



# TILAK COLLEGE OF SCIENCE & COMMERCE

(Recognized by Govt. of Maharashtra & Affiliated to University of Mumbai)

Experiment No. ....

Date: .....

Name of the Student .....

Class .....

Roll No. ....

**TILAK COLLEGE OF SCIENCE & COMMERCE**

Output :- a)

A	32	
BC	00	00
DE	00	00
HL	00	00
PSW	00	00
PC	42	06
SP	FF	FF

b)



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## Practicle 1.

- a) store the data byte 32H into memory location 4000H.

Program :

P MVI A, 32H - Move immediate 8-bit data 32H to Accumulator

STA 4000H - Store content of Accumulator to memory location 4000H

HLT

- b) Exchange the contents of memory locations 200DH and 4000H.

LDA 2000H - Load Accumulator with the content of memory location 2000H.

MOV B,A - copy content of Accumulator to register B for backup.

LDA 4000H - Load Accumulator with the content of memory location 4000H

STA 200DH - store the content of Accumulator to memory location 2000H

MOV A,B - copy content of register BC backup back to Accumulator

STA 4000H - store the content of Accumulator to memory location 4000H

HLT



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## Practice 2.

a) subtract two 8bit numbers 44H-11H program

MVI A, 44H - Move 44H to Accumulator

SUI 11H - subtract immediate 11H from  
Accumulator

HLT

b) subtract the 16-bit number locations 4002H and 4003H from the 16 bit number in memory location 4000H and 4001H. The most significant eight bits of the two numbers are in memory locations 4004H and 4003H. store the result in memory locations 4004H and 4005H with the most significant byte in memory location 4005H

Program:

LDA 4000H - Load Accumulator with content of memory location 4000H.

LXI H, 4002H - Initialize HL register pair as a memory pointer to memory location 4002H.

SUB M - subtract content of memory pointed by HL pair (4002H) from Accumulator.

STA 4004H - store content of Accumulator to memory location 4004H

LDA 4001H - Load Accumulator with content of memory location 4001H

HLT

output

A	00
BC	00 00
DE	00 00
HL	00 00
PSW	00 00
PC	42 14
SP	FF FF



## Practicle 3

a) Pack the two unpacked BCD numbers stored in memory locations 4200H and 4201H and store result in memory location 4300H. Assume the least significant digit is stored at 4200H

LDA 4201 H - Get the most significant BCD digit from A.

RLC      }  
RLC      } . Adjust the position of second digit by  
RLC      } exchanging nibbles  
RLC

MOV B,A - copy content of Accumulator to registers B for backup.

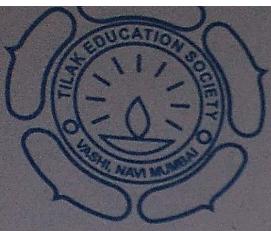
ADD B - Add content of register BC shifted most significant BCD digit to accumulator (least significant BCD digit)

STA 4300H - store content of accumulation (Packed BCD result) to memory location 4300H

HLT

Output :-

A	00	
BC	00	00
DE	00	00
HL	00	00
PSW	00	00
PC	42	04
SP	00	00



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3b) 2-digit BCD numbers is stored in memory location 4200H unpacked the BCD number and store the two-digit in memory location 4300H and 4301H such that memory location 4300H will have lower BCD digit.

LXI H, 4300H - set HC memory pointer at 4300H.

LDA 4200H - Get the least significant BCD digit from 4200H to accumulator.

ANI OF H - Mask higher nibble

MOV M,A -

LDA 4200H - Get the least significant BCD digit from 4200H to accumulator.

ANI OF H - Mask higher nibble.

RLC

RLC

RLC

RLC

INX H - Increment HL register pair by 1.

MOV M,A

HLT



### Practise 4.

a) Write a program to shift and 8 bit data 4 bits right. Assume that data is in register C.

MOV A, C — Get the data from C to accumulator.

RRC  
RRC  
RRC  
RRC } Rotate Accumulator data from bits right.

MOV C, A  
HLT

b) Program to shift 16 bit data 1 bit left. Assume data is in the HL register.

DAD H — its a double a content of HL register pair by adding HL pair to it.

JNC OH — If carry generates then jump to the add

INR L — increment content of register by 1  
(This is to shift data of 16 bit from MSB to LSB position must significant to lower significate)

HLT  
If any data is double shift to left by 1 bit.



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## Practical 5.

- a) calculate the sum of series of number. The length of the series is in memory location 4200H and the series begins from memory location 4201H. a) consider the sum to be 8 bit number so, ignore carries. store the sum at memory location 4300H  
b) consider the sum to be 16 bit number store the sum at memory locations 4300H and 4301H.

→ 8 bit result after ignoring carries.

XRA A - make accumulator empty for addition  
LXI H, 4200H - set HL, memory pointer of at memory location 4200H.  
COUT(count the length of block)  
MOV C,M - Move the count from memory to register C.

INX H

ADD M

DCR L - Decrement counter by 2

INZ 4201H - If counter is not zero then jump to 'label 'Loop'.

STA 4300H

HLT.



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b) multiply to 8 bit number store in memory location 2200H and 2201H by repeating addition and store the result in memory location 2300H and 2301H.

→ XRA A

MOV D,A

LXI H, 2200H

MOV C,M

INX H

ADD M

INC 2201H - If cannot generated then jump to "SKIP"

INR D

DCR C

JNZ, 2300H 201H

LXI H, 2300H

MOV M,A - Lower byte store

IN H

MOV M,D - higher byte store

HLT.



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C) Divide 16 bit number stored in memory location 2300H and 2301H by the 8 bit number stored at memory location 2202H store the quotient in memory locations 2300H and 2301H and remainder in memory location 2302H and 2303H.

→ LXI D, 0000H

LH D , 2200H

LDA 2202 H

MOV B,A

MOV A,L

CMP B → compare lower byte of divided to Accumulator.

JNC 2202H

MOV L,A

MOV A,H

CPI 100H - compare higher byte of divided for

JZ E TEMP 2300H / 2302

DCR H

DCR H

MOV A,L

INX D

SUB B

JMP 2300H

XCH G

SHLD 2300H

MOV A,E

STA 2302 H

HLT.



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## Practicle <sup>cal</sup> 6

A) Find 1's compliment of 8 bit number store in B register & store the result back to B register.

MVI B, FFH (4003H)

MOV A,B

CMA complement number FFH.

MOV B,A

HLT

Load 4003H in register B & copy to A register  
copy result to B register.

B) Find 1's complement of 8 bit number store in memory location 4000H & store the result in memory location 4001H.

LDA 4000H

CMA

STA 4001H.

C) Program to count odd number of an arrays.

MVI B, 00H

MVI C

LXI M, 1100H

UP : MOV A,M

RAR

JNC DN

INC B

DN : IN H

DCR C

INR UP

STA

HLT