PALLAVI H R

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ACA LAB PROGRAM

Q1) Assume a 32-bit number in 40000004H. Add nibble4 and nibble0 and store the result in 4000000CH.

```
AREA NIBBLE_ADD,CODE, READONLY
   ENTRY
MAIN
      LDR R0, VALUE ;load value to R0
      LDR R1, [ R 0 ];load the content of R0 to R1
      MOV R2, #0X0000000F   ; nibble 0
      MOV R3, # 0X000F0000   ; nibble1
      AND R4, R1   ,R2; and operation with r1 and r2 and stores in r4
      LDR   R1, [R0,#2]
      AND R5, R1, R3
      LSR R5, R5, #16
      ADD R6, R4, R5  ; add R4,R5 and store in R6
      LDR R0,  RESULT  ; load result in r0
      STR R6, [R0] ; store the content of RO in R6
      SVC &11
```

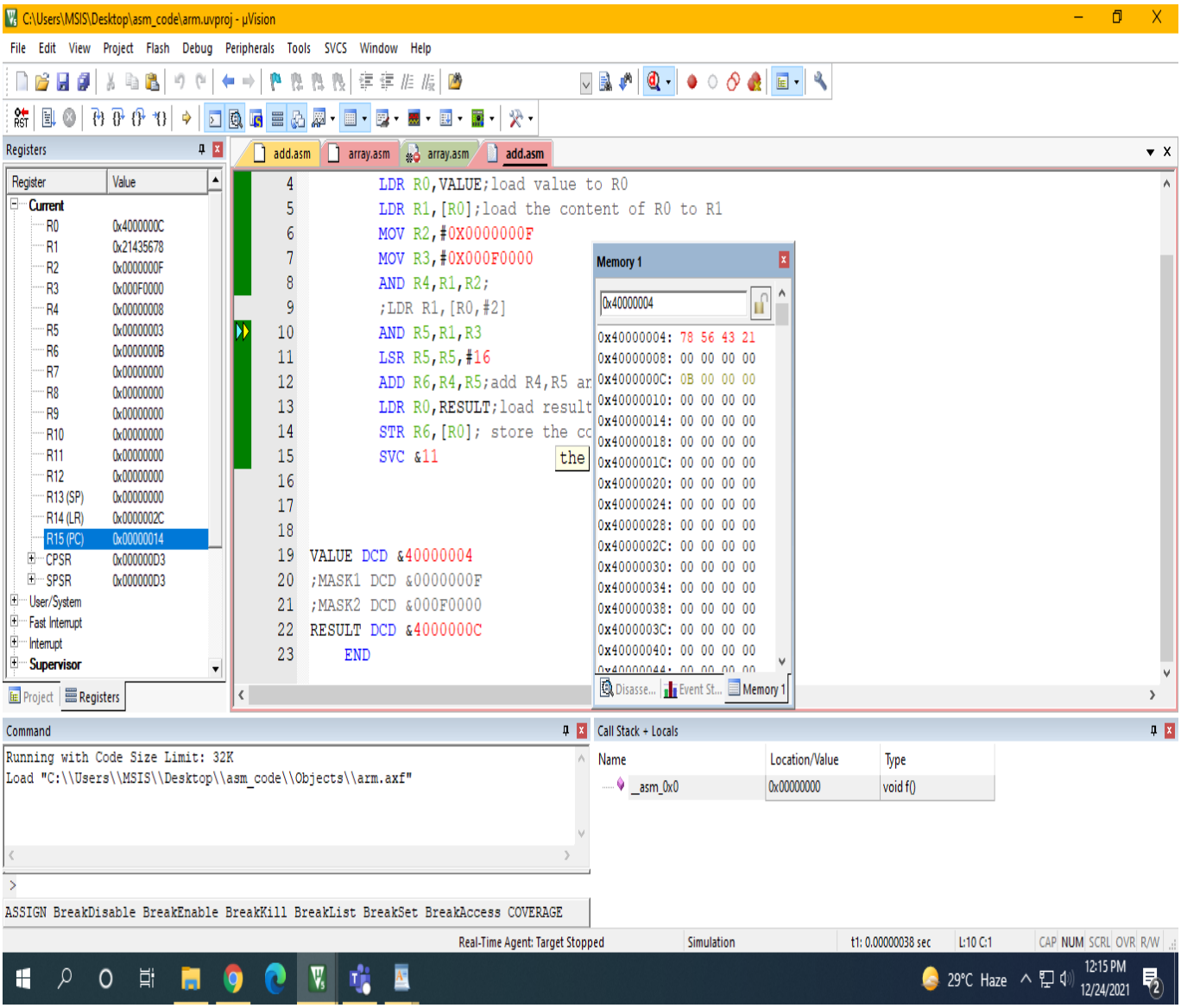
VALUE DCD &40000004

MASK1 DCD &0000000F

MASK2 DCD &000F0000

RESULT DCD &4000000C

END



Q2) Consider an array of number present from 40000000H. Add only if the numbers are positive. 40000000H has the count of the array.

```
AREA ARRAY,CODE,READONLY
   ENTRY
MAIN
      LDR R0,VALUE;load the value in R0
      LDR R2,[R0];count
      EOR R3,R3,R3;Holds the sum

LOOP    CMP R2,#0
      BEQ DONE
      LDR R1,[R0,#4]!
      CMP R1,#0
      BMI NEXTNUM
      ADD R3,R3,R1
      SUB R2,R2,#1 ;decrementing count
      B LOOP

NEXTNUM
      SUB R2,R2,#1 ;decrementing count
      CMP R2,#0
      BEQ DONE
      BNE LOOP

DONE LDR R4,RESULT ; load the result in R4
```

STR R3,[R4] ;store the content of R4 in R3

STOP B STOP

VALUE DCD &40000000

RESULT DCD &4000003C ; storing result at memory location

END