```
Initial Parameters...
R(load) = 500 ohms
c1 = 0.20
c2 = 0.20
r = 0.40
w = 0.10

---------
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)=   0.80000000    fitness(Output Power)=  91.01744190

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

    0.0320
    0.0160
         0

Particle 1 ::   pos(duty)=   0.43200000    fitness(Output Power)=  17.91242412
Particle 2 ::   pos(duty)=   0.61600000    fitness(Output Power)=  31.65212326
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0326
    0.0163
         0

Particle 1 ::   pos(duty)=   0.46464000    fitness(Output Power)=  17.91242412
Particle 2 ::   pos(duty)=   0.63232000    fitness(Output Power)=  31.65212326
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0301
    0.0150
         0

Particle 1 ::   pos(duty)=   0.49473280    fitness(Output Power)=  17.91242412
```

```
Particle 2 ::   pos(duty)=   0.64736640    fitness(Output Power)=  31.65212326
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0274
    0.0137
         0

Particle 1 ::   pos(duty)=   0.52216346    fitness(Output Power)=  17.91242412
Particle 2 ::   pos(duty)=   0.66108173    fitness(Output Power)=  38.14194079
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0250
    0.0125
         0

Particle 1 ::   pos(duty)=   0.54713345    fitness(Output Power)=  24.91191014
Particle 2 ::   pos(duty)=   0.67356672    fitness(Output Power)=  38.14194079
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0227
    0.0114
         0

Particle 1 ::   pos(duty)=   0.56985977    fitness(Output Power)=  24.91191014
Particle 2 ::   pos(duty)=   0.68492988    fitness(Output Power)=  38.14194079
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000
```

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

    0.0207
    0.0103
         0

Particle 1 ::   pos(duty)=   0.59054362    fitness(Output Power)=  24.91191014
Particle 2 ::   pos(duty)=   0.69527181    fitness(Output Power)=  44.38993712
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0188
    0.0094
         0

Particle 1 ::   pos(duty)=   0.60936851    fitness(Output Power)=  24.91191014
Particle 2 ::   pos(duty)=   0.70468426    fitness(Output Power)=  44.38993712
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0171
    0.0086
         0

Particle 1 ::   pos(duty)=   0.62650152    fitness(Output Power)=  31.65212326
Particle 2 ::   pos(duty)=   0.71325076    fitness(Output Power)=  50.40439394
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0156
    0.0078
         0
```

```
Particle 1 ::   pos(duty)=   0.64209470    fitness(Output Power)=  31.65212326
Particle 2 ::   pos(duty)=   0.72104735    fitness(Output Power)=  50.40439394
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0142
    0.0071
         0

Particle 1 ::   pos(duty)=   0.65628644    fitness(Output Power)=  31.65212326
Particle 2 ::   pos(duty)=   0.72814322    fitness(Output Power)=  50.40439394
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0129
    0.0065
         0

Particle 1 ::   pos(duty)=   0.66920270    fitness(Output Power)=  38.14194079
Particle 2 ::   pos(duty)=   0.73460135    fitness(Output Power)=  56.19331028
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0118
    0.0059
         0

Particle 1 ::   pos(duty)=   0.68095811    fitness(Output Power)=  38.14194079
Particle 2 ::   pos(duty)=   0.74047906    fitness(Output Power)=  56.19331028
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000
```

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

    0.0107
    0.0053
         0

Particle 1 ::   pos(duty)=   0.69165700    fitness(Output Power)=  44.38993712
Particle 2 ::   pos(duty)=   0.74582850    fitness(Output Power)=  61.76441209
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0097
    0.0049
         0

Particle 1 ::   pos(duty)=   0.70139433    fitness(Output Power)=  44.38993712
Particle 2 ::   pos(duty)=   0.75069717    fitness(Output Power)=  61.76441209
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0089
    0.0044
         0

Particle 1 ::   pos(duty)=   0.71025652    fitness(Output Power)=  44.38993712
Particle 2 ::   pos(duty)=   0.75512826    fitness(Output Power)=  61.76441209
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


--------
Iteration No: 17
velocity =

    0.0081
```

```
    0.0040
         0

Particle 1 ::   pos(duty)=   0.71832222    fitness(Output Power)=  50.40439394
Particle 2 ::   pos(duty)=   0.75916111    fitness(Output Power)=  67.12516157
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0073
    0.0037
         0

Particle 1 ::   pos(duty)=   0.72566301    fitness(Output Power)=  50.40439394
Particle 2 ::   pos(duty)=   0.76283150    fitness(Output Power)=  67.12516157
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0067
    0.0033
         0

Particle 1 ::   pos(duty)=   0.73234405    fitness(Output Power)=  56.19331028
Particle 2 ::   pos(duty)=   0.76617202    fitness(Output Power)=  67.12516157
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


--------
Iteration No: 20
velocity =

    0.0061
    0.0030
         0

Particle 1 ::   pos(duty)=   0.73842463    fitness(Output Power)=  56.19331028
Particle 2 ::   pos(duty)=   0.76921231    fitness(Output Power)=  72.28276608
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190
```

```
Updated best Fitness Position =   0.80000000


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

    0.0055
    0.0028
         0

Particle 1 ::   pos(duty)=   0.74395872    fitness(Output Power)=  56.19331028
Particle 2 ::   pos(duty)=   0.77197936    fitness(Output Power)=  72.28276608
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0050
    0.0025
         0

Particle 1 ::   pos(duty)=   0.74899543    fitness(Output Power)=  61.76441209
Particle 2 ::   pos(duty)=   0.77449771    fitness(Output Power)=  72.28276608
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0046
    0.0023
         0

Particle 1 ::   pos(duty)=   0.75357946    fitness(Output Power)=  61.76441209
Particle 2 ::   pos(duty)=   0.77678973    fitness(Output Power)=  77.24418689
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

```
    0.0042
    0.0021
         0

Particle 1 ::   pos(duty)=   0.75775151    fitness(Output Power)=  67.12516157
Particle 2 ::   pos(duty)=   0.77887576    fitness(Output Power)=  77.24418689
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0038
    0.0019
         0

Particle 1 ::   pos(duty)=   0.76154859    fitness(Output Power)=  67.12516157
Particle 2 ::   pos(duty)=   0.78077430    fitness(Output Power)=  77.24418689
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0035
    0.0017
         0

Particle 1 ::   pos(duty)=   0.76500442    fitness(Output Power)=  67.12516157
Particle 2 ::   pos(duty)=   0.78250221    fitness(Output Power)=  77.24418689
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0031
    0.0016
         0

Particle 1 ::   pos(duty)=   0.76814964    fitness(Output Power)=  72.28276608
Particle 2 ::   pos(duty)=   0.78407482    fitness(Output Power)=  77.24418689
```

```
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0029
    0.0014
         0

Particle 1 ::   pos(duty)=   0.77101220    fitness(Output Power)=  72.28276608
Particle 2 ::   pos(duty)=   0.78550610    fitness(Output Power)=  82.01614752
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0026
    0.0013
         0

Particle 1 ::   pos(duty)=   0.77361747    fitness(Output Power)=  72.28276608
Particle 2 ::   pos(duty)=   0.78680874    fitness(Output Power)=  82.01614752
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0024
    0.0012
         0

Particle 1 ::   pos(duty)=   0.77598860    fitness(Output Power)=  72.28276608
Particle 2 ::   pos(duty)=   0.78799430    fitness(Output Power)=  82.01614752
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


--------
```

```
Iteration No: 31
velocity =

    0.0022
    0.0011
         0

Particle 1 ::   pos(duty)=   0.77814663    fitness(Output Power)=  77.24418689
Particle 2 ::   pos(duty)=   0.78907331    fitness(Output Power)=  82.01614752
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0020
    0.0010
         0

Particle 1 ::   pos(duty)=   0.78011070    fitness(Output Power)=  77.24418689
Particle 2 ::   pos(duty)=   0.79005535    fitness(Output Power)=  82.01614752
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0018
    0.0009
         0

Particle 1 ::   pos(duty)=   0.78189825    fitness(Output Power)=  77.24418689
Particle 2 ::   pos(duty)=   0.79094913    fitness(Output Power)=  82.01614752
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0016
    0.0008
         0
```

```
Particle 1 ::   pos(duty)=   0.78352515    fitness(Output Power)=  77.24418689
Particle 2 ::   pos(duty)=   0.79176257    fitness(Output Power)=  86.60514184
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0015
    0.0007
         0

Particle 1 ::   pos(duty)=   0.78500583    fitness(Output Power)=  82.01614752
Particle 2 ::   pos(duty)=   0.79250291    fitness(Output Power)=  86.60514184
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0013
    0.0007
         0

Particle 1 ::   pos(duty)=   0.78635343    fitness(Output Power)=  82.01614752
Particle 2 ::   pos(duty)=   0.79317671    fitness(Output Power)=  86.60514184
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0012
    0.0006
         0

Particle 1 ::   pos(duty)=   0.78757991    fitness(Output Power)=  82.01614752
Particle 2 ::   pos(duty)=   0.79378996    fitness(Output Power)=  86.60514184
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000
```

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

    0.0011
    0.0006
         0

Particle 1 ::   pos(duty)=   0.78869617    fitness(Output Power)=  82.01614752
Particle 2 ::   pos(duty)=   0.79434808    fitness(Output Power)=  86.60514184
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

    0.0010
    0.0005
         0

Particle 1 ::   pos(duty)=   0.78971210    fitness(Output Power)=  82.01614752
Particle 2 ::   pos(duty)=   0.79485605    fitness(Output Power)=  86.60514184
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

   1.0e-03 *

    0.9246
    0.4623
         0

Particle 1 ::   pos(duty)=   0.79063673    fitness(Output Power)=  82.01614752
Particle 2 ::   pos(duty)=   0.79531836    fitness(Output Power)=  86.60514184
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

```
   1.0e-03 *

    0.8415
    0.4208
         0

Particle 1 ::   pos(duty)=   0.79147825    fitness(Output Power)=  86.60514184
Particle 2 ::   pos(duty)=   0.79573913    fitness(Output Power)=  86.60514184
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

   1.0e-03 *

    0.7659
    0.3829
         0

Particle 1 ::   pos(duty)=   0.79224414    fitness(Output Power)=  86.60514184
Particle 2 ::   pos(duty)=   0.79612207    fitness(Output Power)=  86.60514184
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

   1.0e-03 *

    0.6971
    0.3485
         0

Particle 1 ::   pos(duty)=   0.79294120    fitness(Output Power)=  86.60514184
Particle 2 ::   pos(duty)=   0.79647060    fitness(Output Power)=  86.60514184
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

   1.0e-03 *
```

```
    0.6344
    0.3172
         0

Particle 1 ::   pos(duty)=   0.79357561    fitness(Output Power)=  86.60514184
Particle 2 ::   pos(duty)=   0.79678781    fitness(Output Power)=  86.60514184
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

   1.0e-03 *

    0.5774
    0.2887
         0

Particle 1 ::   pos(duty)=   0.79415300    fitness(Output Power)=  86.60514184
Particle 2 ::   pos(duty)=   0.79707650    fitness(Output Power)=  86.60514184
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.80000000


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

   1.0e-03 *

    0.5255
    0.2627
         0

Particle 1 ::   pos(duty)=   0.79467850    fitness(Output Power)=  86.60514184
Particle 2 ::   pos(duty)=   0.79733925    fitness(Output Power)=  91.01744190
Particle 3 ::   pos(duty)=   0.80000000    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.79733925


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

   1.0e-03 *
```

```
    0.2654
    0.0263
   -0.2129

Particle 1 ::   pos(duty)=   0.79494391    fitness(Output Power)=  86.60514184
Particle 2 ::   pos(duty)=   0.79736553    fitness(Output Power)=  91.01744190
Particle 3 ::   pos(duty)=   0.79978714    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.79736553


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

   1.0e-03 *

    0.2203
    0.0026
   -0.2150

Particle 1 ::   pos(duty)=   0.79516418    fitness(Output Power)=  86.60514184
Particle 2 ::   pos(duty)=   0.79736815    fitness(Output Power)=  91.01744190
Particle 3 ::   pos(duty)=   0.79957212    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.79736815


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

   1.0e-03 *

    0.1983
    0.0003
   -0.1978

Particle 1 ::   pos(duty)=   0.79536253    fitness(Output Power)=  86.60514184
Particle 2 ::   pos(duty)=   0.79736842    fitness(Output Power)=  91.01744190
Particle 3 ::   pos(duty)=   0.79937431    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.79736842


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

   1.0e-03 *

    0.1803
```

```
    0.0000
   -0.1803

Particle 1 ::   pos(duty)=   0.79554283    fitness(Output Power)=  86.60514184
Particle 2 ::   pos(duty)=   0.79736844    fitness(Output Power)=  91.01744190
Particle 3 ::   pos(duty)=   0.79919405    fitness(Output Power)=  91.01744190


Updated best Fitness Position =   0.79736844


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