IOE 510 HW # 10 Winter 2002 Due. 3. Apr.

#1

5.1 Solve the following LPs by the revised simplex method.

(c)

x_1	x_2	x_3	x_4	x_5	x_6	$-z$	
1	2	0	1	0	−6	0	11
0	1	1	3	−2	−1	0	6
1	2	1	3	−1	−5	0	13
3	2	−3	−6	10	−5	1	0

$x_j \geqq 0$ for all j; minimize z.

#2

7.2 Find a feasible solution to the following system of linear constraints using a method discussed in this chapter. (Use revised simplex method)

x_1	x_2	x_3	x_4	
1	0	1	−1	$= 3$
1	1	2	0	$= 10$
1	1	1	−2	$\geqq 14$

$x_j \geqq 0$ for all j

If the system is infeasible, from the information in the final tableau show how the data in the original RHS constants vector can be modified to make the system feasible.

#3

7.17 Solve the following LP. (Use revised simplex method)

$$
\begin{array}{lrrrrrrl}
\text{Minimize} & -2x_1 & +2x_2 & +x_3 & & & & \\
\text{subject to} & & x_2 & +x_3 & -x_4 & +x_5 & +2x_6 & \leqq 6 \\
& x_1 & & +x_3 & -x_4 & +x_5 & & = 5 \\
& -x_1 & +x_2 & -x_3 & +x_4 & & +x_6 & = -3 \\
& & & x_j \geqq 0 \text{ for all } j & & & &
\end{array}
$$

If possible, determine a feasible solution where the objective function has value $= -200$.