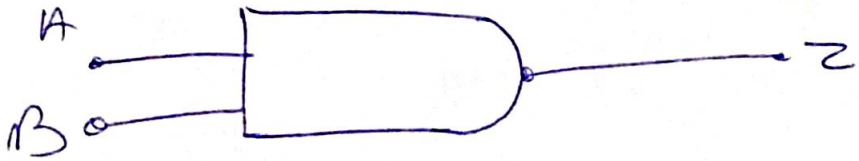
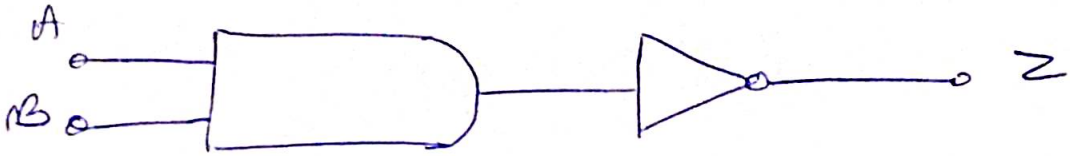
Ans NAND gate:

The NAND gate is a combination of an AND gate & NOT gate. They are connected is cascade form. It is also called Negated AND gate. The NAND gate provides the false or low output only when their outputs is high or true. The NAND gate is essential because different types of a boolean function are implemented by using it. The NAND gate has the property of functional completeness. The function completeness means any types of gates can be implied by using the NAND gate. It performs the function of OR, NOR & AND gate

The logic symbol for the gate is shown below:



The logic circuits of the NAND gate:



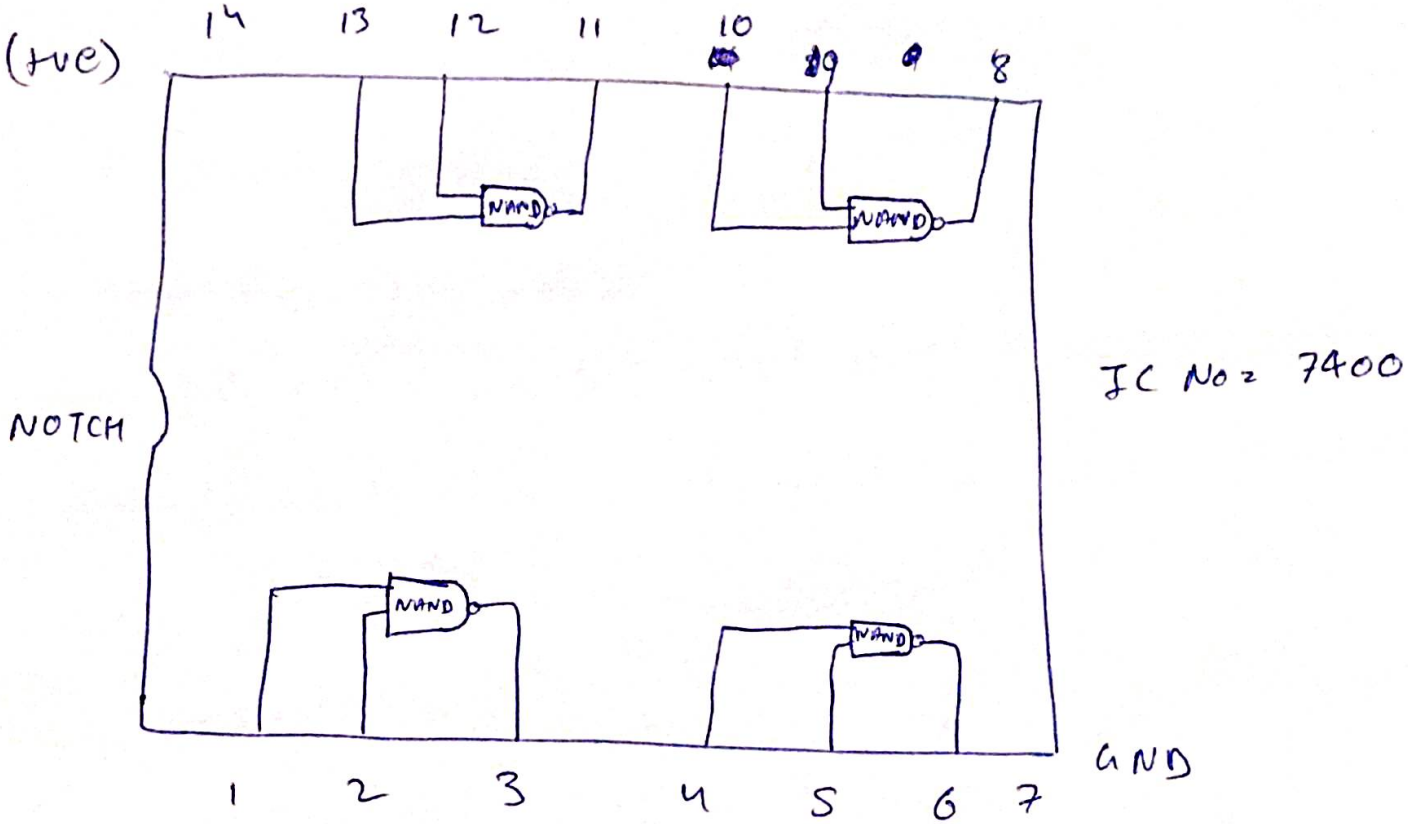
Boolean expression:

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

Truth table:

A	B	$Z = \overline{A \cdot B}$
0	0	1
0	1	1
1	0	1
1	1	0

IC Diagram:-


(+ve)
14
13
12
11
10
9
8
NAND
NAND
NOTCH
IC No = 7400
NAND
NAND
GND
1
2
3
4
5
6
7