VIVEKANANDA COLLEGE

THAKURPUKUR

KOLKATA-700063

NAAC ACCREDITED 'A' GRADE

Topic: 8085 Instruction and programming_3

Course Title: Microprocessor and Microcontrollers

Paper: GE-4

Unit:

Semester: 4

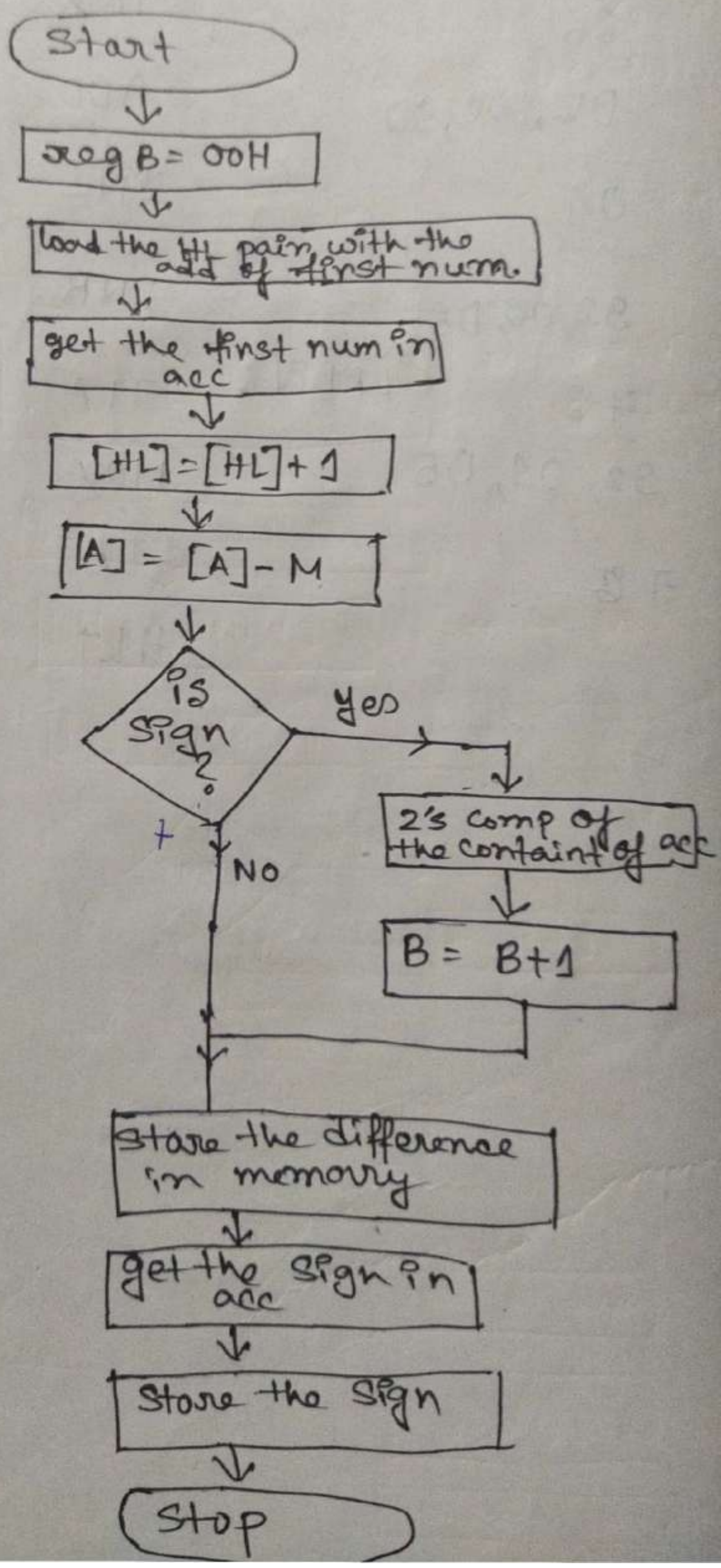
Name of the Teacher: Sanchari Guha

Name of the Department: Electronics

Write an ALP for subtraction. ~~the Contents of~~

Load the input at C500H and C501H. Keep a provision for Sign/Borrow. Store the sign/Borrow and difference in D501H and D500H respectively.

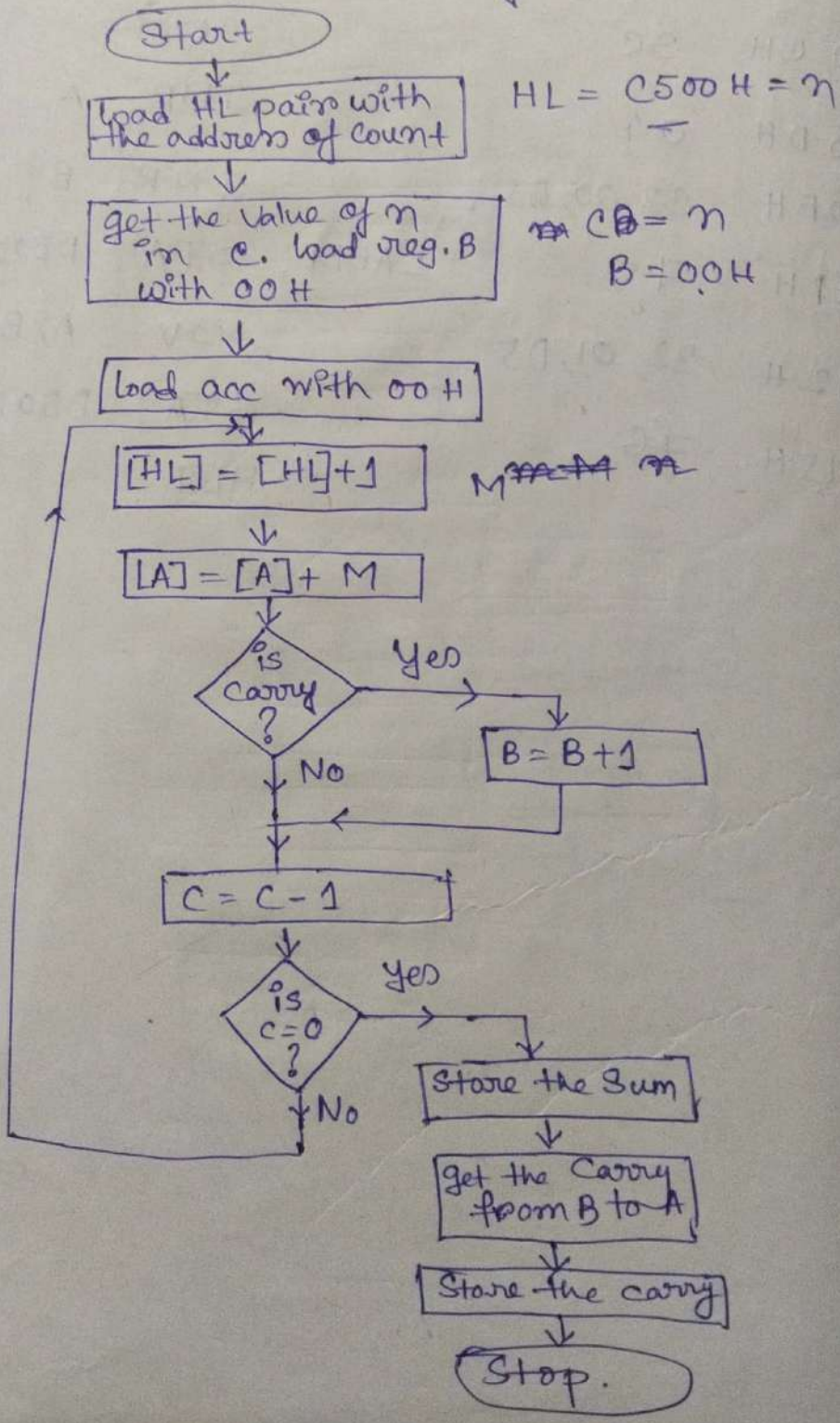
Flow chart:-



Memory add	Opcodes	label	Mnmonics	Operands	Comment
8000H	06,00		MVI	B,00H	
8002H	21,00,C5		LXI	H,C500H	
8005H	7E		MOV.	A, M	
8006H	23		INX	H	
8007H	96		SUB	M	
8008H	F2,0E,80		JP	LABLE	
800BH	2F		CMA		
800CH	3C		INR	A	
800DH	04		INR	B	
800EH	32,00,D5	LABLE:	STA	D500H	
8011H	78		MOV	A, B	
8012H	32, 01, D5		STA	D501H	
8015H	76		HLT		

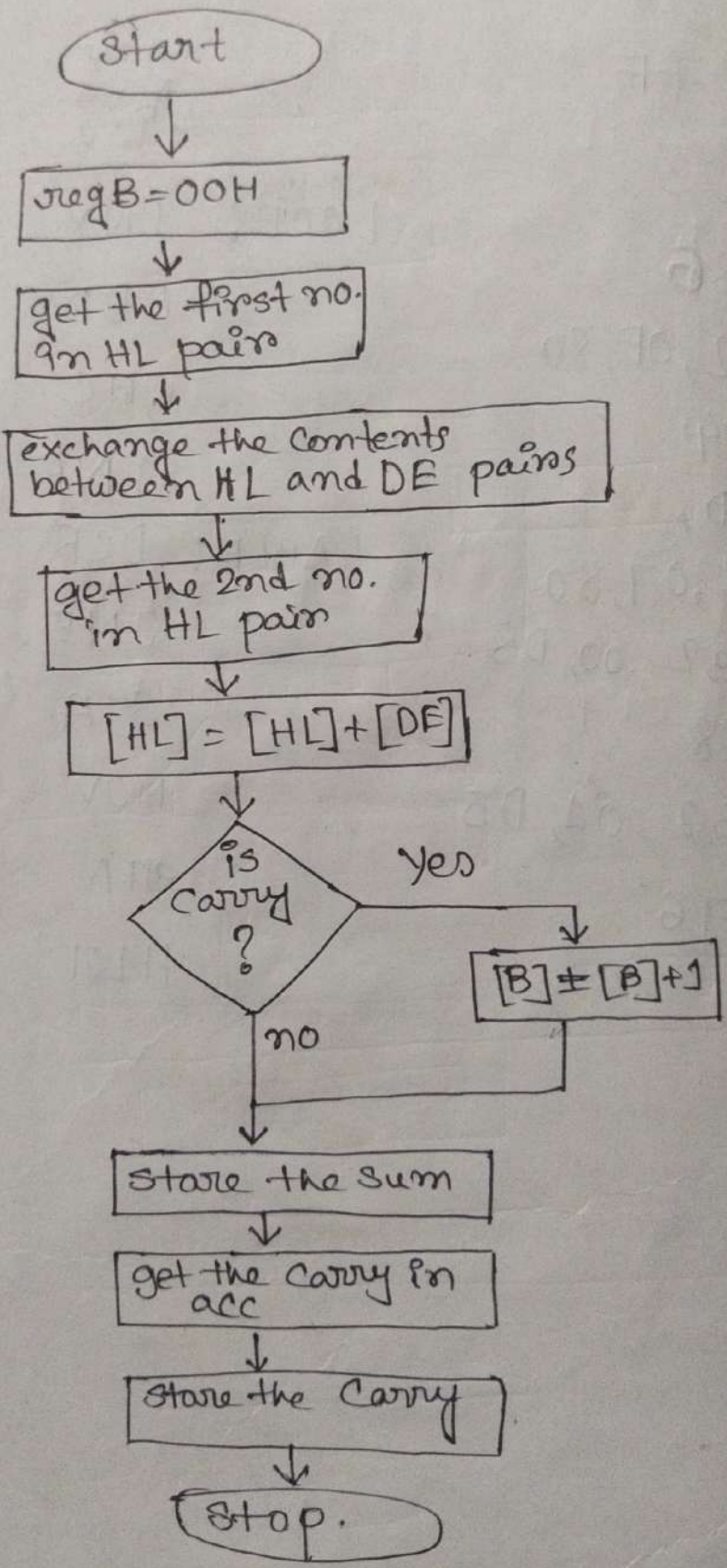
Write an ALP to add n number of Bytes. load the value of n in memory to location X. Start loading the n bytes from C501 H and onwords. Store the sum and the carry in Y+1 and Y+1 H

Solution:- load resister B with 00H to hold the carry. load resister C with n to hold count. let X = C500 H and Y = D500 H.



Memory address	Opcodes	Lable	Mnmonics	Operands	Coments
8000H	21,00,C5		LXI	H,C500H	
8003H	4E		MOV	C,M	
8004H	06,00		MVI	B,00H	
8006H	7F		MOV	A,B	
8007H	23	LOOP:	INX	H	
8008H	86		ADD	M	
8009H	D2,0E,80		JNC	LABLE	
800CH	04		INR	B	
800DH	0D,	LABLE:	DCR	C	
800EH	C2,07,80		JNZ	LOOP	
8011H	32,00,D5		STA	D500H	
8014H	78		MOV	A,B	
8015H	32,01,D5		STA	D501H	
8018H	76		HLT		

WRITE an ALP to add two 16 bits numbers. Let the first 16 bit number in C501 H and C500 H and the 2nd 16 bit number in C503 H and C502 H. Store the sum in D501 H and D500 H. and the carry in D502 H.



memory address	opcodes	lable	Mnmonics	oparands	Comments
C000H	06,00		MVI	B,00H	
C002H	2A,00,C5		LHLD	C500H	
C005H	EB		XCHG		
C006H	2A,02,C5		LHLD	C502H	
C009H	19		DAD	D	
C00AH	D2,0E,C0		JNC	LABLE	
C00DH	04		INR	B	
C00EH	22,0D,D5		SHLD	D500H	
C011H	78	LABLE:	MOV	A,B	
C012H	32,02,D5		STA	D502H	
C015H	76		HLT		

Timing Diagram

Timing Diagram of MVI r, data.

7T

C000H MVI r, data. XX, data.

Operating frequency of 8085 is 2 MHz (say)

$$T = \frac{1}{2\ MHz}$$

C001

$$= 0.5\ \mu sec$$

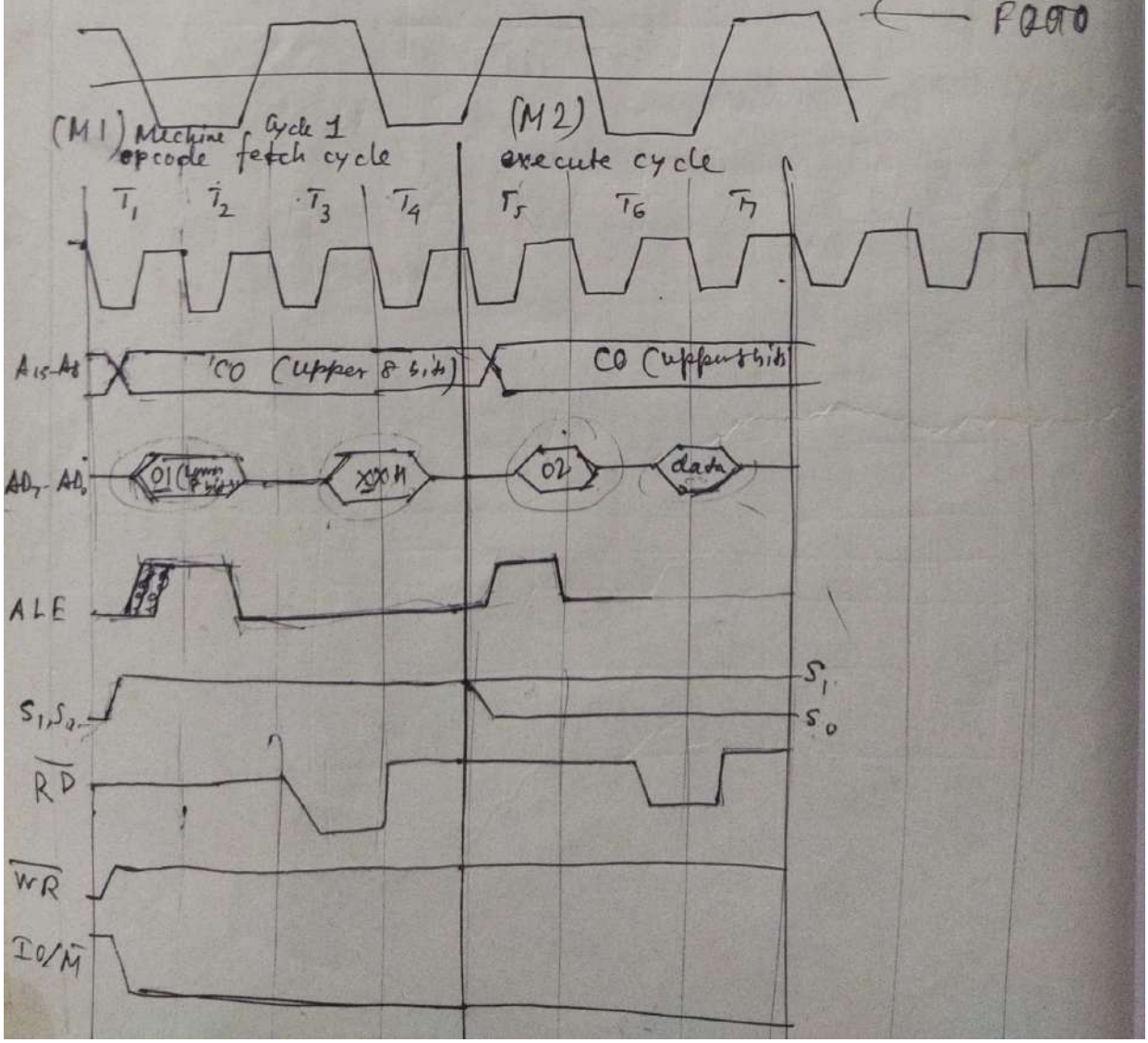
MVI r, data = 7T * (4T + 3T)

LXI H, memory address = 10T (4+3+3)

opcode = 4T

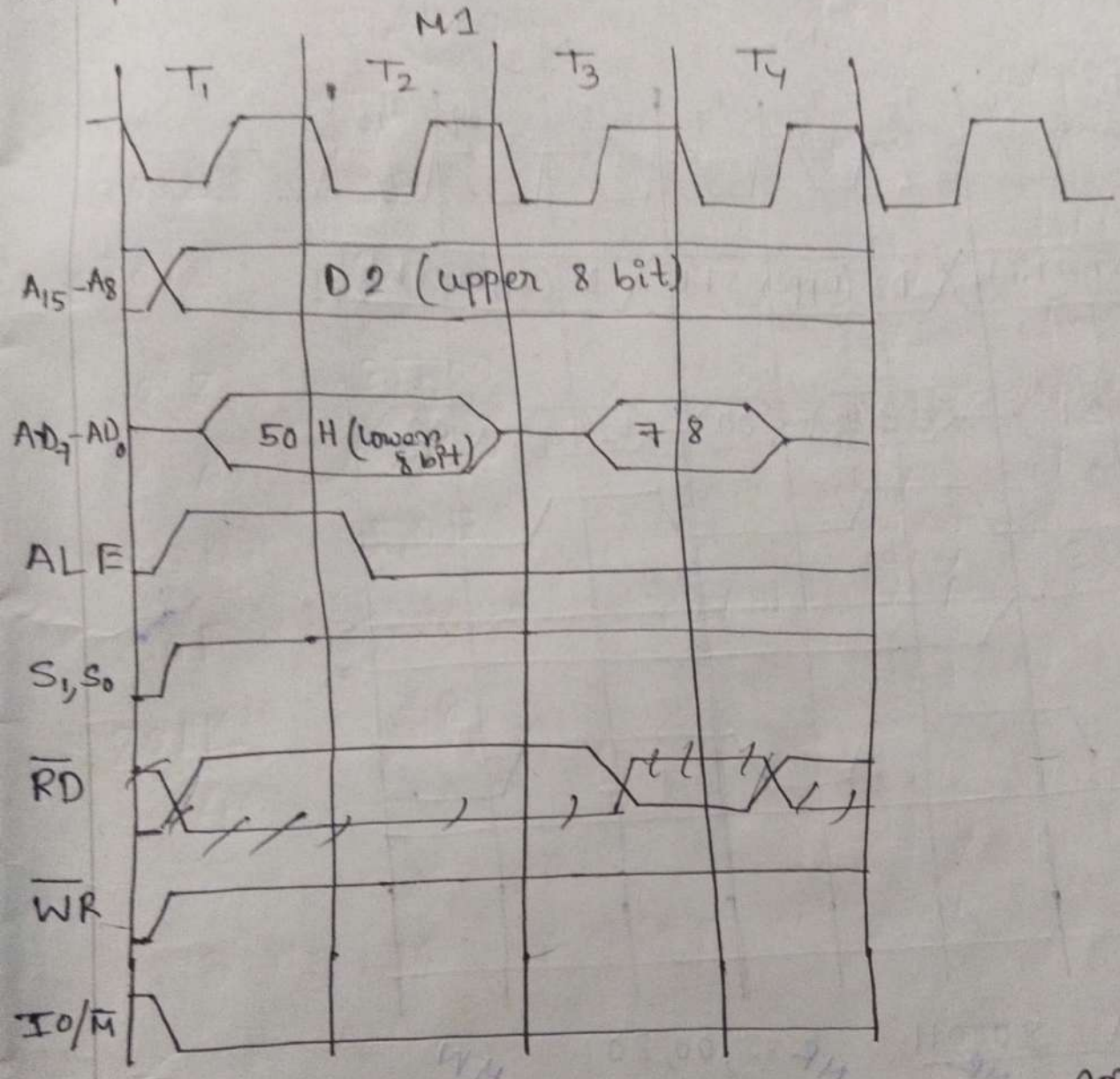
$A_{15}-A_8$ | AD_7-AD_0

CO | 00



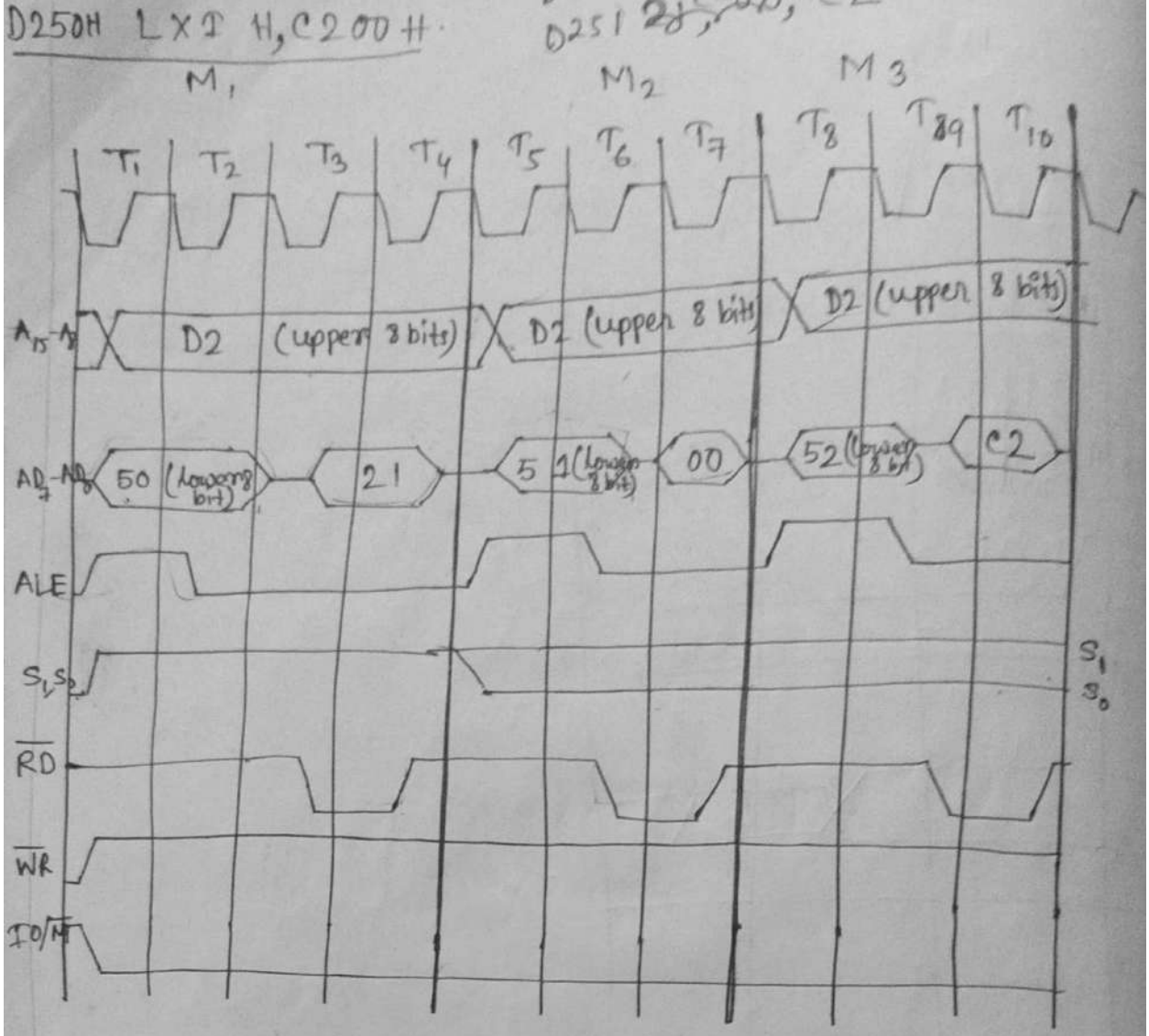
78

D250H MOV A, B



* IO/M = 0 since the processes communicating with memory.

D250H LXI H, C200H



~~STA~~ D250H STA 8000H MR 32,00,80 MW