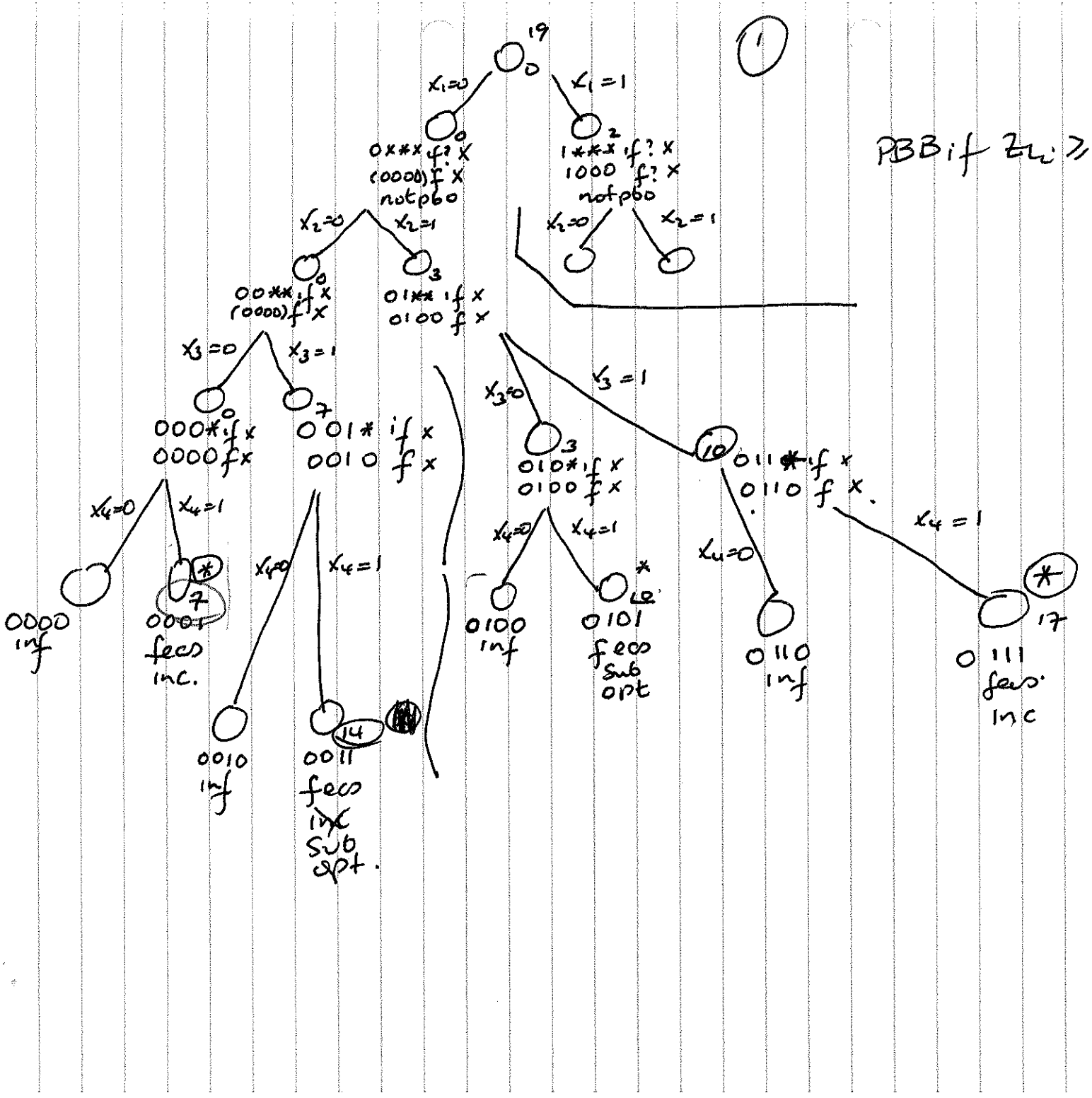
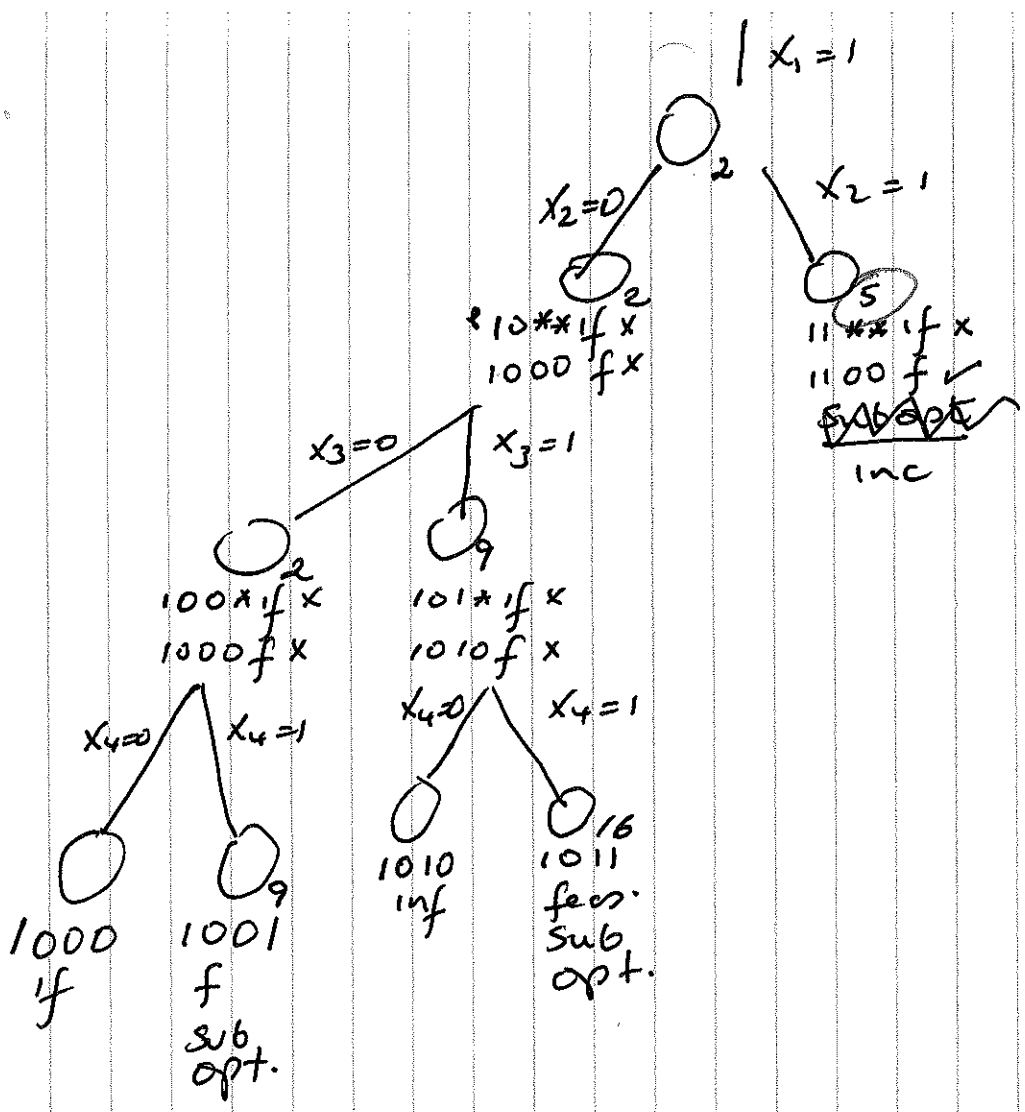
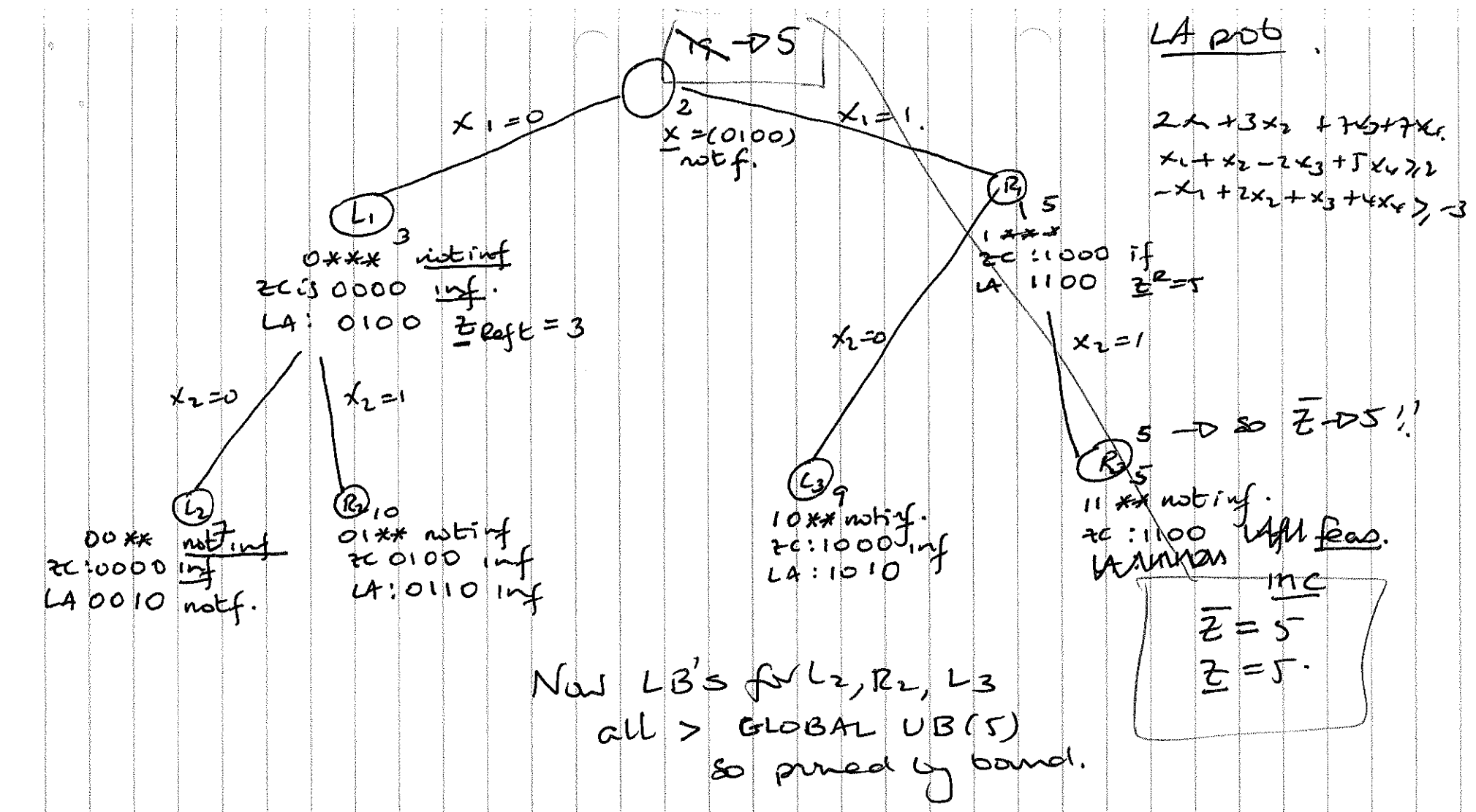

PBB if $Z_{LI} \geq Z_U$
19
$x_1=0$
$x_1=1$
0
2
0***, if? x
(0000) f x
notpbo
1***, if? x
1000 f? x
notpbo
$x_2=0$
$x_2=1$
0
3
00**, if x
(0000) f x
01**, if x
0100 f x
$x_3=0$
$x_3=1$
0
7
3
10
000*, if x
0000 f x
001*, if x
0010 f x
010*, if x
0100 f x
011*, if x
0110 f x
$x_4=0$
$x_4=1$
0000
inf
7
0001
fees
inc.
0010
inf
14
0011
fees
inc
sub
opt.
0100
inf
0101
fees
sub
opt
0110
inf
17
0111
fees.
inc


$x_1 = 1$
2
$x_2 = 0$
$x_2 = 1$
2
10** if x
1000 f x
5
11** if x
1100 f x
subopt
inc
$x_3 = 0$
$x_3 = 1$
2
100* if x
1000 f x
9
101* if x
1010 f x
$x_4 = 0$
$x_4 = 1$
$x_4 = 0$
$x_4 = 1$
1000
if
9
1001
f
sub
opt.
1010
inf
16
1011
feas.
sub
opt.


LA prob.
2x1 + 3x2 + 7x3 + 7x4.
x1 + x2 − 2x3 + 5x4 ≥ 2
−x1 + 2x2 + x3 + 4x4 ≥ −3
z* → 5
2
x = (0100)
not f.
x1 = 0
x1 = 1
L1
3
0***
not inf
zc: 0000 inf.
LA: 0100 z̄ left = 3
R1
5
1***
zc: 1000 if
LA 1100 z̄R = 5
x2 = 0
x2 = 1
x2 = 0
x2 = 1
L2
00**
not inf
zc: 0000 inf
LA 0010 not f.
R2
10
01** not inf
zc 0100 inf
LA: 0110 inf
L3
9
10** not inf.
zc: 1000 inf
LA: 1010
R3
5
11** not inf.
zc: 1100
LA infeas.
5 → so z̄ → 5 !!
z̄ = 5
z = 5.
Now LB's for L2, R2, L3
all > GLOBAL UB (5)
so pruned by bound.

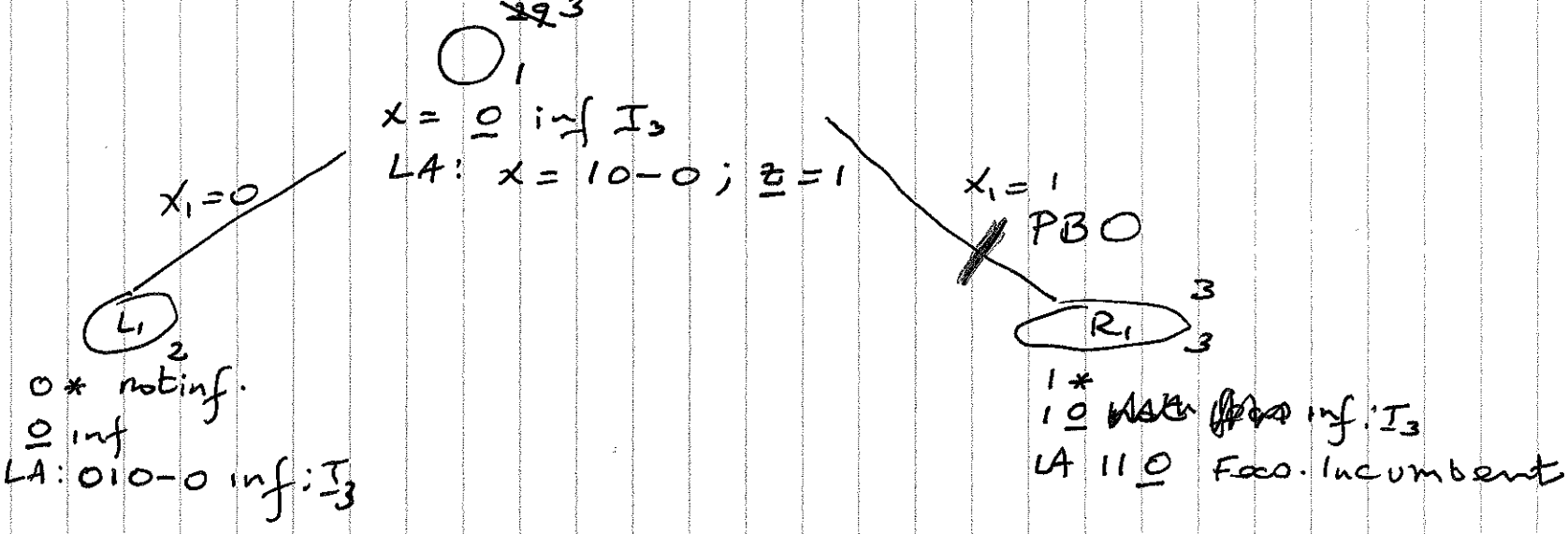
(1)

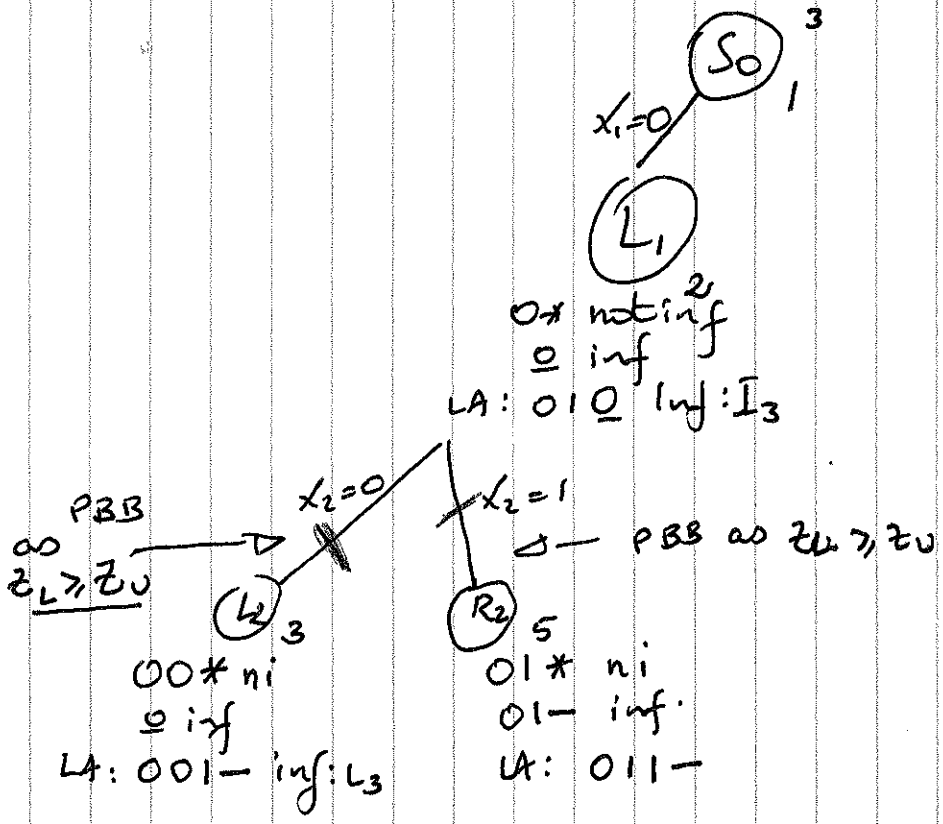
$$z = \min\ x_1 + 2x_2 + 3x_3 + 7x_4 + 8x_5 + 8x_6$$

$$5x_1 - 3x_2 + 2x_3 - 3x_4 - x_5 + 2x_6 \geq -5 \quad I_1$$

$$-x_1 + 0x_2 + 2x_3 + x_4 + 3x_5 - 3x_6 \geq -1 \quad I_2$$

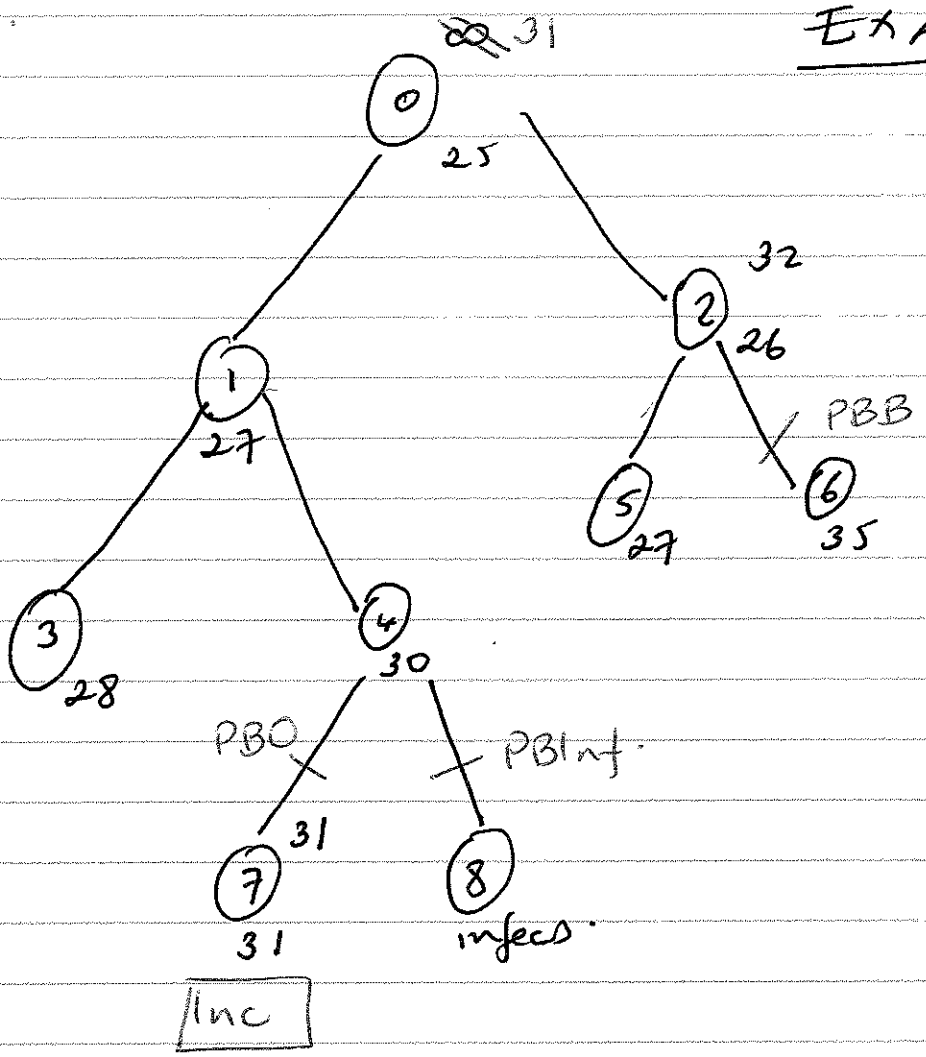
$$x_1 + 2x_2 - x_3 + 0x_4 + 5x_5 - x_6 \geq 3. \quad I_3$$




S_0
3
1
$x_1=0$
L_1
2
0* not inf
0 inf
LA: 010 inf : I_3
$x_2=0$
$x_2=1$
PBB
as
$z_L \geq z_U$
L_2
3
00* ni
0 inf
LA: 001– inf : L_3
PBB as $z_L \geq z_U$
R_2
5
01* ni
01– inf.
LA: 011–

Ex 4.7

(1) a) b) ✓


31
0
25
32
2
26
1
27
PBB
5
27
6
35
3
28
4
30
PBO
PBInf.
31
7
31
8
infecs.
Inc