```
Initial Parameters...
R(load) = 500 ohms
c1 = 0.50
c2 = 0.50
r = 1.00
w = 0.50

---------
INITIAL Particle 1 ::   pos(duty)=   0.40000000    fitness(Output Power)=  10.64447425
INITIAL Particle 2 ::   pos(duty)=   0.60000000    fitness(Output Power)=  24.91191014
INITIAL Particle 3 ::   pos(duty)=   0.95000000    fitness(Output Power)=  37.05981391

================================================
++++++++++++++Start of Iterations++++++++++++++
================================================
Iteration No: 1
velocity =

    0.1100
    0.0700
         0

Particle 1 ::   pos(duty)=   0.51000000    fitness(Output Power)=  17.91242412
Particle 2 ::   pos(duty)=   0.67000000    fitness(Output Power)=  38.14194079
Particle 3 ::   pos(duty)=   0.95000000    fitness(Output Power)=  37.05981391


Updated best Fitness Position =   0.67000000


--------
Iteration No: 2
velocity =

    0.0870
    0.0350
   -0.0560

Particle 1 ::   pos(duty)=   0.59700000    fitness(Output Power)=  24.91191014
Particle 2 ::   pos(duty)=   0.70500000    fitness(Output Power)=  44.38993712
Particle 3 ::   pos(duty)=   0.89400000    fitness(Output Power)= 162.58952587


Updated best Fitness Position =   0.89400000


--------
Iteration No: 3
velocity =

    0.1029
    0.0553
   -0.0280

Particle 1 ::   pos(duty)=   0.69990000    fitness(Output Power)=  44.38993712
```

```
Particle 2 ::   pos(duty)=   0.76030000    fitness(Output Power)=  67.12516157
Particle 3 ::   pos(duty)=   0.86600000    fitness(Output Power)= 168.25745543


Updated best Fitness Position =   0.86600000


--------
Iteration No: 4
velocity =

    0.0847
    0.0488
   -0.0140

Particle 1 ::   pos(duty)=   0.78457000    fitness(Output Power)=  82.01614752
Particle 2 ::   pos(duty)=   0.80909000    fitness(Output Power)=  99.33598333
Particle 3 ::   pos(duty)=   0.85200000    fitness(Output Power)= 148.22868244


Updated best Fitness Position =   0.86600000


--------
Iteration No: 5
velocity =

    0.0586
    0.0358
   -0.0014

Particle 1 ::   pos(duty)=   0.84319100    fitness(Output Power)= 137.28136936
Particle 2 ::   pos(duty)=   0.84486700    fitness(Output Power)= 139.66612924
Particle 3 ::   pos(duty)=   0.85060000    fitness(Output Power)= 146.22780888


Updated best Fitness Position =   0.86600000


--------
Iteration No: 6
velocity =

    0.0339
    0.0221
    0.0055

Particle 1 ::   pos(duty)=   0.87706330    fitness(Output Power)= 179.30226694
Particle 2 ::   pos(duty)=   0.86698210    fitness(Output Power)= 170.12016625
Particle 3 ::   pos(duty)=   0.85606000    fitness(Output Power)= 153.71605220


Updated best Fitness Position =   0.87706330
```

```
--------
Iteration No: 7
velocity =

    0.0169
    0.0131
    0.0089

Particle 1 ::   pos(duty)=   0.89399945    fitness(Output Power)= 162.58952587
Particle 2 ::   pos(duty)=   0.88005589    fitness(Output Power)= 180.20559914
Particle 3 ::   pos(duty)=   0.86497866    fitness(Output Power)= 167.24628517


Updated best Fitness Position =   0.88005589


--------
Iteration No: 8
velocity =

    0.0023
    0.0065
    0.0077

Particle 1 ::   pos(duty)=   0.89629158    fitness(Output Power)= 156.75428583
Particle 2 ::   pos(duty)=   0.88659278    fitness(Output Power)= 176.62563673
Particle 3 ::   pos(duty)=   0.87265770    fitness(Output Power)= 176.20566917


Updated best Fitness Position =   0.88005589


--------
Iteration No: 9
velocity =

   -0.0059
    0.0007
    0.0053

Particle 1 ::   pos(duty)=   0.89034485    fitness(Output Power)= 170.57358426
Particle 2 ::   pos(duty)=   0.88724647    fitness(Output Power)= 175.70736453
Particle 3 ::   pos(duty)=   0.87797686    fitness(Output Power)= 179.81720176


Updated best Fitness Position =   0.88005589


--------
Iteration No: 10
velocity =

   -0.0077
   -0.0025
    0.0031
```

```
Particle 1 ::   pos(duty)=   0.88265739    fitness(Output Power)= 179.68804741
Particle 2 ::   pos(duty)=   0.88469709    fitness(Output Power)= 178.43901243
Particle 3 ::   pos(duty)=   0.88105225    fitness(Output Power)= 180.19084688


Updated best Fitness Position =   0.88005589


--------
Iteration No: 11
velocity =

   -0.0044
   -0.0031
    0.0013

Particle 1 ::   pos(duty)=   0.87829335    fitness(Output Power)= 179.93966906
Particle 2 ::   pos(duty)=   0.88156591    fitness(Output Power)= 180.08928929
Particle 3 ::   pos(duty)=   0.88239067    fitness(Output Power)= 179.81169973


Updated best Fitness Position =   0.88005589


--------
Iteration No: 12
velocity =

   -0.0018
   -0.0022
   -0.0001

Particle 1 ::   pos(duty)=   0.87646384    fitness(Output Power)= 179.07847733
Particle 2 ::   pos(duty)=   0.87939632    fitness(Output Power)= 180.17115987
Particle 3 ::   pos(duty)=   0.88232524    fitness(Output Power)= 179.81169973


Updated best Fitness Position =   0.88005589


--------
Iteration No: 13
velocity =

   1.0e-03 *

    0.1696
   -0.8210
   -0.7412

Particle 1 ::   pos(duty)=   0.87663340    fitness(Output Power)= 179.07847733
Particle 2 ::   pos(duty)=   0.87857535    fitness(Output Power)= 179.93966906
Particle 3 ::   pos(duty)=   0.88158406    fitness(Output Power)= 180.08928929
```

```
Updated best Fitness Position =   0.88005589


--------
Iteration No: 14
velocity =

    0.0011
    0.0002
   -0.0008

Particle 1 ::   pos(duty)=   0.87773467    fitness(Output Power)= 179.67072353
Particle 2 ::   pos(duty)=   0.87875708    fitness(Output Power)= 180.03895504
Particle 3 ::   pos(duty)=   0.88080147    fitness(Output Power)= 180.19084688


Updated best Fitness Position =   0.88005589


--------
Iteration No: 15
velocity =

    0.0011
    0.0006
   -0.0005

Particle 1 ::   pos(duty)=   0.87886128    fitness(Output Power)= 180.03895504
Particle 2 ::   pos(duty)=   0.87936747    fitness(Output Power)= 180.11586081
Particle 3 ::   pos(duty)=   0.88026106    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88026106


--------
Iteration No: 16
velocity =

   1.0e-03 *

    0.8433
    0.6216
   -0.2702

Particle 1 ::   pos(duty)=   0.87970455    fitness(Output Power)= 180.17115987
Particle 2 ::   pos(duty)=   0.87998907    fitness(Output Power)= 180.20559914
Particle 3 ::   pos(duty)=   0.87999086    fitness(Output Power)= 180.20559914


Updated best Fitness Position =   0.88026106


--------
```

```
Iteration No: 17
velocity =

   1.0e-03 *

    0.5329
    0.3652
   -0.0270

Particle 1 ::   pos(duty)=   0.88023748    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88035426    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.87996384    fitness(Output Power)= 180.20559914


Updated best Fitness Position =   0.88023748


--------
Iteration No: 18
velocity =

   1.0e-03 *

    0.2665
    0.1592
    0.1007

Particle 1 ::   pos(duty)=   0.88050395    fitness(Output Power)= 180.21475826
Particle 2 ::   pos(duty)=   0.88051351    fitness(Output Power)= 180.21475826
Particle 3 ::   pos(duty)=   0.88006450    fitness(Output Power)= 180.20559914


Updated best Fitness Position =   0.88023748


--------
Iteration No: 19
velocity =

   1.0e-03 *

    0.0266
   -0.0074
    0.1242

Particle 1 ::   pos(duty)=   0.88053059    fitness(Output Power)= 180.21475826
Particle 2 ::   pos(duty)=   0.88050607    fitness(Output Power)= 180.21475826
Particle 3 ::   pos(duty)=   0.88018874    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88023748


--------
Iteration No: 20
```

```
velocity =

   1.0e-03 *

   -0.1039
   -0.0878
    0.0719

Particle 1 ::   pos(duty)=   0.88042667    fitness(Output Power)= 180.21475826
Particle 2 ::   pos(duty)=   0.88041828    fitness(Output Power)= 180.21475826
Particle 3 ::   pos(duty)=   0.88026061    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88023748


--------
Iteration No: 21
velocity =

   1.0e-03 *

   -0.1276
   -0.0929
    0.0313

Particle 1 ::   pos(duty)=   0.88029903    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88032542    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88029192    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88029903


--------
Iteration No: 22
velocity =

   1.0e-04 *

   -0.6382
   -0.5171
    0.1708

Particle 1 ::   pos(duty)=   0.88023522    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88027371    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88030899    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88023522


--------
Iteration No: 23
velocity =
```

```
   1.0e-04 *

   -0.3191
   -0.3355
   -0.0622

Particle 1 ::   pos(duty)=   0.88020331    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88024016    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88030278    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88020331


--------
Iteration No: 24
velocity =

   1.0e-04 *

   -0.1595
   -0.2415
   -0.2300

Particle 1 ::   pos(duty)=   0.88018735    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88021601    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88027977    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88018735


--------
Iteration No: 25
velocity =

   1.0e-04 *

   -0.0798
   -0.1781
   -0.2999

Particle 1 ::   pos(duty)=   0.88017937    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88019821    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88024979    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017937


--------
Iteration No: 26
velocity =
```

```
   1.0e-04 *

   -0.0399
   -0.1267
   -0.2908

Particle 1 ::   pos(duty)=   0.88017538    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88018554    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88022071    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017538


--------
Iteration No: 27
velocity =

   1.0e-04 *

   -0.0199
   -0.0836
   -0.2360

Particle 1 ::   pos(duty)=   0.88017339    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88017717    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88019711    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017339


--------
Iteration No: 28
velocity =

   1.0e-04 *

   -0.0100
   -0.0494
   -0.1655

Particle 1 ::   pos(duty)=   0.88017239    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88017223    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88018056    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017239


--------
Iteration No: 29
velocity =

   1.0e-05 *
```

```
   -0.0499
   -0.2437
   -0.9907

Particle 1 ::   pos(duty)=   0.88017189    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88016980    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88017066    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017189


--------
Iteration No: 30
velocity =

   1.0e-05 *

   -0.0249
   -0.0799
   -0.4706

Particle 1 ::   pos(duty)=   0.88017165    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88016900    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88016595    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017165


--------
Iteration No: 31
velocity =

   1.0e-05 *

   -0.0125
    0.0130
   -0.1214

Particle 1 ::   pos(duty)=   0.88017152    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88016913    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88016474    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017152


--------
Iteration No: 32
velocity =

   1.0e-06 *
```

```
   -0.0623
    0.5439
    0.7498

Particle 1 ::   pos(duty)=   0.88017146    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88016967    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88016549    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017146


--------
Iteration No: 33
velocity =

   1.0e-05 *

   -0.0031
    0.0629
    0.1569

Particle 1 ::   pos(duty)=   0.88017143    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88017030    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88016706    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017143


--------
Iteration No: 34
velocity =

   1.0e-05 *

   -0.0016
    0.0540
    0.1659

Particle 1 ::   pos(duty)=   0.88017141    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88017084    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88016872    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017141


--------
Iteration No: 35
velocity =

   1.0e-05 *

   -0.0008
```

```
    0.0384
    0.1369

Particle 1 ::   pos(duty)=   0.88017140    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88017122    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88017008    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017140


--------
Iteration No: 36
velocity =

   1.0e-06 *

   -0.0039
    0.2280
    0.9485

Particle 1 ::   pos(duty)=   0.88017140    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88017145    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88017103    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017140


--------
Iteration No: 37
velocity =

   1.0e-06 *

   -0.0019
    0.1034
    0.5478

Particle 1 ::   pos(duty)=   0.88017140    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88017156    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88017158    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017140


--------
Iteration No: 38
velocity =

   1.0e-06 *

   -0.0010
    0.0201
```

```
    0.2375

Particle 1 ::   pos(duty)=   0.88017140    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88017158    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88017182    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017140


--------
Iteration No: 39
velocity =

   1.0e-07 *

   -0.0049
   -0.2579
    0.3470

Particle 1 ::   pos(duty)=   0.88017140    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88017155    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88017185    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017140


--------
Iteration No: 40
velocity =

   1.0e-07 *

   -0.0024
   -0.4367
   -0.7376

Particle 1 ::   pos(duty)=   0.88017140    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88017151    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88017178    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017140


--------
Iteration No: 41
velocity =

   1.0e-06 *

   -0.0001
   -0.0439
   -0.1133
```

```
Particle 1 ::   pos(duty)=   0.88017140    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88017146    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88017167    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017140


--------
Iteration No: 42
velocity =

   1.0e-06 *

   -0.0001
   -0.0353
   -0.1104

Particle 1 ::   pos(duty)=   0.88017140    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88017143    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88017155    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017140


--------
Iteration No: 43
velocity =

   1.0e-07 *

   -0.0003
   -0.2393
   -0.8691

Particle 1 ::   pos(duty)=   0.88017140    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88017140    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88017147    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017140


--------
Iteration No: 44
velocity =

   1.0e-07 *

   -0.0002
   -0.1347
   -0.5778
```

```
Particle 1 ::   pos(duty)=   0.88017140    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88017139    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88017141    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017140


--------
Iteration No: 45
velocity =

   1.0e-07 *

   -0.0001
   -0.0555
   -0.3166

Particle 1 ::   pos(duty)=   0.88017140    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88017138    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88017138    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017140


--------
Iteration No: 46
velocity =

   1.0e-07 *

   -0.0000
   -0.0048
   -0.1227

Particle 1 ::   pos(duty)=   0.88017140    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88017138    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88017137    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017140


--------
Iteration No: 47
velocity =

   1.0e-08 *

   -0.0002
    0.2151
   -0.0124

Particle 1 ::   pos(duty)=   0.88017140    fitness(Output Power)= 180.21989981
```

```
Particle 2 ::   pos(duty)=   0.88017139    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88017137    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017140


--------
Iteration No: 48
velocity =

   1.0e-08 *

   -0.0001
    0.3035
    0.5975

Particle 1 ::   pos(duty)=   0.88017140    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88017139    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88017137    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017140


--------
Iteration No: 49
velocity =

   1.0e-08 *

   -0.0000
    0.2870
    0.7829

Particle 1 ::   pos(duty)=   0.88017140    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88017139    fitness(Output Power)= 180.21989981
Particle 3 ::   pos(duty)=   0.88017138    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017140


--------
Iteration No: 50
velocity =

   1.0e-08 *

   -0.0000
    0.2213
    0.7190

Particle 1 ::   pos(duty)=   0.88017140    fitness(Output Power)= 180.21989981
Particle 2 ::   pos(duty)=   0.88017139    fitness(Output Power)= 180.21989981
```

```
Particle 3 ::   pos(duty)=   0.88017139    fitness(Output Power)= 180.21989981


Updated best Fitness Position =   0.88017140


--------
>>
```