**Supplier 6**

**Set supplier 6 lead time to be 0.5. The results shows the same as the original one without selecting supplier 6**

Lambda=10;

Lr=1;

Lw=[0.5,2,3,3,4,6];

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

Pw=[82.5,84,85,83,83.5,82.8];

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

Or=500;

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

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

qr=0.950; %Target Perfect Rate

Node Left Iinf Objective Best Relaxatn Best Incumbent

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

1 0 12 -7.980437e+002 -7.980437e+002 4.740604e+004

10 9 11 -7.314067e+002 -7.971731e+002 9.744366e+001

20 19 7 -7.489870e+002 -7.506421e+002 -2.120270e+002

30 29 8 -7.490082e+002 -7.497187e+002 -2.570405e+002

40 39 7 -6.913432e+002 -7.483657e+002 -2.570405e+002

50 49 9 -7.051459e+002 -7.314067e+002 -2.786819e+002

60 59 5 -6.936754e+002 -6.944073e+002 -2.786819e+002

\* 60 59 r -5.185117e+002

70 59 INFEASIBLE pr -6.928471e+002 -5.449997e+002

80 61 4 -6.868102e+002 -6.905913e+002 -5.587319e+002

90 63 4 -6.894858e+002 -6.895650e+002 -5.587319e+002

100 65 6 -6.884349e+002 -6.885282e+002 -5.587319e+002

110 63 INFEASIBLE pr -6.868947e+002 -5.587319e+002

120 61 INFEASIBLE pr -6.864694e+002 -5.587319e+002

130 55 6 -6.660228e+002 -6.861687e+002 -5.587319e+002

140 53 6 -6.519206e+002 -6.670256e+002 -5.587319e+002

150 53 INFEASIBLE pr -6.514044e+002 -5.587319e+002

160 53 INFEASIBLE pr -6.322014e+002 -5.587319e+002

170 43 -5.083726e+002 pr -5.963316e+002 -5.587319e+002

180 33 3 -5.603810e+002 -5.605517e+002 -5.587319e+002

\* 180 33 r -5.587578e+002

190 33 -5.588226e+002 pr -5.600329e+002 -5.589436e+002

EXIT: Optimal solution found.

Final Statistics for MIP

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

Final objective value = -5.58943574031017e+002

Final integrality gap (abs / rel) = 3.05e-005 / 5.45e-008 ( 0.00)

# of nodes processed = 197

# of subproblems processed = 197

Total program time (secs) = 853.056 ( 857.007 CPU time)

Time spent in evaluations (secs) = 852.857

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

>> x

x =

0 6 0 0 9 0 0 1 0 0 1 0 2 101 -5

**Supplier 5 analysis**

**Set supplier 5 lead time to be 0.5. The results shows the same as the original one without selecting supplier 5**

Lr=1;

Lw=[**0.5**,2,3,3,4,7];

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

Pw=[82.8,84,85,83,83.5,82.5];

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

Or=500;

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

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

qr=0.950; %Target Perfect Rate

**Node Left Iinf Objective Best Relaxatn Best Incumbent**

**------ ------ ------ -------------- -------------- --------------**

**1 0 12 -7.950297e+002 -7.950297e+002 5.945604e+004**

**10 9 11 -7.941701e+002 -7.945774e+002 2.238386e+002**

**20 19 10 -7.936244e+002 -7.941701e+002 1.739911e+002**

**30 29 9 -7.256826e+002 -7.938854e+002 1.739911e+002**

**40 37 INFEASIBLE pr -7.937162e+002 1.019953e+002**

**50 39 INFEASIBLE pr -7.935062e+002 1.019953e+002**

**60 41 INFEASIBLE pr -7.930038e+002 1.019953e+002**

**70 49 6 -7.432585e+002 -7.441735e+002 1.019953e+002**

**80 59 INFEASIBLE pr -7.436863e+002 -2.017105e+002**

**90 61 INFEASIBLE pr -7.432585e+002 -2.256963e+002**

**100 63 7 -6.931863e+002 -7.407335e+002 -2.256963e+002**

**110 69 7 -7.391944e+002 -7.400093e+002 -2.256963e+002**

**120 79 10 -6.660308e+002 -7.377656e+002 -2.256963e+002**

**130 81 7 -6.629761e+002 -7.321906e+002 -2.256963e+002**

**140 91 10 -6.167970e+002 -7.253532e+002 -2.256963e+002**

**150 97 7 -6.234344e+002 -6.939852e+002 -2.256963e+002**

**\* 150 97 r -2.391922e+002**

**160 105 INFEASIBLE pr -6.754111e+002 -2.538866e+002**

**170 113 INFEASIBLE pr -6.600428e+002 -2.538866e+002**

**180 121 8 -5.711231e+002 -6.402646e+002 -2.538866e+002**

**190 131 5 -6.289469e+002 -6.312678e+002 -4.747175e+002**

**200 129 INFEASIBLE pr -6.256772e+002 -4.770431e+002**

**210 127 5 -4.898101e+002 -6.162630e+002 -4.770431e+002**

**220 127 4 -5.425478e+002 -6.012820e+002 -4.770431e+002**

**230 127 6 -5.389117e+002 -5.711231e+002 -4.984405e+002**

**240 127 -4.431096e+002 pr -5.485153e+002 -5.432576e+002**

**250 125 2 -5.433042e+002 -5.435532e+002 -5.432748e+002**

**EXIT: Optimal solution found.**

**Final Statistics for MIP**

**------------------------**

**Final objective value = -5.43274828013742e+002**

**Final integrality gap (abs / rel) =-6.63e-008 / -1.22e-010 (-0.00)**

**# of nodes processed = 257**

**# of subproblems processed = 257**

**Total program time (secs) = 1266.041 ( 1269.443 CPU time)**

**Time spent in evaluations (secs) = 1266.020**

**===========================================================================**

**>> x**

**x =**

**0 6 0 0 10 0 0 1 0 0 1 0 2 101 -5**

**Set supplier 5 lead time to be 1. The results shows the same as the original one without selecting supplier 5**

Lr=1;

Lw=[1,2,3,3,4,7];

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

Pw=[82.8,84,85,83,83.5,82.5];

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

Or=500;

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

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

qr=0.950; %Target Perfect Rate

Node Left Iinf Objective Best Relaxatn Best Incumbent

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

1 0 13 -7.720798e+002 -7.720798e+002 5.968910e+004

10 9 10 -7.700272e+002 -7.719124e+002 2.135104e+002

20 19 10 -7.686724e+002 -7.699967e+002 2.135104e+002

30 29 8 -7.680537e+002 -7.696338e+002 1.657242e+002

40 39 9 -6.678479e+002 -7.691713e+002 1.577948e+002

50 49 8 -7.678398e+002 -7.689235e+002 1.577948e+002

60 59 6 -6.972874e+002 -7.687736e+002 1.577948e+002

70 69 11 -7.672200e+002 -7.686643e+002 1.465799e+002

80 79 9 -7.673393e+002 -7.682383e+002 1.376420e+002

90 89 10 -6.836936e+002 -7.679939e+002 1.360037e+002

100 95 9 -7.055427e+002 -7.678451e+002 1.360037e+002

110 101 10 -7.055640e+002 -7.677538e+002 1.360037e+002

120 109 INFEASIBLE pr -7.673393e+002 1.272158e+002

130 113 10 -6.916748e+002 -7.670776e+002 1.272158e+002

140 119 6 -6.965208e+002 -7.187634e+002 -4.135815e+001

150 123 9 -7.028690e+002 -7.184821e+002 -4.184957e+001

160 127 INFEASIBLE pr -7.179521e+002 -5.487193e+001

170 131 6 -7.021247e+002 -7.176267e+002 -5.487193e+001

180 135 6 -7.012701e+002 -7.169562e+002 -5.487193e+001

190 141 INFEASIBLE pr -7.154241e+002 -5.487193e+001

200 145 INFEASIBLE pr -7.140400e+002 -5.487193e+001

210 151 INFEASIBLE pr -7.121354e+002 -5.487193e+001

220 155 7 -6.325836e+002 -7.055432e+002 -5.487193e+001

230 165 7 -6.678226e+002 -7.012701e+002 -1.605028e+002

\* 230 165 r -2.252844e+002

240 175 8 -6.337434e+002 -6.990808e+002 -2.256963e+002

250 181 6 -5.738057e+002 -6.962353e+002 -2.570310e+002

260 191 7 -6.121284e+002 -6.918103e+002 -2.746591e+002

270 201 5 -6.724052e+002 -6.745825e+002 -2.996532e+002

\* 270 201 r -4.801932e+002

280 205 INFEASIBLE pr -6.721264e+002 -5.432576e+002

290 205 INFEASIBLE pr -6.676085e+002 -5.432576e+002

300 199 -5.150518e+002 pr -6.656802e+002 -5.432576e+002

310 193 5 -6.343146e+002 -6.606032e+002 -5.432576e+002

320 187 INFEASIBLE pr -6.343146e+002 -5.432576e+002

330 181 9 -5.745767e+002 -6.327128e+002 -5.432576e+002

340 177 INFEASIBLE pr -6.282616e+002 -5.432576e+002

350 169 INFEASIBLE pr -6.139524e+002 -5.432576e+002

360 165 -5.245859e+002 pr -6.117717e+002 -5.432576e+002

370 161 INFEASIBLE pr -5.997593e+002 -5.432576e+002

380 151 INFEASIBLE pr -5.939524e+002 -5.432576e+002

390 141 INFEASIBLE pr -5.885480e+002 -5.432576e+002

400 131 5 -5.715967e+002 -5.769576e+002 -5.432576e+002

410 125 -4.149643e+002 pr -5.745767e+002 -5.432576e+002

420 117 INFEASIBLE pr -5.723860e+002 -5.432576e+002

430 107 -5.385427e+002 pr -5.707440e+002 -5.432576e+002

440 101 -5.431632e+002 pr -5.445615e+002 -5.432576e+002

450 99 -5.431222e+002 pr -5.433568e+002 -5.432748e+002

EXIT: Optimal solution found.

Final Statistics for MIP

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

Final objective value = -5.43274828013742e+002

Final integrality gap (abs / rel) =-1.21e-008 / -2.23e-011 (-0.00)

# of nodes processed = 453

# of subproblems processed = 453

Total program time (secs) = 2166.894 ( 2175.496 CPU time)

Time spent in evaluations (secs) = 2165.744

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

>> x

x =

0 6 0 0 10 0 0 1 0 0 1 0 2 101 -5