**Change the price parameter of supplier 6**

* **P6=81**

Lambda=15;

Lr=1;

Lw=[2,3,3,4,6,7];

Ow=[1500,1000,2000,800,4000,4800];

Pw=[84,85.0,83,83.5,82.8,81];

%Pw=[84.0,84.5,83.2,83.5,82.8,82.5];

Or=500;

BigM=[180,160,150,190,180,210];

qw=[0.970,0.975,0.945,0.955,0.950,0.945]; %Perfect Rate

qr=0.95; %Target Perfect Rate

Node Left Iinf Objective Best Relaxatn Best Incumbent

------ ------ ------ -------------- -------------- --------------

1 0 11 -1.812037e+003 -1.812037e+003 1.349089e+005

10 9 INFEASIBLE pr -1.811321e+003 -1.347067e+003

20 15 7 -1.761537e+003 -1.761797e+003 -1.395498e+003

30 23 8 -1.500115e+003 -1.747432e+003 -1.395498e+003

40 33 6 -1.657468e+003 -1.659452e+003 -1.462447e+003

50 43 6 -1.591740e+003 -1.657542e+003 -1.466972e+003

60 53 7 -1.649404e+003 -1.650049e+003 -1.466972e+003

70 55 7 -1.643658e+003 -1.643777e+003 -1.543370e+003

80 59 5 -1.587915e+003 -1.637085e+003 -1.549172e+003

90 63 -1.545336e+003 pr -1.628307e+003 -1.549674e+003

100 53 -1.519223e+003 pr -1.591380e+003 -1.549674e+003

110 59 INFEASIBLE pr -1.587594e+003 -1.549674e+003

120 49 INFEASIBLE pr -1.586378e+003 -1.549674e+003

130 39 -1.505404e+003 pr -1.571162e+003 -1.549674e+003

140 29 -1.427436e+003 pr -1.554829e+003 -1.549674e+003

150 31 -1.452196e+003 pr -1.551100e+003 -1.549674e+003

160 25 -1.450991e+003 pr -1.550493e+003 -1.549674e+003

170 19 -1.548958e+003 pr -1.549924e+003 -1.549674e+003

EXIT: Optimal solution found.

Final Statistics for MIP

------------------------

Final objective value = -1.54967430193086e+003

Final integrality gap (abs / rel) =-1.08e-008 / -6.98e-012 (-0.00)

# of nodes processed = 177

# of subproblems processed = 177

Total program time (secs) = 618.935 ( 623.832 CPU time)

Time spent in evaluations (secs) = 618.784

===========================================================================

>> x

x =

7 0 0 6 0 17 1 0 0 1 0 1 3 120 -3

* **P6=80**

Node Left Iinf Objective Best Relaxatn Best Incumbent

------ ------ ------ -------------- -------------- --------------

1 0 11 -1.957744e+003 -1.957744e+003 1.348339e+005

10 9 9 -1.956677e+003 -1.957331e+003 -1.514128e+003

20 19 INFEASIBLE pr -1.956813e+003 -1.622969e+003

30 23 7 -1.953769e+003 -1.956054e+003 -1.622969e+003

40 31 INFEASIBLE pr -1.955118e+003 -1.622969e+003

50 37 8 -1.841138e+003 -1.907402e+003 -1.622969e+003

60 43 6 -1.903332e+003 -1.903689e+003 -1.622969e+003

70 47 6 -1.897194e+003 -1.902041e+003 -1.622969e+003

80 49 8 -1.897012e+003 -1.899221e+003 -1.622969e+003

90 51 11 -1.867011e+003 -1.867489e+003 -1.622969e+003

100 55 6 -1.775593e+003 -1.837272e+003 -1.691072e+003

110 65 INFEASIBLE pr -1.825972e+003 -1.694090e+003

120 67 -1.483240e+003 pr -1.820980e+003 -1.694090e+003

130 69 INFEASIBLE pr -1.811443e+003 -1.694090e+003

140 69 INFEASIBLE pr -1.794552e+003 -1.726238e+003

150 69 -1.404428e+003 pr -1.792293e+003 -1.726238e+003

160 67 5 -1.778963e+003 -1.787574e+003 -1.726238e+003

170 67 5 -1.758996e+003 -1.785123e+003 -1.726238e+003

180 61 -1.451983e+003 pr -1.778187e+003 -1.726238e+003

190 53 -1.726061e+003 pr -1.766173e+003 -1.726238e+003

200 45 5 -1.754049e+003 -1.754099e+003 -1.730783e+003

210 39 -1.716406e+003 pr -1.739834e+003 -1.730783e+003

220 31 5 -1.731112e+003 -1.734742e+003 -1.730783e+003

230 29 -1.729139e+003 pr -1.731341e+003 -1.730783e+003

240 29 3 -1.731060e+003 -1.731112e+003 -1.731036e+003

EXIT: Optimal solution found.

Final Statistics for MIP

------------------------

Final objective value = -1.73103605058927e+003

Final integrality gap (abs / rel) =-5.84e-008 / -3.38e-011 (-0.00)

# of nodes processed = 249

# of subproblems processed = 249

Total program time (secs) = 988.468 ( 995.130 CPU time)

Time spent in evaluations (secs) = 987.389

===========================================================================

>> x

x =

6 0 0 5 0 18 1 0 0 1 0 1 4 122 -3

**P6=80.5**

Node Left Iinf Objective Best Relaxatn Best Incumbent

------ ------ ------ -------------- -------------- --------------

1 0 11 -1.881977e+003 -1.881977e+003 1.348714e+005

10 9 8 -1.628340e+003 -1.834666e+003 -1.406120e+003

20 19 11 -1.738076e+003 -1.824272e+003 -1.499692e+003

30 25 9 -1.736038e+003 -1.739486e+003 -1.560622e+003

40 29 INFEASIBLE pr -1.738212e+003 -1.627377e+003

50 25 5 -1.728006e+003 -1.728098e+003 -1.627377e+003

60 29 4 -1.722535e+003 -1.722607e+003 -1.627377e+003

70 31 7 -1.648350e+003 -1.717282e+003 -1.627377e+003

80 33 -1.616695e+003 pr -1.690896e+003 -1.627377e+003

90 31 -1.330446e+003 pr -1.686527e+003 -1.627377e+003

100 25 -1.547525e+003 pr -1.647791e+003 -1.627377e+003

110 23 4 -1.638727e+003 -1.639460e+003 -1.627377e+003

120 33 3 -1.636276e+003 -1.639183e+003 -1.636052e+003

130 39 2 -1.638216e+003 -1.638657e+003 -1.637745e+003

140 37 4.959640e+003 pr -1.638216e+003 -1.637745e+003

150 29 -1.634581e+003 pr -1.637950e+003 -1.637745e+003

EXIT: Optimal solution found.

Final Statistics for MIP

------------------------

Final objective value = -1.63774458397529e+003

Final integrality gap (abs / rel) =-2.32e-008 / -1.42e-011 (-0.00)

# of nodes processed = 157

# of subproblems processed = 157

Total program time (secs) = 634.362 ( 637.186 CPU time)

Time spent in evaluations (secs) = 634.007

===========================================================================

>> x

x =

6 0 0 6 0 18 1 0 0 1 0 1 4 118 -2

**P=81.5**

Node Left Iinf Objective Best Relaxatn Best Incumbent

------ ------ ------ -------------- -------------- --------------

1 0 11 -1.748877e+003 -1.748877e+003 1.349464e+005

10 9 9 -1.747343e+003 -1.748058e+003 -1.228771e+003

20 19 8 -1.627769e+003 -1.707082e+003 -1.239070e+003

30 29 11 -1.587828e+003 -1.678578e+003 -1.328268e+003

40 37 6 -1.483550e+003 -1.670221e+003 -1.375845e+003

50 45 6 -1.628139e+003 -1.628264e+003 -1.375845e+003

60 53 -1.483801e+003 pr -1.619821e+003 -1.524895e+003

70 47 INFEASIBLE pr -1.609292e+003 -1.528328e+003

80 37 7 -1.563286e+003 -1.563977e+003 -1.528328e+003

90 35 -1.497070e+003 pr -1.563543e+003 -1.528328e+003

100 29 6 -1.559125e+003 -1.559191e+003 -1.528328e+003

110 27 -1.417258e+003 pr -1.558439e+003 -1.528328e+003

120 19 -1.526164e+003 pr -1.529220e+003 -1.528328e+003

EXIT: Optimal solution found.

Final Statistics for MIP

------------------------

Final objective value = -1.52881769235806e+003

Final integrality gap (abs / rel) =-5.93e-009 / -3.88e-012 (-0.00)

# of nodes processed = 129

# of subproblems processed = 129

Total program time (secs) = 470.913 ( 471.560 CPU time)

Time spent in evaluations (secs) = 471.284

===========================================================================

>> x

x =

7 0 0 11 0 0 1 0 0 1 0 0 3 121 -3