# CSA
# LAB -3

## Roll No- CE118

**Q1. WAP to perform division of two 8-bit numbers.**
**Input: (2034H) = Dividend (2035H) = Divisor**
**Output: (2036H) = Remainder (2037H) = Quotient Test**
**Case1 : I/P : (2034H) = 0FH (2035H) = 02H**
**O/P (2036H) = 01H (2037H) = 07H**
**Test Case2 : I/P : (2034H) = 08H (2035H) = 02H**
**O/P : (2037H) = 04H**

Registers :

| Register | Value | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|---|
| Accumulator | 01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Register B | 02 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Register C | 07 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| Register D | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Register E | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Register H | 20 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Register L | 37 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 |
| Memory(M) | 07 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |

| Resister | Value | S | Z | * | AC | * | P | * | CY |
|---|---|---|---|---|---|---|---|---|---|
| Flag Resister | 85 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |

| Type | Value |
|---|---|
| Stack Pointer(SP) | 0000 |
| Memory Pointer (HL) | 2037 |
| Program Status Word(PSW) | 0185 |
| Program Counter(PC) | 0015 |
| Clock Cycle Counter | 285 |
| Instruction Counter | 47 |

Memory Editor

Memory Range: 0000 ---- FFFF

| Memory Address | Value |
|---|---|
| 0000 | 21 |
| 0001 | 34 |
| 0002 | 20 |
| 0003 | 7E |
| 0004 | 23 |
| 0005 | 46 |
| 0006 | 0E |
| 0008 | B8 |
| 0009 | DA |
| 000A | 11 |
| 000C | 90 |
| 000D | 0C |
| 000E | C3 |
| 000F | 08 |
| 0011 | 23 |
| 0012 | 77 |
| 0013 | 23 |
| 0014 | 71 |
| 0015 | 76 |
| 2034 | 0F |
| 2035 | 02 |
| 2036 | 01 |
| 2037 | 07 |
| | |
| | |
| | |
| | |

**Q2. WAP to Count the number of 1's in the content of the D Register and store the count in the B Register. Constraint:**

**Data is at memory location 40A2 H Test Case : Input: (40A2H) = 16H Output: B = 03H**

Registers :

| Register | Value | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|---|
| **Accumulator** | **16** | **0** | **0** | **0** | **1** | **0** | **1** | **1** | **0** |
| **Register B** | **03** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** |
| **Register C** | **00** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **Register D** | **16** | **0** | **0** | **0** | **1** | **0** | **1** | **1** | **0** |
| **Register E** | **00** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **Register H** | **40** | **0** | **1** | **0** | **0** | **0** | **0** | **0** | **0** |
| **Register L** | **A2** | **1** | **0** | **1** | **0** | **0** | **0** | **1** | **0** |
| **Memory(M)** | **16** | **0** | **0** | **0** | **1** | **0** | **1** | **1** | **0** |

| Resister | Value | S | Z | * | AC | * | P | * | CY |
|---|---|---|---|---|---|---|---|---|---|
| **Flag Resister** | **54** | **0** | **1** | **0** | **1** | **0** | **1** | **0** | **0** |

| Type | Value |
|---|---|
| **Stack Pointer(SP)** | **0000** |
| **Memory Pointer (HL)** | **40A2** |
| **Program Status Word(PSW)** | **1654** |
| **Program Counter(PC)** | **0012** |
| **Clock Cycle Counter** | **264** |
| **Instruction Counter** | **41** |

Memory Editor

Memory Range: 000 ---- FFFF

| Memory Address | Value |
|---|---|
| 0000 | 21 |
| 0001 | A2 |
| 0002 | 40 |
| 0003 | 56 |
| 0004 | 06 |
| 0006 | 7A |
| 0007 | 0E |
| 0008 | 08 |
| 0009 | 07 |
| 000A | D2 |
| 000B | 0E |
| 000D | 04 |
| 000E | 0D |
| 000F | C2 |
| 0010 | 09 |
| 0012 | 76 |
| 40A2 | 16 |
| | |
| | |

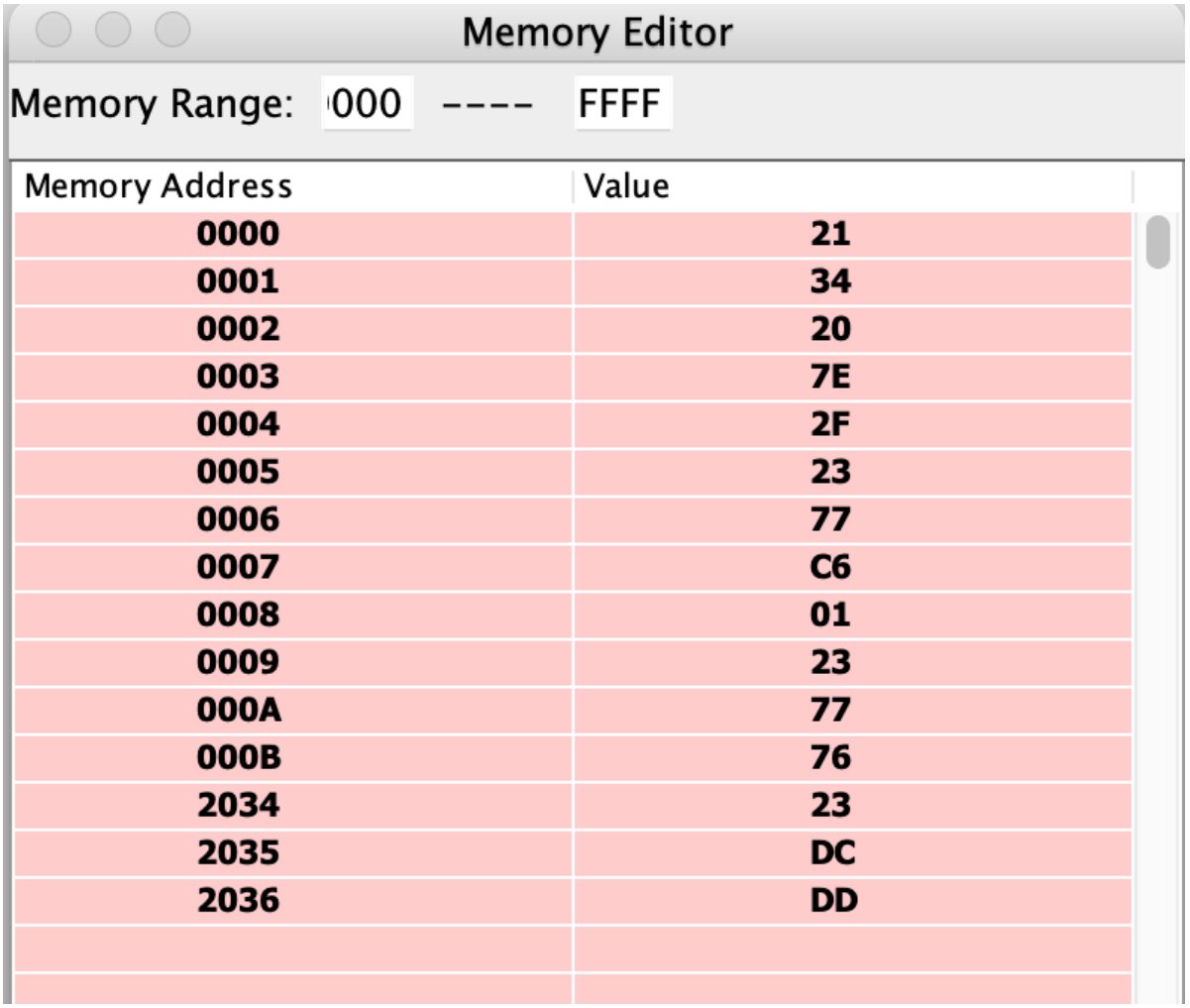
**Q3. WAP to find 1's complement and 2's complement of a number. Input: (2034H) = 23H Output: (2035H) = DCH (2036H) = DDH**

Registers :

| Register | Value | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|---|
| **Accumulator** | **DD** | **1** | **1** | **0** | **1** | **1** | **1** | **0** | **1** |
| **Register B** | **00** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **Register C** | **00** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **Register D** | **00** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **Register E** | **00** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **Register H** | **20** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **0** |
| **Register L** | **36** | **0** | **0** | **1** | **1** | **0** | **1** | **1** | **0** |
| **Memory(M)** | **DD** | **1** | **1** | **0** | **1** | **1** | **1** | **0** | **1** |

| Resister | Value | S | Z | * | AC | * | P | * | CY |
|---|---|---|---|---|---|---|---|---|---|
| **Flag Resister** | **84** | **1** | **0** | **0** | **0** | **0** | **1** | **0** | **0** |

| Type | Value |
|---|---|
| **Stack Pointer(SP)** | **0000** |
| **Memory Pointer (HL)** | **2036** |
| **Program Status Word(PSW)** | **DD84** |
| **Program Counter(PC)** | **000B** |
| **Clock Cycle Counter** | **59** |
| **Instruction Counter** | **9** |


Memory Editor
Memory Range: 000 ---- FFFF
Memory Address
Value
0000 21
0001 34
0002 20
0003 7E
0004 2F
0005 23
0006 77
0007 C6
0008 01
0009 23
000A 77
000B 76
2034 23
2035 DC
2036 DD