

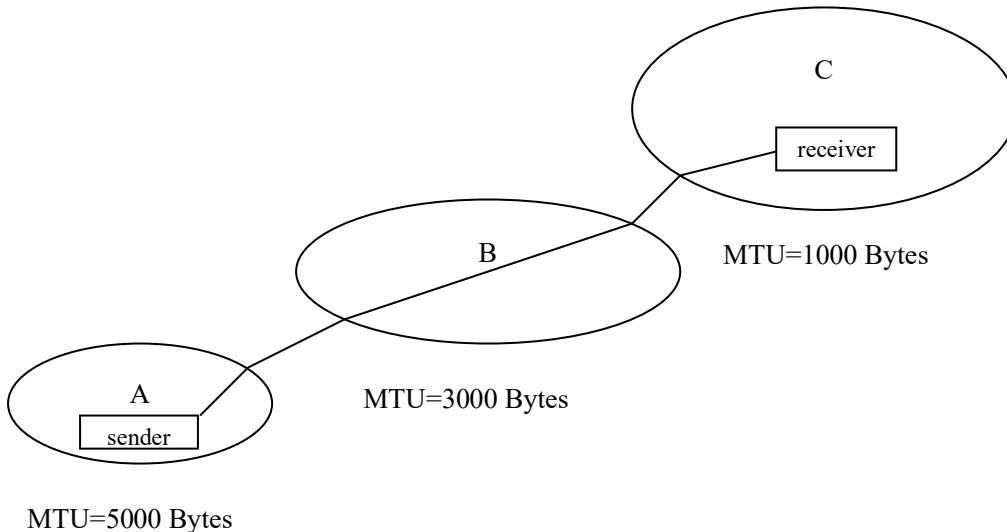
CSci 4211 Homework #3

Due Day: April 8th

1. [10pt.] IP Fragmentation and Reassembly: An IP packet originally has a size of 8000 bytes including 20-byte header and 7980-byte payload. To reach the destination, the route goes through three networks, A, B, and C. Network A is the one where the sender is directly connected, and Network C is where the receiver is connected. Network A has an MTU of 5000 bytes. Network B has an MTU of 3000 bytes. Network C has an MTU of 1000 bytes.

(a) How is fragmentation done when the original IP packet enters Network B from Network A? Draw a graph to show the changes.

(b) When these fragments enter Network C from Network B, how are the fragmentations done? Draw a graph to show the results for each fragment from (a).



2. [10pt.] Draw a Finite State Machine diagram of the client side of the DHCP protocol. Recall that DHCP uses UDP to provide unreliable transport of DHCP messages. Make sure your FSM shows how timeout and retransmissions are used to provide reliability.

3. [10pt.] A router has the following (CIDR) entries in its routing table:

Address/mask	Next hop
135.46.56.0/22	Interface 0
135.46.62.0/23	Interface 1
192.53.40.0/23	Router 1
default	Router 2

For each of the following IP address, what does the router do if packets with the following addresses

arrives?

- a. 135.46.63.10
- b. 135.46.57.14
- c. 135.46.52.2
- d. 192.53.40.7
- e. 192.53.56.7

4. What are Round-Robin and Weighted Fair Queuing for packet switching? Under what aspect the Weighted Fair Queuing is better than Round-Robin Queuing (Please read the textbook for both queuing schemes)?

5. What are the advantages of IP v6 datagram format when compared with that of IP v4?