

QUIZ Chapter 3

1. Which of the following describes the arrangement of network cabling between devices?
 - a. Logical topology
 - b. Networking technology
 - c. Physical topology
 - d. Media access method
2. Which of the following is an advantage of a star topology? (Choose all that apply.)
 - a. Allows faster technologies than a bus does
 - b. Requires less cabling than a bus
 - c. Centralized monitoring of network traffic
 - d. No single point of failure
3. Which topology is likely to be deployed in a WAN where there's a central office and three branch offices, and you want all traffic from the branch offices to go through the central office network?
 - a. Ring
 - b. PMP
 - c. Mesh
 - d. Point-to-point
4. Which technology is likely to be implemented as a point-to-point physical topology?
 - a. Wi-Fi infrastructure mode
 - b. FDDI
 - c. Ethernet
 - d. Wireless bridge
5. Which of the following describes a hub-based Ethernet network?
 - a. Physical bus
 - b. Logical bus
 - c. Physical switching
 - d. Logical star
6. You're configuring a WLAN in a long narrow ballroom. The only place you can put the AP is at the far end of the room. Which type of antenna should you use?
 - a. Unidirectional
 - b. Bidirectional
 - c. Omnidirectional
 - d. Semidirectional
7. Which best describes a typical wireless LAN?
 - a. Logical ring topology
 - b. Logical switching topology
 - c. Logical bus topology
 - d. Logical star topology
8. Which of the following is a characteristic of a switched logical topology? (Choose all that apply.)
 - a. Uses a physical bus topology
 - b. Creates dynamic connections
 - c. Sometimes called a shared-media topology
 - d. Uses a physical star topology
9. Which of the following is a characteristic of unshielded twisted-pair cabling? (Choose all that apply.)
 - a. Consists of four wires
 - b. Commonly used in physical bus topologies
 - c. Has a distance limitation of 100 meters
 - d. Susceptible to electrical interference
10. Which of the following is a characteristic of fiber-optic cabling? (Choose all that apply.)
 - a. Can be used in electrically noisy environments
 - b. Requires only a single strand of fiber for network connections

- c. Carries data over longer distances than UTP does
 - d. Lower bandwidth capability
11. Which topology most likely uses coaxial cabling?
- a. Physical star
 - b. Logical ring
 - c. Physical bus
 - d. Logical switching
12. Which of the following is true of a MAC address?
- a. All binary 1s in the source address indicates a broadcast frame.
 - b. It's sometimes called a logical address.
 - c. A destination address of 12 hexadecimal Fs is a broadcast.
 - d. It's composed of 12 bits.
13. Which type of Wi-Fi signal interference is most likely to be caused by leaves on trees?
- a. Diffraction
 - b. Reflection
 - c. Refraction
 - d. Scattering
14. Which of the following is a field of the most common Ethernet frame type? (Choose all that apply.)
- a. ARP trailer
 - b. FCS
 - c. Destination MAC Address
 - d. Data
 - e. MAC type
15. Which access method uses a "listen before sending" strategy?
- a. Token passing
 - b. CSMA/CD
 - c. Token bus
 - d. Polling
16. Which of the following is true about full-duplex Ethernet? (Choose all that apply.)
- a. Stations can transmit and receive but not at the same time.
 - b. Collision detection is turned off.
 - c. It's possible only with switches.
 - d. It allows a physical bus to operate much faster.
17. Which of the following is defined by the extent to which signals in an Ethernet bus topology network are propagated?
- a. Physical domain
 - b. Collision domain
 - c. Broadcast domain
 - d. Logical domain
18. Which of the following is considered a property of Ethernet? (Choose all that apply.)
- a. Scalable
 - b. Best-effort delivery system
 - c. Guaranteed delivery system
 - d. Obsolete technology
19. Which of the following is true of IEEE 802.3an?
- a. Requires two pairs of wires
 - b. Uses Category 5 or higher cabling
 - c. Currently best for desktop computers
 - d. Operates only in full-duplex mode
20. Which of the following is a feature of 100BaseFX? (Choose all that apply.)
- a. Often used as backbone cabling
 - b. Best when only short cable runs are needed
 - c. The fastest of the Ethernet standards
 - d. Uses two strands of fiber

21. Which Wi-Fi standard can provide the highest bandwidth?
- 802.11ac
 - 802.11b
 - 802.11n
 - 802.11g
22. Which of the following is true about infrastructure mode in wireless networks? (Choose all that apply.)
- Best used for temporary networks
 - Uses a central device
 - Resembles a physical bus and logical ring
 - Most like a logical bus and physical star
23. How many channels can be used on an 802.11b network in North America?
- 7
 - 9
 - 11
 - 13
24. Which media access method does Wi-Fi use?
- CSMA/CD
 - Token bus
 - Demand priority
 - CSMA/CA
25. Which Wi-Fi standard uses beamforming to allow an AP to send data to multiple devices simultaneously?
- 802.11ac
 - 802.11n
 - 802.11a
 - 802.11g

Case Project 3-1

Old-Tech Corporation has 10 computers in its main office area, which is networked in a star topology using 10 Mbps Ethernet hubs, and wants to add five computers in the manufacturing area. One problem with the existing network is data throughput. Large files are transferred across the network regularly, and the transfers take quite a while. In addition, when two or more computers are transferring large files, the network becomes unbearably slow for users. Adding the manufacturing computers will only make this problem worse and result in another problem. Because the ceiling is more than 30 feet high, there's no easy way to run cables to computers, and providing a secure pathway for cables is next to impossible. Devise a solution to this company's networking problems. As part of your solution, answer the following questions:

- What changes in equipment are required to bring this company's network up to date to solve the shared-bandwidth problem?
- What topology and which type of device can be used in the manufacturing area to solve the cabling difficulties?

Case Project 3-2

EBiz.com has 250 networked computers and five servers and uses a star topology wired network to reach employees' offices, with a bus interconnecting three floors in its office building. Because of a staggering influx of Internet business, the network administrator's task is to boost network performance and availability as much as possible. The company also wants a network design that's easy to reconfigure and change because workgroups form and disband frequently, and their membership changes regularly. All computers must share sensitive data and control access to customer files and databases.

Aside from the customer information and billing databases, which run on all servers, employees' desktop computers must run standard word-processing and spreadsheet programs.

Use the following write-on lines to evaluate the requirements for this network. After you finish, determine the best network topology or topology combination for the company. On a blank piece of paper, sketch the network design you think best suits EBiz.com's needs. Remember: High performance and easy reconfiguration are your primary design goals!

- What type of topology should be used in this network?

- Will the network be peer to peer or server based?

- How many computers will be attached to the network?

- What kind of networking device is easiest to reconfigure? What kind offers the best access to the network medium's bandwidth between pairs of devices?

1. c. Physical topology
2. c. Centralized monitoring of network traffic d. No single point of failure
3. b. PMP (Point-to-Multipoint)
4. b. FDDI
5. a. Physical bus
6. a. Unidirectional
7. d. Logical star topology
8. b. Creates dynamic connections d. Uses a physical star topology
9. a. Consists of four wires c. Has a distance limitation of 100 meters d. Susceptible to electrical interference
10. c. Carries data over longer distances than UTP does
11. c. Physical bus
12. c. A destination address of 12 hexadecimal Fs is a broadcast.
13. a. Diffraction

- 14. c. Destination MAC Address d. Data
- 15. b. CSMA/CD
- 16. b. Collision detection is turned off. c. It's possible only with switches.
- 17. b. Collision domain
- 18. a. Scalable b. Best-effort delivery system
- 19. b. Uses Category 5 or higher cabling
- 20. a. Often used as backbone cabling b. Best when only short cable runs are needed
d. Uses two strands of fiber
- 21. a. 802.11ac
- 22. b. Uses a central device d. Most like a logical bus and physical star
- 23. c. 11
- 24. d. CSMA/CA
- 25. a. 802.11ac