

CS447-003 - Computer Networks and Data Communication

Possible Quiz Questions for Quiz #3 on January 25th, 2024

The following is a list of possible questions for our Quiz #3 on January 25th. Some of the questions will not be asked in the quiz. All the questions that will appear in the quiz will appear exactly as shown below (however, parameters may be changed). The quiz is closed textbook, closed notes and closed neighbors. Note that the questions, which did not appear in this quiz, still may appear in the exams.

- #1: What is “layered structure” for a protocol?
- #2: Why we want “layered structure” for a protocol? Name the three benefits (please mention those we discussed in the class – you do NOT have to describe them).
- #3: What is the primary tradeoff in using “layered architecture”?
- #4: Why do some computer networks use packets to transmit data? Provide one primary advantage and disadvantage in using packets for data transmission.
- #5: Answer the following questions to describe what packet header: is:
 - (1) What do packets consist of?
 - (2) Where is the packet header?
 - (3) What kind of information is in the packet header (you need to name at least two different types of information)?
- #6: What is “packet encapsulation”? What is it for (i.e., what is the purpose of “packet encapsulation”)?
- #7: If network protocols are implemented without “packet encapsulation”, what problems would we have?
- #8: Do the two terms, “peer-to-peer” and “point-to-point” mean the same concept?
- #9: What is the counter concept of “peer-to-peer”?
- #10: What is the counter concept of “point-to-point”?
- #11: Name each layer of the OSI seven-layer model (from low level (= layer 1) to high level).
- #12: Why don’t network applications perform actual network data transmissions (instead, “protocol stack” does the work)?
- #13: What are the major advantages in using “network protocols”? What are the major disadvantages in using “network protocols”?
- #14: Show the TCP/IP protocol suite on top of the OSI 7-layer reference model.

#15: What are the two internal components in packets (packets for network data transmissions)?

#16: What is “flow control” used in computer networks?

#17: Why is “flow control” an essential function for datagram packet switching networks? Mention two reasons.

#18: How does “stop-and-wait flow control” work?

#19: What is the primary weakness in “stop-and-wait flow control”?

#20: What is “packet transmission delay”? How is “packet transmission delay calculated (show the formula)?

#21: What is “signal propagation delay”? How is “signal propagation delay calculated (show the formula)?

#22: What is “link utilization”? How is “link utilization” calculated for stop-and-wait flow control (show the formula)?