1. =>

```
        MVI   A, 00H
        MVI   B, 00H
        LXI   H, 8067H
        MVI   C, 0AH
Loop:   ADD   M
        JNZ   DOWN
        INR   B
DOWN    INX   H
        DCR   C
        JNZ   LOOP
        MOV   M, A
        INX   H
        MOV   M, B
        HLT
```

2. =>

```
        MVI   A, 80H
        OUT   43H
        MVI   A, 00H
        MVI   B, 00H
        LXI   H, 8067H
        MVI   C, 0AH
Loop:   ADD   M
        INC   DOWN
        INR   B
Down:   INX   H
        DCR   C
        JNZ   LOOP
        OUT   40
                            MOV  A, B
                            OUT  41
                            HLT
```

3 =>

```
3 =>   MVI C, 09 H         JNC SKIP
       MVI D, 00H          INR D
       MVI B, 00H     SKIP: INR H
       LXI H, 8001         DCR C
LOOP   MOV A, M            JNZ LOOP
       RAL                 OUT 41H
       JC SKIP             MOV A,D
       RAR                 OUT 40H
       ADD B               HLT
       MOV B, A
```

4.>

```
4.>   MVI A, 80 H          JNC DOWN
      OUT 43               INR B
      MVI A, 00 H     DOWN: INX H
      MVI B, 00H           DCR C
      LXI H, 9001H         JNZ LOOP
      MVI C, 0A H          OUT 40
LOOP: MOV D, A             MOV A, B
      MOV A, M             OUT 41
      ANI 28H              HLT
      CPI 20H
      MOV A, D
      JNZ DOWN
      ADD M
```

5.→
LXI B 80A1H
LXI H 80B1H
LXI D 80C1H
MVI A, 0AH   ; counter

LOOP STA 8000H
LDAX B
CMP M
MVI A, FF
JC SKIP
JZ SKIP
LDAX B

SKIP: STAX D
INX B
INX H
INX D
LDA 8000H   ; counter
DCR A
JNZ LOOP
HLT

6=>
LXI H, 8050H
LXI B, 8070H
LXI D, 8050H
MVI A, 0A H

LOOP: STA 8000H
LDAX B
ADD M

```
    STAX D
    INX H
    INX B
    INX D
    LDAX B
    ADC M
    STAX D
    INX H
    INX B
    INX D
    LDA 8000H
    DCR A
    JNZ LOOP
    HLT

7=>  MVI A, 0AH
     LXI H, 8050H
     LXI B, 8070H
     LXI D, 8090H

LOOP: PUSH PSW
     LDAX B
     ADD M
     JC STORE
     MVI A, 00H
     STAX D
     INX H
     INX B
```

INX D
STAX D
JMP SKIP

STORE: STAX D
INX H
INX B
INX D
LDAX B

ADC M
STAX D
POP PSW
INX H
INX B
INX D
DCR A
JNZ LOOP
HLT

8⇒

LXI H, 8050H
LXI B, 8070H
LXI D, 8090H

LOOP: PUSH PSW
LDAX B
SUB M
STAX D
INX H
INX B
INX D
LDAX B
SBB M
STAX D

INX H
INX B
INX D
POP PSW
DCR A
JNZ LOOP
HLT

3 ⇒ LXI SP, 9000

LXI D, 8050H
LXI H, 8070H

MVI C, 50
MVI B, 0AH

LOOP PUSH B
LDAX D
SUB M
PUSH A
CALL INCREMENT
LDAX D
SBIB M
SM SET
MVI B, 00H
STAX B
DCR C
POP A
STAX B
INR C
JMP CHECK

SET: POP A
MVI A, 0UH
MVI B, 80H
STAX B
DCR C
STAX B
INR C

INCREMENT: INX D
INX H
INR C
RET

CHECK: CALL INCREMENT
POP B
DCR B
JNZ LOOP
HLT

10⇒
```
        LXI   H, A430H
        LXI   D, A440H
        MUI   C, 0AH
LOOP:   MOV   A, M
        ANI   01H
        CPI   01H
        XRA   A
        JNZ   STORE
        LDAX  H      ; MOV A, M
STORE:  STAX  D
        INX   H
        INX   D
        DCRC
        JNZ   LOOP
        HLT
```

11 ⇒
```
        LXI   H, 9270H           DCR C
        LXI   D, 9280H           JNZ LOOP
        LDA                      HLT
LOOP:   XRA   A
        ADD   M
        JPE   STORE
        ANI   7F
        ORI   04
STORE:  STAX  D
        INX   H
        INX   D
```

12 ⇒   LXI   H, 8050 H
       LXI   D, 8060 H
       MVI   C, 10 H ; counter

loop. MOV   A , M
       STAX   D
       DCR   H
       INX   D
       DCR   C
       JNZ   loop
       HLT

13 ⇒   LXI   H, 9500 H
       ~~D , A~~
       LXI   D, 0000H ; D hold middle 8 bit
                  ; E " upper 8 bit
       LXI   B, 00H ; B " lower 8 bit
       LXI   C, 0AH ; counter

Loop: MOV   A, B
       ADD   M
       MOV   B, A
       INX   H
       MOV   A, D
       ADC   M
       MOV   D, A
       JNC   SKIP

```
        INR E
SKIP:   INX H
        DCR C
        JNZ LOOP
        MOV M,B
        INX H
        MOV M,D
        INX H
        MOV M,E
        HLT


14→     MVI C, 05H
        LXI D, 805FH
        LXI H, 805AH
LOOP1:  MOV A,H
        STAX D
        DCX D
        DCX H
        DCR C
        JNZ LOOP1

        MVI C, 05H
        LXI H, 8056H
        LXI D, 8040H

LOOP 2: LDAX D
        MOV M,A
        INX H
        INX D
        DCR C
        JNZ LOOP2
        HLT
```

15 ⇒
```
        LXI   D, 8095H
        LXI   A, 8082UH
        MVI   B, 05H

LOOP1;  MOV   A,M
        STAX  D
        INX   D
        INX   H
        DCR   B
        JNZ   LOOP1

        MVI   B, 05H
        MVI   E, 90.H

LOOP2:  MOV   A,M
        STAX  D
        INX   D
        INX   H
        DCR   B
        JNZ   LOOP2
        HUT
```

16 ⇒
```
        MVI   C, 10 H; counter
        LXI   H, 9050H
        LXI   D, 9080 H

LOOP:   MOV   A,M
        CPI   30 H
        JC    SKIP
        CPI   70 H
        JNC   SKIP
```

```
        STAX D
        JMP NXT

SKIP    MVI A, 00H
        STAX D

NXT :   INX H
        INX D
        DCR C
        JNZ LOOP
        HLT


17 =>   MVI C, 10H
        LXI H, 8250
        LXI D, 8280

LOOP    MOV A, M
        CPI 50H
        JNC SKIP
        CPI 80H
        JC SKIP
        STAX D
        JMP NXT

SKIP:   MVI A, 00H
        STAX D

NXT :   INX H
        INX D
        DCR C
        JNZ LOOP
        HLT
```

18 => MVI C, 0AH;
LXI D, 8240H
LXI H, 8260H
MVI B, 00H

PUSH B
MVI C, 08H
LDAX D

LOOP1: RLC
INC SKIP
INR B

SKIP: DCR C
JNZ LOOP1
MOV M,B
INX D
INX H
PUP B
DCR C
JNZ LOOP2
HLT

19 =>

```
        MVI C, OA H
        LXI D, 8560H
        LXI H, 8570H
LOOP:   LDAX D
        ANI OFH
        MOV B,A
        LDAX D
        ANI FOH
        RRC
        RRC
        RRC
        RRC
        PUSH B
        MOV B,A
        MVI D,00
        MVI C, 10
Repeat: ADD B
        DAA
        DCR C
        JNZ Repeat
        ADD B
        MOV M,A
        INX D
        INX H
        DCR C
        JNZ LOOP
        HLT
```

```
20 =)    MVI C, 0AH
         LXI D, 8350H
         LXI H, 8360H

LOOP:    LDAX D
         ANI 0FH
         MOV B, A
         LDAX D
         ANI F0H
         RRC
         RRC
         RRC
         RRC
         PUSH B
         MOV B, A
         MVI A, 0D H
         MVI L, 0A H
REPEAT   ADD B
         DCR C
         JNZ Repeat
         POP B
         ADD B
         MOV M, A
         INX D
         INX H
         DCR C
         JNZ LOOP
         HLT
```

15) MVI C, 0AH
    LXI D, 8345
    LXI H, 8370

LOOP: LDAX D
      ANI 0FH
      MOV B, A
      LDAX D
      RRC
      RRC
      RRC
      RRC
      PUSH B
      MOV B, A
      MVI A, 00H
      MVI C, 10H

Repeat: ADD B
        DAA
        INZ Repeat
        POP B
        ADD B
        DAA
        CPI 64H
        JC SKIP
        MOV M, A
SKIP: INX D
      INX H
      DCR C
      JNZ loop
      HLT