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**ENEE 350 Homework Set 7**

Programming Assignment 2

(Due: Class 17, Tues., Oct. 27, 2015)

Write, assemble and run successfully on the simulator a Mac-1 subroutine **minod(n,x)** that returns in the AC the address of the integer possessing the algebraically smallest odd value (zero and multiples of 2 are even) among the n integers in the array whose starting address is x. If there are no odd values in the array being processed, return -1 which as an unsigned address is 65535, a clearly out of bounds address in the 4096 word memory. If there are two or more equal minod values, return the largest of the addresses. Your subroutine should be tested with the main program shown below, which defines how the parameters are passed.

```

      /main program                               |      /continued from below halt
      EXTRN minod                                |      data      58
ans1  RES    1                                  |              0
ans2  RES    1                                  |             128
ans3  RES    1                                  |             -34
n1     5                                           |              8
n2    10                                           |              3
n3     7                                           |             -29
start  loco  4020                                  |             -2
      swap                                /initialize sp |             -3
      loco    n1                              |            347
      push                                /push address n1 |            -15
      loco    data                             |              6
      push                                /push array start address |             35
one    call    minod                            |            -413
      stod    ans1                              |             END      start
      insp    2                                  |
      loco    n2                                /push address n2 |
      push                                |
      loco    data                             |
      add     (3)                               |
      push                                /push array start address |
two    call    minod                            |
      stod    ans2                              |
      insp    2                                  |
      loco    n3                                /push address n3 |
      push                                |
      loco    data                             |
      add     (7)                               |
      push                                /push array start address |
three  call    minod                            |
      stod    ans3                              |
      insp    2                                  |
      halt                                         |
      /data array continues here but             |
      / is shown in the above right hand column |
  
```

Hand in a copy of the main program symbolic assembly listing, the subroutine symbolic assembly listing, the contents of (macro) memory after “load main sub” (i.e., of main.abs) before execution of the program, and the contents of memory after execution of the program. Highlight and comment upon the final answers. Specify what values are contained in the addresses specified by ans1, ans2, and ans3.