Universal Gates

Presented By:

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Outline

➢ **Universal Gates**

- What are universal gate? Why are they called so?
- NAND Gate as NOT, AND & OR
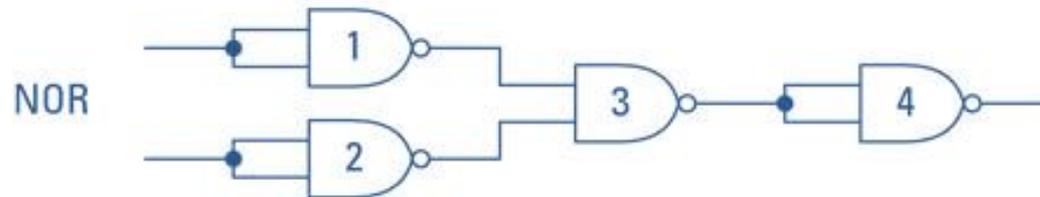- NOR Gate as NOT, OR & AND

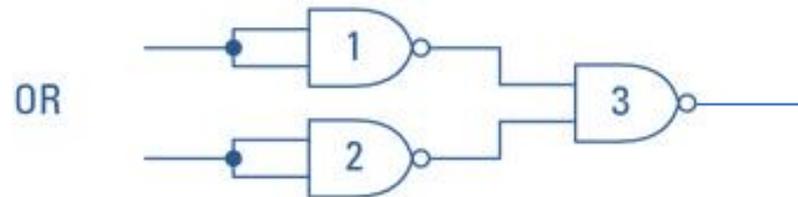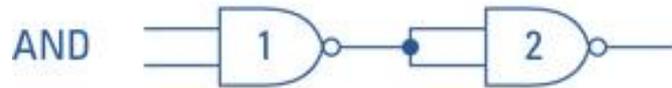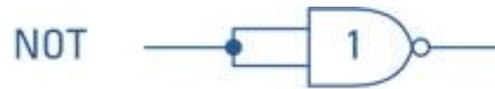What are universal gate? Why are they called universal?

--NAND and NOR gates are universal gates.

--We have three basic operations that can be realized using the AND, OR and NOT gates as discussed previously. From these three operations, two more operations have been derived: the NAND operation and NOR operation.
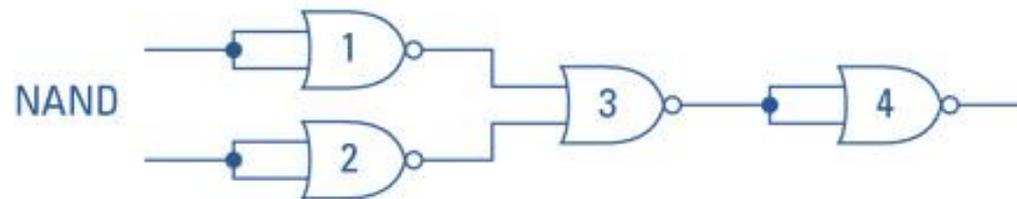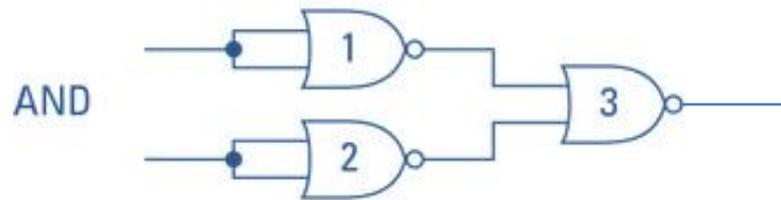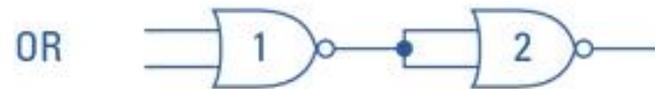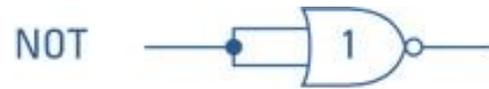
--These operations have become very popular and are widely used, the reason being the only one type of gates, either NAND or NOR are sufficient for the realization of any logical expression.

--Because of this reason NAND and NOR gates are known as universal gates.

Universal NAND Gate

Universal NOR Gate

HOME WORK

Q1. How to realise XOR and XNOR gate using NAND gate ?

Q2. How to realise XOR and XNOR gate using NOR gate ?