

TRUE/FALSE

1. Only one type of wireless NIC is available for laptop computers.

ANS: F PTS: 1 REF: 35

2. CF cards consist of a small circuit board that contains flash memory chips and a dedicated controller chip.

ANS: T PTS: 1 REF: 36

3. If a remote wireless bridge is in repeater mode it functions as a standard AP only and does not communicate with other remote wireless bridges.

ANS: F PTS: 1 REF: 41

4. De facto standards are not actually standards at all.

ANS: T PTS: 1 REF: 46

5. The IEEE 802.11g draft was a compromise based on input from several different chip (microprocessor) manufacturers, who had a major stake in the outcome.

ANS: T PTS: 1 REF: 57

MULTIPLE CHOICE

1. What is another name for a NIC?
- a. client network adapter
 - b. mini PCI
 - c. access point
 - d. bridge

ANS: A PTS: 1 REF: 34

2. A(n) ____ card improves input/output speed over a PC Card by increasing the bus width to 32 bits yet still supports lower-voltage PC Cards.

- a. mini PCI
- b. CardBus
- c. built-in
- d. access point

ANS: B PTS: 1 REF: 35

3. A device called a ____ must sometimes be attached to a PDA in order to establish a wireless connection. The device contains a slot for a wireless NIC or similar device.

- a. shoe
- b. slot
- c. sled
- d. bridge

ANS: C PTS: 1 REF: 35-36

4. Which of the following statements describes the difference between a CF wireless NIC and a PC card?

- a. PC card is smaller than CF
- b. PC card consumes less power than CF
- c. PC card is larger than CF

ANS: C PTS: 1 REF: 36

a. NT c. 2000
b. ME d. XP

- IEEE 802
- RJ-45
- compact flash
- PCI

[illegible]

- through radio waves
- through the unused wires in a standard unshielded twisted pair (UTP) Ethernet cable
- through a USB cable
- it must be mounted near an outlet

- a. delay spread
- b. interspersed communications
- c. scheduled delays
- d. multipoint scheduling

- segment-to-segment
- point-to-point
- multipoint-to-multipoint
- point-to-multipoint

- access point mode
- root mode
- non-root mode
- repeater mode

- authentication
- encryption
- bandwidth management
- All of the above

ANS: D PTS: 1 REF: 42-43

13. What is a disadvantage of standards?
- a. reduced competition
 - b. devices produced by different vendors may not interoperate
 - c. higher prices
 - d. they can open domestic markets in larger countries to overseas competition

ANS: D PTS: 1 REF: 45

14. Microsoft Windows has become the ____ standard operating system today for personal desktop computers and network servers.
- a. de facto
 - b. de jure
 - c. consortia
 - d. All of the above

ANS: A PTS: 1 REF: 46

15. Ultimately, who regulates standards that are developed by consortia?
- a. a regulatory body
 - b. the marketplace
 - c. the government
 - d. the manufacturers

ANS: B PTS: 1 REF: 47

16. What is the name for the computer network architecture standards developed by the IEEE?
- a. Project Athena
 - b. Project Network
 - c. Project 802
 - d. Project 1000

ANS: C PTS: 1 REF: 48

17. Which IEEE committee establishes standards for wireless wide area networks?
- a. 802.3
 - b. 802.11
 - c. 802.13
 - d. 802.16

ANS: D PTS: 1 REF: 49

18. When a business is registered as a ____ they are qualified be placed in an online database of wireless hotspot locations.
- a. Wi-Fi Alliance member
 - b. Wi-Fi Zone
 - c. SOHO
 - d. WECA

ANS: B PTS: 1 REF: 49

19. The radio frequency spectrum is divided into ____ different sections or bands.
- a. 300
 - b. 450
 - c. 900
 - d. 1200

ANS: B PTS: 1 REF: 51

20. The IEEE 802.11 standard outlines the use of ____ transmissions for WLANs.
- a. diffused infrared
 - b. directed infrared
 - c. radio wave
 - d. gallium arsenide

ANS: A PTS: 1 REF: 54

21. The 802.11b standard can support wireless devices that are up to ____ meters apart.
- a. 30
 - c. 115

b. 90

d. 130

ANS: C

PTS: 1

REF: 56

COMPLETION

1. A(n) _____ is a small card that is functionally equivalent to a standard PCI expansion card.

ANS: Mini PCI

PTS: 1

REF: 35

2. Access points are typically mounted on a(n) _____ to reduce interference from surrounding objects.

ANS: ceiling

PTS: 1

REF: 38

3. Remote wireless _____ are ideal solutions for connecting sites such as satellite offices, remote campus settings, or temporary office locations when the sites are separated by obstacles such as bodies of water, freeways, or railroads that make using a wired connection impractical or very expensive.

ANS: bridges

PTS: 1

REF: 42

4. The goal of a(n) _____ is to develop standard that promote their specific technology in a short period of time.

ANS: consortium

PTS: 1

REF: 47

5. _____ bands are in effect bands of the radio spectrum that are available nationwide to all users, without requiring a license.

ANS: Unregulated

PTS: 1

REF: 52

MATCHING

Match each term with the correct statement below.

a. wireless gateway

f. flash memory

b. IEEE

g. NIC

c. bridge

h. de jure standards

d. mini PCI

i. FCC

e. de facto standard

1. serves as the primary regulatory agency for wireless communications in the United States and its territorial possessions
2. device that connects the computer to the network so that it can send and receive data
3. device that combines wireless management and security in a single appliance
4. type of solid-state (microchip) storage technology in which there are no moving parts
5. common practices that the industry follows for various reasons, ranging from ease of use to tradition to what the majority of the users do
6. small card that is functionally equivalent to a standard PCI expansion card
7. standards that are controlled by an organization or body that has been entrusted with that task
8. device that is used to connect two network segments together
9. world's largest technical professional society with members around the globe

1. ANS: I	PTS: 1	REF: 50 59
2. ANS: G	PTS: 1	REF: 34 59
3. ANS: A	PTS: 1	REF: 42 60
4. ANS: F	PTS: 1	REF: 36 59
5. ANS: E	PTS: 1	REF: 46 59
6. ANS: D	PTS: 1	REF: 35 59
7. ANS: H	PTS: 1	REF: 46 59
8. ANS: C	PTS: 1	REF: 39 59
9. ANS: B	PTS: 1	REF: 48 59

SHORT ANSWER

1. What are the steps involved in a wireless NIC transmission?

ANS:

1. Change the computer's internal data from parallel to serial transmission.
2. Divide the data into packets (smaller blocks of data) and attach the sending and receiving computer's address.
3. Determine when to send the packet.
4. Transmit the packet.

PTS: 1 REF: 34

2. What are the two functions of an access point?

ANS:

First, the access point acts as the base station for the wireless network. All of the devices that have a wireless NIC can transmit to the AP, which in turn redirects the signal to the other wireless devices. The second function of an AP is to act as a bridge between wireless and wired networks. The AP can be connected to the standard network by a cable, allowing the wireless devices to access the data network through it

PTS: 1 REF: 37-38

3. A remote wireless bridge can function in one of four different modes. Describe each mode.

ANS:

If a remote wireless bridge is in access point mode it functions as a standard AP only and does not communicate with other remote wireless bridges.

In root mode the bridge, called the root bridge, can only communicate with other bridges that are not in root mode. A root bridge cannot communicate with another root bridge or any wireless clients. If a remote wireless bridge is set to non-root mode, it can only transmit to another bridge in root mode. Some bridge manufacturers enable a remote wireless bridge also to be configured as an access point. This allows the bridge to communicate with a remote wireless root bridge while simultaneously sending and receiving signals with the wireless clients. In order to extend the distance between LAN segments, another remote wireless bridge may be positioned between two other bridges. This bridge is then in repeater mode.

PTS: 1 REF: 41

4. List at least three advantages of standards for wireless technology.

ANS:

Standards ensure that devices from one vendor will interoperate with those from other vendors. Devices that are not based on standards may not be able to connect and interoperate with similar devices from other vendors.

Standards create competition. If a vendor creates a new device apart from standards it is called a proprietary device. The vendor owns the specifications and perhaps even a patent on the device. This makes it almost impossible for another manufacturer to produce a similar device. On the other hand, because standards apply to everyone, any vendor can create a device based on a standard.

Competition results in lower costs for consumers and manufacturers. When several vendors make similar products based on the same standards, it is likely that they will also compete on prices. Competition also results in lower costs for manufacturers. Because standards have been established, manufacturers do not have to invest large amounts of capital in research and development. This reduces startup costs as well as the amount of time needed to bring a product to the market. Also, manufacturing to standards encourages manufacturers to deploy mass production techniques and economies of scale to keep production costs low, savings that in turn are passed on to consumers.

PTS: 1 REF: 45

5. What are de jure standards?

ANS:

De jure standards are those that are controlled by an organization or body that has been entrusted with that task. The process for creating these standards can be very involved. Generally the organization will develop subcommittees responsible for a specific technology. Within each subcommittee there are working groups, which are teams of industry experts who are given the task to create the initial draft. The draft will then be published and requests for comments will be solicited from other organization members (these members may be developers, potential users, and other people having general interest in the field). The comments are then reviewed by the original committee and may be incorporated into the final draft. This is then reviewed by the entire organization before the final standards are officially published.

PTS: 1 REF: 46

6. What are the current IEEE committees for wireless standards?

ANS:

802.3 Ethernet local area networks

802.11 Wireless networks

802.15 Wireless personal area networks

802.16 Wireless wide area networks

PTS: 1

REF: 49

7. What are the responsibilities of the FCC?

ANS:

The FCC's responsibilities are very broad. In addition to developing and implementing regulatory programs, they also process applications for licenses and other filings, analyze complaints, conduct investigations, and take part in congressional hearings. They also represent the United States in negotiations with other nations about telecommunications issues.

PTS: 1

REF: 50

8. Describe infrared transmissions as they are used for wireless networks.

ANS:

All the different types of light that travel from the sun to the earth make up what is called the light spectrum. Visible light is just a small part of that entire spectrum. Some of the other energies of the spectrum such as x-rays, ultraviolet rays, and microwaves are invisible to the human eye. Infrared light, which is also invisible, can actually be used for wireless transmissions. Infrared transmissions can send data by the intensity of the infrared light wave instead of "on-off" signals of, for example, a flashlight. To transmit a "1" an emitter (a device that transmits a signal) increases the intensity of the current and sends a "pulse" using infrared light. On the receiving end a detector (a device that receives a signal) senses the higher intensity pulse of light and produces a corresponding electrical current.

PTS: 1

REF: 53-54

9. Describe the IEEE 802.11b standard.

ANS:

The bandwidth of 2 Mbps for the 802.11 standard introduced in 1997 was not sufficient for most network applications. The IEEE body revisited the 802.11 standard shortly after it was released to determine what changes could be made to increase the speed. In September 1999 a new 802.11b amendment was added to the standard, which added two higher speeds (5.5 Mbps and 11 Mbps) to the original 802.11 standard (1 Mbps and 2 Mbps). Like the 802.11 standard, 802.11b uses the ISM band. The 802.11b standard can support wireless devices that are up to 115 meters (375 feet) apart. However, devices that are that far apart might not be transmitting at 11 Mbps. Radio waves decrease in power over distance, much like the sound of your voice: a person standing 1 meter away from you might hear you very clearly, whereas a person 60 meters away would have difficulty hearing you. Instead of completely dropping the signal if it falls out of range to transmit at 11 Mbps, the 802.11b standard specifies that the devices should drop their transmission speed to the next lower level (5.5, 2, or 1 Mbps). This allows devices to transmit farther apart but at slower speeds.

PTS: 1

REF: 56

10. What is IEEE 802.11n?

ANS:

In September of 2004 the IEEE started working on a new standard to significantly increase the bandwidth of today's WLANs. Known as 802.11n, it will set standards for transmissions exceeding 100 Mbps. The 802.11n committee is evaluating over 60 different proposals regarding how to accomplish this. The top speed of the 802.11n standard will be anywhere from 100 Mbps to 500 Mbps, depending on which proposal is approved. Although the final proposal might not be ratified until the year 2006, devices that follow one of the proposed options will appear much earlier than that. This is because there is a significant time lag between the time the final proposal is published and when it is ultimately ratified by the IEEE. This occurred with the 802.11g standard: devices were marketed and sold months before the standard was finally ratified. A WLAN based on one of the 802.11n proposals appeared in mid-2004 under the name "802.11 pre-N".

PTS: 1

REF: 57