Module Two
Study Guide

Contents

Ch4 Text Questions
Ch5 Text Questions
Ch6 Text Questions
Assignment Questions
Note The only part of the Open Source textbook that I will be taking questions from is the Glossary…
Vocabulary List -- http://cnp3book.info.ucl.ac.be/2nd/html/glossary.html

Introduction
This document is meant to guide your preparation for Exam Two. While it is not meant to be comprehensive, it is designed to provide you with an insight as to what I feel are the more important Module Two topics..

Chapter 4
Data Link Layer

1. What is the function of the data link layer?
2. What is media access control?
3. What is logical link control?
4. Compare and contrast controlled access and contention.
5. In a LAN context, what is noise?
6. Briefly describe how Data Link level error correction works.
7. What is transmission efficiency?
8. How do information bits differ from overhead bits?
9. Are stop bits necessary in asynchronous transmission? Explain.
10. In an efficiency context, are large frame sizes better than small frame sizes? Explain.

Chapter 5
Network and Transport Layers

1. What is the function of the transport layer?
2. What is the function of the network layer?
3. What is in the flag fields of the TCP/IP header? Why are flags important?
4. Compare and contrast the three types of addresses used in a network. (Application, Network, MAC).
5. Compare and contrast TCP and UDP.
6. How does TCP establish a session?

7. What is a subnet? Why do networks need them?
8. How does dynamic addressing work?
9. What problem does dynamic addressing solve?
10. How does TCP/IP resolve URLs into network layer addresses?
11. How does TCP/IP resolve IP addresses into data link layer addresses?
12. What is routing?
13. Compare and contrast connectionless and connection-oriented communications.
14. What is QoS? Why is it useful?
15. Compare and contrast unicast, broadcast, and multicast messages.
16. Why does HTTP use TCP while DNS requests use UDP?
17. How does static routing differ from dynamic routing? When would you use static routing?
18. When would you use dynamic routing?
19. What type of routing does a TCP/IP client use? What type of routing does a TCP/IP gateway use? Explain.
20. What is the transmission efficiency of a 10-byte Web request sent using HTTP, TCP/IP, and Ethernet? Assume the HTTP packet has 100 bytes in addition to the 10-byte URL. Hint: Remember from Chapter 4 that efficiency = user data/total transmission size.
21. Describe the anatomy of a router. How does a router differ from a computer?

Chapter 6
Wired and Wireless Local Area Networks
1. Describe the basic components of a wired LAN.
2. Describe the basic components of a wireless LAN.
3. What types of cables are commonly used in wired LANs?
4. What is a cable plan and why would you want one?
5. What does a NOS do? What are the major software parts of a NOS?
6. How does a logical topology differ from a physical topology?
7. Briefly describe how CSMA/CD works.
8. How do Ethernet switches know where to send the frames they receive? Describe how switches gather and use this knowledge.
9. How does Wi-Fi differ from shared Ethernet in terms of topology, media access control, and error control, Ethernet frame?
10. Explain how association works in WLAN.
11. What is a site survey and why is it important?
12. How do you decide how many APs are needed and where they should be placed for best performance?

Assignments
Understanding Switches
1. What information does the first half of the MAC address contain?
2. What information does the last half of the MAC address contain?
3. Briefly explain the difference between managed and unmanaged switches.
4. What is a VLAN? Briefly describe its function.
5. What is the spanning tree protocol? What problem does it prevent?

SOHO Routers
1. What does a firewall do?
2. With a SOHO router, why might redundancy be desirable?
3. What is a DMZ? Why would a small company want one?

TCP/IP and Subnet Masking
1. In a TCP/IP context, what is windowing?
2. What is the purpose of a subnet mask?
3. What would the subnet mask be if you wanted to use 8 bits for the network address and 8 bits for subnets?

Client-Server
1. What are the advantages of Client Server architecture?
2. What are the disadvantages of Client Server architecture?

Network Review
1. What is DHCP? What does it do?
2. In a TCP/IP context, what is a port?
3. What is meant by the term "well known" port?
4. Which 802.11 standard utilizes MIMO?
5. What was the original encryption utilized by 802.11?
6. Which 802.11x standard supports both the 2.4 and the 5 GHz band?

Vocabulary List
Any vocabulary on Exam Two will be taken from the glossary of our open source text book.
 http://cnp3book.info.ucl.ac.be/2nd/html/glossary.html