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Assignment5
CPT_s455
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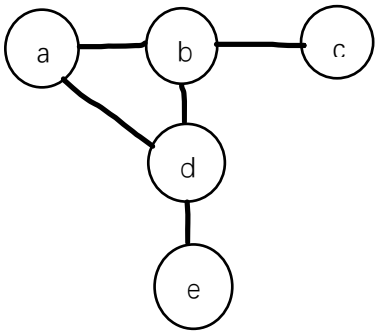
1.a)

Stept	N'	D(w),p(w)	D(x),p(x)	D(y),p(y)	D(z),p(z)	D(u),p(u)	D(t),p(t)
0	v	4,v	3,v	8,v	--	3,v	4,v
1	vx	4,v		8,v	11,x	3,v	4,v
2	vxu	4,v		8,v	11,x		4,v
3	vxuw			8,v	11,x		4,v
4	vxuwt			8,v	11,x		
5	vxuwty				11,x		
6	vxuwtyz						

b)

Stept	N'	D(w),p(w)	D(x),p(x)	D(y),p(y)	D(v),p(v)	D(u),p(u)	D(t),p(t)
0	z	--	8,z	12,z	--	--	--
1	zx	14,x		12,z	11,v	--	--
2	zxv	14,x		12,z		14,v	15,v
3	zxvy	14,x				14,v	15,v
4	zxvyw					14,v	15,v
5	zxvywu						15,v
6	zxvywut						

2. First We should know the longest path that contains the largest number of nodes. The number of nodes in the longest path means the exchanging times of the topology. To explain, If a path have N nodes, so it need to iterate N times to converge the algorithm. For example, suppose there is a topology as follow.



The longest path (not loop) of the topology has 5 nodes, which means it has to hop 5 times for nodes to exchange information. Only when all the nodes know the information from every

other node, distributed algorithm converges; so the maximum iteration number is 5 in this case. In common case, it is equal to the number of hops of the longest path (largest node number, not a loop path).

3.

Node x table

From	Cost to x	Cost to y	Cost to z
x	0	3	4
y	--	--	--
z	--	--	--

From	Cost to x	Cost to y	Cost to z
x	0	3	4
y	3	0	6
z	4	6	0

Node y table

From	Cost to x	Cost to y	Cost to z
x	--	--	--
y	3	0	6
z	--	--	--

From	Cost to x	Cost to y	Cost to z
x	0	3	4
y	3	0	6
z	4	6	0

Node z table

From	Cost to x	Cost to y	Cost to z
x	--	--	--
y	--	--	--
z	4	6	0

From	Cost to x	Cost to y	Cost to z
x	0	3	4
y	3	0	6
z	4	6	0

4.

a) eBGP

b) iBGP

c) eBGP

d) iBGP

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5. Router 1d would determine which path is the best path to the destination x.

a) I_1; Since 1c is the gateway router in this case, I_1 port is closer than I_2 in terms of distance.

b) I_2; Through I_2 to AS2, and then to AS4, the path to x is the shortest path.

c) I_1; Through I_1 to AS3, and then to AS4, the path to x is the shortest path.