AMPL Code:

# Transportation Problem

var x1; # variable for M1 to S1

var x2; # variable for M1 to S2

var y1; # variable for M2 to S1

var y2; # variable for M2 to S2

minimize cost: 2400\*x1+2500\*x2+2000\*y1+1900\*y2;

subject to

production\_of\_M1: x1+x2=40;

production\_of\_M2: y1+y2=60;

ship\_ability\_from\_M1\_to\_S1: x1<=30;

ship\_ability\_from\_M1\_to\_S2: x2<=30;

ship\_ability\_from\_M2\_to\_S1: y1<=50;

ship\_ability\_from\_M2\_to\_S2: y2<=50;

ship\_ability\_from\_S1\_to\_P: x1+y1<=70;

ship\_ability\_from\_S2\_to\_P: x2+y2<=70;

nonneg1: x1>=0;

nonneg2: x2>=0;

nonneg3: y1>=0;

nonneg4: y2>=0;

AMPL Ourput:

ampl: reset;

ampl: option solver cplex;

ampl: model transportation\_problem.mod

ampl: solve;

CPLEX 12.7.1.0: optimal solution; objective 212000

0 dual simplex iterations (0 in phase I)

ampl: display cost;

cost = 212000

ampl: display x1,x2,y1,y2;

x1 = 30

x2 = 10

y1 = 10

y2 = 50

ampl: display \_varname, \_var.rc,\_var.down,\_var.current,\_var.up;

ampl: display \_varname, \_var.rc;

: \_varname \_var.rc    :=

1   x1         0

2   x2         0

3   y1         0

4   y2         0

;

ampl: display \_conname,\_con, \_con.slack;

:             \_conname            \_con \_con.slack    :=

1    production\_of\_M1             2500       0

2    production\_of\_M2             2000       0

3    ship\_ability\_from\_M1\_to\_S1   -100       0

4    ship\_ability\_from\_M1\_to\_S2      0      20

5    ship\_ability\_from\_M2\_to\_S1      0      40

6    ship\_ability\_from\_M2\_to\_S2   -100       0

7    ship\_ability\_from\_S1\_to\_P       0      30

8    ship\_ability\_from\_S2\_to\_P       0      10

9    nonneg1                         0      30

10   nonneg2                         0      10

11   nonneg3                         0      10

12   nonneg4                         0      50

;