

Course name: Computer Networks II

Exam number: Fall 2010 – Model Answer

Course Code: CNE401

Exam Date: 08/12/2010

Lecturer: Dr. Ahmed ElShafee

Time Allowed: 60 minutes

Part 1.

1. Which of the following protocols are examples of TCP/IP transport layer protocols?

Answer: D and F

2. Which of the following protocols are examples of TCP/IP network interface layer protocols?

Answer: A and G

3. Which OSI layer defines the functions of logical network-wide addressing and routing?

Answer: C

4. Which OSI layer defines the standards for cabling and connectors?

Answer: A

5. Which OSI layer defines the standards for data formats and encryption?

Answer: F

6. Which of the following terms are not valid terms for the names of the seven OSI layers?

Answer: E

7. The process of HTTP asking TCP to send some data and make sure that it is received correctly is an example of what?

Answer: B

8. The process of TCP on one computer marking a segment as segment 1, and the receiving computer then acknowledging the receipt of segment 1, is an example of what?

Answer: B

9. The process of a web server adding a HTTP header to a web page, followed by adding a TCP header, then an IP header, and then data link header and trailer is an example of what?

Answer: A

10. Which of the following terms is used specifically to identify the entity that is created when encapsulating data inside data-link headers and trailers?

Answer: D

11. Which of the following best describes the main function of OSI Layer 1 protocols?

Answer: B

12. Which of the following are part of the functions of OSI Layer 2 protocols?

Answer: A and D

13. Which of the following is true about Ethernet crossover cables?

Answer: B

14. Which of the following are true about the format of Ethernet addresses?

Answer: B, C, and E

15. Which of the following are true about the CSMA/CD algorithm?

Answer: B

16. Which of the following would be a collision domain?

Answer: A

17. Which terms describe Ethernet addresses that can be used to communicate with more than one device at a time?

Answer: C and D

Total:	40
Part1:	15
Part2:	25

Q1:	5
Q2:	5
Q3:	5
Q4:	5
Q5:	2.5
Q6:	2.5

Part 2,

1. Name three benefits to layering networking protocol specifications.

reduced complexity,
standardized interfaces,
modular engineering,
interoperable technology,
accelerated evolution,
simplified teaching and learning.

2. What header or trailer does a router discard as a side effect of routing? And why?

A router discards the data-link header and trailer as a side effect of routing. This is because the network layer, where routing is defined, is interested in delivering the network layer (Layer 3) PDU from end to end. Routing uses intermediate data links (Layer 2) to transport the data to the next routers and eventually to the true destination.

The data-link header and trailer are useful only to deliver the data to the next router or host, so the header and trailer are discarded by each router.

3. What OSI layer typically encapsulates using both a header and a trailer?

The data link layer typically encapsulates using both a header and a trailer. The trailer typically includes a frame check sequence (FCS), which is used to perform error detection.

4. Are MAC addresses defined by a Layer 2 or Layer 3 protocol? What's the main function of MAC?

MAC addresses are defined by a Layer 2 protocol. Ethernet and Token Ring MAC addresses are defined in the 802.3 and 802.5 specifications. Guarantee delivery of data frames to desired destination.

5. How many bits are present in a MAC address?

MAC addresses have 48 bits. The first 24 bits for burned-in addresses represent a code that identifies the manufacturer.

6. Name the two main parts of a MAC address. Which part identifies which “group” this address is a member of?

There are no parts, and nothing defines a grouping concept in a MAC address. This is a trick question. Although you might have guessed that the MAC address has two parts—the first part dictated to the manufacturer, and the second part made up by the manufacturer—there is no grouping concept.