Answer 1:

Table

Description automatically generated

Answer 2:

Table

Description automatically generated

Answer 3:

.ORIG x3000

LD R0, NUMBER1 ;LOAD 1ST NUMBER

BRn STOP ;CHECK INPUT IS NOT NEG

LD R1, NUMBER2 ;LOAD 2ND NUMBER

BRn STOP ;CHECK INPUT2 IS NOT NEG

ADD R5, R1, #0 ;COPYING INPUT1 INTO R5

AND R2, R2, #0 ;REMAINDER SET TO 0

And R3, R3, #0 ;QUOTIENT SET TO 0

AND R4, R4, #0 ;MULTIPLICANT SET TO 0

NOT R2, R1 ;NOT INPUT 2 (1ST COMPLEMENT)

ADD R2, R2, #1 ;ADDING ONE FOR (2ND COMPLEMENT)

DIVIDE ADD R3, R3, #1 ;ADDING 1 EVERYTIME IT SUBSTRACT

ADD R0, R0, R2 ;SUBSTRATIC DIVIDEND WITH DIVISOR

BRN NEG ;BRANCH OUT IF NEG TO COUNT REMAINDER

BRZ ZERO ;BRANCH OUT TO STORE IF EQUALS O ZERO

BRP DIVIDE ;BRANCH UP IF POSITIVE

NEG ADD R3, R3, #-1 ;SUBSTRACT ONE TO QUOTIENT

ADD R2, R0, R1 ;CALCULATING REMAIDER

STOP STI R4, STORE\_MULT; STORE MULTIPLICANT

ZERO STI R2, REMAINDER ;STORE REMAINDER

STI R3, QUOTIENT ;STORE QUOTIENT

HALT

NUMBER1 .FILL x0014 ;DECLARING VARIABLE

NUMBER2 .FILL x0003 ;DECLARING VARIABLE

STORE\_MULT .FILL x3102 ;DECLARING VARIABLE

REMAINDER .FILL x3104 ;DECLARING VARIABLE

QUOTIENT .FILL x3103 ;DECLARING VARIABLE

.END

Answer 4:

Text

Description automatically generated

Answer 5:

Consider the following LC-3 assembly language program. After execution, the output of the program is available in register R0.

.ORIG x3000

LD R2, INPUT

AND R0, R0, #0

ADD R1, R0, #1

ADD R3, R0, #15

LOOP AND R4, R2, R1

BRz SKIP

ADD R0, R0, #1

SKIP ADD R1, R1, R1

ADD R3, R3, #-1

BRzp LOOP

INPUT .FILL x1997

.END

1. Run the program on PennSim and give a brief explanation of what it does.  
   Counts the number of 1's in INPUT and store them in R0
2. How many times does the LOOP execute?  
   16 times
3. What value will be contained in R3 after the execution of the program?  
   R3 = 0xFFFF = -1

Answer 6:

Graphical user interface, text, application

Description automatically generated with medium confidence