Algorithm

The location of the source is moved to R3. R4 is set to 00H. The multiplier is moved to R2. The multiplicand is moved from R3 to A. R2 is decremented. A is added with R3. If there is a carry, R4 is incremented. R2 is decremented & if it is not zero, the process is repeated. Carry is moved from R4 to B. A is copied to R5. B is copied to A & it is stored in the destination in external memory. R1 is incremented. R5 is copied to A & it is stored in the destination in external memory. Finally, the program is halted.

Input

0020	0021
FF	FF

Output

0030	0031
FE	01

Experiment Name / No.: 18. MULTIPLICATION BY REPEATED ADDITION

Camlin Page No. 51
Date 10 / 03 / 2020

Aim

To perform multiplication of 2 numbers by repeated addition.

Program

```
        ORG 00H
        MOV R0,#0020H; source address
        MOV R1,#0030H; destination address
        MOVX A,@R0 ; copy R0 to A
        MOV R3, A ; copy A to R3
        MOV R4,#00H; set R4 to 00H
        INC R0
        MOVX A,@R0 ; copy R0 to A
        MOV R2, A ; copy A to R2
        MOV A, R3 ; copy R3 to A
        DEC R2
MULT:   ADD A,R3 ; add A & R3
        JNC SAVE; jump if no carry
        INC R4
SAVE:   DJNZ R2, MULT; decrement R2 & jump if not zero
        MOV B, R4; copy R4 to B
        MOV R5, A; copy A to R5
        MOV A,B; copy B to A
        MOVX @R1, A; store carry in R1
        INC R1
        MOV A,R5 ; copy R5 to A
        MOVX @R1, A ; copy result to R1
HALT:   SJMP HALT
```

Result

Performed multiplication of 2 numbers by repeated addition.

Teacher's Signature: