

CS447 – Networks and Data Communications

Quiz #1, June 17, 2026

#1: One of the primary reasons for using “switching networks” is (select the best):

- (a) Improved transmission rate
- (b) Improved reliability
- (c) Improved scalability
- (d) Improved security

#2: The advantage(s) in using “datagram packet switching networks” is (are) (select all that apply):

- (a) Quicker transmissions for small messages
- (b) No need for re-ordering the received messages at the receiver side
- (c) Guaranteed quality in transmitting data (messages) to receivers
- (d) Low overhead at intermediate routers

#3: The advantage(s) in using “virtual-circuit switching networks” is (are) (select all that apply):

- (a) Quicker transmissions for small messages
- (b) No need for re-ordering the received messages at the receiver side
- (c) Guaranteed quality in transmitting data (messages) to receivers
- (d) Low overhead at intermediate routers

#4: Most of the existing computer networks use protocols because of (select all that apply)

- (a) Using network protocols, any two computers who have the same network protocols installed can communicate even if they never communicate before
- (b) Using network protocols, data transmission will be faster
- (c) Using network protocols, we can transfer messages (payload data) with smaller total amount of network traffic
- (d) Using network protocols, the security in transmitting data always improve

#5: Virtual-circuit switching networks allow transmitting hosts to share network transmission bandwidth because (select all that apply):

- (a) Virtual-circuit switching networks require path setups prior to data transmissions
- (b) Virtual-circuit switching networks use packets to transfer data.
- (c) Virtual-circuit switching networks guarantee in-order data delivery to receivers
- (d) Virtual-circuit switching networks requires routing only once until a session of data transmission is over.

#6: Interface in protocol stack (or “protocol suite”) is (select the best one):

- (a) A set of rules that governs communication between two hosts implemented as software
- (b) A set of rules that governs communication between two hosts implemented as hardware
- (c) a set of rules that govern communication between two directly facing protocol layers within a host computer
- (d) a set of rules that govern communication between two directly facing protocol layers between two host computers

#7: Packet headers (select the best one from the following options):

- (a) contain information not only for the protocol layer but also for the protocol layers after (closer to the hardware (NIC)) the protocol layer
- (b) contain information not only for the protocol layer but also for the protocol layers before (closer network application software) the protocol layer
- (c) contain information only for the protocol layer but no for any other protocol layers
- (d) None of the above.

#8: Which of “circuit-switching networks” or “virtual-circuit switching networks” are better for networks that tend to cause frequent signal errors (select one from the following options)?

- (a) circuit-switching networks
- (b) virtual-circuit switching networks
- (c) either circuit-switching or virtual-circuit switching networks (they are equally good)
- (d) None of the above.

#9: Protocol in protocol stack (or “protocol suite”) is (select the best one):

- (a) A set of rules that governs communication between two hosts implemented as software
- (b) A set of rules that governs communication between two hosts implemented as hardware
- (c) a set of rules that govern communication between two directly facing protocol layers within a host computer
- (d) a set of rules that govern communication between two directly facing protocol layers between two host computers

#10: The advantage(s) in packet encapsulations is (are) (select all that apply):

- (a) Transmission rate (speed) will be improved since the details in packet headers are hidden from the protocol layers which do not have to use the information in those headers
- (b) Flexibility in protocol suite (protocol stack) will be improved in such a way that, when we can replace a protocol in a protocol layer without affecting all other protocol layers
- (c) The amount of the network traffic will decrease since some information will be hidden from the protocol layers which do not have to use the information in those headers
- (d) Security will be improved (when attackers can capture network packets when the packets are being transmitted in the (public) Internet since some information will be hidden from the protocol layers which do not have to use the information in those headers)