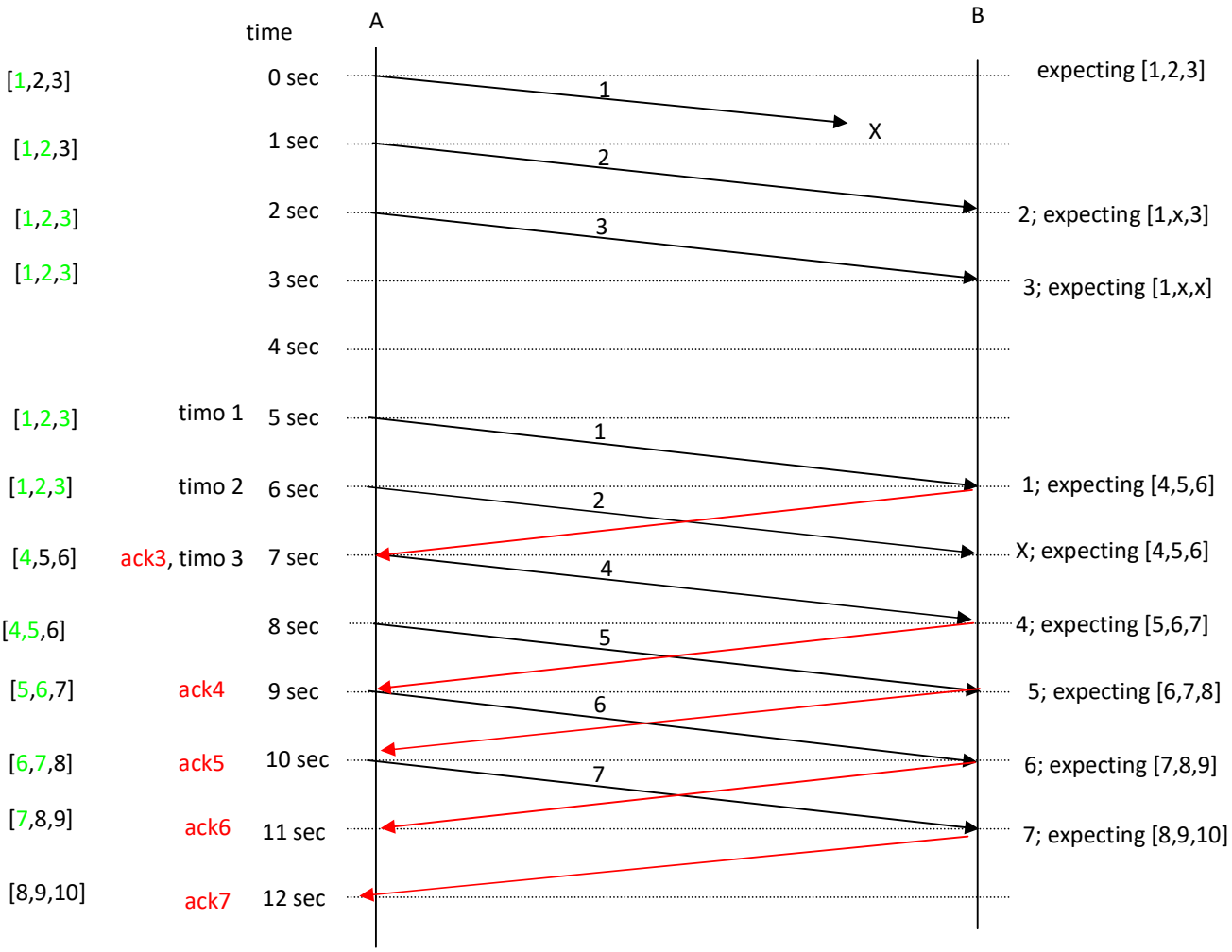
CS4850/7850 HW3 solution

1.



2.

Hosts sharing the same address will be considered to be the same host by all other hosts. Unless the conflicting hosts coordinate the activities of their higher level protocols, it is likely that higher level protocol messages with otherwise identical demux information from both hosts will be interleaved and result in communication breakdown.

3.

Part	PATH	SWITCH	PORT(IN)	VCI(IN)	PORT(OUT)	VCI(OUT)
a.)	A->C	1	2	0	3	0
b.)	D->B	1	0	0	1	0
		2	3	0	0	0
		3	0	0	3	0
c.)	D->I	1	0	1	1	1
		2	3	1	0	1
		3	0	1	2	0
d.)	A->B	1	2	1	1	2
		2	3	2	0	2
		3	0	2	3	1
e.)	F->J	4	2	0	3	0
		2	1	0	0	3
		3	0	3	1	0
f.)	H->A	4	0	0	3	1
		2	1	1	3	3
		1	1	3	2	2

4.

Node A:

Destination	Next hop
B	C
C	C
D	C
E	C
F	C

Node B:

Destination	Next hop
A	E
C	E
D	E
E	E
F	E

Node C:

Destination	Next hop
A	A
B	E
D	E
E	E
F	F

Node D:

Destination	Next hop
A	E
B	E
C	E
E	E
F	E

Node E:

Destination	Next hop
A	C
B	B
C	C
D	D
F	C

Node F:

Destination	Next hop
A	C
B	C
C	C
D	C
E	C

5.

When A sends to C, all bridges see the packet and learn where A is. However, when C then sends to A, the packet is routed directly to A and B4 does not learn where C is. Similarly, when D sends to C, the packet is routed by B2 towards B3 only, and B1 does not learn where D is.

B1: A-interface: A; B2-interface: C
B2: B1-interface: A; B3-interface: C; B4-interface: D
B3: B2-interface: A,D; C-interface: C
B4: B2-interface: A; D-interface: D

6.

a. When X sends to W the packet is forwarded on all links, all bridges learn where X is. Y's network interface would see this packet.
b. Because all bridges already learned where X is when X sent packet to Z, each bridge forwards the packet only on the link towards X (Z→B3→B2→B1→X). Hence, Y's network interface will not see the packet and all bridges will learn where Z is.
c. Because all bridges already learned where X is when X sent packet to Z, Y's packet will transfer to X by the link B2-> B1->X. Thus B2 and B1will learn where Y is, and Z's network interface will not see Y's packet.
d. When W sends to Y, B3 does not know where Y is, and so retransmits on all links; Z's network interface should thus see the packet. When the packet arrives at B2, though, it is retransmitted only to Y as B2 does know where Y is. B2 and B3 will learn where W is.