Och 18 60 W1 226.14.

A 87-2-00110111 10001 0001

Conplinent-C; Cz 6.

Flags \$=0 2=0, nc=1, Pal, c=0.

11. 8BB R. (Subtract- register boom A with blow).

The content of legister and anly status are subtenitied. blom accumilator. After Subtrailnon, sisult is stored in oreumlator.

> Otalres:4 Flags: HU length: 1 by te.

By SBB B.

12. SBB AD (Subtract- memory thom is weth borlow)

The content-of memory location addessed by AL Donk & Corly status are subt-lawted bloom contrent of A Ribull-13 Stokel in A

Mlc22 (F,MR.)

8 forties y

Flores: DU

Length: 1 byle.

g: SBB M

13. DAD Rp. (Bold seg 1874 pona to 141 pona)

The contents of Register park &p one added to the contents Of AL. PONR. a desult as placed is 14L ponk. Only colly they is abberteel.
Mole:3 CF, Busidle, Busidle)

Flags: early only

length: 1 byte.

(27)

8: DAD H

14 [02 03] L -> [04/06/2

Bus colle machine cycle

18 coneonted when entering

Medical tox our contenue

14. INR R. Challement-Register Content)

The content of Rigister R is in exemented by one. All theys energi Certly is modificel.

m/c=1

States 4.

length: 1 by lie.

Flags All energi-certy

g. INR D [FF] OO] cary not affected.

15. INR M. (incernent memory content-)

The content of memory locations addlessed by HL PONR 15 incremented by 1

10/c=3 (F, MR, 17W)

stalres: 10

Flags: All encept early

lengoh: 1 bythe

ey: INR M

1+ L 20/50 2000 03 04 1 2050.

16. Den A. Checkement Register contrent)

The contrent of register is decrementally 1

m/c=1

Status :4

Flags : BU enexpt early

length = 1 byle.

<u>B</u>	Deas.	B	
105		04	7

17 Der m (Dereument memory contrent)

The content of memory location addlessed by 140 pains

18 decremented by 1

m/e: 3 (F, mR, mw)

Stalus: 10

Length · 1 byte.

Flags: All energt cally

18. INX Rp. (Incument Register pour)

The content of legister pain kp is uncumented by 1 no flag is affected

mle=1

8tatus 26

Flags None

length: 1 bytre.

Pa : INX 4

19 Dex Rp. (De ceement-Régister pons)

The content of Register point Rp 15 decremented by 1

870/rs: 6

Flags: avone

length: 1 bythe

20. DAA (noeumal holjust-Accumilator)

Instruction par 1's used in the program after pool to part of the presention of these instruction Result is in hencelecimal and placed in accumulator par operates up result and troat result in decimal tom.

Instanction par welks as tollows.

i) IF the value of the lowe order 4 6143 (03-00) is allumberto is a greated them 9, 0% it oc flag is 8ct, the construction orders of to the low-order 4 6its.

ii) If the value of the high order 4 6its (04-07) up the alumberto a es greater them 9, 0% 16 carry blag setters the the instancion addles 60 to high order 46 6its.

39 + 12 BCD BCD 0001 0000 0100 1011 0000 0110 010 0001 81 decembel

m/e=1 87alies:4 Flogs: All Length:1 by lu.

III Logie And Bit manipulation Instructions 1. ANA R (And Register with A) The content of Rigister A-13 Arroad with content of A omel. Risult is placed in A. .0101 0100 (h) < (h) n[a] 0282 1000 0010 0000 0000 mle eyele:1 Stortes: 4. flago: 8=0 2=1 P=1, ACI C=0 Flags: All Ac sel to 1 o cally to o. [B]= 0014. Cength: 1 by 12. GIANA D 2 ANA M. (AND memory with A) The conbents of memory to calmon addressed by. HI PON'T is Arrold with accembalor and the listelf is placed in accemulator [A] (A) n[(HL] mlc = 2 (F, ma) Status:7 Flags: oll except Ac=1, C=0 length: 1 bylie. 3. ANT 8 bit data (AND commediate data with accumulator) The 861t data is proved with contents of accumulator and

Swell is placed on A. [AJE-PA] n dala

mle = 2 (F, MR)

Startes: 7.

Flags: All AC21 C26

length: 2 by (x.

eg - DN8 97H.

4. ORA R. (OR Register with accumulator)

The content of lighter R. is or ed with the content of

A. RISWI- is placed in A.

[A] & [A] V[R]

mole = 1

Statis: 4

Flags! All CAAC 20

Length: 1 bythe

A 203 0000 0011

C=81 1000 0001.

1000 0011

8=1 Z=0 P=0 C=0 AC20

[B] = 83A

eg. ora c.

5. ORA M (OR memory weth H)

The content of memory location addressed by HI Dang.

is oned with content of A

(A) L (A) V [(AL]

mole: 2

Stalvis: 7

Flags: AN CAAC=0

tength: 1 by hi.

6. ORI 8 bit data Con immelliada data with A)

The content was 8 614 dator is oned with the content of accumilator

[A] = (A) v dala

mle!2

Status:7.

Flys-All, ChAezo

length -2 bylus

g ort or H

7. XRAR. CEnclusive on rigider with accumulator)

The contrent of Rigister R is enclosive oned with contentof A. Result is placed in accomplation.

(A) L (A) V [R]

0111 0111 A 277

mle:1

0-101 0110 D256

Status: 4 Flogs: AU el Ac=0. 0010 0001 2111

Congoth: 1 by be.

eg. XRA D

8. XRA an (Enclusive OR memory with A)

The content of memory localnows addlessed by It I point is exclusive oned with accumulation. The Result- is

placed in accumulator. (AJE (A) V[(H2])

mle:2

8 talvis:7

I Flag 8: AU ACKC=0

Length: 1 by be.

9. XRI 8617 data. Conclusive on Immediation data with accommodator)

The connedvaliz data is Expect with content of accumulator. The Result es placed ess accumulator.

M/c:2

[A] & [A] V clare.

Ofalres: 7

Flogs: All CKAC=U

longth: 2 bythes.

eg. XRI AZH.

10 CMP R (Compare Register with accumulator)

The content of Register R 13 subtracted from content
of accumulator and status flags are set-according to

the result-But Result 13 discorded

i) IF [A] < [R] enery tlay is selii) IF (A) > (R), Cooley & zero tlags are Reseliii) IF (A) = (R) zero tlags sel-, correy tlay is Resel-

m/c:1
Status:4
Flags: All
Length:1 by te

eg: cmp B

A	57	50	57-62
B	62	v.	

1001 1001

23 com (62) = 1001 1110 -57. 0101 0111 07 1111 0101

Complement callys (=1. So 8=1 Z=0 AC=1 P=1, C=1

11. CMP NO. (Compare memory with A)

The content of memory location, addlessed by 142 pong.
18 subtracted from content of accumulation plags one
set according to the result and result is discorded [B]-[[Itz]

mle: 2 (F, mr)

Status : 7

Klags: DM.

length: 1 by he

eg: cmp m.

i) [0] C[m] (=1, Z=0

4) (A) c(m) c=0,2=0

111) [A] = [M] Z=1, C=0.

12 CP2 8 bit data (compare (nomediatri data with A)

The 8 bit data is subtracted from n and flags are

anochticel according to the Result content of A pernowns.

emchanged. The Result- 15 chscareleel.

(n)-dala

m/c:2

Status: 7

Floys = AU

length: 2 by his.

eg CP1 \$814

(A) = 49

2's comple (38) +010 1000

0100 1001

0101 1000 1010 0111

10101000

0/1/11/0001

Complened cally c=1

8=1 Z=0, Ac=1, P=0 C=1

13. CMA (complement accumulator)

The content of accumulator is complemented CDJ = A. No flags one affected

m/c:1

States: 4

Flags: None

length = 1 by lie.

Compland-0111 0110 (89)

14. cm e Ceomplement colly)

early that will be complemented after the eneutron

of emc. instanction

Me: 1. Stortus: 4 Flags: only Cally length: 1 byte

15. STC (8et conly)

The carry flag 13 set to 1.

mle:1

statis:4

Flags: Cally only.

length: 1641-e.

16 RLC (Rotation Accumulation left without cally)

The content of accumulation is Rotatied left by 1 billowed left most bit of accumulation is Rotatied to cary. Only

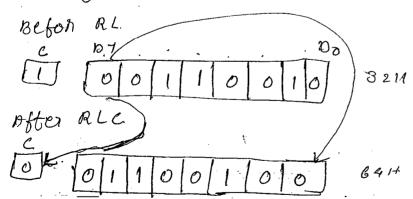
Carly they is affected

mle=1

Stabes: 4

plays: cally only

Length: 1 by te-



se lettmissi-bit ob h is placed en carry, as well as in light most bit position bo.

17. RRC: (Rotalio accumulator without conly)

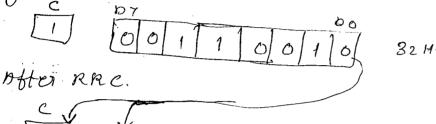
The contrent of accumulator is solated sight by 1 bi, could sught missi bit of accumulator is solated to carry.

101e:1

Status:4

Flags: carly only

eg. Betore RRC.



re Right most bit of alcumbation is placed on early. as well as left most bir.

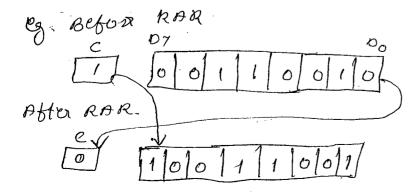
18. RAR. CROtalie accumulation Right through early)
The contrem of accumulation along with carry blag is
Rotalied Right by 1 bit. Here early is moved to 105B Con)
Position and LSB (BO) moved to carry

mle:

8 toutrès · 4

Flags: carly only

Length: 1 by te.



(37)

19. RAL (Robation Accumulator lett though carly)

The contrent of accumulator along with carly is

Robatuel lett by 1 bit 14 carly is moved to 1818 and M88.

18 moved to carly.

m/e:1
Status:4
Elags: carry only
Langth: 1 by Le.

