Arch Solutions

تمرین کامپیوتری سری دوم

سوال اول

```
      ORG   100     /start the program from location with address 0x100 in memory (assembler directive)
      LDA   A       /load A
      ADD   B       /add B to A
      STA   S       /store sum
      LDA   B       /load B in accumulator
      CMA           /1's complement B
      INC           /2's complement B
      ADD   A       /add A
      STA   D       /store A – B
LOP,  ISZ   D       /increment D and jump out from the loop if D is zero
      BUN   LOP     /repeat loop again
      HLT           /halt the computer
A,    DEC   10      /A is stored here
B,    DEC   20      /B is stored here
D,    DEC   0       /A – B (counter) is stored here
S,    DEC   0       /A + B is stored here
      END           /end of assembly code (assembler directive)
```

سوال دوم

```
        ORG     100         /start the program from location with address 0x100 in memory (assembler directive)
LOP,    CLE                 /clear carry flag
        LDA     Y           /load multiplier
        CIR                 /transfer multiplier bit to E
        STA     Y           /store shifted multiplier
        SZE                 /check if bit is zero
        BUN     ONE         /bit is one; go to one
        BUN     ZRO         /bit is zero; go to zero
ONE,    LDA     X           /load multiplicand
        ADD     PRT         /add to partial product
        STA     PRT         /store partial product
        CLE                 /clear E
ZRO,    LDA     X           /load multiplicand
        CIL                 /shift left
        STA     X           /store shifted multiplier
        ISZ     CTR         /increment counter
        BUN     LOP         /counter not zero; repeat loop
        HLT                 /counter is zero; halt the computer
CTR,    DEC     -8          /this location serves as a counter
X,      DEC     209         /multiplicand stored here
Y,      DEC     154         /multiplier stored here
PTR,    DEC     0           /product formed here
        END                 /end of assembly code (assembler directive)
```