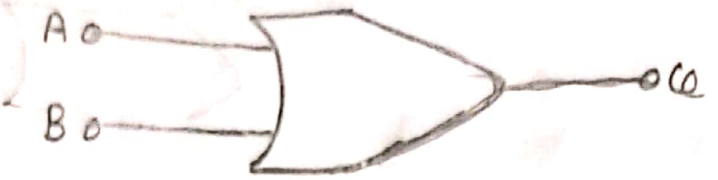
Answer No 1

OR GATE

Similar to AND gate, an OR gate may also have two or more Inputs but Produce only one output. The OR gate Produces an output of logic 1 state even if any of its Inputs is in logic 1 state and also Produces an output of logic 0 state If any of its is in logic 0 state. The Symbol for OR operation is "+" if the Inputs are of x and Y then the output Can be represented as Z = X + Y. An OR gate may also be defined as a device whose output is 1 even if one of its Input is 1 OR gate is also Called as an Inclusive OR gate because it Consists of the Condition of both the Inputs Can be Present The logic Symbols and truth table gates are given below.

Symbol



2 Input OR Gate

Truth Table:

B	A	C
0	0	0
0	1	1
1	0	1
1	1	1

(II) AND Gate:-

An AND gate requires two or more inputs and Produce only one output The AND gate Produces an output of logic 1 state when each of the inputs are at logic 1 state and also Produces an out put of logic 0 state The symbol for AND operation is '.' or

or we use no symbol for representing. If the inputs are of X and Y then the output can be expressed as $Z = XY$ The AND gate is so named because if 0 is called false and 1 is called true The gate performs in the same way as the logical and operator The AND gate is also named as all or nothing gate The logic symbols and truth tables of two input and three input AND gates are given below.

Symbol:

2 Input AND Gate

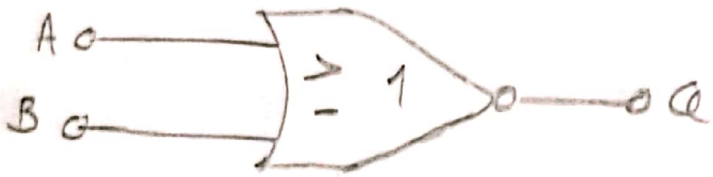
Truth Table:

B	A	Q
0	0	0
0	1	0
1	0	0
1	1	1

NOR GATE :-

NOR means NOT OR That means NOR gate is a combination of an OR gate and a NOT gate. The output is logic 1 level only when each of its inputs assumes a logic 0 level. For any other combination of inputs the output is a logic 0 level. The truth table of two input NOR gate is given below.

Symbol :-



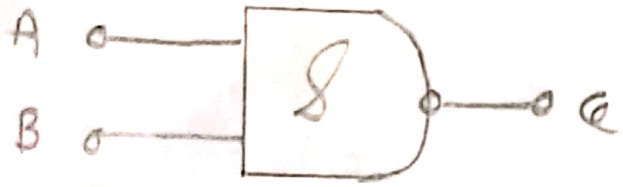
Truth Table:

B	A	Q
0	0	1
0	1	0
1	0	0
1	1	0

NAND Gate:

The NAND and NOR gates are the universal gates Each of this gates can realize the logic circuits Singly handedly The NAND and NOR are also called as universal building blocks Both NAND and NOR has the ability to Perform three basic logic functions Such as AND OR and NOT. NAND gate is a Combination of an AND gate and a NOT gate The truth table of two-Input NAND gate is given below.

Symbol:



Truth table:

B	A	Q
0	0	1
0	1	1
1	0	1
1	1	0

Answer No. 2

(i) 011011

$$011011_2 = 0\cdot2^6 + 1\cdot2^5 + 1\cdot2^4 + 0\cdot2^3 + 0\cdot2^2 + 1\cdot2^1 + 1\cdot2^0 = 0+32+16+0+0+2+1 = 51_{10}$$

Happened 51_{10}

Result of Converting

$011001_2 = 51_{10}$

(II) 1001001

$$1001001_2 = 1\cdot2^6 + 0\cdot2^5 + 0\cdot2^4 + 1\cdot2^3 + 0\cdot2^2 + 0\cdot2^1 + 1\cdot2^0 = 64+0+0+8+0+0+1 = 73_{10}$$

Happened 73_{10}

Result: $1001001_2 = 73_{10}$

(III) 10101

$10101_2 = 1\cdot2^5 + 0\cdot2^4 + 1\cdot2^3 + 0\cdot2^2 + 1\cdot2^1 + 0\cdot2^0 = 32+0+8+0+2+0 = 42_{10}$

Happened 42_{10}

Result: $10101_2 = 42_{10}$

(IV) 0101010

$0101010_2 = 0\cdot2^6 + 1\cdot2^5 + 0\cdot2^4 + 1\cdot2^3 + 0\cdot2^2 + 1\cdot2^1 + 0\cdot2^0 = 0+32+0+8+0+2+0 = 42_{10}$

Happened 42_{10}

Result $0101010_2 = 42_{10}$

Answer No. 3

Decimal Number into Binary Numbers

(i) 25 (ii) 16 (iii) 7 (iv) 34

(I) Converting 25_{10} in Binary System

25	2	
-24	12	2
1	-12	6
	0	-6
		0

2		
6	2	
3	2	
-2	1	
1		

$25_{10} = 11001_2$

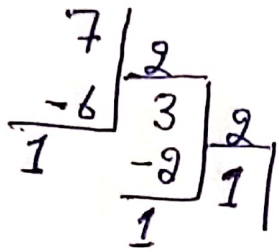
I) Converting 16_{10} in Binary System

16	2	
-16	8	2
0	-8	4
	0	-4
		0

2		
4	2	
2	2	
-2	1	
0		

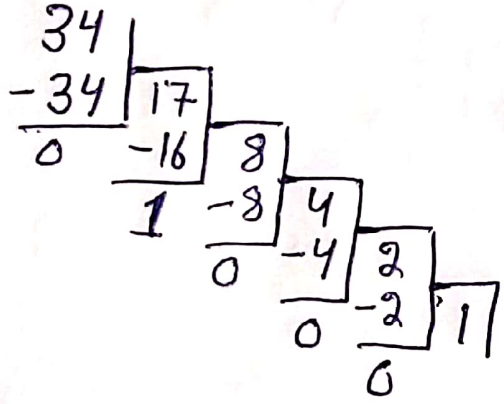
$16_{10} = 10000_2$

iii) Converting 7_{10} in Binary System.



$7_{10} = 111_2$

iv) Converting 34_{10} in Binary System.



$34_{10} = 100010_2$