```
D:\Python\Python\setroute\python.exe "D:\Python\Pycharm\setroute\PyCharm Community Edition 2021.2.3\plugins\python-ce\helpers\pydev\pydevconsole.py" --mode=client --port=28233

import sys; print('Python %s on %s' % (sys.version, sys.platform))
sys.path.extend(['E:\\1 □□ □□_□\\3 □□□_□□\\1 □□□□□□□\\1 □□□□□□□□□\\1_□□□□□□_□□□□\\1_LW _□□□□1\\4 □□□□\\3 python_code\\9 Code for this paper', 'E:/1 □□□□/3 □□□□□/1 □□□□□□/1 □□□□□□□□/1_□□□□□□_□□□□/1_LW _□□□□1/4 □□□□/3 python_code/9 Code for this paper'])

PyDev console: starting.

Python 3.9.7 (tags/v3.9.7:1016ef3, Aug 30 2021, 20:19:38) [MSC v.1929 64 bit (AMD64)] on win32
>>> runfile('E:/1 □□□□/3 □□□□□/1 □□□□□□□□/1 □□□□□□□□□/1_□□□□□□_□□□□/1_LW _□□□□1/4 □□□□/3 python_code/9 Code for this paper/main_RO_CCG_ExtendedByMe.py', wdir='E:/1 □□□□/3 □□□□□/1 □□□□□□/1 □□□□□□□□□/1_□□□□□□_□□□□/1_LW _□□□□1/4 □□□□/3 python_code/9 Code for this paper')
Backend TkAgg is interactive backend. Turning interactive mode on.
Waiting 5s.....

Optimize the  ./R_15_2.xlsx  instance by ECCG

      Master protblem status =  2 , is Optimal and MP obj =  716.0
The initial lb =  -inf       ub =  inf

The current iteration cnt =  0
      The SP model was solved Optimal 2 and SPObj =  715.0
      Deterministic Sub problem Status=  2 , is Optimal
      Master protblem status =  2 , is Optimal
      lb =  1327.0                  ub =  1327.0
       MPObj =  1327.0       MP_delete_Hua_Obj =  742.0       Hua =  585.0       SPObj =  715.0       Deter_SP_Obj =  585.0

ub - lb =  0.0

Iteration cycle stopped by termination criterion 1: Because ub - lb <= eps, the iteration stop, and cnt =  0
    i:  0.0  l_i:  5.0  p_i:  2.0  aI_i:  7.0       sol_a_i:  7.0  sol_g_i:  0.0  d_i:  27.0  sol_taoi:  7.0  sol_deltai:  27.0  sol_deltai - sol_taoi:  20.0  sol_taoP:  7.0  sol_deltaP:  17.0  sol_deltaP - sol_taoP:  10.0  cI_i:  5155933.0  sol_c_i:  5155933.0  sol_gp_i:  0.0  total work:  5272880.0  wasted work:  0.443579220463959
    i:  1.0  l_i:  7.0  p_i:  7.0  aI_i:  9.0       sol_a_i:  9.0  sol_g_i:  0.0  d_i:  26.0  sol_taoi:  9.0  sol_deltai:  26.0  sol_deltai - sol_taoi:  17.0  sol_taoP:  9.0  sol_deltaP:  14.0  sol_deltaP - sol_taoP:  5.0  cI_i:  4446863.0  sol_c_i:  4446863.0  sol_gp_i:  0.0  total work:  4613770.0  wasted work:  0.6330771798334117
    i:  2.0  l_i:  7.0  p_i:  20.0  aI_i:  36.0       sol_a_i:  36.0  sol_g_i:  0.0  d_i:  51.0  sol_taoi:  36.0  sol_deltai:  51.0  sol_deltai - sol_taoi:  15.0  sol_taoP:  36.0  sol_deltaP:  41.0  sol_deltaP - sol_taoP:  5.0  cI_i:  3705326.0  sol_c_i:  3705326.0  sol_gp_i:  0.0  total work:  3822838.0  wasted work:  0.44572226183793295
    i:  3.0  l_i:  7.0  p_i:  21.0  aI_i:  23.0       sol_a_i:  23.0  sol_g_i:  0.0  d_i:  32.0  sol_taoi:  23.0  sol_deltai:  32.0  sol_deltai - sol_taoi:  9.0  sol_taoP:  23.0  sol_deltaP:  25.0  sol_deltaP - sol_taoP:  2.0  cI_i:  2241580.0  sol_c_i:  2241580.0  sol_gp_i:  0.0  total work:  2636440.0  wasted work:  1.4977014458891535
    i:  4.0  l_i:  4.0  p_i:  -0.0  aI_i:  57.0       sol_a_i:  57.0  sol_g_i:  0.0  d_i:  79.0  sol_taoi:  57.0  sol_deltai:  79.0  sol_deltai - sol_taoi:  22.0  sol_taoP:  57.0  sol_deltaP:  65.0  sol_deltaP - sol_taoP:  8.0  cI_i:  5621271.0  sol_c_i:  5621271.0  sol_gp_i:  0.0  total work:  5800168.0  wasted work:  0.6785551728846475
    i:  5.0  l_i:  6.0  p_i:  14.0  aI_i:  10.0       sol_a_i:  10.0  sol_g_i:  0.0  d_i:  21.0  sol_taoi:  10.0  sol_deltai:  21.0  sol_deltai - sol_taoi:  11.0  sol_taoP:  10.0  sol_deltaP:  13.0  sol_deltaP - sol_taoP:  3.0  cI_i:  2745429.0  sol_c_i:  2745429.0  sol_gp_i:  0.0  total work:  2768262.0  wasted work:  0.0866054224636252
    i:  6.0  l_i:  5.0  p_i:  15.0  aI_i:  33.0       sol_a_i:  33.0  sol_g_i:  0.0  d_i:  49.0  sol_taoi:  36.0  sol_deltai:  52.0  sol_deltai - sol_taoi:  16.0  sol_taoP:  36.0  sol_deltaP:  43.0  sol_deltaP - sol_taoP:  7.0  cI_i:  4038170.0  sol_c_i:  4038170.0  sol_gp_i:  0.0  total work:  4218304.0  wasted work:  0.6832471059458968
    i:  7.0  l_i:  6.0  p_i:  8.0  aI_i:  55.0       sol_a_i:  55.0  sol_g_i:  0.0  d_i:  73.0  sol_taoi:  55.0  sol_deltai:  73.0  sol_deltai - sol_taoi:  18.0  sol_taoP:  55.0  sol_deltaP:  58.0  sol_deltaP - sol_taoP:  3.0  cI_i:  4620122.0  sol_c_i:  4620122.0  sol_gp_i:  0.0  total work:  5009236.0  wasted work:  1.4759069047655171
    i:  8.0  l_i:  5.0  p_i:  14.0  aI_i:  58.0       sol_a_i:  58.0  sol_g_i:  0.0  d_i:  74.0  sol_taoi:  58.0  sol_deltai:  71.0  sol_deltai - sol_taoi:  13.0  sol_taoP:  58.0  sol_deltaP:  63.0  sol_deltaP - sol_taoP:  5.0  cI_i:  3243346.0  sol_c_i:  3339189.464285715  sol_gp_i:  0.06058894082279842  total work:  3427372.0  wasted work:  0.33447579203124284
    i:  9.0  l_i:  4.0  p_i:  19.0  aI_i:  62.0       sol_a_i:  66.95238095238095  sol_g_i:  0.6190476190476191  d_i:  83.0  sol_taoi:  67.0  sol_deltai:  90.0  sol_deltai - sol_taoi:  23.0  sol_taoP:  67.0  sol_deltaP:  73.0  sol_deltaP - sol_taoP:  6.0  cI_i:  5908218.0  sol_c_i:  5908218.0  sol_gp_i:  0.0  total work:  6063812.0  wasted work:  0.5901670434373625
    i:  10.0  l_i:  7.0  p_i:  14.0  aI_i:  24.0       sol_a_i:  24.0  sol_g_i:  0.0  d_i:  45.0  sol_taoi:  24.0  sol_deltai:  35.0  sol_deltai - sol_taoi:  11.0  sol_taoP:  24.0  sol_deltaP:  27.0  sol_deltaP - sol_taoP:  3.0  cI_i:  2782021.0  sol_c_i:  3836597.0  sol_gp_i:  1.0  total work:  5141058.0  wasted work:  4.947812201301756
    i:  11.0  l_i:  6.0  p_i:  9.0  aI_i:  34.0       sol_a_i:  41.0  sol_g_i:  1.0  d_i:  43.0  sol_taoi:  41.0  sol_deltai:  49.0  sol_deltai - sol_taoi:  8.0  sol_taoP:  41.0  sol_deltaP:  43.0  sol_deltaP - sol_taoP:  2.0  cI_i:  1958731.0  sol_c_i:  3031906.0  sol_gp_i:  0.5815065553766225  total work:  3031906.0  wasted work:  0.0
    i:  12.0  l_i:  4.0  p_i:  28.0  aI_i:  12.0       sol_a_i:  17.0  sol_g_i:  0.7142857142857143  d_i:  42.0  sol_taoi:  17.0  sol_deltai:  40.0  sol_deltai - sol_taoi:  23.0  sol_taoP:  17.0  sol_deltaP:  22.0  sol_deltaP - sol_taoP:  5.0  cI_i:  5829348.0  sol_c_i:  6356636.0  sol_gp_i:  1.0  total work:  6591100.0  wasted work:  0.8893204472698032
    i:  13.0  l_i:  5.0  p_i:  -0.0  aI_i:  26.0       sol_a_i:  32.0  sol_g_i:  1.0  d_i:  45.0  sol_taoi:  32.0  sol_deltai:  51.0  sol_deltai - sol_taoi:  19.0  sol_taoP:  32.0  sol_deltaP:  42.0  sol_deltaP - sol_taoP:  10.0  cI_i:  4889883.0  sol_c_i:  5800168.0  sol_gp_i:  0.6905410326045728  total work:  5800168.0  wasted work:  0.0
    i:  14.0  l_i:  4.0  p_i:  5.0  aI_i:  29.0       sol_a_i:  35.0  sol_g_i:  0.6666666666666666  d_i:  44.0  sol_taoi:  35.0  sol_deltai:  45.0  sol_deltai - sol_taoi:  10.0  sol_taoP:  35.0  sol_deltaP:  39.0  sol_deltaP - sol_taoP:  4.0  cI_i:  2547089.0  sol_c_i:  3954660.0  sol_gp_i:  0.6673634711960067  total work:  3954660.0  wasted work:  0.0
Time: 116.000000
```