CSCI4760

Quiz 1

Name: ---------- Student ID: ----------

1. **[0.5 point] Which of the following are true?** Select all that apply.

   a. Network core includes interconnected routers.
   b. Network core includes end systems.
   c. Network edge includes routers
   d. Network edge includes clients and servers.

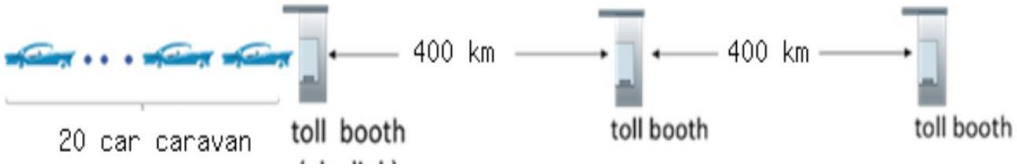
2. **[0.5 point] Which of the following are examples of Wireless Local Area Network?** Select all that apply.

   a. 4G
   b. WiFi
   c. LTE
   d. 5G

3. **[0.5 point] Which of the following are true?** Select all that apply.

a. IP spoofing is a passive attack.
b. Ping Flood sends packet with false source address.
c. Ping of Death makes the buffer full by sending a large ping message.
d. Syn Flood bombards servers with ping messages

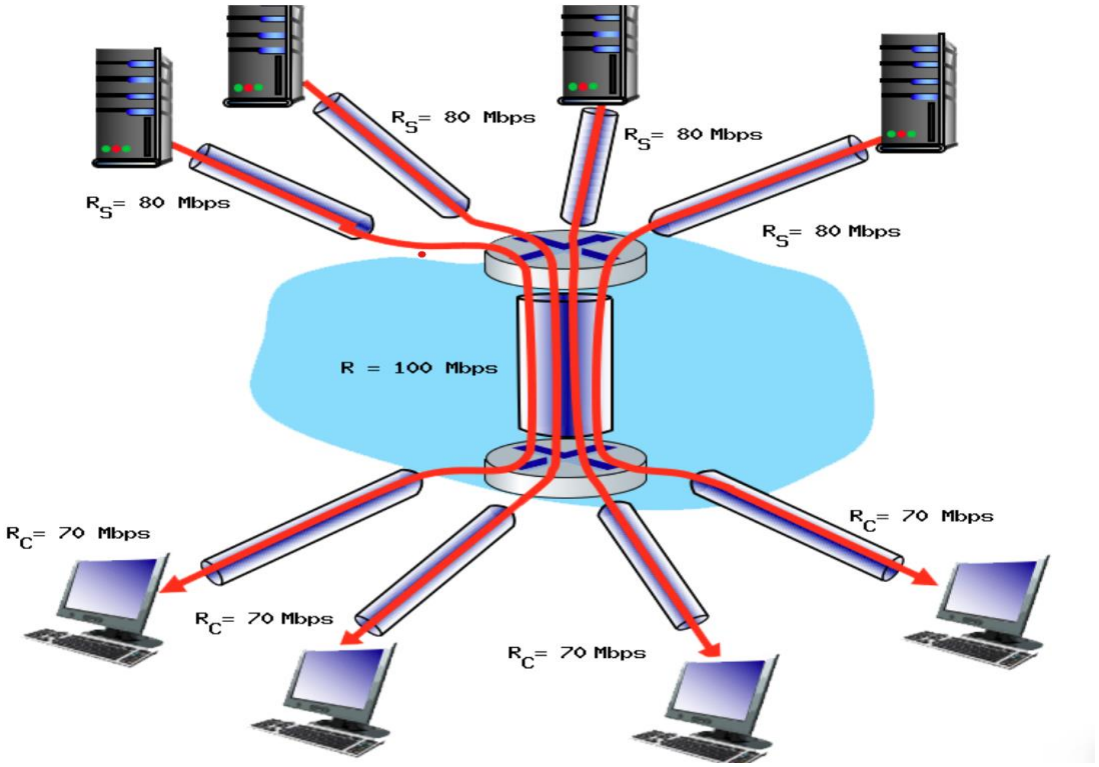
4. [1 point] Suppose the caravan has 20 cars, and that the tollbooth services a car at a rate of one car per 5 seconds.



Car speed is 10 kilometers per second.

How long does it take for the entire caravan to receive service at the first tollbooth, and line up before the second toll booth?

5. [1 point] Consider the scenario shown below.



Four servers are sending at the maximum rate possible to four clients.

a. What is the average throughput?
b. what is the link utilization for the server links (R_S)?
c. What is the end-to-end **transmission delay** for a packet with length of 125000 Bytes from client 1 to the server 1 ?

6. [0.25 point] What layer in the IP stack best corresponds to the phrase: 'passes frames from one node to another across some medium'

7. [0.25 point] What is Ransomware?

8. [1 point] A circuit-switching scenario in which N_{cs} users, each requiring a bandwidth of 25 Mbps, must share a link of capacity 100 Mbps. A packet-switching scenario with N_{ps} users sharing a 100 Mbps link, where each user again requires 25 Mbps when transmitting, but only needs to transmit 10 percent of the time.

a. When circuit switching is used, what is the maximum number of users that can be supported?

b. Suppose packet switching is used. What is the probability that a given (specific) user is transmitting,

c. Suppose packet switching is used. What is the probability that a given (specific) user is transmitting, and the remaining users are not transmitting for case of 7 users.