6. What is the purpose of a protocol? Name a commonly used Internet protocol. What is an RFC and what is its purpose? What is the IETF and what is its purpose?

11. Of what does a network edge consist? Of what does a network core consist?

12. Describe the client/server model and the P2P model.

14. What is the goal of handshaking? What is the name of the Internet’s connection-oriented service? What services does TCP provide?

15. What is the goal of a connectionless transport service? What services does UDP provide? Name an application that uses TCP. Name a service that uses UDP.

16. Name two characteristics of a dial-up connection. What does DSL stand for? Why is DSL often referred to as “asymmetrical”? Describe three main characteristics of DSL.

18-19. Which part of a cable Internet access system is fiber, and what part is coaxial cable? How many homes typically share the bandwidth of a single coaxial circuit?

22. Do cable Internet access systems use TDM or FDM, circuit switching or packet switching? Where in the cable frequency spectrum does the Internet data reside?

23. What are the three speeds at which Ethernet operates?

24. What is the IEEE protocol standard for wireless LANs? What is that protocol’s maximum speed?

25. Be able to fill in the blanks in the figure on this slide.

26. Define: physical link, guided media, unguided media, and twisted pair. Also: UTP and STP.

27. Compare the characteristics of coaxial cable and optical fiber cable.

28. Describe the characteristics of the four types of radio links.


31. Describe the end-to-end resources reserved for a circuit-switched call.

33. Make sure you understand the two figures on this slide (FDM vs. TDM).

34. Be able to compute this. I will give you the same problem with different numbers.

35. Describe “store and forward.”

38. As far as an individual user is concerned, what is the main advantage of packet switching over circuit switching?

39. In general, what are the main advantages and disadvantages of packet switching as compared to circuit switching?

40-41. Describe a Tier-1 ISP. Name an example.

42. Describe a Tier 2 ISP.

43. Describe a Tier 3 ISP.

46. How do packet delay (queuing and transmission) and packet loss (full buffers) generally occur?
47-48. Name and describe the four sources of packet delay (also called nodal delay). What are L/R and d/s? Note that processing delay is sometimes called “nodal processing delay.”

51. Describe the four sources of nodal (router) delay. Note that $d_{\text{prop}} = d/s$.

52. What is the meaning of $L/R$. Regardless of what the slide says, L’s units = bits/packet, a’s units = packets/sec, and R’s units = bits/sec. Show that $L/R$ has no units.

53-54. Describe how traceroute works.

64. Name the 5 layers of the Internet protocol stack. Give an example protocol for each layer.

66. Describe encapsulation. Be able to draw a frame, showing how it contains a datagram, a segment, and a message. Which one moves through LAN cables: frame, datagram, segment, or message? Which one moves through routers?

69. Describe the three types of malware.

70. Explain how a denial of service (DOS) attack works.

71. Define packet sniffing.

72. Define IP spoofing.