

EXPERIMENT NO. 8

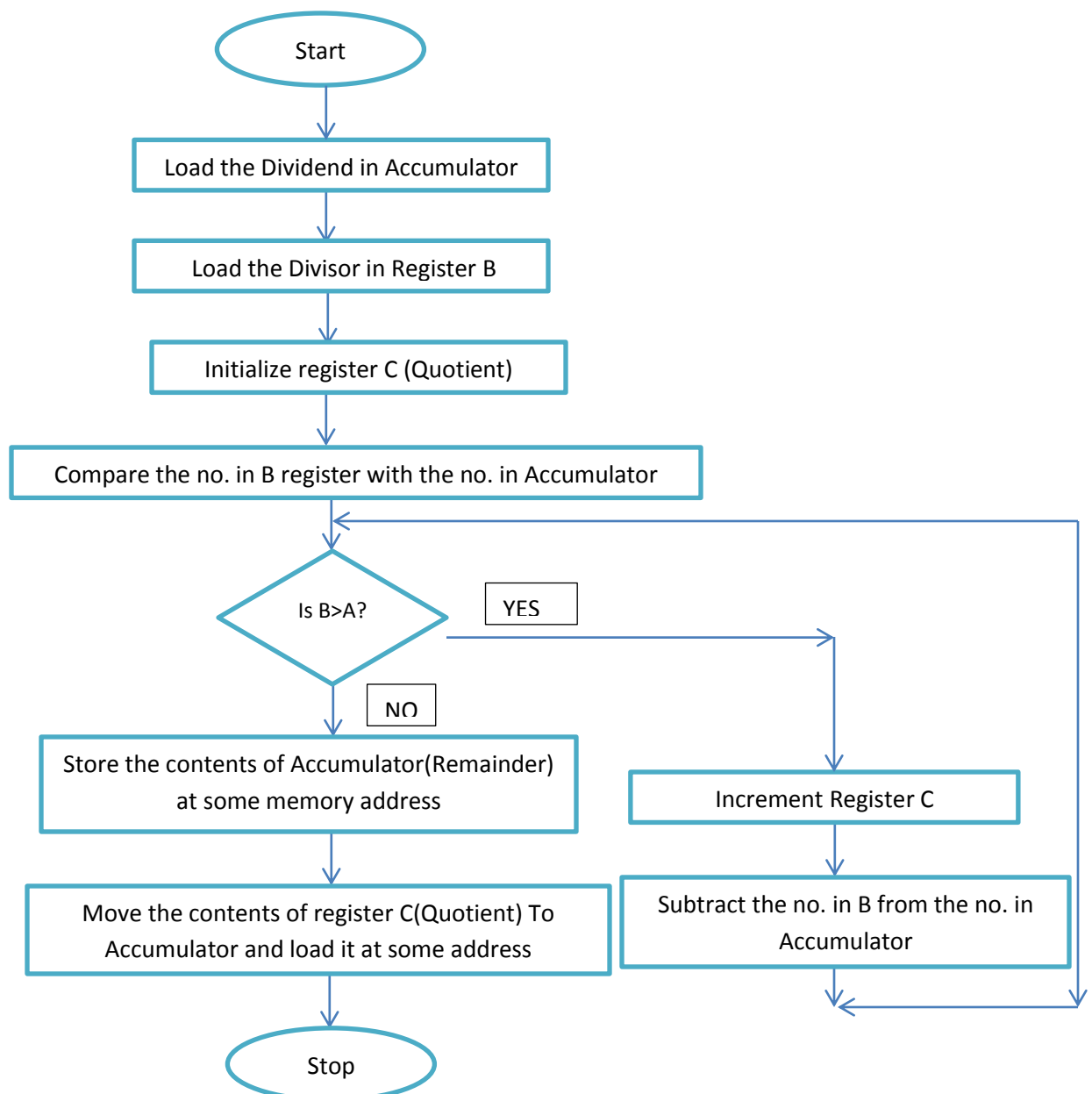
AIM: To divide two 8-bit numbers by repeated subtraction.

APPARATUS REQUIRED: 8085 Microprocessor Kit.

ALGORITHM:

1. Load the dividend and divisor from two successive memory locations.
2. Subtract the divisor from the dividend repeatedly until the difference becomes less than the divisor.
3. Store the no. of times the subtraction took place as quotient and the remaining difference as remainder..
4. End of Program.

FLOW CHART:



PROGRAM:

| Memory Address | Mnemonics | Hex Codes | Remarks |
|----------------|------------|-----------|--|
| 2000 | LDA 2050H | 3A | Load Divisor in Accumulator |
| | | 50 | |
| | | 20 | |
| 2001 | MOV B,A | 47 | Copy Divisor to Register B |
| 2002 | LDA 2051H | 3A | Load Dividend in Accumulator |
| 2003 | | 50 | |
| 2004 | | 20 | |
| 2005 | MVI C, 00H | 0E | Initialize register C for Quotient |
| 2006 | | 00 | |
| 2007 | CMP B | B8 | Compare the no. in B with the no. in Accumulator |
| 2008 | JC 2010H | DA | Jump if B>A to address 2010 |
| 2009 | | 10 | |
| 200A | | 20 | |
| 200B | INR C | 0C | Increment Register C (Quotient) |
| 200C | SUB B | 90 | Subtract B from A |
| 200D | JMP 2007H | C3 | Repeat the above steps till A becomes smaller than B |
| 200E | | 07 | |
| 200F | | 20 | |
| 2010 | STA 2052H | 32 | Store the remainder at memory address 2052 |
| 2011 | | 50 | |
| 2012 | | 20 | |
| 2013 | MOV A,C | 79 | Move the contents of C to Accumulator |
| 2014 | STA 2053H | 32 | Store the Quotient at memory address 2053 |
| 2015 | | 53 | |

| | | | |
|------|-----|----|-----|
| 2016 | | 20 | |
| 2017 | HLT | 76 | HLT |

INPUT:

1st set :

2050: 02H DIVISOR
2051: 08H DIVIDEND

OUTPUT:

2052: 00H REMAINDER
2053: 04H QUOTIENT

INPUT:

2ND SET:

2050: 08H DIVISOR
2051: 4AH DIVIDEND

OUTPUT:

2052: 02H REMAINDER
2053: 09H QUOTIENT

PRECAUTION:

Make sure that all the machine codes should be as specified in the program.