
CHAPTER 1

Introduction

Review Questions

1. Sender, receiver, medium, message, and protocol.
2. Security, distributed databases, collaborative processing, faster problem solving.
3. Performance, reliability, security.
4. Advantages of a multipoint over a point-to-point configuration (type of connection) include ease of installation and low cost.
5. Line configurations (or types of connections) are point-to-point and multipoint.
6. Point-to-point: mesh, star, and ring. Multipoint: bus
7. In half-duplex transmission, only one entity can communicate at a time; in a full-duplex transmission, both entities can communicate at the same time.
8. Mesh: secure
Bus: easy installation
Star: robust
Ring: easy fault isolation
9.
 - a. Mesh: $n(n - 1) / 2$
 - b. Star: n
 - c. Ring: $n - 1$
 - d. Bus: one backbone and n drop lines
10. Size, distances covered by the network, structure, and ownership.
11. An *internet* is an interconnection of networks. The *Internet* is the name of a specific worldwide network
12. A protocol defines what is communicated, in what way and when. This provides accurate and timely transfer of information between different devices in a network.
13. Standards are needed to create and maintain an open and competitive market for manufacturers, to coordinate protocol rules, and thus guarantee compatibility of data communication technologies.

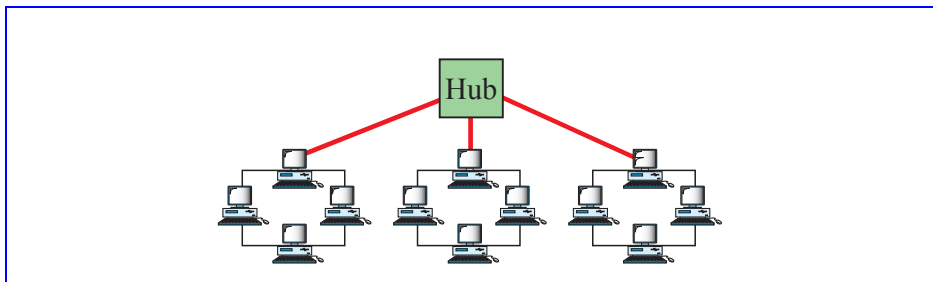
Multiple-Choice Questions

- 14. b
- 15. c
- 16. b
- 17. c
- 18. b
- 19. c
- 20. a
- 21. a
- 22. a
- 23. a
- 24. b
- 25. c
- 26. b
- 27. c

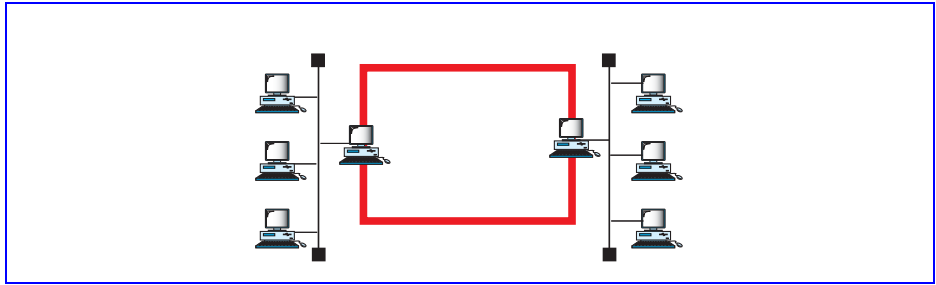
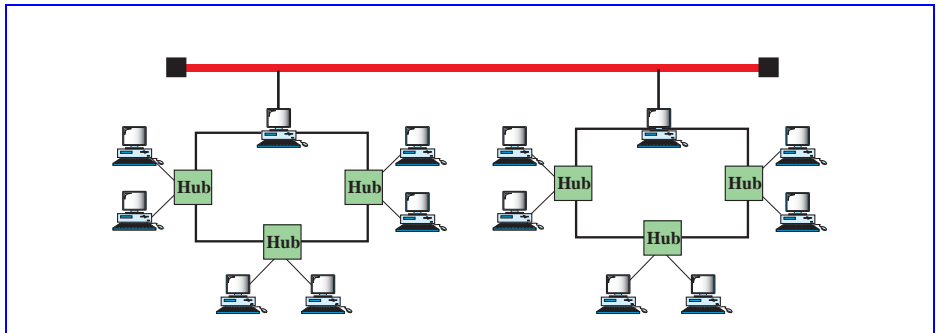
Exercises

- 28.
 - a. Cable links: $n(n-1)/2 = (6 \times 5)/2 = 15$
 - b. Number of ports: $(n-1) = 5$ ports needed per device
- 29.
 - a. If one connection fails, the other connections will still be working.
 - b. The other devices will still be able to send data through the hub; there will be no access to the device which has the failed connection to the hub.
 - c. All transmission stops.
 - d. The failed connection may disable the whole network unless it is a dual ring.
- 30. See Figure 1.1

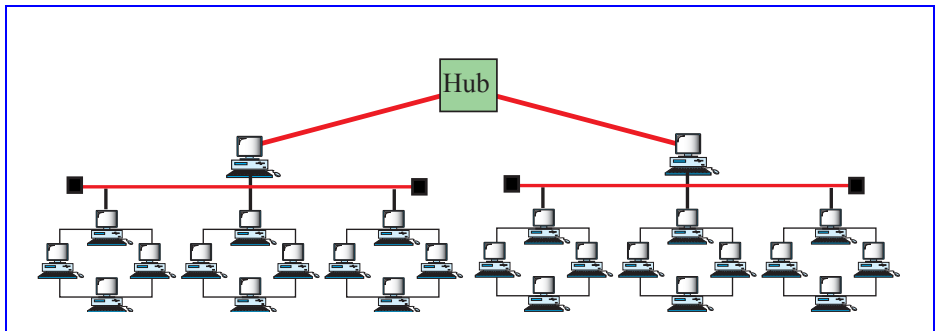
Figure 1.1 Exercise 30



- 31. See Figure 1.2.
- 32. See Figure 1.3.

Figure 1.2 Exercise 31**Figure 1.3** Exercise 32

33. See Figure 1.4.

Figure 1.4 Exercise 33

34.

- a. ISO 8877—Interface in Integrated Services Digital Network (ISDN)
- b. ISO 3309—HDLC frame structure
- c. ISO 8028—X.25 packet level protocol

35.

- a. V.32: Defines data transmission over phone lines
- b. X.25: Defines transmission over public digital networks

- c. I.430: Define physical layer specifications for an interface
- 36.
- X3. 23-1985 Programming language COBOL
 - SONET Synchronous Optical Network
 - ISDN Integrated Services Digital Network
- 37.
- a. IEEE 802.3: CSMA/CD LAN
 - b. IEEE 802.4: Token Bus LAN
 - c. IEEE 802.5: Token Ring LAN
- 38.
- a. EIA-232: A 25-pin interface standard
 - b. EIA-449: Specifies a 37-pin connector and a 9-pin connector
 - c. EIA-530: Defines a 25-pin connector
- 39.
- a. Talking with a friend on the phone
 - b. Checking banking account information and making transactions on line
40. It's a point-to-point connection because it is a dedicated link between two callers.