

## **LOGICAL OPERATIONS**

**EXP NO: 20**

### **AIM:**

To compute various logical operations using 8085 processor.

### **ALGORITHM:**

- 1) Load data to accumulator.
- 2) Load another data in register
- 3) Perform logical operations like AND, OR and XOR (Use ANA, ORA, XRA) with the accumulator content.

- 4) Store the result in specified memory location.

**PROGRAM:**

**AND  
OPERATION:**

MVI  
A,06

MVI  
B,04

ANA  
B

STA  
2500

HLT

**INPUT:**

Start | 2500

Address (Hex)	Address	Data
09C4	2500	

## OUTPUT:

GNUSim8085 - 8085 Microprocessor Simulator

File Reset Assembler Debug Help

Registers

Register	Value
A	04
BC	04 00
DE	00 00
HL	00 00
PSW	00 00
PC	42 0D
SP	FF FF
Int-Reg	00

Flag

Flag	Value
S	0
Z	0
AC	1
P	0
C	0

Load me at:

```
1 ;<Program title>
2
3
4 jmp start
5
6 ;data
7
8
9 ;code
10 start: nop
11 MVI A,06
12 MVI B,04
13 ANA B
14 STA 2500
15 HLT
```

Decimal - Hex Conversion

Decimal: 0 Hex: 0

To Hex To Dec

I/O Ports

0 - + 00

Update Port Value

Memory

0 - + 00

Update Memory

Address (Hex) Address Data

Address (Hex)	Address	Data
09C4	2500	4
09C5	2501	0
09C6	2502	0
09C7	2503	0
09C8	2504	0
09C9	2505	0
09CA	2506	0
09CB	2507	0
09CC	2508	0
09CD	2509	0
09CE	2510	0
09CF	2511	0
09D0	2512	0
09D1	2513	0

Line No Assembler Message

0 Program assembled successfully

Simulator: Idle

08:38 AM 18-10-2023

## OR OPERATION:

MVI  
A,07

MVI  
B,06

ORA  
B

STA  
2050

HLT

INPUT:

Start	2500
-------	------

Address (Hex)	Address	Data
09C4	2500	

OUTPUT:

GNUSim8085 - 8085 Microprocessor Simulator

File Reset Assembler Debug Help

Registers

A	07	S	0
BC	06 00	Z	0
DE	00 00	AC	0
HL	00 00	P	0
PSW	00 00	C	0
PC	42 0D		
SP	FF FF		
Int-Reg	00		

Flag

Load me at

```
1  
2 ;<Program title>  
3  
4 jmp start  
5  
6 ;data  
7  
8  
9 ;code  
10 start: nop  
11 MVI A,07  
12 MVI B,06  
13 ORA B  
14 STA 2500  
15 HLT
```

Decimal - Hex Conversion

Decimal Hex

0 0

To Hex To Dec

I/O Ports

0 - + 00

Update Port Value

Memory

0 - + 00

Update Memory

Start 2500 OK

Address (Hex)	Address	Data
09C4	2500	7
09C5	2501	0
09C6	2502	0
09C7	2503	0
09C8	2504	0
09C9	2505	0
09CA	2506	0
09CB	2507	0
09CC	2508	0
09CD	2509	0
09CE	2510	0
09CF	2511	0
09D0	2512	0
09D1	2513	0

Line No Assembler Message

0 Program assembled successfully

Simulator: Idle

08:44 AM 18-10-2023

XOR

OPERATION:

MVI

A,03

MVI

B,08

XRA  
B

STA  
2050

HLT

INPUT:

Start	2500	
Address (Hex)	Address	Data
09C4	2500	

OUTPUT:

GNUSim8085 - 8085 Microprocessor Simulator

File Reset Assembler Debug Help

Registers

A	0B	S	0
BC	08 00	Z	0
DE	00 00	AC	0
HL	00 00	P	0
PSW	00 00	C	0
PC	42 0D		
SP	FF FF		
Int-Reg	00		

Flag

Load me at:

1: /<Program title>  
2: ,  
3: ,  
4: jmp start  
5: ,  
6: /data  
7: ,  
8: ,  
9: /code  
10: start: nop  
11: MVI A,03  
12: MVI B,08  
13: XRA B  
14: STA 2500  
15: HLT

Decimal - Hex Conversion

Decimal: 0 Hex: 0

To Hex To Dec

I/O Ports

0 - + 00

Update Port Value

Memory

0 - + 00

Update Memory

Simulator: Idle

Line No Assembler Message

0 Program assembled successfully

**RESULT:** Thus the program was executed successfully using 8085 processor simulator.

