**附录A:**

schedule.mod:

#/ \* Parameters \* /

param n>0 integer; #/ \* the number of course \* /

param t>0 integer; #/ \* the number of time point \* /

param m>0 integer; #/ \* the maximum number of choosed course \* /

#/ \* Sets \* /

set courses:=1..n;

set timepoints:=1..t;

#/\* parametry \*/

param occupy{timepoints,courses}>=0;

#/\* Decision variables \* /

#/ \* variable \* /

var choose{courses} >=0 binary;

#/\* Objective function \* /

maximize Value: sum{j in courses} choose[j];

#/ \* Constraints \* /

s.t. ResourceConstraints{i in timepoints}: sum{j in courses} occupy[i,j] \* choose[j] <= m ;

solve;

display{j in courses: choose[j]=1} choose[j];

schedule.dat:

data;

param n:= 10;# / \* the number of course \* /

param t:= 20;# / \* the number of time point \* /

param m:= 2;# / \* the maximum number of choosed course \* /

param occupy: 1 2 3 4 5 6 7 8 9 10:=

1 0 1 0 0 0 0 0 0 0 0

2 0 1 0 0 0 0 0 0 0 1

3 0 1 0 0 0 0 1 0 0 1

4 0 1 0 0 1 0 1 0 0 1

5 0 0 0 0 1 0 1 0 0 1

6 0 0 0 1 1 0 1 0 0 1

7 0 0 0 1 1 0 1 1 0 1

8 0 0 0 1 1 1 1 1 0 1

9 0 0 0 1 1 1 1 1 1 1

10 0 0 0 1 1 1 1 1 0 1

11 0 0 0 1 1 1 0 1 0 1

12 1 0 0 1 1 1 0 1 0 1

13 1 0 0 1 0 1 0 1 0 1

14 1 0 1 1 0 1 0 1 0 1

15 1 0 1 1 0 0 0 1 0 1

16 1 0 0 1 0 0 0 1 0 1

17 1 0 0 0 0 0 0 1 0 1

18 0 0 0 0 0 0 0 1 0 1

19 0 0 0 0 0 0 0 0 0 1

20 0 0 0 0 0 0 0 0 0 0;

end;

**附录B:**

gas.mod:

param n>0 integer;

param r>=0;

set D:=1..n;

set D1:=2..n;

param distance{D} >=0;

var m>=0;

var station{D}>=0;

minimize Value: m;

s.t. stationConstraints{j in D1}:station[j]-station[j-1] <= m;

s.t. distance1Constraints{i in D}:distance[i]-station[i] <= r;

s.t. distance2Constraints{i in D}:station[i]-distance[i] <= r;

solve;

display:m;

display{j in D}: station[j];

gas.dat:

data;

param n:=10;

param r:=5.0;

param distance:= [1] 10.0 [2] 25.89 [3] 39.48 [4] 58.42 [5] 69.72 [6] 82.82 [7] 99.6 [8] 116.77 [9] 128.52 [10] 147.85;end;