

EE4204 Question & Answer Session

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Q1

The ____ layer lies between the network layer and the application layer.

- A: None of the choices
- B: Transport
- C: Data link
- D: Physical

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Q2

When an IP router between two Ethernet segments forwards an IP packet, it does not modify the destination MAC address.

- A: True
- B: False

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Q3

When an IP router between two Ethernet segments forwards an IP packet, it does not modify the destination IP address.

- A: False
- B: True

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Q4

An organization is granted a block of classless addresses with the starting address 199.34.32.0/27. How many addresses are granted?

- A: None of the choices
- B: 32
- C: 8
- D: 16

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Q5

An IPv4 datagram is fragmented into three smaller datagrams. Which of the following is true?

- A: The do not fragment bit is set to 1 for all three datagrams.
- B: The identification field is the same for all three datagrams.
- C: The more fragment bit is set to 0 for all three datagrams.
- D: The offset field is the same for all three datagrams.

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Q6

The value in the sequence number field of a TCP segment defines the number of the ____ data byte contained in that segment.

- A: None of the choices
- B: last
- C: next
- D: first

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Q7

The value of the acknowledgment field in a TCP segment defines the number of the ____ byte a party expects to receive.

- A: None of the choices
- B: next
- C: first
- D: last

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Q8

If the ACK value in the TCP header is 200, then byte ____ has been received successfully.

- A: 199
- B: 201
- C: 200
- D: None of the choices

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Q9

Which of the following algorithms solves the single source shortest path routing problem?

- A: Floyd's algorithm
- B: Bellman-Ford algorithm
- C: Dijkstra's algorithm
- D: Prim's algorithm

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Q10

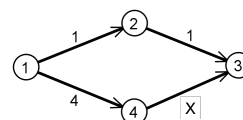
Dijkstra's algorithm may not terminate if the graph contains negative-weight edges.

- A: False
- B: True

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Q11

For what values of x will Dijkstra's algorithm work and not work?



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Q12

Without knowing the values of *cwnd* or window advertisement, by only observing the sequence numbers of successive segments transmitted, is it possible to determine whether flow control or congestion control is operating at any given time in a connection?

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Q13

Explain the TCP slow-start. What is its goal and how does it work?

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Q14

- Assuming that the available link capacity and the receiver window are infinite how many round-trip times does it take in TCP to send the first 10 packets?
- In general, how many round-trip times does it take to send the first k packets?

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Q15

A router with the following forwarding table receives a packet with destination 128.195.3.10. Which will be the outgoing interface of the packet?

128.195.0.0/8	eth2
128.195.0.0/16	eth0
128.195.0.0/24	eth1
0.0.0.0/0	eth3

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Q16

TCP uses a 3-way handshake to open a connection. A two way handshake could be potentially even more practical in terms of saving packets. Think about routing on the internet and suggest why a 3 way handshake is used rather than a 2 way or 4 way handshake.

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Q17

Differences between Link State, Vector and Vector Path routing protocols

- Which generates more network traffic in a large network?
- Which protocol uses the least router memory?
- Which protocol handles link additions better than failures?
- Which protocol is typically used for 802.3 LAN networks?

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Q18

The fundamental reason for which loops form in the Distance Vector protocol is that a node A decides to use a neighbor B as the next hop for a destination based on routing information that was, at some point, propagated by A itself. Give an example of this - draw a simple topology, break a link, and show a sequence of updates triggered by the distance vector protocol.

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Q19

If TCP provides reliable, in-order delivery of bytes end-to-end, why would you want to use UDP? Give an application that might be better off using UDP. Explain why?

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Q20

- In 2008, a Pakistani ISP was able to prevent about two thirds of the Internet from reaching a slice of YouTube's addresses, by hijacking part of YouTube's prefix. What does this mean?
- Explain how preference for more specific routes makes this easier. What do we call this preference for more specific routes?

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Q21

Aggregate the following set of four /24 IP network addresses to the highest degree possible.

212.56.132.0/24

212.56.133.0/24

212.56.134.0/24

212.56.135.0/24

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