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Subject - Computer Organisation and Architecture

Mid-term Practical Exam

Ques. Discuss the working of NAND gate with the help of circuit diagram and truth table.

Ans → NAND Gate : The NAND gate is a special type of logic gate in the digital logic circuit. The NAND gate is the universal gate. It means all the basic gates such as AND, OR, and NOT gate can be constructed using a NAND gate. The NAND gate is the combination of the NOT-AND gate. The output state of the NAND gate will be low only when all the inputs are high. Simply, this gate returns the complement result of the AND gate.

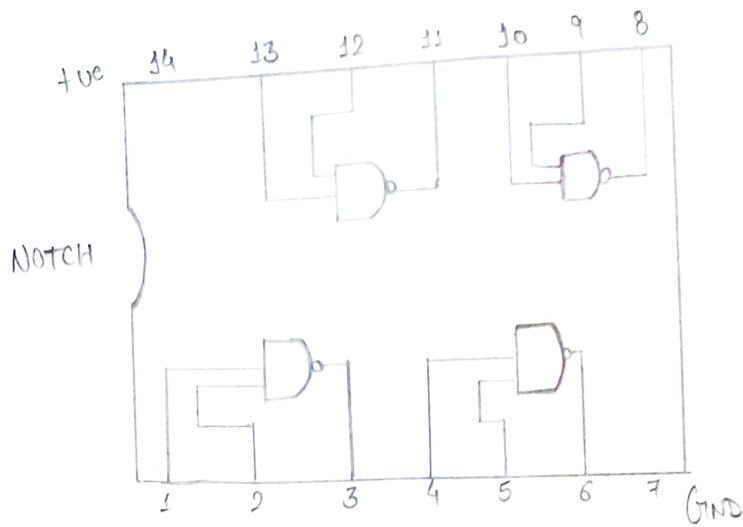
The logic or Boolean expression for the NAND gate is the complement of logical multiplication of inputs denoted by a full stop or a single dot as

$$(A \cdot B)' = Y$$

The value of  $Y$  will be true when any one of the input is set to 0.

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## IC Diagram:



IC No = 7400

## Logic Diagram:



## Truth Table:

Input		Output
A	B	$C = (A.B)$
0	0	1
0	1	1
1	0	1
1	1	0