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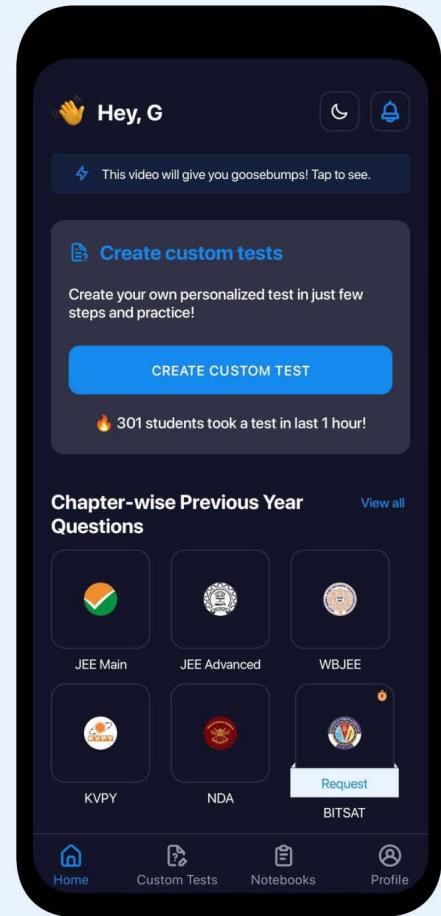


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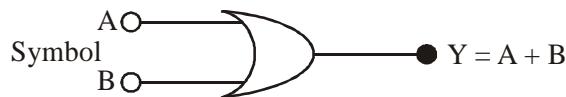


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## LOGIC GATES

### OR Gate :

Boolean expression  $Y = A + B$



Truth table

A	B	Y
0	0	0
1	0	1
0	1	1
1	1	1

### AND gate

Boolean expression  $Y = A \cdot B$



Truth table

A	B	Y
0	0	0
1	0	0
0	1	0
1	1	1

### NOT gate

Boolean expression  $Y = \bar{A}$



Truth table

A	Y
0	1
1	0

### NAND gate

Boolean expression  $\overline{A \cdot B}$

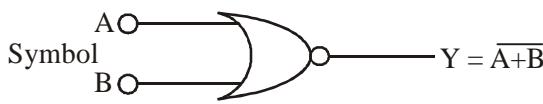


Truth table

A	B	Y
0	0	1
1	0	1
0	1	1
1	1	0

### NOR gate

Boolean expression  $Y = \overline{A + B}$

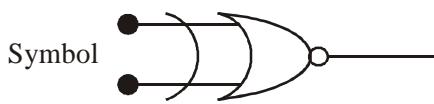


Truth table

A	B	Y
0	0	1
1	0	0
0	1	0
1	1	0

### XOR gate or Ex-OR gate

Boolean expression  $Y = A\bar{B} + \bar{A}B$



Truth table

A	B	Y
0	0	0
1	0	1
0	1	1
1	1	0

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[2]

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### NAND and NOR work as basic building blocks

Any logic gate can be realised by using only NAND gates or only NOR gates. Therefore these two gates are called the building blocks NAND / NOR are also universal gate.

