```
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=27429

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_14_2.xlsx  instance by ECCG

      Master protblem status =  2 , is Optimal and MP obj =  727.0
The initial lb =  -inf       ub =  inf

The current iteration cnt =  0
      The SP model was solved Optimal 2 and SPObj =  727.0
      Deterministic Sub problem Status=  2 , is Optimal
      Master protblem status =  2 , is Optimal
      lb =  1355.0                  ub =  1355.0
       MPObj =  1355.0       MP_delete_Hua_Obj =  757.0       Hua =  598.0       SPObj =  727.0       Deter_SP_Obj =  598.0

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:  3.0   aI_i:  4.0       sol_a_i:  4.0   sol_g_i:  0.0   d_i:  22.0   sol_taoi:  4.0   sol_deltai:  22.0   sol_deltai - sol_taoi:  18.0   sol_taoP:  4.0   sol_deltaP:  9.0   sol_deltaP - sol_taoP:  5.0   cI_i:  4685060.0     sol_c_i:  4685060.0    sol_gp_i:  0.0  total work:  4745592.0    wasted work:  0.2295974875210511
    i:  1.0  l_i:  4.0   p_i:  4.0   aI_i:  28.0       sol_a_i:  28.0  sol_g_i:  0.0   d_i:  50.0   sol_taoi:  28.0    sol_deltai:  50.0   sol_deltai - sol_taoi:  22.0   sol_taoP:  28.0    sol_deltaP:  39.0    sol_deltaP - sol_taoP:  11.0    cI_i:  5547998.0     sol_c_i:  5547998.0    sol_gp_i:  0.0  total work:  5800168.0    wasted work:  0.9564791916372077
    i:  2.0  l_i:  6.0   p_i:  8.0   aI_i:  41.0       sol_a_i:  41.0  sol_g_i:  0.0   d_i:  57.0   sol_taoi:  42.0    sol_deltai:  58.0   sol_deltai - sol_taoi:  16.0   sol_taoP:  42.0    sol_deltaP:  48.0    sol_deltaP - sol_taoP:  6.0   cI_i:  4024100.0     sol_c_i:  4024100.0    sol_gp_i:  0.0  total work:  4218304.0    wasted work:  0.7366145256482226
    i:  3.0  l_i:  6.0   p_i:  22.0    aI_i:  7.0        sol_a_i:  7.0   sol_g_i:  0.0   d_i:  18.0   sol_taoi:  7.0   sol_deltai:  18.0   sol_deltai - sol_taoi:  11.0   sol_taoP:  7.0    sol_deltaP:  12.0    sol_deltaP - sol_taoP:  5.0   cI_i:  2661338.0     sol_c_i:  2661338.0    sol_gp_i:  0.0  total work:  3427372.0    wasted work:  2.9055620457890186
    i:  4.0  l_i:  7.0   p_i:  10.0    aI_i:  19.0       sol_a_i:  19.0  sol_g_i:  0.0   d_i:  41.0   sol_taoi:  19.0    sol_deltai:  41.0   sol_deltai - sol_taoi:  22.0   sol_taoP:  19.0   sol_deltaP:  24.0    sol_deltaP - sol_taoP:  5.0   cI_i:  5638936.0     sol_c_i:  5638936.0    sol_gp_i:  0.0  total work:  6195634.0    wasted work:  2.1115519412541155
    i:  5.0  l_i:  4.0   p_i:  -0.0    aI_i:  33.0       sol_a_i:  33.0  sol_g_i:  0.0   d_i:  41.0   sol_taoi:  33.0    sol_deltai:  41.0   sol_deltai - sol_taoi:  8.0    sol_taoP:  33.0   sol_deltaP:  37.0    sol_deltaP - sol_taoP:  4.0   cI_i:  2066692.0     sol_c_i:  2066692.0    sol_gp_i:  0.0  total work:  2109152.0    wasted work:  0.1610505075025413
    i:  6.0  l_i:  6.0   p_i:  18.0    aI_i:  57.0       sol_a_i:  57.0  sol_g_i:  0.0   d_i:  73.0   sol_taoi:  57.0    sol_deltai:  73.0   sol_deltai - sol_taoi:  16.0   sol_taoP:  57.0   sol_deltaP:  60.0    sol_deltaP - sol_taoP:  3.0   cI_i:  4162240.0     sol_c_i:  4162240.0    sol_gp_i:  0.0  total work:  4218304.0    wasted work:  0.21265039219553641
    i:  7.0  l_i:  6.0   p_i:  28.0    aI_i:  24.0       sol_a_i:  28.0  sol_g_i:  0.8   d_i:  53.0   sol_taoi:  28.0    sol_deltai:  53.0   sol_deltai - sol_taoi:  25.0   sol_taoP:  28.0   sol_deltaP:  35.0    sol_deltaP - sol_taoP:  7.0   cI_i:  6393863.0     sol_c_i:  7589965.785714285    sol_gp_i:  0.7561350316552407    total work:  7645676.0    wasted work:  0.21130848525175824
    i:  8.0  l_i:  4.0   p_i:  17.0    aI_i:  26.0       sol_a_i:  28.0  sol_g_i:  0.25  d_i:  49.0   sol_taoi:  28.0    sol_deltai:  45.0   sol_deltai - sol_taoi:  17.0   sol_taoP:  28.0   sol_deltaP:  36.0    sol_deltaP - sol_taoP:  8.0   cI_i:  4476396.0     sol_c_i:  4745592.0    sol_gp_i:  0.25526467509216977   total work:  4745592.0    wasted work:  0.0
    i:  9.0  l_i:  5.0   p_i:  24.0    aI_i:  56.0       sol_a_i:  62.0  sol_g_i:  0.6   d_i:  71.0   sol_taoi:  62.0    sol_deltai:  71.0   sol_deltai - sol_taoi:  9.0    sol_taoP:  62.0   sol_deltaP:  65.0    sol_deltaP - sol_taoP:  3.0   cI_i:  2297903.0     sol_c_i:  2768262.0    sol_gp_i:  0.4460171670889533    total work:  2768262.0    wasted work:  0.0
    i:  10.0   l_i:  6.0   p_i:  8.0   aI_i:  62.0       sol_a_i:  65.0  sol_g_i:  0.42857142857142855   d_i:  75.0    sol_taoi:  65.0    sol_deltai:  78.0   sol_deltai - sol_taoi:  13.0   sol_taoP:  65.0    sol_deltaP:  68.0    sol_deltaP - sol_taoP:  3.0   cI_i:  3207790.0     sol_c_i:  4613770.0    sol_gp_i:  0.7618390166826695    total work:  4745592.0    wasted work:  0.5
    i:  11.0   l_i:  7.0   p_i:  1.0   aI_i:  64.0       sol_a_i:  68.0  sol_g_i:  0.5714285714285714   d_i:  78.0    sol_taoi:  68.0    sol_deltai:  82.0   sol_deltai - sol_taoi:  14.0   sol_taoP:  68.0    sol_deltaP:  73.0    sol_deltaP - sol_taoP:  5.0   cI_i:  3542983.0     sol_c_i:  3954660.0    sol_gp_i:  0.7807441094809667    total work:  3954660.0    wasted work:  0.0
    i:  12.0   l_i:  4.0   p_i:  14.0    aI_i:  43.0       sol_a_i:  47.0  sol_g_i:  0.6666666666666666   d_i:  70.0    sol_taoi:  47.0    sol_deltai:  74.0   sol_deltai - sol_taoi:  27.0   sol_taoP:  47.0    sol_deltaP:  53.0    sol_deltaP - sol_taoP:  6.0   cI_i:  6925738.0     sol_c_i:  7477264.25   sol_gp_i:  0.418387105339018   total work:  7909320.0    wasted work:  1.6387846869263096
    i:  13.0   l_i:  7.0   p_i:  21.0    aI_i:  28.0       sol_a_i:  34.15    sol_g_i:  0.6833333333333333   d_i:  46.0    sol_taoi:  35.0    sol_deltai:  51.0   sol_deltai - sol_taoi:  16.0   sol_taoP:  35.0    sol_deltaP:  39.0    sol_deltaP - sol_taoP:  4.0   cI_i:  4046170.0     sol_c_i:  5272880.0    sol_gp_i:  0.5816128946609822    total work:  5272880.0    wasted work:  0.0
Time: 93.000000
```