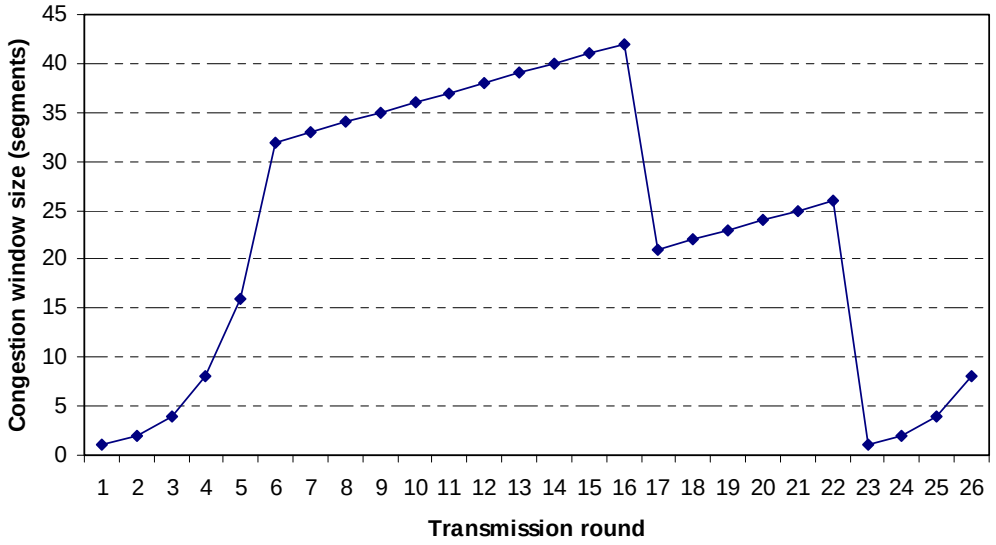
CSci 156: Internetworking Protocols and Systems
Quiz 2 (Fall 2007)

Student ID: _____ Name (Last, First): _____

1. Considering the following TCP window size (number of segments) as a function of the time (number of transmission rounds) (10 points)



(a) Which TCP protocol was used, TCP-Reno (new protocol) or TCP-Tahoe (old protocol)? Justify using one sentence. (2 points)

TCP-Reno since congestion windows does not always drop to 1.

(b) Why does the congestion window change to linear increase at round = 6? (2 points)

Since it reaches a threshold and enters congestion avoidance phase.

(c) Can you find the size of the congestion window before the previous loss event? (2 point)

2*Threshold=2*32=64

(d) What happened from round 16 to round 17? (1 point)

3 duplicative ACKs were received.

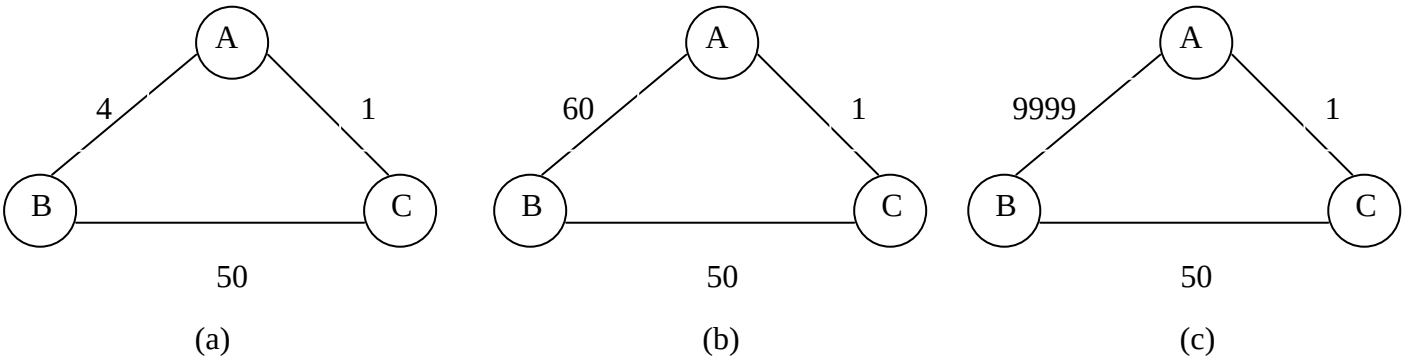
(e) What happened from round 22 to round 23? (1 point)

Timeout occurs at the sender

(f) What is the value of congestion window **Threshold** at round 24? (2 points)

26/2=13

2. Suppose we are using Distance Vector Routing protocol (10 points)



(a) (b) (c)

(1) Please give the final distance vector of A, B, and C as follows for scenario (a): (2 point)

A to B: 4	A to C: 1
B to A: 4	B to C: 5
C to A: 1	C to B: 5

(2) What is the final distance vector if link cost of AB becomes 60, as shown in scenario (b)? (4 points)

A to B: 51	A to C: 1
B to A: 51	B to C: 50
C to A: 1	C to B: 50

How many rounds it takes for the protocol to converge to the above actual minimum distance?

49-6+1=44

When the change occurs, C(A, B)=min{cost(A->B), C(C,B)+cost(A->C))=min{60,5+1}=6. Then, A Broadcasts to C with C(A,B)=6, then C gets C(C,B)=7. This procedure will repeat until 50 is reached and C does not increase its cost to B.

(3) What happens if link cost of AB changes from 60 to 9999, as shown in scenario (c)? (2 point)

Same, 44 since this procedure will repeat until 50 is reached and C does not increase its cost to B.

(4) What happens if link AB breaks, will the protocol be able to converge to some final minimum distance? If not, why? (2 points)

Same, 44 since this procedure will repeat until 50 is reached and C does not increase its cost to B.

A ---X---B----C is an example of count to infinity.