

```

1  program chargedens
2
3  implicit none
4
5  !integer,parameter :: n=16
6
7  integer :: e,i,j,A
8  real, dimension(16,16):: nd, wg
9  real:: s,c,r2,b
10
11  open(20,file='gauss_laguerre.dat',form='formatted',status='old')
12  DO i=1,16
13      read(20,'(I3)') e
14      write(*,'(I3)') e
15
16      do j=1,i
17          read(20,'(2E14.6)') nd(i,j), wg(i,j)
18          write(*,'(2E15.7)') nd(i,j), wg(i,j)
19      end do
20  end do
21  print *, 'A='
22  read *, A
23  close(20)
24
25  DO i=1,16
26      s=0.0
27      b=0.0
28      do j=1,i
29          s=s+wg(i,j)*func(nd(i,j))
30          b=b+wg(i,j)*func(nd(i,j))*(nd(i,j)*0.55)**2
31      end do
32  c=1.0/s
33  r2=c*b
34  write(*,'(I3,4E15.7)')i,s,c,r2, sqrt(r2)
35  end do
36  !-----
37  CONTAINS
38  !-----
39  function func(x)
40
41  implicit none
42
43  real:: func, R
44  real, intent(in):: x
45
46  R=1.1*A**(1.0/3.0)
47
48  func=x**2/(exp(-x)+exp(-R/0.55))
49
50  return
51
52 end function func
53
54 end program
55

```