NAME:- Pranjli Verma

Course :- MCA

Sem :- 1st
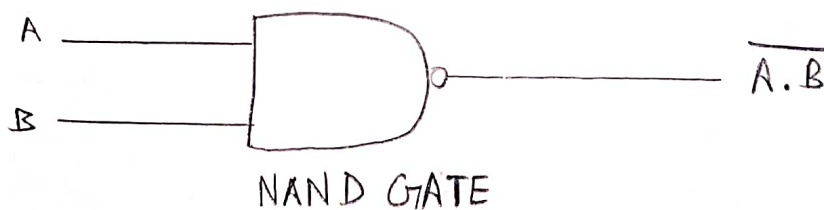
Sec. :- B

Roll·No·:- 2101147

Student Id :- 217/2029

Q-1) Discuss the working of NAND gate with the help of circuit diagram and truth table.

Ans- **Working :-**
→ A NAND gate ("not AND gate") is a logic gate that produces a low output (0) only if all its inputs are true, and high output (1) otherwise.

→ Hence the NAND gate is the inverse of an AND gate, and its circuit is produced by connecting an AND gate to a NOT gate.

→ Just like an AND gate, a NAND gate may have any number of input probes but only one output probe.

→ The NAND gate performs the logical NAND operation.

→ NAND gates are known as universal gates, which means they are a type of logic gate which can implement any Boolean function without the need to use any other gate type.

→ The symbol of a NAND gate is similar to the AND gate, but a bubble is drawn at the output point of the AND gate.

Circuit Diagram :-

A ───────┐
         ╲‾‾‾╲
          │   )o──────── $\overline{A.B}$
         ╱___╱
B ───────┘

NAND GATE

Pranjli

Truth Table :-

Input		AND Output	NAND Output
A	B	$X = A \cdot B$	$X = \overline{A \cdot B}$
0	0	0	1
0	1	0	1
1	0	0	1
1	1	1	0