Experiment 7

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Div/Batch:A/A1   Roll No.07

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.MODEL SMALL

.STACK 100H

.DATA

   NUM1 DW 36       ; First number

   NUM2 DW 24       ; Second number

   GCD_RESULT DW ?   ; Store GCD result

   LCM_RESULT DW ?   ; Store LCM result

   MSG_GCD DB 'GCD: $'

   MSG_LCM DB ' LCM: $'

   NEWLINE DB 0DH, 0AH, '$'  ; New line for output formatting


.CODE

MAIN PROC

   MOV AX, @DATA

   MOV DS, AX


   MOV AX, NUM1

   MOV BX, NUM2

   CALL GCD         ; Compute GCD

   MOV GCD_RESULT, AX


   MOV AX, NUM1

   MUL BX          ; AX = NUM1 * NUM2
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    DIV GCD_RESULT   ; AX = LCM (Product / GCD)
    MOV LCM_RESULT, AX

    MOV DX, OFFSET MSG_GCD
    MOV AH, 09H
    INT 21H          ; Print "GCD: "

    MOV AX, GCD_RESULT
    CALL PRINT_NUM   ; Print GCD

    MOV DX, OFFSET NEWLINE
    MOV AH, 09H
    INT 21H          ; Print new line

    MOV DX, OFFSET MSG_LCM
    MOV AH, 09H
    INT 21H          ; Print " LCM: "

    MOV AX, LCM_RESULT
    CALL PRINT_NUM   ; Print LCM

    MOV AH, 4CH
    INT 21H          ; Exit program
MAIN ENDP

; GCD Procedure (Euclidean Algorithm)
GCD PROC
    CMP BX, 0
    JE END_GCD
GCD_LOOP:
    MOV DX, 0
    DIV BX          ; AX = AX / BX, Remainder in DX
    MOV AX, BX
    MOV BX, DX
    CMP BX, 0
    JNE GCD_LOOP
END_GCD:
    RET
GCD ENDP

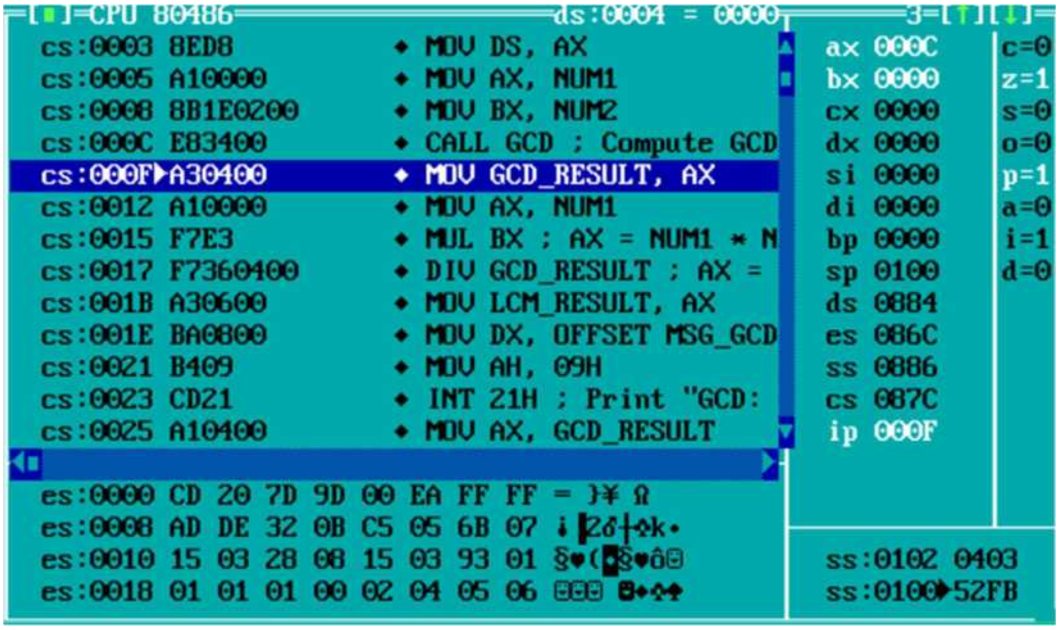
; Print Number Procedure
PRINT_NUM PROC
    MOV CX, 0
NEXT_DIGIT:
    MOV DX, 0
    MOV BX, 10
    DIV BX          ; AX / 10 → Quotient in AX, Remainder in DX
    PUSH DX
    INC CX
    TEST AX, AX
    JNZ NEXT_DIGIT

PRINT_LOOP:
    POP DX
    ADD DL, '0'
    MOV AH, 02H
    INT 21H
    LOOP PRINT_LOOP

    RET
PRINT_NUM ENDP

END MAIN
```

OUTPUT:



```
[■]=CPU 80486=====================ds:0004 = 0000=========3=[↑][↓]=
  cs:0003 8ED8              ♦ MOV DS, AX              ax 000C   c=0
  cs:0005 A10000            ♦ MOV AX, NUM1            bx 0000   z=1
  cs:0008 8B1E0200          ♦ MOV BX, NUM2            cx 0000   s=0
  cs:000C E83400            ♦ CALL GCD ; Compute GCD  dx 0000   o=0
  cs:000F▶A30400            ♦ MOV GCD_RESULT, AX      si 0000   p=1
  cs:0012 A10000            ♦ MOV AX, NUM1            di 0000   a=0
  cs:0015 F7E3              ♦ MUL BX ; AX = NUM1 * N  bp 0000   i=1
  cs:0017 F7360400          ♦ DIV GCD_RESULT ; AX =   sp 0100   d=0
  cs:001B A30600            ♦ MOV LCM_RESULT, AX      ds 0884
  cs:001E BA0800            ♦ MOV DX, OFFSET MSG_GCD  es 086C
  cs:0021 B409              ♦ MOV AH, 09H             ss 0886
  cs:0023 CD21              ♦ INT 21H ; Print "GCD:   cs 087C
  cs:0025 A10400            ♦ MOV AX, GCD_RESULT      ip 000F

  es:0000 CD 20 7D 9D 00 EA FF FF = }¥ Ω
  es:0008 AD DE 32 0B C5 05 6B 07 ¡▐2δ┼♣k•               ss:0102 0403
  es:0010 15 03 28 08 15 03 93 01 §♥(◘§♥ô☺               ss:0100▶52FB
  es:0018 01 01 01 00 02 04 05 06 ☺☺☺ ☻♦♣♠
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