Unit 4

LECTURE 5

MULTIPLICATION

A multiplicand is stored in memory location XX50H and multiplier is stored in location XX51H.WAP to transfer the two numbers from memory locations to the HL registers and store the product in the output buffer at XX90H. Write a subroutine to multiply two unsigned numbers placed in registers H and L. Return the result to HL pair.

PROGRAM:

        LXI SP,STACK
        LHLD XX50H
        XCHG
        CALL MLTPLY
        SHLD XX90H
        HLT

(CONT.)

```
MLTPLY:     MOV A,D
            MVI D,00H
            LXI H,0000H
            MVI B,08H
 NXTBIT:    RAR
            JNC NOADD
            DAD D
NOADD:      XCHG
            DAD H
            XCHG
            DCR B
            JNZ NXTBIT
            RET
```

Subtraction with Carry

```
                LXI D,2050H
                LXI H,2080H
                MVI B,05 H
 NEXT:          CALL SBTRAC
                INX D
                INX H
                DCR B
                 JNZ NEXT
                HLT
 SBTRAC:        MOV A,M; A
                XCHG
                SUB M
```

Subtraction with Carry(Cont.)

MOV M,A

XCHG

INX H

INX D

MOV A,M

XCHG

SBB M

CC INDIKET

MOV M,A

RET

- A set of five 16 bit readings of the current consumption of industrial control units is monitored by meters and stored at memory locations starting at xx50H,followed by the higher order byte.
- The corresponding maximum limits for each control unit are stored starting at XX90H. Subtract each reading from its specified limit, and store the difference in place of the readings.
- If any reading exceeds the maximum limit, call the indicator routine and continue checking.