

Date :-॥ नमानि देवि सरस्विति ॥

PRACTICAL - 1

ा का विद्या	PRACTICAL - 1
*	INJIRUCTIONS:
	For Data Trunsfer Instructions:
(1)	MVI : Move Immediate, Loods un immediate value into register
(a)	MOV : Move , Copies the content of register e into the accumulator ex , mov A , C (A, C -1 register)
(3)	(A) into a specified memory address. Ex, STA [Address], STA 2002H.
(4)	[XI + load Register Pair Zwnediate, Loads a 16-bit address into the register pair. Ex, [XI D, Caddress], [XI D, enoch, Here it loads the immediate 16-bit address 2006H into the DE reg. pair.
(5)	1DAX: Load Kn Accumulator Indirect - Loads the byte from the memory location whose address is Hoted in the reg. pair into the accumulator (A). Ex, LDAX D.
(6)	51 AX: Store Accumulator endirect, stores the consent of the eccumulator (A) into the memory location whose address is stored in the NE register pair. Ex, STAX D.



न्य विद्या पर विद्या	11 ()
	12A: load Accumulator Direct, loads the byte from a Specified memory address into the accumulator (A)
(1)	PUSH : Push the contents of a register pair anto the stuck
(•)	Por : Por the contents from the stuck into a register puits
(10)	IN : Read data from an input port into the accumulator Ex, ZN OIH, Read data from input port OIH into the accumulator. OIH is the b-bit address OF the input part. It specifies which is device the microprocessor Thould Read data from.
(11)	OUT: Write data from the accumulator to an output port. Fx, OUT, 02H, Send the duty from the accumulator to Olp port 02H.
(14)	XCHIN : Exchange the contents of the HL register pair with the DE register pair.
*	Arithmetic Instructions:
(1)	ADD: Add Legister, Adds the Content of Legister to the accu- nulator. Ex, ADD B, adds the Content of Leg. B into the accumulator (A).
(3)	(ontent of the accumulator (A). Ex ADI (value) ADI OSH It adds the OSH Value)

into the accumulator.



	॥ नमामि देवि सरस्वात ॥
(3)	ADC: Add register with carry, Adds the content of register
	to the accumulator (A) wrong with the carry thug.
	Ex ADC B , It adds content of reg. (A) to the accumulator
	along with curry flug.
14)	
	ACT: Add immediate with corry, Adds on immediate value to the accumulator (A) along with the corry flag.
	Ex, All 113H, adds the investigate value 113H to the
40	accomputator (A) place with the man to the
	accumulator (A) along with the courty flag.
(5)	DCR : Accrement the content of register or memory location
	by one.
•	
(6)	INR : The sound the fortest of
	INR : Increment the content of register or memory location
	by one.
(7)	con : Tububant the training
	508 : Substruct the contents of a register or memory location
	from the occumulator
3	Ex, 508 B, it substructs the value in register B from
	the accumulator.
(8)	588: Substruct with borrow, It substructs the value in register
	B, be the horrow flag (carry flag) from the accumulator.
(9)	501 : It substruct immediate data from the accumulator.
	PL, SUI 03H, substruct 3 from accumulator.
(10)	SBI + Jubytruit immediate with borrow.
	EC SBI D3H



Date :-

an lan	॥ नमामि देवि सरस्यति ॥
- W	ZNX: Increment a register pair.
	DCX : Decrement a register pair.
	EX, LXI H, 2000H ; lund HL with 2000H
	DAD B ; Add BC to HI.
0	
/ <u>[u]</u>	an addition operation in the accumulator to produce a
	Vulid Birary (oded Decimal (BCD) result.
	Ex , MVI A , 48 H , 1000 48 (RCD) into A. ADI 29 H , Add 29 (RCD) to A.
	DAA ; Decimal adjust the result.
	Jince 71H is not valid BCD Number , DAA corrects it to
-J-w-	
* >	Logical Instructions:
(1)	ANA : AND operation, Logical AND with the Accumulator.
	the accumulator (A) be the value in register 8.
(3)	ANI : Logical AND invediate with the Accumulator.
	the accumulator (A) be the immediate value OFOH
(2)	ORA + logicul OR with the accountator

& ORA B, performs a bitwise or operation



Date :-

- Ale	॥ नमामि देवि सरस्वति ॥
	the accumulator (A) & value in register B.
(4)	THE THE COURTS WITH THE COURTS
	the accumulator (A) & the innediate value OFOH.
(1)	XRA = logical Exclusive- DR with the accumulator.
9	the accumulator (A) & the value in reg. B.
(6)	XRI = logical exclusive - OR investigate with the accumulator
	the accumulator (A) & the immediate value of 0H.
(*)	the accomputer.
	PK, CMP B, Compares the value in register B with
0	the occumulator (A) & sets the flags accordingly (carry & reso flags in this case).
(8)	(PI : Compare immediate data with the accumulator
	Ane accumulator (A) & lett the flags (zero flag in this
	(use).
(9)	LMA: Conflement the accumulator.
(10)	cos : Complement the coury thug.
(11)	STC : Set the Cony flag.



* Shift & Rotute Instructions : RLC : Rotute accumulator jest (carry included) RRC: Rotute accumulator tight (carry included), Rotutes the bit in the accumulator one position to the right with the right wort bit waving into both the curry flug & the leftwort bit position. RAL + Rotate accompletor left through corry. Rotutes the bits in the accumulator one position to the left, with the carry thus moving into the tight most bit and the leftwart bit moving Into the Corry flug. (4) RAR = Rotate accumulator right through levry. Robbes the bits in the accumulator one position to the light with the carry flag moving into the leftwest bit & the right wort bit woring into the carry flag. 11 A : thift left withwetic 7+ thift all the hits in the accumulator one position to the left. Each bit is moved one position to the left. The least significant bit (LSB) is filled with a 0. 5RA : shift tight arithmetic. (6) 24 shifts all the hits in the accumulator one position to the right. The most lignificant bit tenwins unchanged (7+ 's copied into the bit to its tight). This is the key difference between SRA & SRI.

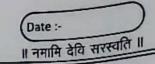


Date :-	
0 16	म् सरस्वति ॥

॥ नमामि दीव सरस्वात ॥ Ex MUI A SAH , load 1000 1010 (Ringry) into A. SRA ; Shift right anithmetic. The result in A becomes 1100 0101 (binary) SRI : Shift light logical. It shift all the bits in the accommutator one position to the right. Each bit is moved one position to the right The most significant bit (MSB) is filled with a 0. This is key difference between SRL & SRA. Ex, MVE, SAH; lund 10001010 (binary) into A. SRL ; shift right logical. The result in A becomes 01000101 (Ringry)



PRACTICAL- 2



*	ZNITRUCTIONS =
	ZN) RUCTIONS -
U)	MOV : Move, Copies the Content of register into Accumulator. Ex, mov A, C (A, C + register).
	Here, Content of register c is capied into the accumulatore
(2)	12A : load Accumulator Direct - loads the byte from a Specified memory address into the accumulator (A). Ex. 12A 3000H.
	Here, Accumulator content the Value which is present in the memory location 3000H.
(3)	ADD: Add register, Adds the content of register to the accumulator. Ex, ADD B, adds the Content of reg. B into the
(4)	STA: Itare Accumulator Direct - Itares the content of the
197	Ex, STA 2002H.
	Here The content of accomplator stores into the specified memory location.
(1)	LXI : load register pair Invaediate — loads a 16-bit address into the register pair. Sr 141 D CAddress — LXI D 2006H



Date :-

॥ नमामि देवि सरस्वति ॥ Here it louds the innectiate 16-bit address 2006H into the DE register pair. TNX : Inchement a register pair, the value will be incremented (8) by one. (7) HIT: It is wed to we full for stop the tost microprocessor from executing any further instructions.



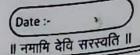
(TICAL - 3 ॥ नमामि देवि सरस्यति ॥

PRACTICAL-3

* INITRUCTIONS : (1) ADD = Add register, Adds the Content of register to the account lutor. Ex, ADD B , adds the content of reg. B into the accumus. lator (A). (2) SUB ? Jubstruct the contents of a register or wewary location from the accumulator. FX, SUB B. - it substructs the value in register B from the anunulator. ADC : Add register with corry, Adds the content of register to the accumulator (A) wong with the carry flag. Ex ADC B , 2+ adds content of reg. (B) to the accomplator along with carry flag. 388 : Jubitruit with borrow It Jubitruits the value in (4) register & the barrow stag (carry stag + c) from the! accumulator. CMA: Compliment It is used for compliment the value (5) of Accumulator. By using sois this cas & storm This instruction is used for finding 2's or 2's

Conglinent.





५० ।वद्या परा विद्या	॥ नमामि देवि सरस्वति ॥
(6)	ZNR : Znihwent , zt is wefull for inchement the value by 1 in register. Ex. ZNR A
	instended by 1.
(7)	MUT: Move zwnediute, loads an invediute value into
	ex, mvi c, crolle) - MVI c, OSH.
	Here, the value DSH will be stored in register c.
	TEN THE VIEW OIL OR HORA IN RYTHER C.



Date :-॥ नमामि देवि सरस्वति ॥

PRACTICAL - 4

* INSTRUCTIONS : (1) DAA : Decimal adjust accumulator, 7+ adjust the result of un addition operation in the accumulator to produce. a valid Binary coded Decimal (BCD) result. Ex, MVI A, 48H : 100d 48 (BCD) into A. ADI 29H , Add 29 (8(2) to A. DAA , Decimal adjust the result. lince 71H is not valid BCD Number, DAA Corrects it to 77H, which is the correct BCD tepresentation of (48+29) (2) LHLD = load HL Direct, It loads the contents of a 16-bit memory location directly into the HI register pair. It retrieves two consecutive byter from memory & places there into the H (High-order) & L (low-order) registers. Ex 1412 2010H, This instruction would load the byte at newary location 2010H into the I register & the byte at momory location 2011H into the H register. x CHOI : Exchange HI with DE , It exchanges the content of the HI register pair with the contents of the or

register pair



	Iprcifically, the content of the H register is exchanged with the content of the D register, by the content of the Legister is exchanged with the Content of the E register.
	Contains Mach , after executing XIHM instruction, He will contain 2000H & The will contain 2000H.
(4)	DAD : Double Add, it add a register pair to HL
	EX, LXI H, 2000H; load HL with 2000H LXI B, 1000H; land BC with 1000H DAR B; Add BC to HL.
(1)	SHLD: Store HI Direct, The it stores the contents of the HL register pair into two consecutive memory locations.
•	The content of the 1 register is stored in the memory location specified by the 16-bit address in the instruction.
	The Content of the H register is stored in the next corner consecutive receives secution.
	of the 1 register into memory location out the Content of the 4 register into memory location would store the Content



SHLD takes the 16-bit number that is held within the HE register pair, & places that number into two consecutive Memory Incution. JNZ : Jump if Not zero, this instruction courses the program to jump to a specified 16 - bit wewery address if the zen flag (z) in the tots's flag register is a (meaning the result of the previous operation was not zero). - If the zero flag is 1 (meaning the result was zero), the graguer continues to the next sequential instruction. 17) 1000 tab ANA : AND Accumulator This instruction performs a logical AND operation between the content of the accommunitor (A) & the contents of a specified register or newsy location. EX ANA B performs a bitwise AND operation between the accumulator (A) & the rule in register 8. ORA : OR Accommentator, This instruction performs a bitwise logical or operation between the contents of the accumulator (A) & the contents of a specified register or memory location . Ex ORA B , performs a bitwise ar operation between

the accomplator (A) & value in register B.