

① Conversion from Decimal  $\rightarrow$  Binary

②

Bitwise operator's

[ & , | , ^ , ~ , << , >> ]

&  $\Rightarrow$  Bitwise AND

|  $\Rightarrow$  Bitwise OR

~  $\Rightarrow$  Bitwise NOT

^  $\Rightarrow$  Bitwise XOR

<<  $\Rightarrow$  Bitwise Left Shift

>>  $\Rightarrow$  Bitwise Right Shift

11<sup>th</sup> / 12<sup>th</sup>

Bitwise AND (&) Truth table : (mul) (A \* B)

	A	B	output
0	0	0	0
1	0	1	0
2	1	0	0
3	1	1	1

Bitwise OR (|) Truth table : Add (A + B)

	A	B	output
0	0	0	0
1	0	1	1
2	1	0	1
3	1	1	1

(0, 1) (2)

Ans  
2

Bitwise XOR (^) Truth table : Same (A, B)  $\rightarrow$  output - 0  
Not same  $\rightarrow$  output - 1

	A	B	output
0	0	0	0
1	0	1	1
2	1	0	1
3	1	1	0

Bitwise NOT (~) Truth table :

A	output
0	1
1	0

# Bitwise operators

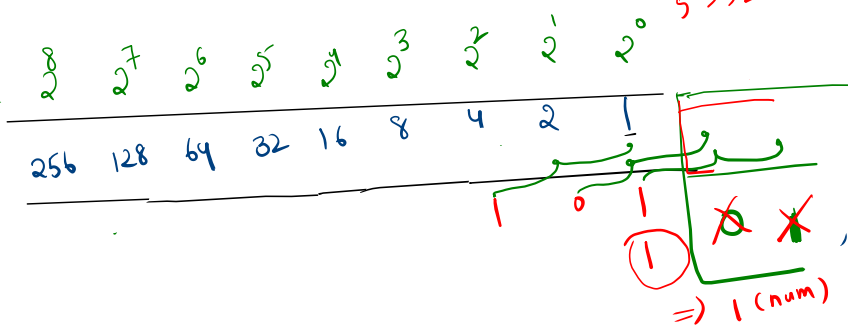
decimal(5)  $\rightarrow$  Binary (.....)

$a=5 \rightarrow a \gg 2$   
 $5 \gg 2$

msb = most significant bit  
lsb = least significant bit

msb  
1  $\rightarrow$  negative  $\rightarrow$   
0  $\rightarrow$  positive (+)

5  $\Rightarrow$  101  
8  $\Rightarrow$  1000  
10  $\Rightarrow$  1010  
7  $\Rightarrow$  111  
25  $\Rightarrow$  11001  
15  $\Rightarrow$  1111  
3  $\Rightarrow$  11



$a = 7$   
 $pf(\sim a)$

(5)

1's, 2's complement

$-(a+1)$

ans = 1's

$-(a+1)$   
 $-(5+1)$   
 $\Rightarrow -6$

$-(a+1)$   
 $-(7+1)$   
 $\Rightarrow -8$

$a=7$

$a=-2$

$a=-3$

$-(a+1)$   
 $-(-2+1)$   
 $= -(-1)$   
 $= 1$

$-(a+1)$   
 $-(-3+1)$   
 $= -(-2)$   
 $= 2$