

ASSIGNMENT 7

DCO -LAB

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Q1. Load the content of memory location 0005 and 0006 into the register pair HL directly.

To store content of a memory location to HL pair directly we can use [LHLD](#) command as:

GNUSim8085 - 8085 Microprocessor Simulator

File Reset Assembler Debug Help

Registers

Register	Value
A	00
BC	00 00
DE	00 00
HL	14 3D
PSW	00 00
PC	42 04
SP	FF FF
Int-Reg	00

Flag

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

Load me at

```

1 LHLD 0005H;
2 hlt

```

Decimal - Hex Conversion

Decimal	Hex
0	0

Data Stack Keypad Men

Start

Address (Hex)	Address	Data
0000	0	0
0001	1	0
0002	2	0
0003	3	0
0004	4	0
0005	5	61
0006	6	20
0007	7	0
0008	8	0
0009	9	0

Q2. Store 10 at memory location 0005 and 20 at next memory location. Then Load the content of memory location 0005 and 0006 into the register pair HL directly.

The screenshot shows the GNUSim8085 - 8085 Microprocessor Simulator interface. The assembly code entered is:

```

1  LHLD 0005H;
2  hlt

```

The registers window shows the following values:

Register	Value
A	00
BC	00 00
DE	00 00
HL	14 0A
PSW	00 00
PC	42 04
SP	FF FF
Int-Reg	00

The flags window shows:

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

The memory window shows the following data:

Address (Hex)	Address	Data
0000	0	0
0001	1	0
0002	2	0
0003	3	0
0004	4	0
0005	5	10
0006	6	20
0007	7	0
0008	8	0
0009	9	0
000A	10	0
000B	11	0
000C	12	0
000D	13	0

The assembler message window shows:

```

0  Program assembled successfully

```

Q3. Store the content of HL register pair directly to the two consecutive memory locations starting from 0100.

The screenshot shows the GNUSim8085 - 8085 Microprocessor Simulator interface. The assembly code entered is:

```

1  SHLD 0100H;
2  hlt

```

The registers window shows the following values:

Register	Value
A	00
BC	00 00
DE	00 00
HL	05 29
PSW	00 00
PC	42 04
SP	FF FF
Int-Reg	00

The flags window shows:

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

The memory window shows the following data:

Address (Hex)	Address	Data
00FE	254	0
00FF	255	0
0100	256	41
0101	257	5
0102	258	0
0103	259	0
0104	260	0
0105	261	0
0106	262	0
0107	263	0
0108	264	0
0109	265	0
010A	266	0
010B	267	0

The assembler message window shows:

```

0  Program assembled successfully

```

Q4. Load the content of memory location (0009) whose address in BC register pair into the accumulator.

The screenshot shows the GNUSim8085 Microprocessor Simulator interface. The assembly code is as follows:

```

1
2 LXI B,0009H; ;to load memory address in bc register pair
3
4 LDAX B; ;load accumulator from memory pointed by given register pair
5
6 hlt;

```

The registers window shows the following values:

Register	Value
A	58
BC	00 09
DE	00 00
HL	00 00
PSW	00 00
PC	42 05
SP	FF FF
Int-Reg	00

The flags window shows the following values:

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

The memory window shows the following values:

Address (Hex)	Address	Data
0000	0	0
0001	1	0
0002	2	0
0003	3	0
0004	4	0
0005	5	0
0006	6	0
0007	7	0
0008	8	0
0009	9	88
000A	10	0
000B	11	0
000C	12	0
000D	13	0

Q5. Store the content of accumulator to the memory location (0008) whose address in BC register pair.

The screenshot shows the GNUSim8085 Microprocessor Simulator interface. The assembly code is as follows:

```

1
2 LXI B,0008H; ;to load memory address in bc register pair
3
4 STAX B; ;store accumulator content in memory pointed by given register pair
5
6 hlt;

```

The registers window shows the following values:

Register	Value
A	58
BC	00 08
DE	00 00
HL	00 00
PSW	00 00
PC	42 05
SP	FF FF
Int-Reg	00

The flags window shows the following values:

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

The memory window shows the following values:

Address (Hex)	Address	Data
0000	0	0
0001	1	0
0002	2	0
0003	3	0
0004	4	0
0005	5	0
0006	6	0
0007	7	0
0008	8	88
0009	9	88
000A	10	0
000B	11	0

Q6. Place 06 into DE register pair and 02 into HL register pair then swap the content of DE register pair with HL register pair.

To swap we can use **eXCHanGe (XCHG)** command as:

Registers			Flag	Load me at
A	00		S 0	1
BC	00	00		2 LXI D,0006H; ;to load memory address in DE register pair
DE	00	02	Z 0	3 LXI H,0002H;
HL	00	06		4
PSW	00	00	AC 0	5 XCHG; ;EXCHANGE
PC	42	08	P 0	6
SP	FF	FF		7 hlt;
Int-Reg	00		C 0	

Decimal - Hex Conversion

Decimal	Hex
---------	-----

Q7. Place 10 in the register B, and then add the contents of register B with accumulator.

Registers			Flag	Load me at
A	0F		S 0	1 ;before execution accumulator is holding value 05
BC	0A	00		2
DE	00	00	Z 0	3 MVI B,10; ;Storing 10 at register B
HL	00	00		4 ADD B;
PSW	00	00	AC 0	5
PC	42	04	P 1	6 hlt;
SP	FF	FF		7
Int-Reg	00		C 0	8 ;after execution value at accumulator become 10+5=15 (0FH)

Decimal - Hex Conversion

Decimal	Hex
---------	-----

Q8. Place 08 at memory location 0009, and the contents of this memory location to accumulator.

The screenshot shows an 8085 assembly simulator interface. The assembly code is as follows:

```

1 MVI A,08; ;loading 08 at accumulator
2 STA 0009H; storing content of accumulator at given memory address using STA
3
4 LXI B,0009H; Load register pair immediate with given value
5 STAX B; storing content of accumulator in memory pointed by extended register pair B
6
7
8 hlt

```

The Registers window shows the following values:

Register	Value
A	08
BC	00 09
DE	00 00
HL	00 00
PSW	00 00
PC	42 0A
SP	FF FF
Int-Reg	00

The Flag window shows the following values:

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

The Memory window shows the following values:

Address (Hex)	Address	Data
0000	0	0
0001	1	0
0002	2	0
0003	3	0
0004	4	0
0005	5	0
0006	6	0
0007	7	0
0008	8	0
0009	9	8
000A	10	0
000B	11	0
000C	12	0
000D	13	0

The I/O Ports window shows the following values:

Port	Value
0	00

The Memory window shows the following values:

Port	Value
0	00

The Assembler Message window shows the following message:

```

Line No  Assembler Message
0         Program assembled successfully

```

Q9. Place 02 at memory location 0009, and the contents of this memory location to accumulator. Also indicate the status of flag bits.

The screenshot shows an 8085 assembly simulator interface. The assembly code is as follows:

```

1 MVI A,02;
2 STA 0009H;
3
4 LXI B,0009H;
5 STAX B;
6
7 hlt

```

The Registers window shows the following values:

Register	Value
A	02
BC	00 09
DE	00 00
HL	00 00
PSW	00 00
PC	42 0A
SP	FF FF
Int-Reg	00

The Flag window shows the following values:

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

The Memory window shows the following values:

Address (Hex)	Address	Data
0000	0	0
0001	1	0
0002	2	0
0003	3	0
0004	4	0
0005	5	0
0006	6	0
0007	7	0
0008	8	0
0009	9	2
000A	10	0
000B	11	0
000C	12	0
000D	13	0

The I/O Ports window shows the following values:

Port	Value
0	00

The Memory window shows the following values:

Port	Value
0	00

Q10. Place 09 in the register B, and then add the contents of register B with accumulator. Also indicate the status of flag bits.

Registers			Flag	Load me at
A	11		S 0	1 ;before execution the accumulator is having value 08 and C is having 09
BC	09	09		2
DE	00	00	Z 0	3 MVI B,09; placing 09 in register B
HL	00	00		4 ADD B;
PSW	00	00	AC 1	5
PC	42	04		6
SP	FF	FF	P 1	7 hlt
Int-Reg	00		C 0	8
				9 ;after execution the accumulator will hold 08+09=17 (11H)
				10