

WORKSHEET – 7

Name:

Section/Group:

UID:

Subject: Microprocessor and Interfacing Lab

Date of Submission: 30.3.2022

Branch: BE CSE (4th Semester)

Aim:

Shifting of 16-bit numbers.

Task to be done:

- a) Shift a 16-bit number to left by 1-bit
- b) Shift a 16-bit number to left by 2-bits.

Apparatus / Simulator Used:

1. Jubin Application
2. 8085 Simulator
3. JDK

Algorithm / Flowchart:

Shift a 16 -bit number to left by1-bit:

1. Load H – L pair with address 3000H.
2. DAD is used to shift the 16-bit number to left by 1-bit.
3. Store HL pair using direct addressing in memory location.
4. Terminate the program.

Shift a 16 -bit number to left by 2-bits:

1. Load H – L pair with address 3000H.
2. DAD is used to shift the 16-bit number to left by 2-bits.
3. Store HL pair using direct addressing in memory location.
4. Terminate the program.

Code:

Shift a 16 -bit number to left by1-bit:

```
# BEGIN 0000H
```

```
    LHLD 3000H
```

```
    DAD H
```

```
    SHLD 3001H
```

```
    HLT
```

```
# ORG 3000
```

```
# DB 96H,75H
```

Shift a 16 -bit number to left by 2-bits:

```
# BEGIN 0000H

    LHLD 3000

    DAD H

    DAD H

    SHLD 3001

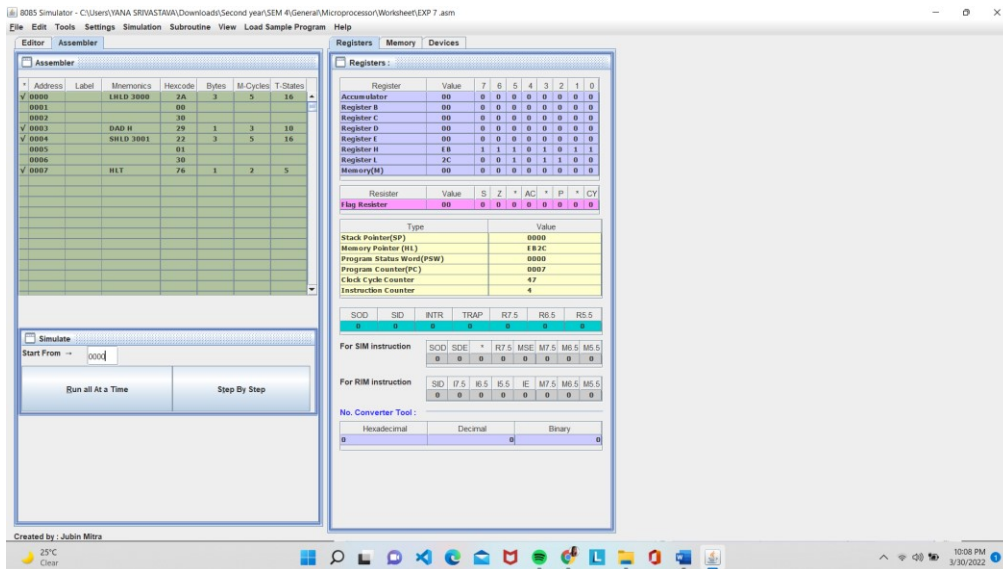
    HLT

# ORG 3000

# DB 96H,75H
```

Result / Output / Writing Summary:

Shift a 16 -bit number to left by1-bit:



Shift a 16-bit number to left by 2-bit:

The screenshot shows the 8085 Simulator interface. The Assembler window displays the following assembly code:

Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
0000		LHLD 3000	2A	3	5	16
0001			00			
0002			30			
0003		DAD H	29	1	3	10
0004		DAD H	29	1	3	10
0005		SHLD 3001	22	3	5	16
0006			01			
0007			30			
0008		HLT	76	1	2	5

The Registers window shows the following status:

Register	Value	7	6	5	4	3	2	1	0
Accumulator	00	0	0	0	0	0	0	0	0
Register B	00	0	0	0	0	0	0	0	0
Register C	00	0	0	0	0	0	0	0	0
Register D	00	0	0	0	0	0	0	0	0
Register E	00	0	0	0	0	0	0	0	0
Register H	06	1	1	0	1	0	1	1	0
Register L	58	0	1	0	1	1	0	0	0
Memory(M)	00	0	0	0	0	0	0	0	0

The Flag Register is shown as 01, indicating the Zero flag is set. Other registers like Stack Pointer (SP), Memory Pointer (HL), Program Status Word (PSW), Program Counter (PC), Clock Cycle Counter, and Instruction Counter are also visible.

Learning Outcomes:

1. Working of microprocessors.
2. Learn how to shift data in microprocessors.
3. Learn about 8085 simulator.
4. Operations of 16 bit numbers.
5. Learn about the different instructions that are needed to be given to the memory to perform some tasks.

Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty):



Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.			
2.			
3.			