```
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=30951

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_16_3.xlsx  instance by ECCG

      Master protblem status =  2 , is Optimal and MP obj =  742.0
The initial lb =  -inf       ub =  inf

The current iteration cnt =  0
      The SP model was solved Optimal 2 and SPObj =  742.0
      Deterministic Sub problem Status=  2 , is Optimal
      Master protblem status =  2 , is Optimal
      lb =  1346.0                  ub =  1346.0
       MPObj =  1346.0       MP_delete_Hua_Obj =  772.0       Hua =  574.0       SPObj =  742.0       Deter_SP_Obj =  574.0

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: 7.0  p_i: 27.0  al_i: 48.0  sol_a_i: 48.0  sol_g_i: 0.0  d_i: 71.0  sol_taoi: 48.0  sol_deltai: 71.0  sol_deltai - sol_taoi: 23.0  sol_taoP: 49.0  sol_deltaP: 54.0  sol_deltaP - sol_taoP: 5.0  cl_i: 5990533.0  sol_c_i: 5990533.0  sol_gp_i: 0.0  total work: 6195634.0  wasted work: 0.7779467767140538
    i: 1.0  l_i: 6.0  p_i: 0.0  al_i: 55.0  sol_a_i: 55.0  sol_g_i: 0.0  d_i: 66.0  sol_taoi: 55.0  sol_deltai: 66.0  sol_deltai - sol_taoi: 11.0  sol_taoP: 55.0  sol_deltaP: 58.0  sol_deltaP - sol_taoP: 3.0  cl_i: 2692567.0  sol_c_i: 2692567.0  sol_gp_i: 0.0  total work: 2900084.0  wasted work: 0.7871106492087815
    i: 2.0  l_i: 5.0  p_i: 11.0  al_i: 0.0  sol_a_i: 0.0  sol_g_i: 0.0  d_i: 17.0  sol_taoi: 0.0  sol_deltai: 17.0  sol_deltai - sol_taoi: 17.0  sol_taoP: 0.0  sol_deltaP: 4.0  sol_deltaP - sol_taoP: 4.0  cl_i: 4304071.0  sol_c_i: 4304071.0  sol_gp_i: 0.0  total work: 5272880.0  wasted work: 3.6746863194307475
    i: 3.0  l_i: 6.0  p_i: -0.0  al_i: 33.0  sol_a_i: 33.0  sol_g_i: 0.0  d_i: 47.0  sol_taoi: 33.0  sol_deltai: 47.0  sol_deltai - sol_taoi: 14.0  sol_taoP: 33.0  sol_deltaP: 37.0  sol_deltaP - sol_taoP: 4.0  cl_i: 3526398.0  sol_c_i: 3526398.0  sol_gp_i: 0.0  total work: 3691016.0  wasted work: 0.6243950175236304
    i: 4.0  l_i: 5.0  p_i: 26.0  al_i: 4.0  sol_a_i: 4.0  sol_g_i: 0.0  d_i: 16.0  sol_taoi: 4.0  sol_deltai: 16.0  sol_deltai - sol_taoi: 12.0  sol_taoP: 4.0  sol_deltaP: 7.0  sol_deltaP - sol_taoP: 3.0  cl_i: 3081848.0  sol_c_i: 3081848.0  sol_gp_i: 0.0  total work: 3163728.0  wasted work: 0.31057031451502787
    i: 5.0  l_i: 6.0  p_i: 5.0  al_i: 2.0  sol_a_i: 2.0  sol_g_i: 0.0  d_i: 15.0  sol_taoi: 2.0  sol_deltai: 15.0  sol_deltai - sol_taoi: 13.0  sol_taoP: 2.0  sol_deltaP: 7.0  sol_deltaP - sol_taoP: 5.0  cl_i: 3373824.0  sol_c_i: 3373824.0  sol_gp_i: 0.0  total work: 3427372.0  wasted work: 0.2031072203425832
    i: 6.0  l_i: 7.0  p_i: 27.0  al_i: 17.0  sol_a_i: 17.0  sol_g_i: 0.0  d_i: 44.0  sol_taoi: 17.0  sol_deltai: 44.0  sol_deltai - sol_taoi: 27.0  sol_taoP: 17.0  sol_deltaP: 23.0  sol_deltaP - sol_taoP: 6.0  cl_i: 6908643.0  sol_c_i: 6908643.0  sol_gp_i: 0.0  total work: 7909320.0  wasted work: 3.7955614389100454
    i: 7.0  l_i: 4.0  p_i: 13.0  al_i: 63.0  sol_a_i: 63.0  sol_g_i: 0.0  d_i: 75.0  sol_taoi: 63.0  sol_deltai: 75.0  sol_deltai - sol_taoi: 12.0  sol_taoP: 64.0  sol_deltaP: 66.0  sol_deltaP - sol_taoP: 2.0  cl_i: 2932992.0  sol_c_i: 2932992.0  sol_gp_i: 0.0  total work: 3163728.0  wasted work: 0.8751801671951571
    i: 8.0  l_i: 5.0  p_i: 16.0  al_i: 16.0  sol_a_i: 16.0  sol_g_i: 0.0  d_i: 43.0  sol_taoi: 16.0  sol_deltai: 43.0  sol_deltai - sol_taoi: 27.0  sol_taoP: 16.0  sol_deltaP: 25.0  sol_deltaP - sol_taoP: 9.0  cl_i: 6964934.0  sol_c_i: 6964934.0  sol_gp_i: 0.0  total work: 7118388.0  wasted work: 0.5820500371713371
    i: 9.0  l_i: 5.0  p_i: -0.0  al_i: 4.0  sol_a_i: 5.0  sol_g_i: 0.2  d_i: 21.0  sol_taoi: 5.0  sol_deltai: 21.0  sol_deltai - sol_taoi: 16.0  sol_taoP: 5.0  sol_deltaP: 10.0  sol_deltaP - sol_taoP: 5.0  cl_i: 4081375.0  sol_c_i: 4081375.0  sol_gp_i: 0.0  total work: 4218304.0  wasted work: 0.5193708182245755
    i: 10.0  l_i: 5.0  p_i: 21.0  al_i: 7.0  sol_a_i: 12.0  sol_g_i: 0.625000000000001  d_i: 32.0  sol_taoi: 12.0  sol_deltai: 30.0  sol_deltai - sol_taoi: 18.0  sol_taoP: 12.0  sol_deltaP: 16.0  sol_deltaP - sol_taoP: 4.0  cl_i: 4628706.0  sol_c_i: 5272880.0  sol_gp_i: 0.6108369619638604  total work: 5404702.0  wasted work: 0.5
    i: 11.0  l_i: 4.0  p_i: 17.0  al_i: 62.0  sol_a_i: 71.75  sol_g_i: 0.9749999999999982  d_i: 83.0  sol_taoi: 72.0  sol_deltai: 92.0  sol_deltai - sol_taoi: 20.0  sol_taoP: 72.0  sol_deltaP: 77.0  sol_deltaP - sol_taoP: 5.0  cl_i: 5146195.0  sol_c_i: 6000361.757142857  sol_gp_i: 0.8099622570045752  total work: 6195634.0  wasted work: 0.7406663639496567
    i: 12.0  l_i: 4.0  p_i: 10.0  al_i: 28.0  sol_a_i: 29.0  sol_g_i: 0.14285714285714285  d_i: 40.0  sol_taoi: 29.0  sol_deltai: 38.0  sol_deltai - sol_taoi: 9.0  sol_taoP: 29.0  sol_deltaP: 32.0  sol_deltaP - sol_taoP: 3.0  cl_i: 2133316.0  sol_c_i: 2900084.0  sol_gp_i: 0.4154780147254848  total work: 3163728.0  wasted work: 1.0
    i: 13.0  l_i: 6.0  p_i: 17.0  al_i: 39.0  sol_a_i: 44.0  sol_g_i: 0.7142857142857143  d_i: 70.0  sol_taoi: 44.0  sol_deltai: 69.0  sol_deltai - sol_taoi: 25.0  sol_taoP: 44.0  sol_deltaP: 49.0  sol_deltaP - sol_taoP: 5.0  cl_i: 6461896.0  sol_c_i: 6989184.0  sol_gp_i: 1.0  total work: 7250210.0  wasted work: 0.9900699428016568
    i: 14.0  l_i: 7.0  p_i: 6.0  al_i: 43.0  sol_a_i: 48.39047619047619  sol_g_i: 0.8984126984126984  d_i: 63.0  sol_taoi: 49.0  sol_deltai: 68.0  sol_deltai - sol_taoi: 19.0  sol_taoP: 49.0  sol_deltaP: 57.0  sol_deltaP - sol_taoP: 8.0  cl_i: 4833331.0  sol_c_i: 5141058.0  sol_gp_i: 0.23344130721730819  total work: 5141058.0  wasted work: 0.0
    i: 15.0  l_i: 4.0  p_i: 23.0  al_i: 40.0  sol_a_i: 44.0  sol_g_i: 0.4444444444444444  d_i: 60.0  sol_taoi: 44.0  sol_deltai: 60.0  sol_deltai - sol_taoi: 16.0  sol_taoP: 44.0  sol_deltaP: 52.0  sol_deltaP - sol_taoP: 8.0  cl_i: 4101707.0  sol_c_i: 6063812.0  sol_gp_i: 0.9302814590887712  total work: 6195634.0  wasted work: 0.5
Time: 145.000000
```