350 Exam 4 Study Guide

1. The bandwidth for a data transmission line that can transmit within a frequency range of 100Hz to 3,500 Hz is **3,400 Hz**
2. Which of the following is NOT a characteristic of a sine wave? **Noise**
3. TCP establishes a connection at the request of a network application. To initiate a connection, TCP sends a control packet to TCP at the Web site, requesting a connection; this results in a brief back-and-forth series of requests and acknowledgments known as **handshaking**.
4. In cellular technology, the movement of the users from cell to cell is called a **handoff**.
5. Remember that the IP datagram may pass through different types of links. For certain types of physical layer connections, it is necessary to further divide the IP datagrams into smaller packets before they are delivered as frames to the data link layer. What are these smaller packets called?  **fragments**
6. In a \_\_\_\_\_\_\_\_\_\_ topology each computer node gets every message, but processes only those addressed to that node. There is no central hub in this topology. **Bus**
7. Using encryption can be helpful in mitigating network security issues except **availability**.
8. The data rate (speed of transmission in bps) of the analog signal of 500 KHz bandwidth, 200 watts of power, and 2 watts of noise is about (you need to perform calculations) **1,002,161 bps**
9. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a channel is the range of frequencies that are passed by the channel with only a small amount of attenuation. **bandwidth**
10. Keeping the content of data traversing the network and information about the communication taking place private is known as **confidentiality**.
11. Channels that carry messages in only one direction are known as **simplex channels**.
12. The IP address subnet mask in the prefix form is /14. What is this mask in the binary form? **11111111.11111100.00000000.000000000**
13. Channels that carry signals simultaneously in both directions are called **full-duplex channels.**
14. The typical communication channel is actually divided into segments; connections along the segments are called **links**.
15. Such network tools as ping and traceroute use the query services of \_\_\_\_\_\_\_\_ to provide the information that they report. **ICMP**
16. An AM radio station that broadcasts at 1100 KHz means the \_\_\_\_\_\_\_\_\_\_\_ frequency is 1100 KHz. **Carrier**
17. Fiber optic cable is capable of transmitting data at the rate over \_\_\_\_\_\_\_\_\_\_\_. **100 Gbps**
18. Since DNS request packets are simple and small, \_\_\_\_\_\_\_\_\_\_\_\_\_\_ are used for packet transport. **UDP datagrams**
19. What is the physical distance over which the wave’s shape repeats for a sine wave that is traveling in space at the speed of light? **(speed of light) / (frequency)**.
20. The amount of time that it takes for a packet to get from one end of the network to the other is called the **network propagation delay**.
21. The data link layer is divided into \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_ sublayers. **medium access control; logical link control**
22. Symmetric key cryptography requires **the same key be used for both encryption and decryption.**
23. What specific device is used to retransmit digital signals over long distances maintaining the integrity of the data? **Repeaters**
24. The dialogue between two cooperating applications or processes at the ends of the communication link on the OSI model is known as a **session**
25. The network mask is /16 in the prefix notation. To design subnetworks you borrowed 7 bits from the host part. What would be subnetwork mask in the prefix notation? **/23**
26. There must be a means to synchronize the data so that the receiver knows the boundaries of each byte. Ethernet frames use a(n) \_\_\_\_\_\_\_\_  for this purpose. **Preamble**
27. In part, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ focuses on methods to reserve and prioritize channel capacity to favor packets that require special treatment. **QoS**
28. How do routers and gateways differ? **Routers connect similar networks together; gateways interconnect dissimilar networks.**
29. Transmission media that confine the signal physically to a cable of some kind are called **guided media**.
30. Your company has been assigned the following IP address by ICANN: 21.190.50.0. What address class is it? **Class A**
31. Each wireless unit is connected by radio to a base station  \_\_\_\_\_\_\_\_\_\_\_\_\_ that is somewhat equivalent to a hub. **access point**
32. Your company has been assigned the following IP address by ICANN: 130.190.50.10. You need to create a network that consists of 600 subnetworks with each subnetwork having up to 300 hosts. Can the network be designed? (You may have to perform some calculations similar to those presented in the classroom and Homework 6.) **No**
33. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ transmission has the advantage that it can incorporate error correction directly into the signal, which means a higher likelihood that the original data can be reproduced exactly, error-free, at the receiving end of the channel. **Digital**
34. Which of the following topologies consists of point-to-point connections from each node on the network to the next node; the last node on the network is connected back to the first and there is no central hub? **Ring**
35. Optical multiplexing is known as **wavelength division multiplexing (WDM**).
36. Switched Ethernet does not actually implement the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ protocol, because connections are point-to-point and messages can’t become mixed together and garbled. **CSMA/CD**
37. What is the mask in decimal for the following IP address 130.100.50.10? **255.255.0.0**
38. A \_\_\_\_\_\_\_\_\_is equivalent to an envelope containing pages of data. **Packet**
39. For modems that transmit data one byte at a time the technique to synchronize the two systems is to provide clear start and stop signals for the data. This technique is known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_ transmission. **Asynchronous**
40. Analog cable TV carries dozens of channels over a single cable using **company multiplexing**
41. Since data communication is predominantly serial, we usually describe the data as a **byte stream**.
42. An alternative to configuring individual workstations is to establish configurations dynamically when the computers connect to the network. What is this approach called?   
    **DHCP**
43. In a wireless network where the access points are connected by radio, the mesh points operate at the \_\_\_\_\_\_\_\_\_\_\_ and are essentially invisible to the upper layers of the network. **media access control layer**
44. A signal travels from point A to B in a communication channel. The signal power at point A and B are 25 watts and 0.25 watts, respectively. Calculate the signal gain/loss in [decibels – dB] at point B. **The signal loss is 20 dB**
45. Modern routers, sometimes called \_\_\_\_\_\_\_\_\_\_\_\_, can prioritize and route packets based on the packet class. **DiffServ capable nodes**
46. Which Ethernet technology uses radio-based signals to communicate to devices connected on the local area network? **Wi-Fi**
47. Both wired and wireless analog signals are particularly susceptible to noise and attenuation and other forms of distortion in a channel because the distortion created cannot be **detected and reversed**.
48. What is a common name for one Wireless Ethernet standard? **Wi-Fi**
49. Sound is an example of a(n) \_\_\_\_\_\_\_\_\_\_\_\_ signal. **Analog**
50. Which type of topology defines the operational relationship between the various network components? **Logical**
51. Which type of network has ranges of only thirty feet or less, but is sufficient for an individual to interconnect his personal computing devices? **PAN**
52. Which of the following is a contender for a cellular technology global standard? **Long Term Evolution (LTE)**
53. An access router that is located between the public Internet and the internal LAN is called (a)n **edge router**.
54. Which is *not*an example of an unguided medium? **USB connection from computer to smartphone**
55. What makes virtual circuits more efficient in the use of transmission resources than traditional circuit switching? **Links and intermediate nodes are shared with other connections.**
56. The most familiar, and often most practical and useful, way to categorize networks is by their **geographical range of service**.
57. To identify the network application requesting service, the transport protocol identifies the application that created the message and the application that is to receive the message with **port numbers**.
58. The most recent versions of Wi-Fi use a modulation technique called **orthogonal frequency division multiplexing (OFDM)**.
59. Which of the following is not part of the TCP/IP protocol suite? **SMS**
60. A signal may take on a continuous range of values, in which case it is known as a(n) **analog signal socket**