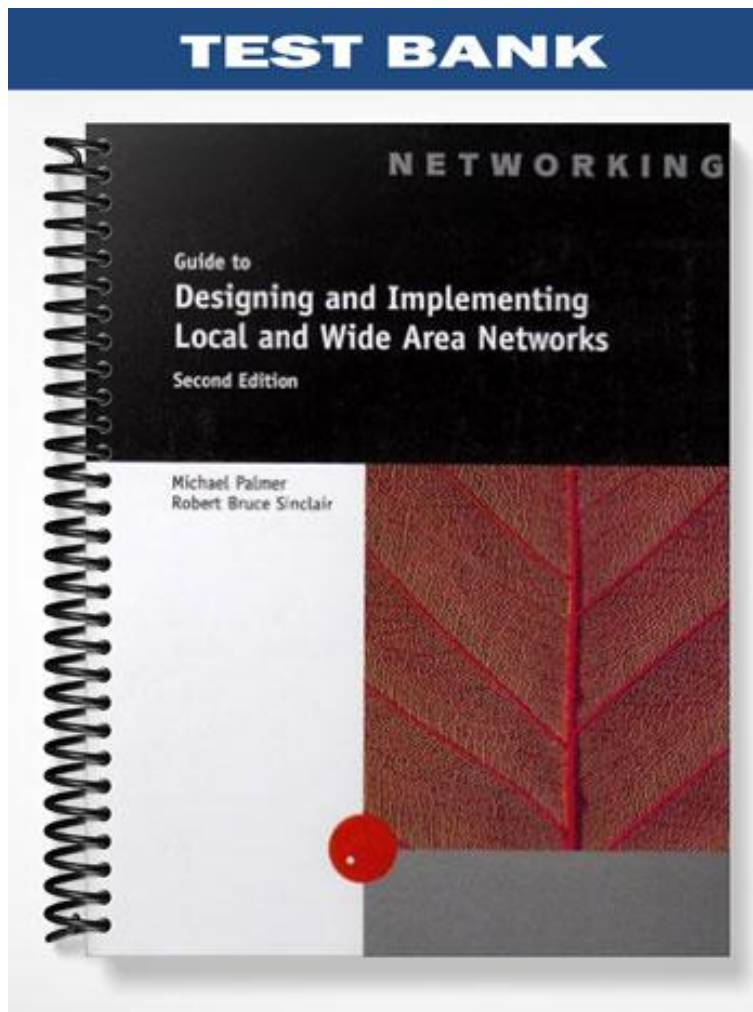


TEST BANK



Chapter 2 - LAN/WAN Interconnectivity

TRUE/FALSE

1. Taken together, the set of layers of the OSI model is called a stack.

ANS: T PTS: 1 REF: 44

2. SSL is a data encryption technique employed between a server and a client.

ANS: T PTS: 1 REF: 83

3. Typically, if a network has a low startup cost, there will be a low cost to maintain it.

ANS: F PTS: 1 REF: 58

4. In a traditional ring design, there are two terminators.

ANS: F PTS: 1 REF: 61

5. When data is transmitted in Ethernet communications, it is encapsulated in frames.

ANS: T PTS: 1 REF: 65

6. It is okay to use Ethernet II and standard 802.3 frames among the same communicating nodes on the same network.

ANS: F PTS: 1 REF: 66

7. All MAUs must have terminators.

ANS: F PTS: 1 REF: 68

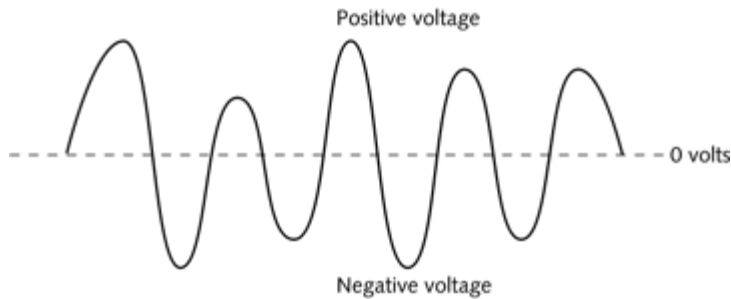
8. When using FDDI, it is possible for several frames from several nodes to be on the network at a given time.

ANS: T PTS: 1 REF: 71

9. The telephone companies were the earliest source of WAN connectivity.

ANS: T PTS: 1 REF: 72

MODIFIED TRUE/FALSE



1. The figure above is a representation of a(n) digital signal. _____

ANS: F, analog

PTS: 1 REF: 44

2. Flow control ensures that one device does not send information faster than it can be received by another device. _____

ANS: T PTS: 1 REF: 49

3. The number, size, and frequency of packets transmitted on a network in a given amount of time is referred to as network usage. _____

ANS: F, network traffic

PTS: 1 REF: 58

4. A(n) backbone is a high-capacity communications medium that joins networks and central network devices on the same floor in a building, on different floors, and across long distances.

ANS: T PTS: 1 REF: 63

5. Discovery is the process of checking communication cable for a specific voltage level indicating the presence of a data-carrying signal. _____

ANS: F, Carrier sense

PTS: 1 REF: 64

6. The token ring transport method uses a physical star topology along with the logic of a(n) ring topology. _____

ANS: T PTS: 1 REF: 67

7. A(n) broadcast frame is one that is sent to all points on the network. _____

ANS: T PTS: 1 REF: 70

8. A(n) T-carrier line is a dedicated telephone line that can be used for data communications to connect two different locations for continuous point-to-point communications. _____

ANS: T

PTS: 1

REF: 74

9. Throughput is the transmission capacity of a communications medium, which is typically measured in bits per second or hertz, and which is determined by the maximum minus the minimum transmission capacity. _____

ANS: F, Bandwidth

PTS: 1

REF: 77

MULTIPLE CHOICE

1. The OSI is the product of which standards organization?
- a. ISO
 - b. ANSI
 - c. IEEE
 - d. Both A and B.

ANS: D

PTS: 1

REF: 42

2. ____ encoding assigns a binary value to the presence of a particular signal state.
- a. Binary
 - b. Current-state
 - c. State-transition
 - d. Basic

ANS: B

PTS: 1

REF: 45

3. ____ encoding simply checks for a change in the signal state, from low to high or high to low.
- a. Binary
 - b. Current-state
 - c. State-transition
 - d. Basic

ANS: C

PTS: 1

REF: 45

4. EMI is a source of ____ layer interference.
- a. Data Link
 - b. Network
 - c. Physical
 - d. Transport

ANS: C

PTS: 1

REF: 46

5. The MAC sublayer of the Data Link layer does not ____.
- a. ensure reliable communications by initiating a communications link between two nodes and then guarding them against interruptions to the link
 - b. examine the physical or device address information contained in each frame
 - c. regulate how multiple devices share communications on the same network
 - d. None of the above.

ANS: A

PTS: 1

REF: 47

6. A device's MAC address is coded as a ____ number.
- a. binary
 - b. decimal
 - c. hexadecimal
 - d. None of the above.

ANS: C

PTS: 1

REF: 47

7. ____ is a process used by routers that involves gathering information about how many nodes are on a network and where they are located.
- a. Encryption
 - b. Broadcasting
 - c. Beaconsing
 - d. Discovery

ANS: D PTS: 1 REF: 48

8. The ____ layer offers a way to set up half- and full-duplex communications.
- a. Communications
 - b. Network
 - c. Session
 - d. Transport

ANS: C PTS: 1 REF: 51

9. ____ protocols enable an OSI layer on a sending node to communicate with the same layer on the receiving node.
- a. Layer
 - b. Peer
 - c. Link
 - d. Transfer

ANS: B PTS: 1 REF: 54

10. A primitive is ____.
- a. a command used to transfer information from one layer in an OSI stack to another layer
 - b. the smallest unit of data allowed in the Physical layer
 - c. a command used to transfer information from an OSI layer on the sending node to the same layer on the receiving node
 - d. Both A and B.

ANS: A PTS: 1 REF: 55

11. The "P" in PDU stands for ____.
- a. protocol
 - b. peer
 - c. prototype
 - d. primitive

ANS: A PTS: 1 REF: 55

12. After the PDU is received by the next layer, the control information and transfer instructions are stripped out, and the resulting packet is called the ____.
- a. stripped data unit
 - b. single data unit
 - c. service data unit
 - d. secure data unit

ANS: C PTS: 1 REF: 56

13. Network interface cards, intelligent hubs, and bridges are found in the ____ layer of the OSI model.
- a. Network
 - b. Physical
 - c. Transport
 - d. Data Link

ANS: D PTS: 1 REF: 57

14. Flow control software and capabilities are found in the ____ layer of the OSI model.
- a. Network
 - b. Session
 - c. Transport
 - d. Data Link

ANS: C PTS: 1 REF: 57

15. ____ are used least frequently on networks.
- a. Gateways
 - b. Bridges
 - c. Routers
 - d. Switches

ANS: A PTS: 1 REF: 58

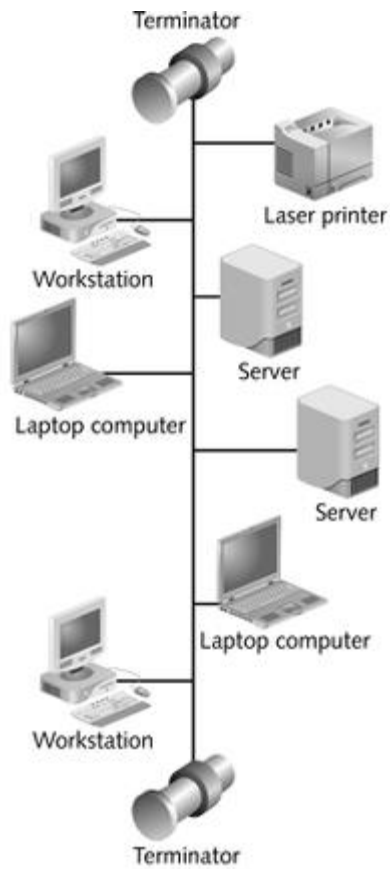
16. ____ generates the least amount of network traffic.

- a. Network users primarily accessing word-processing software
- b. Networks on which there is frequent exchange of database information
- c. Scientific and publications software
- d. Both A and B.

ANS: A

PTS: 1

REF: 58



17. The figure above shows a ____ network.
- a. bus
 - b. ring
 - c. star
 - d. None of the above.

ANS: A

PTS: 1

REF: 60

18. Which is not true about bus networks?
- a. They are relatively inexpensive to implement.
 - b. It is easy to isolate a single malfunctioning node or cable segment.
 - c. They work well for small networks.
 - d. None of the above.

ANS: B

PTS: 1

REF: 61

22. The ____ topology is the oldest communications design method, with roots in telephone switching systems.
- a. bus
 - b. ring
 - c. star
 - d. None of the above.

ANS: C PTS: 1 REF: 62

23. The ____ topology is the most popular topology in use.
- a. bus
 - b. ring
 - c. star
 - d. None of the above.

ANS: C PTS: 1 REF: 62

24. The Ethernet protocol permits ____ node(s) to transmit at any time.
- a. one
 - b. two
 - c. three
 - d. There is no limit.

ANS: A PTS: 1 REF: 64

25. The token ring access method was developed by ____.
- a. HP
 - b. IBM
 - c. 3Com
 - d. Intel

ANS: B PTS: 1 REF: 67

26. The ____ part in a frame synchronizes frame transmission and consists of an alternating pattern of zeros and ones.
- a. preamble
 - b. SFD
 - c. FCS
 - d. destination address

ANS: A PTS: 1 REF: 65

27. The ____ field is not a field in a token.
- a. access control
 - b. starting delimiter
 - c. ending delimiter
 - d. None of the above.

ANS: D PTS: 1 REF: 68

28. The ____ field uses a cyclic redundancy check in a token ring frame.
- a. frame check sequence
 - b. PAD
 - c. start delimiter
 - d. end delimiter

ANS: A PTS: 1 REF: 69

29. ____ is an error condition on a token ring network that indicates one or more nodes is not functioning.
- a. Broadcasting
 - b. Switching
 - c. Redirecting
 - d. Beaconsing

ANS: D PTS: 1 REF: 70

30. Which is not true about FDDI?
- a. It uses token passing for network communications.
 - b. It uses fiber-optic cable as the communications medium.
 - c. It was developed in the mid-1980s to provide higher-speed data communications than that offered by Ethernet or token ring.

d. None of the above.

ANS: D PTS: 1 REF: 71

31. ____ is the process of transmitting a data-carrying packet over radio waves through short bursts.
- a. Bursting
 - b. Packet radio
 - c. Beacons
 - d. Broadcasting

ANS: B PTS: 1 REF: 77

32. ____ does not guarantee the most efficient use of the network medium, because transmission occurs on only one channel at a time.
- a. TDMA
 - b. FDMA
 - c. Statistical multiple access
 - d. Both A and B.

ANS: A PTS: 1 REF: 78

33. ____ divides the channels into frequencies, and each channel has its own broadcast frequency and bandwidth.
- a. TDMA
 - b. FDMA
 - c. Statistical multiple access
 - d. Both A and B.

ANS: B PTS: 1 REF: 78

34. ____ is the most efficient method.
- a. TDMA
 - b. FDMA
 - c. Statistical multiple access
 - d. Both A and B.

ANS: C PTS: 1 REF: 79

35. ____ uses a store-and-forward communication method to transmit data from sending to receiving node.
- a. Packet switching
 - b. Primitive switching
 - c. Message switching
 - d. Circuit switching

ANS: C PTS: 1 REF: 79

36. ____ establishes a dedicated logical circuit between the two transmitting nodes.
- a. Packet switching
 - b. Primitive switching
 - c. Message switching
 - d. Circuit switching

ANS: A PTS: 1 REF: 79

YES/NO

1. In a connectionless protocol a logical connection is established between sending and receiving nodes before full communications begin.

ANS: N PTS: 1 REF: 48

2. Two computers can communicate within a LAN or across a WAN even if they are not both operating under the same communication model.

ANS: N PTS: 1 REF: 53

3. High-speed capability is especially important when images, graphics, and other large files need to be transported over long distance or onto WANs.

ANS: Y PTS: 1 REF: 59

4. Token ring is defined through the IEEE 802.3 specifications.

ANS: N PTS: 1 REF: 64

5. Ethernet uses a control method known as CSMA/CD.

ANS: Y PTS: 1 REF: 64

6. Ethernet currently enjoys more popularity than token ring because there are many Ethernet network equipment options and because it is well-suited for high-speed WAN connectivity.

ANS: Y PTS: 1 REF: 67

7. Broadcast storms are more common on token ring networks than on Ethernet networks.

ANS: N PTS: 1 REF: 70

8. FDDI employs two rings, so that if one ring malfunctions, data can reach its destination on the other ring.

ANS: Y PTS: 1 REF: 72

9. Satellite is the most expensive way to build a wireless WAN that connects LANs.

ANS: Y PTS: 1 REF: 78

COMPLETION

1. An ordinary radio or telephone signal is an example of a(n) _____ transmission.

ANS: analog

PTS: 1 REF: 44

2. _____ are logical communication paths set up to send and receive data.

ANS: Virtual circuits

PTS: 1 REF: 49

3. The _____ is the total amount of communications cable that makes up a network.

ANS: cable plant

PTS: 1 REF: 81

4. A bus network has a(n) _____ at each end.

ANS: terminator

PTS: 1 REF: 59

5. Modern networks combine the logical communications of a(n) _____ with the physical layout of a(n) _____.

ANS: bus, star

PTS: 1 REF: 63

6. _____ is used to provide a way to quickly adapt protocols that are not fully compliant with 802.2 standards, such as AppleTalk and DEC's LAT protocols.

ANS:
Ethernet SNAP
SNAP

PTS: 1 REF: 67

7. Each token ring network designates one node as the _____, which is responsible for packet timing on the network and for issuing new token frames if problems occur.

ANS: active monitor

PTS: 1 REF: 70

8. Regional telephone companies are also called _____ or regional bell operating companies (RBOCs).

ANS: telcos

PTS: 1 REF: 72

9. _____ is a network communication technique that uses a dedicated channel to transmit information between two nodes.

ANS: Circuit switching

PTS: 1 REF: 79

MATCHING

Match each correct item with the statement below.

- | | |
|----------------------|-----------------------|
| a. Application Layer | e. Data Link Layer |
| b. Physical Layer | f. Transport Layer |
| c. Session Layer | g. Presentation Layer |
| d. Network Layer | |

1. The bottom layer of the OSI model.
2. Whenever you use an Internet browser, you are working through this layer.
3. This layer establishes the level of packet error checking.
4. The task of this layer is to organize bits so that they are formatted into frames.

5. This layer is responsible for data encryption.
6. This layer ensures that data is sent and received in the same order.
7. This is the layer computer programmers use to connect workstations to network services.
8. This layer determines how long a node can transmit and how to recover from transmission errors.
9. This layer controls the passage of packets along the network.

1. ANS: B	PTS: 1	REF: 43
2. ANS: C	PTS: 1	REF: 52
3. ANS: F	PTS: 1	REF: 49
4. ANS: E	PTS: 1	REF: 46
5. ANS: G	PTS: 1	REF: 51
6. ANS: F	PTS: 1	REF: 49
7. ANS: A	PTS: 1	REF: 52
8. ANS: C	PTS: 1	REF: 50
9. ANS: D	PTS: 1	REF: 48

SHORT ANSWER

1. List three ways in which the OSI model, over the years, has facilitated the growth in network communications.

ANS:

The OSI model, over the years, has facilitated the growth in network communications in the following ways:

1. Enabling communications between different types of LANs and WANs.
2. Providing standardization of network equipment so that equipment from one vendor communicates with equipment from another vendor.
3. Helping customers to retain their investment by enabling older network equipment to communicate with newer equipment, reducing the need for equipment replacement when new devices are installed.
4. Enabling software and hardware to be developed using common interfaces for communicating within and between networks.
5. Making possible worldwide network communications, with the Internet as a prime example.

PTS: 1 REF: 42

2. What is a cyclic redundancy check, and at which OSI layer is it performed?

ANS:

A cyclic redundancy check is an error-detection method that calculates a value for the total size of the information fields contained in a frame. The value is inserted near the end of a frame by the Data Link layer on the sending node and checked by the Data Link layer on the receiving node to determine if a transmission error has occurred.

PTS: 1 REF: 47

3. What is encryption? Which OSI layer is responsible for encryption?

ANS:

Encryption is a process that scrambles the data so that it cannot be read if intercepted by unauthorized users. The Presentation layer is responsible for data encryption.

PTS: 1 REF: 51

4. What is a redirector? What OSI layer is it used in?

ANS:

A redirector is a service used via the Application layer to recognize and access other computers.

PTS: 1 REF: 52

5. What is a hub? With which network topology are hubs associated?

ANS:

A hub is a central device that joins single cable segments or individual LANs into one network. Hubs are found in star topologies.

PTS: 1 REF: 62

6. What is a collision? How are collisions detected?

ANS:

A collision is a situation in which two or more packets are detected at the same time on an Ethernet network. The transmitting node detects a collision by measuring the signal strength. A collision has occurred if the signal is at least twice the normal strength. A transmitting node uses the collision detection software algorithm to recover from packet collisions.

PTS: 1 REF: 64

7. What is a MAU? With which type of access method are MAUs associated?

ANS:

A MAU, or multistation access unit, is a centralized hub that links token ring nodes into a topology that physically resembles a star, but in which frames are transmitted in a logical ring pattern.

PTS: 1 REF: 82

8. What are the two types of packets that can be sent by FDDI? When is each type used?

ANS:

Two types of packets can be sent by FDDI: synchronous and asynchronous. Synchronous communications are used for time-sensitive transmissions requiring continuous transmission, such as voice, video, and multimedia traffic. Asynchronous communications are used for normal data traffic, which does not have to be sent in continuous bursts.

PTS: 1 REF: 71

9. What is a headend?

ANS:

On a cable TV WAN, a headend is a central receiving point for signals from various sources, including satellite, other major cable sources, and local television sources.

PTS: 1 REF: 75