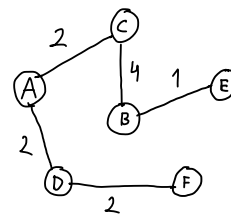


1 a)

N	Nó na árvore	Nó a processar	d_B, P_B	d_C, P_C	d_D, P_D	d_E, P_E	d_F, P_F
1	A	B C D E F	7, A	2, A	2, A	?	?
2	A C A	B D E F	6, C	—	2, A	13, C	?
3	A C A D A	B E F	6, C	—	—	13, C	4, D
4	A C A D A F A D	B E	6, C	—	—	8, F	—
5	A C A D A F B A D C	E	—	—	—	7, B	—
6	A C A D A F B E A D C B	X	—	—	—	—	—



b)

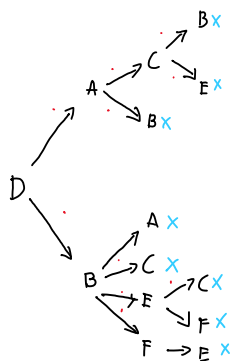
DEST	NEXT	CUSTO
B	C	6
C	C	2
D	D	2
E	C	7 *
F	D	4

c) TABELA em C:

DEST	NEXT	CUSTO
A	A	2
B	C	4
D	A	4
* E	A	6
F	A	10

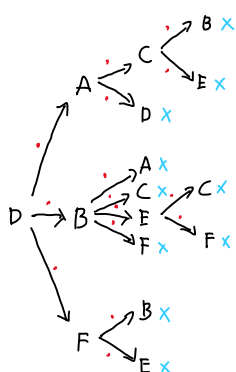
Vem de A e chega a C, C indica para voltar para A, e repete *

d)



13 LSA a partir de D
De F saem outros 13
Logo 26 LSA!

e)



15 LSA
De F temos outros 15 LSA
Logo 30 LSA!

2

a)

D	d_A	d_B	d_C
$T=0$	1	3	2

b)

$A \rightarrow D$	B	C	D
$T=0$	5	3	1
$T=1$	5	<u>3</u>	∞
$T=2$	5	3	∞
$T=3$	$\rightarrow 6$	$\rightarrow$ <u>5</u>	∞
$T=4$	$\rightarrow 7$	5	∞
$T=5$	$\rightarrow 8$	$\rightarrow 7$	∞
$T=6$	$\rightarrow 9$	7	∞
$T=7$	$\rightarrow 10$	$\rightarrow$ <u>9</u>	∞
$T=8$	10	9	∞

distâncias

$B \rightarrow D$	A	C	D
$T=0$	3	4	8
$T=1$	3	4	8
$T=2$	$\rightarrow 5$	<u>4</u>	8
$T=3$	<u>5</u>	$\rightarrow 6$	8
$T=4$	$\rightarrow 7$	<u>6</u>	8
$T=5$	<u>7</u>	$\rightarrow 8$	8
$T=6$	9	<u>8</u>	8
$T=7$	9	$\rightarrow 10$	8
$T=8$	$\rightarrow 10$	10	8

$C \rightarrow D$	A	B	D
$T=0$	2	5	8
$T=1$	2	5	8
$T=2$	$\rightarrow$ <u>4</u>	5	8
$T=3$	4	$\rightarrow 6$	8
$T=4$	$\rightarrow$ <u>6</u>	$\rightarrow 7$	8
$T=5$	6	$\rightarrow 8$	8
$T=6$	<u>8</u>	$\rightarrow 9$	8
$T=7$	8	$\rightarrow 10$	8
$T=8$	$\rightarrow 10$	10	8

c) Ver as partes de $A \rightarrow D$ e $C \rightarrow D$

Em A ver para C e em C ver para A!

D	d_A	d_B	d_C
$T=0$	1	3	2
$T=1$	3	3	2
$T=2$	3	4	4
$T=3$	5	5	4
$T=4$	5	6	6
$T=5$	7	7	6
$T=6$	7	8	8
$T=7$	9	8	8
$T=8$	9	8	8

Estabilizou

d)

distâncias

A → D	B	C	D
T=0	B-A-D X	C-A-D X	D (1)
T=1	∞	∞	∞
T=2	∞	∞	∞
T=3	B-C-A-D X	C-B-A-D X	∞
T=4	B-D (10)	C-D (9)	∞
T=5	B-D (10)	C-D (9)	∞

B → D	A	C	D
T=0	A-D (3)	C-A-D (4)	D (8)
T=1	A-D (3)	C-A-D (4)	D (8)
T=2	∞	C-A-D (4)	D (8)
T=3	∞	C-B-A-D X	D (8)
T=4	∞	C-D (10)	D (8)
T=5	A-C-D (11)	C-D (10)	D (8)

C → D	A	B	D
T=0	A-D (2)	B-A-D (5)	D (8)
T=1	A-D (2)	B-A-D (5)	D (8)
T=2	∞	B-A-D (5)	D (8)
T=3	∞	B-C-A-D X	D (8)
T=4	∞	B-D (10)	D (8)
T=5	A-C-D X	B-D (10)	D (8)

D	d _A	d _B	d _C
T=0	1	3	2
T=1	—	3	2
T=2	—	4	5
T=3	—	8	8
T=4	9	8	8
T=5	9	8	8

Estabilização

3 a) 2048 → 11 bits
32 - 11 = 21 bits

Logo $p = 10.1.0.0/21$

4 a) IP Int. Porto Int. Porto Ext.
10.1.1.2 x y

b) 10.0.0.0/18 - ISP3*
10.0.0.0/18 - ISP4-ISP1-ISP3
10.0.1.0/18 - ISP4*
10.0.1.0/18 - ISP3-ISP1-ISP4
20.0.0.0/18 - ISP4-CP*
200.0.0.0/18 - ISP3-ISP1-ISP2-CP

c) 10.0.1.0/18

b) IP Orig. IP Dest. Porto Orig. Porto Dest.
A | 10.1.1.2 3.1.1.1 x 80
E | 4.1.1.1 3.1.1.1 y 80

c) IP Int. Porto Int. Porto Ext.
NAT1 | 10.1.1.3 x y
NAT2 | 10.1.1.1 y 80

d) IP Orig. IP Dest. Porto Orig. Porto Dest.
B | 10.1.1.3 5.1.1.1 x 80
Internet | 4.1.1.1 5.1.1.1 y 80
F | 4.1.1.1 10.1.1.1 y y