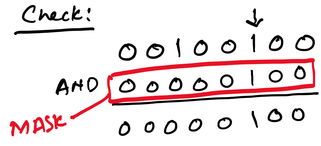
Bit Manipulation.

Thursday, 12 November 2020 8:11 AM

Bitwise Operators

- AND (Check, Clear) 1→0
- OR (Set) 0→1
- XOR (Invert)

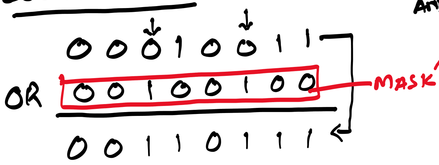
Check:



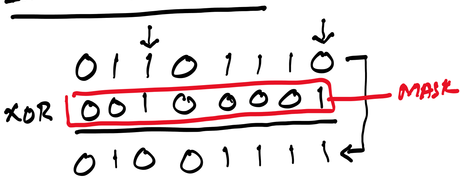
* Accumulator is changed to an undesired value for checking. That's why we reload value.

Clear:

Set with OR:



INVERT with XOR:



APPLICATIONS:

2's Complement:

-6 11111010

+6 00000110

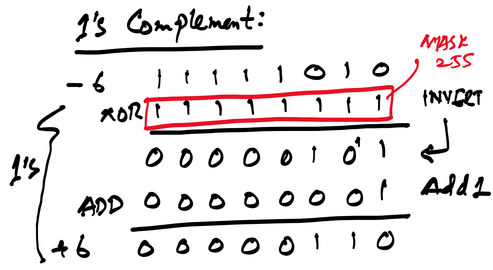
256 | -6

257 | +6

```
LDD 256
XOR #255
INC
STO 257
END
```

ABSOLUTE ADDRESSING

1's Complement:



ACC
B11111010
B00000101
B00000110

ACC
250
5
6

* When dealing with 2's numbers in bit manipulation use binary notations in registers.

```
LDD Num
XOR Mask1
INC
STO Num1
END
Num: -6
Mask1: 255
Num1:
```

SYMBOLIC ADDRESSING.

Shifting case Alphabets:

```
    IN
    STO LTR
    AND MASK2
    CMP #0
    JPN LCW
UCW: LDD LTR
    OR #32
    STO LC
    JMP STOP
LCW: LDD LTR
    AND MASK1
    STO UC
STOP: END
```

```
UC: B01000011
LC: B01100011
LTR: B01100011
MASK1: B11011111
MASK2: B00100000
```

INPUT a letter, LTR
CHECK THE CASE,
IF LC Then convert to UC, UC
IF UC Then convert to LC, LC.

ACC Rough work