A}$
0	1
1	0



Truth Table for NOR Gate

$X = \overline{A+B}$

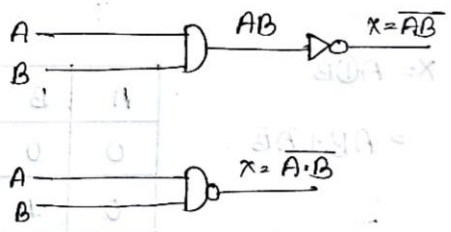
A	B	A+B	$\overline{A+B}$
0	0	0	1
0	1	1	0
1	0	1	0
1	1	1	0



Truth table for NAND GATE

$X = \overline{A \cdot B}$

A	B	A·B	$\overline{A \cdot B}$
0	0	0	1
0	1	0	1
1	0	0	1
1	1	1	0

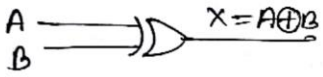


(4) Truth Table for x-OR Gate

$X = A \oplus B$

$= \bar{A}B + A\bar{B}$

A	B	$\bar{A}$	$\bar{B}$	$\bar{A}B$	$A\bar{B}$	$\bar{A}B + A\bar{B}$
0	0	1	1	0	0	0
0	1	1	0	1	0	1
1	0	0	1	0	1	1
1	1	0	0	0	0	0

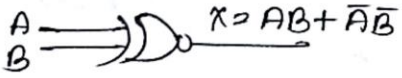


Truth Table for x-NOR Gate

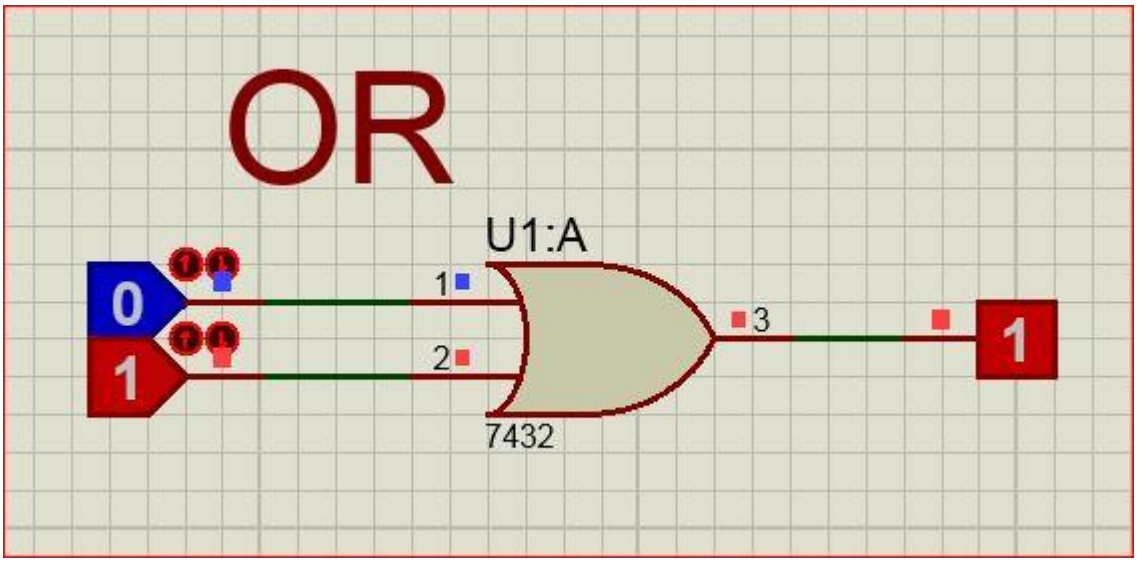
$X = \overline{A \oplus B}$

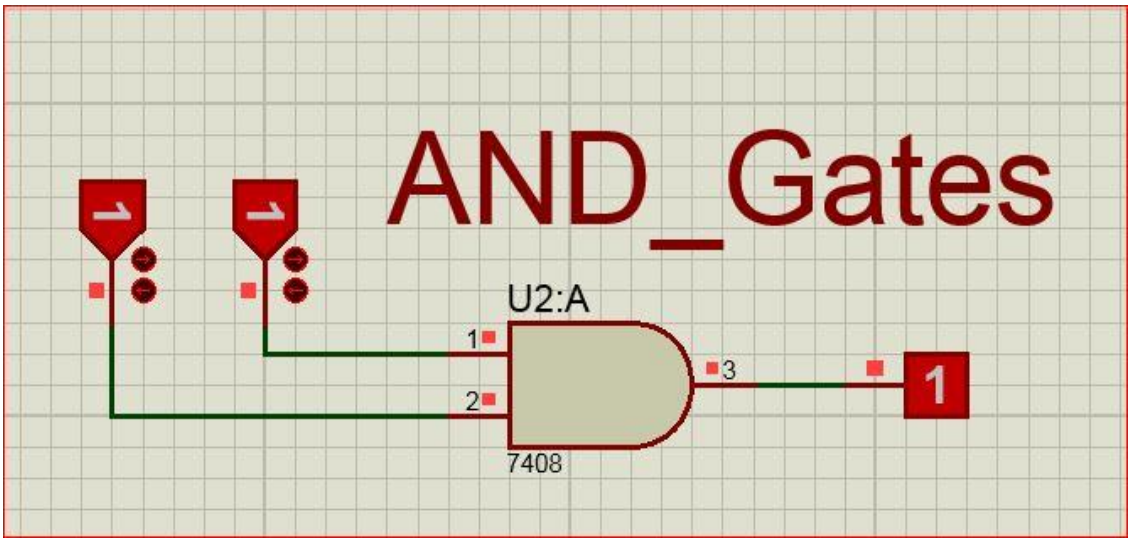
$= AB + \bar{A}\bar{B}$

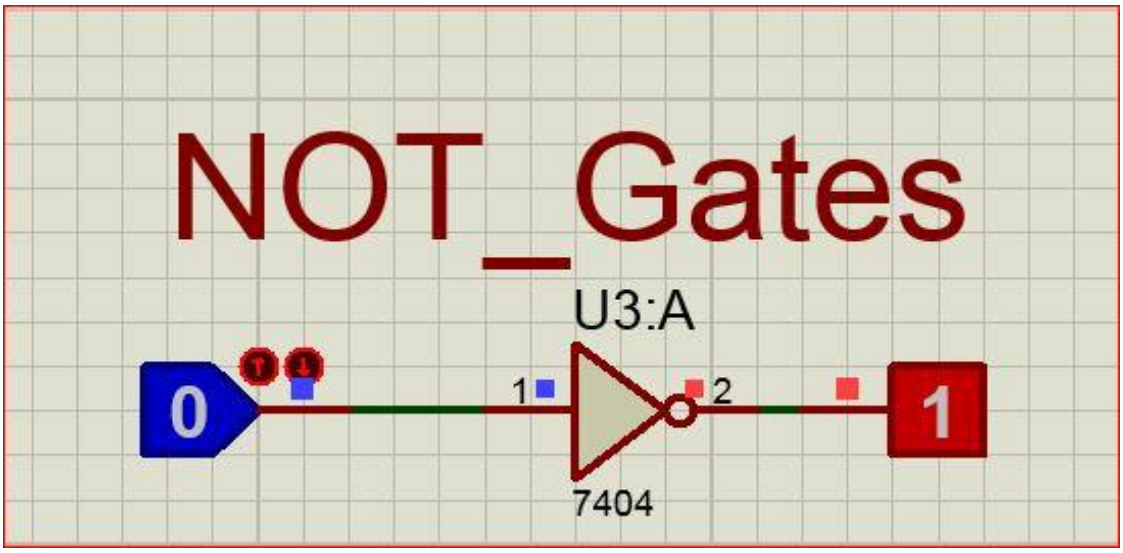
A	B	$\bar{A}$	$\bar{B}$	AB	$\bar{A}\bar{B}$	$AB + \bar{A}\bar{B}$
0	0	1	1	0	1	1
0	1	1	0	0	0	0
1	0	0	1	0	0	0
1	1	0	0	1	0	1

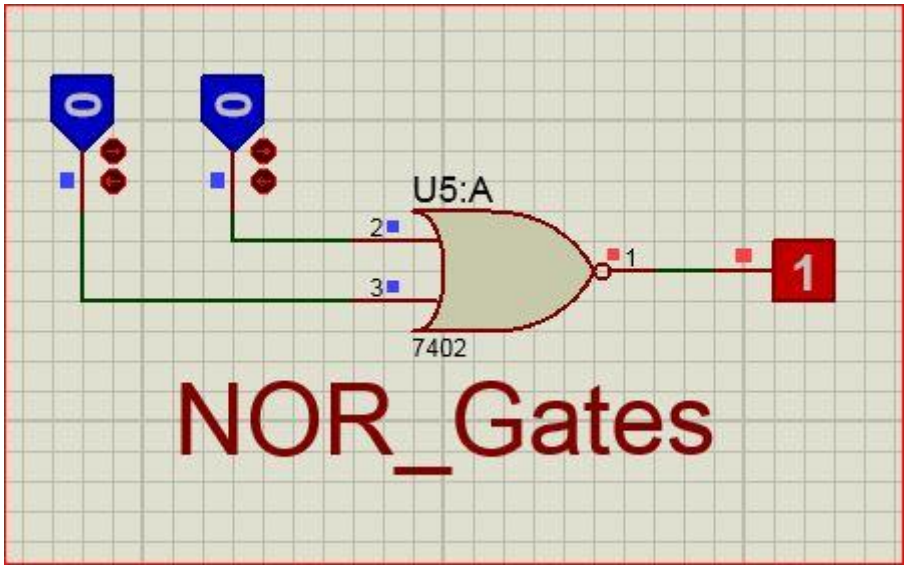


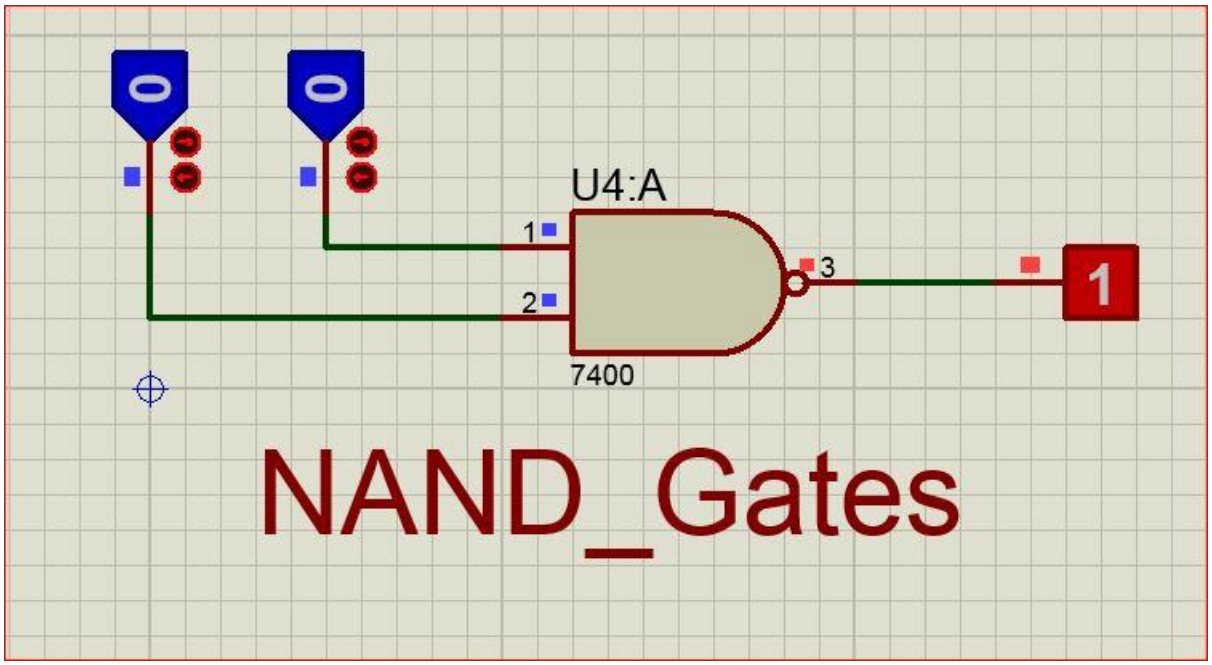
All Logic Gates

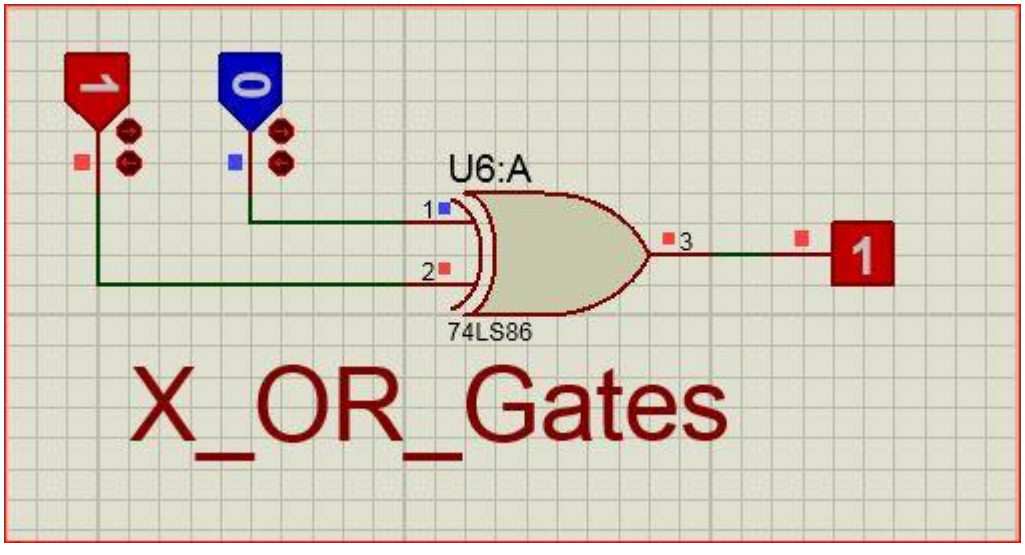


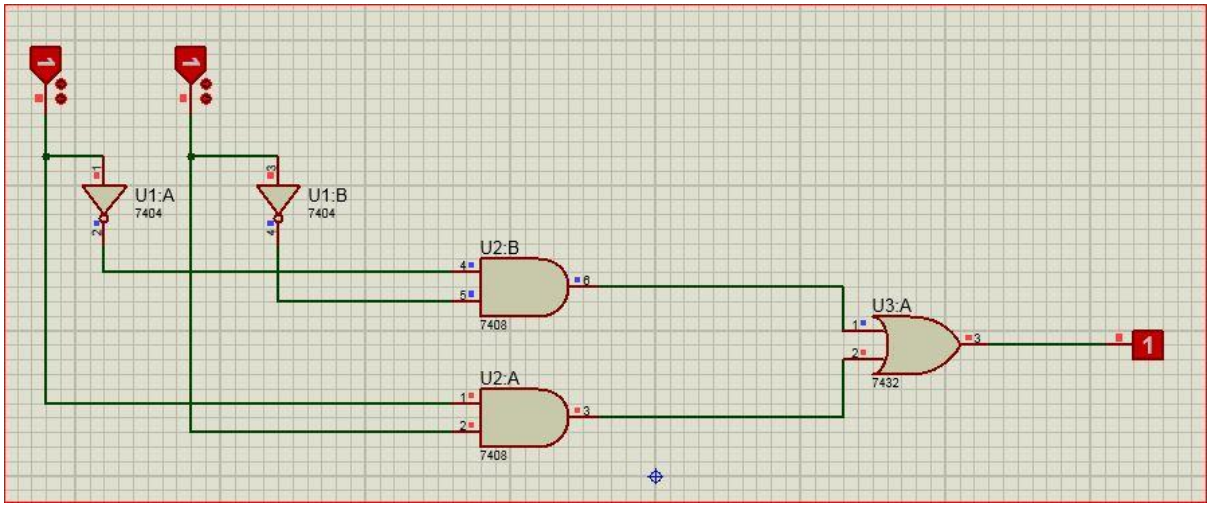





U5:A
2
3
1
7402
1
NOR_Gates


U4:A
1
2
3
7400
1
NAND_Gates


U6:A
1
2
3
74LS86
1
X_OR_Gates



Picture of X_NOR Gates

Conclusion :

1. we have learnt how to implement circuits in protews software.
2. we have understand the digit simulation of any circuit in the software.
3. we have verified the truth table for each input/output combination.
4. we repeated the process for all others logic gates.