VIVEKANANDA COLLEGE
THAKURPUKUR
KOLKATA-700063

NAAC ACCREDITED 'A' GRADE

Topic: 8085 Instruction and programming_2

Course Title: Microprocessor and Microcontrollers

Paper: GE-4

Unit:

Semester: 4

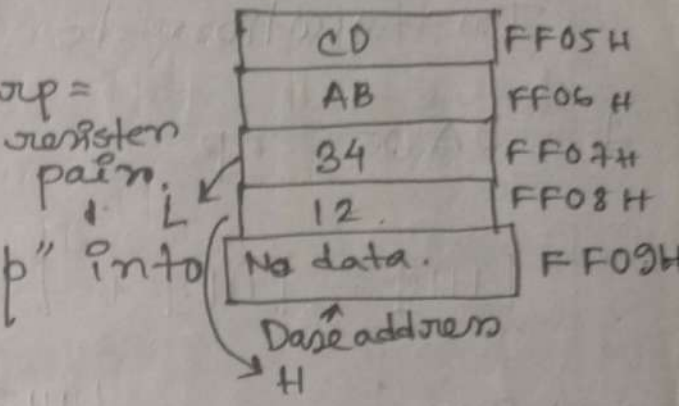
Name of the Teacher: Sanchari Guha

Name of the Department: Electronics

Instructions to insert data into stack:-

1. PUSH rp

rp = register pair.



Insert the containt of "rp" into stack.

e.g→ PUSH H

PUSH B

PUSH D

LXI H, 1234H
PUSH H

2. LXI SP, memory address

(load stack pointer (SP) with the "memory address" so that the porosser can access initialize the base address).

e.g→ LXI SP, FF09H

Instructions to retrive data from stack:-

1. POP rp

e.g→ POP H
POP D
POP B

Arithmatic group:—

Instruction to add two 16 bit data:-

1. DAD rp

[HL] = [HL] + [rp]

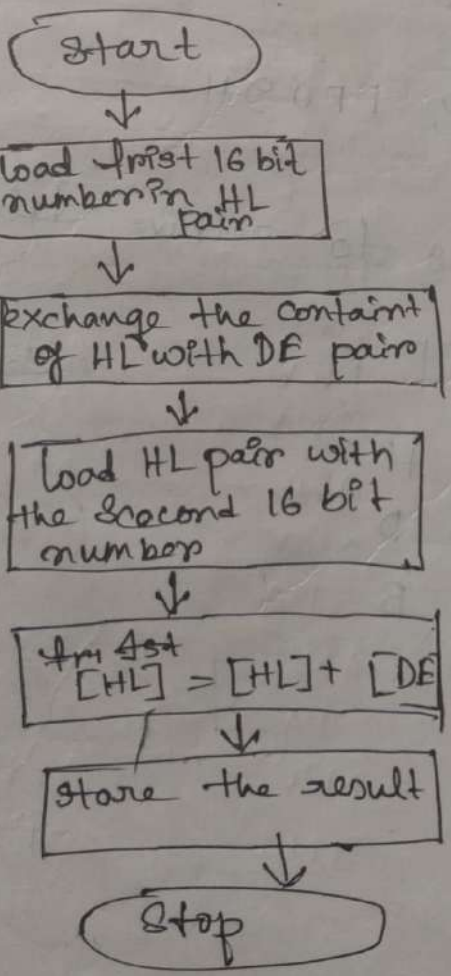
e.g→ DAD H [HL] = [HL] + [HL]

DAD D

DAD B

~~Branch Control~~.

Write a program to add two 16 bit ~~a~~ data. They are loaded into 3500 H, 3501 H and 3502 H and 3503 H. Store the Sum 3900 H and 3901 H.



memory add	opcode	Mnmonics	Operands	Comment
8000H	2A, 00, C5	LHLD	C500H	load the data in HL pair.
8003H	EB	XCHG		exchange the data of HL with DE.
8004H	2A, 01, C5	LHLD	C501H	load the 2nd number in HL pair.
8007H	19	DAD	D	[HL] = [HL] + [DE]
8008H	22, 00, 39	SHLD	3900H	load the result at 3900H
800BH	76	HLT		Halt.

Branch control group :-

i) Jump instructions
ii) return instructions
iii) call instructions.

Jump instruction :-

a) unconditional Jump instructions
b) Conditional " instructions.

a) unconditional Jump instructions-

JMP memory address
(Jump to the location " memory address ")

e.g) JMP D250H

Conditional Jump instructions :-

for carry flag :-

1) JC memory address
(Jump to "memory addres" if carry)
e.g→ JC D500H

2) JNC memory addres
(Jump to "memory addres" if no carry).

for parity flag :-

1) JPE memory addres
(Jump to "memory addres" if even parity).

2) JPO memory addres.
(Jump to "memory addres" if odd parity).

for zero flag :-

1) JZ memory address
(Jump to "memory addres" if result is zero).

2) JNZ memory addres
(Jump to "memory addres" if result is non zero).

for Sign flag :-

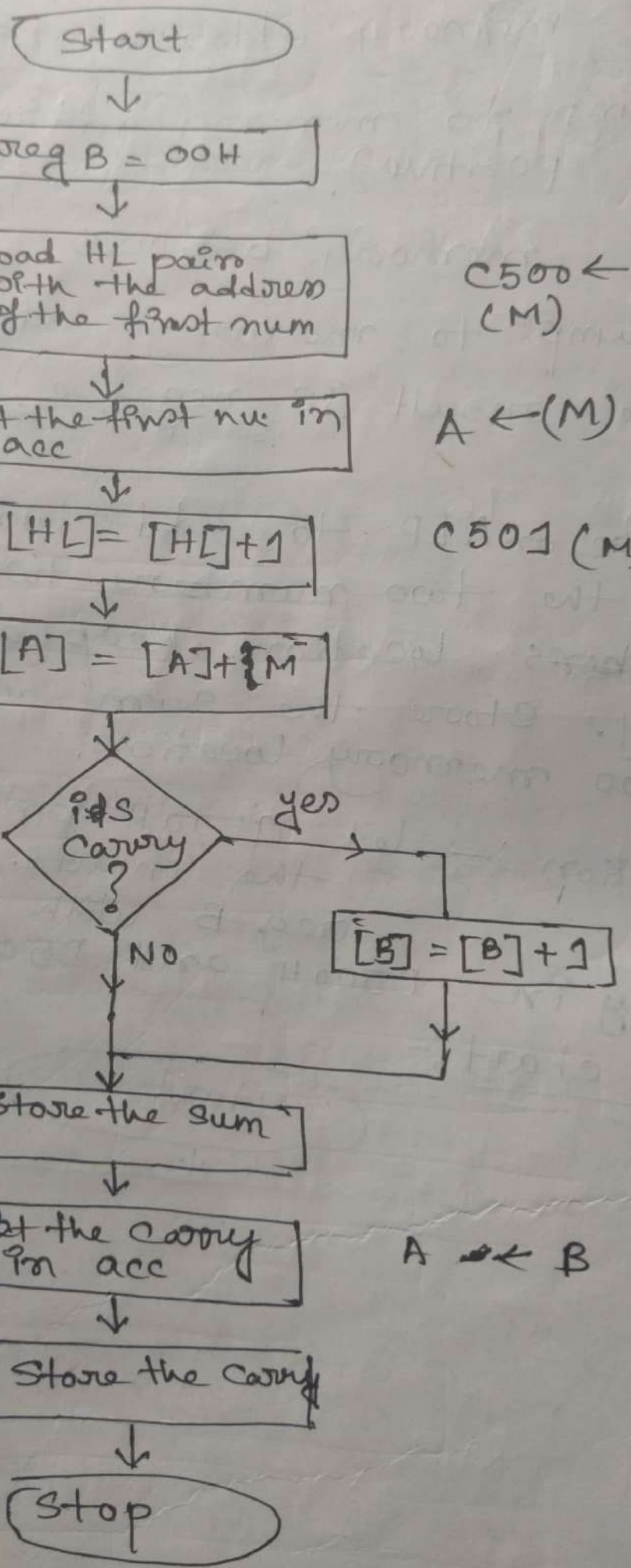
1) JP memory address
(Jump to memory address if the result is positive).

2) JM memory address
(Jump to memory address if the the result is negative) ~~or minuse~~.

Write an ALP to add two 8 bit numbers load the two numbers ~~numbers~~ two memory location. Keep a provition for carry. Store the sum and carry (if any) in two memory location.

Solution :- let C500H and C501H hold the inputs. Initialize with reg B with 00H. Store Sum and Carry in D500H and D501H repectively.

Flow chart



Memory add	opcodes	label	Mnemonics	Operands	Comment
9000H	06,00	~~MVI~~	~~B,00H~~		
			MVI	B,00H	B=00H
9002H	21,00,C5		LXI	H,C500H	
9005H	7E		MOV	A,M	
9006H	23		INX	H	
9007H	86		ADD	M	
9008H	D2,0C,90		JNC	LABEL	if Carry NO, goto LABLE
900BH	04				
900CH	32,00,D5		INR	B	yes, B=B+1
900FH	78	LABEL:	STA	D500H	
9010H	32,01,D5		MOV	A,B	
9013H	78		STA	D501H	
			HLT		