Possible Quiz Questions for Quiz #1 on January 19th, 2016

The following is a list of possible questions for our Quiz #1. 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 do “sufficient conditions” guarantee?

#2: What do “necessary conditions” guarantee?

#3: If a sufficient condition is not satisfied, what conclusion can we draw?

#4: If a necessary condition is satisfied, what conclusion can we draw?

#5: Why we want “networks” instead of full mesh of one-to-one communication channels? Explain with an example (using some mathematical formula).

#6: If a computer system (not necessarily limited to computer networks) can grow for a larger system without a serious problem in explosive increase in components, how is it called?

   Good ____________ (one word after ”good”).

#7: Network has good scalability compared to full mesh of one-to-one communication channels, but what are the two disadvantages (tradeoffs) in network?


#9: What are “packet-switching networks”?

#10: What are “virtual-circuit packet-switching networks”?


#12: What are the primary advantages and disadvantages in “circuit-switching networks”?

#13: What are the primary advantages and disadvantages in “datagram packet-switching networks”?

#14: What are “blocking services (in telecommunication)” (definition of “blocking services”)? Mention one example of blocking telecommunication services.
#15: Complete the following table that compares circuit switching networks, packet switching networks, and virtual circuit networks.

<table>
<thead>
<tr>
<th>Factors</th>
<th>Circuit-Switching</th>
<th>Virtual Circuit</th>
<th>Datagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>No overhead after TX starts?</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Routing delay?</td>
<td></td>
<td></td>
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<tr>
<td>Guaranteed Tx Bandwidth?</td>
<td></td>
<td></td>
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<tr>
<td>Advantages</td>
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<tr>
<td>Disadvantages</td>
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<tr>
<td>Applications</td>
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</tbody>
</table>

#16: What is a protocol (define "network protocol" by providing the three keywords)?

A protocol is (1) _________________, (2) ____________________ and (3) ____________.

Give two examples of the existing network protocols.

#17: What is an interface (define "network protocol" by providing the three keywords)?

An interface is (1) _________________, (2) ____________________ and (3) ____________.

#18: What is “layered structure” for a protocol?

#19: Why do some computer networks use packets to transmit data? Provide one primary advantage and disadvantage in using packets for data transmission.

#20: 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).

#22: 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)?
#23: What is “packet encapsulation”? What is it for (i.e., what is the purpose of “packet encapsulation”)?

#24: If network protocols are implemented without “packet encapsulation”, what problems would we have?

#25: How large are typical LANs (Local Area Network)?

#26: How large are typical WANs (Wide Area Network)?

#27: What is the primary purpose of LANs?

#28: What is the primary purpose of WANs?

#29: What is an internet?

#30: What is an intranet?

#31: Who owns LAN, WAN, intranet and internet?