**Micro-processing System Assignment 1**

1. Write an assembly program to add two 8-bit numbers stored in memory locations and store the result in another memory location.

LDI R16,10

LDI R17,15

ADD R16, R17

STS 0x120, R16

1. Create an assembly program to subtract two 8-bit numbers stored in memory locations and store the result in another memory location.

LDI R16,10

LDI R17,15

SUB R16, R17

STS 0x120, R16

1. Develop an assembly program to multiply two 8-bit numbers stored in memory locations and store the result in another memory location.

LDI R16,10

LDI R17,15

MUL R16, R17

STS 0x120, R16

1. Write an assembly program to divide two 8-bit numbers stored in memory locations and store the quotient in one memory location and the remainder in another.

LDI R16, 10 ; Load 10 into register R16 (dividend)

LDI R17, 15 ; Load 15 into register R17 (divisor)

CLR R18 ; Clear R18 (will store remainder)

DIVIDE\_LOOP: ; Label for division loop

CP R16, R17 ; Compare dividend (R16) with divisor (R17)

BRLO DONE ; If R16 < R17, exit the loop

SUB R16, R17 ; Subtract divisor from dividend

INC R18 ; Increment quotient

RJMP DIVIDE\_LOOP ; Repeat the division loop

DONE:

STS 0x120, R18 ; Store the quotient at memory location 0x120

STS 0x121, R16 ; Store the remainder at memory location 0x121

1. Implement an assembly program to add two 16-bit numbers stored in memory locations and store the result in another memory location.
2. Create an assembly program to subtract two 16-bit numbers stored in memory locations and store the result in another memory location.
3. Develop an assembly program to multiply two 16-bit numbers stored in memory locations and store the result in another memory location.
4. Write an assembly program to divide two 16-bit numbers stored in memory locations and store the quotient in one memory location and the remainder in another.
5. Combine addition, subtraction, multiplication, and division operations in a single assembly program that operates on both 8-bit and 16-bit numbers.
6. Write a comprehensive assembly program that includes user input for selecting the operation (addition, subtraction, multiplication, or division) and the size of the numbers (8-bit or 16-bit), performs the selected operation, and displays the result.