

CSCI 466 Homework 1

Due September 9th at 11:59 PM

Please submit your **typed** answers as a PDF to the correct D2L dropbox

Problem 1. Fill out the course questionnaire, which can be found on the course website

Problem 2. Join the class Discord. The link to join discord can be found on the course website. Be sure to get the csci-466 role and make sure I can identify you based on your nickname.

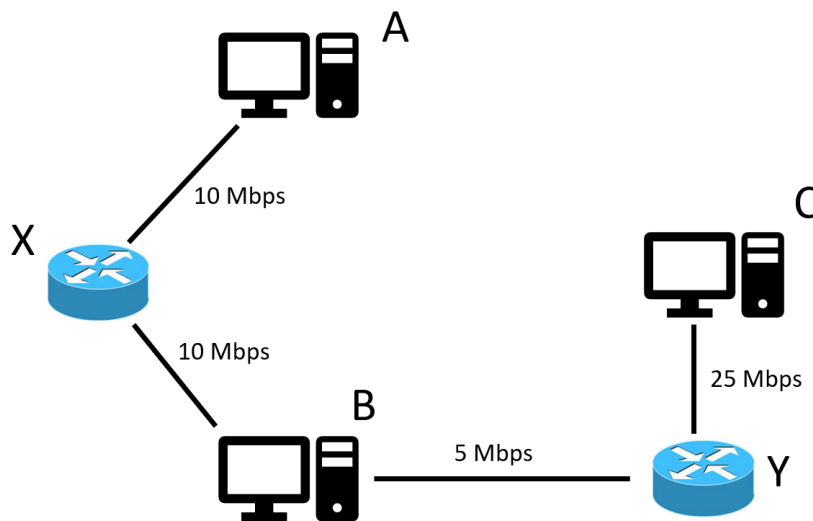
Problem 3. What is the network edge?

Problem 4. List the 7 layers of the OSI model and a significant responsibility for each layer

Problem 5. What is the difference between TCP and UDP? Describe a use case for each protocol and a justification for selecting the protocol.

Problem 6. What is the difference between packet switching and circuit switching?

Problem 7. Consider the diagram below and answer each question



(a) What is the required time to transmit 100 Mb of data from A to B? Assume there is no delay

(b) Consider the link at (A,X). Packets of length 6 Mb arrive to the switch at a rate of 4 packets per second. What is the traffic intensity? Will the queue at the switch begin to grow or shrink?

(c) How much time is needed to transfer 50 Mb from endpoint C to endpoint B?

Problem 8. Suppose you successfully downloaded a funny cat picture that is located at cs.montana.edu/pearsall/rainer.jpeg. Describe the steps that occurred in the HTTP protocol. What port did it happen on? What response code did you receive? Ignore any steps that include cookies. (Note: You don't need to actually download such picture to figure out the answers to this question)