TRUE/FALSE

1. WLANs are based on de jure standards.
   ANS: T PTS: 1 REF: 39
2. A directed transmission requires a line of sight path from emitter to detector.
   ANS: T PTS: 1 REF: 41
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: 59
4. De facto standards are official standards.
   ANS: F PTS: 1 REF: 38
5. The IEEE 802.11g standard requires the strongest level of wireless security.
   ANS: F PTS: 1 REF: 44

MULTIPLE CHOICE

1. Which IEEE standard added speeds of 5.5 and 11 Mbps to the WLAN standards?
   a. 802.11a
   b. 802.11b
   c. 802.11g
   d. 802.11i

   ANS: B PTS: 1 REF: 42
2. Which of the following statements is true about the 802.11g standard?
   a. speeds up to 600 Mbps and same radio frequency as 802.11a
   b. speeds up to 54 Mbps and same radio frequency as 802.11b
   c. speeds up to 11 Mbps and same radio frequency as 802.11c
   d. speeds up to 54 Mbps and same radio frequency as 802.11a

   ANS: B PTS: 1 REF: 43
3. Wireless NICs perform the same function as a wired NIC except for which of the following?
   a. no RJ-45 connection
   b. no MAC address
   c. transmits bits
   d. requires a driver

   ANS: A PTS: 1 REF: 46
4. Which of the following is true of the CardBus form factor?
   a. designed primarily for use in PDA devices
   b. was used as a storage medium for digital cameras
   c. has a bus mastering feature
   d. has a 16-bit bus

   ANS: C PTS: 1 REF: 50
5. Windows Vista and Windows 7 use which software for configuring wireless NICs?
   a. Wireless Zero Configuration
   b. WLAN AutoConfig
   c. MS WNIC Config
   d. AutoNIC Configuration

   ANS: B PTS: 1 REF: 51
6. Which type of remote wireless bridge connection is used to connect multiple LAN segments, or buildings together?
   a. segment-to-segment
   b. multipoint-to-multipoint
   c. point-to-point
   d. point-to-multipoint

   ANS: D PTS: 1 REF: 58
7. If a remote wireless bridge is set to ____, it can only transmit to another bridge in root mode.
   a. access point mode
   c. nonroot mode

b. root mode
d. repeater mode

ANS: C PTS: 1 REF: 59

8. Which of the following typically resides between the wireless network and the wired network, serving as the entry point to the wired network while providing encryption and authentication services?
   a. residential WLAN gateway
   b. point-to-multipoint remote wireless bridge
   c. enterprise encryption gateway
   d. point-to-point authenticating bridge

   ANS: C PTS: 1 REF: 59

9. What are the two components that make up the Windows 7 wireless Hosted Network function?
   a. Windows Connect Now, SoftAP
   b. Virtual Wifi, SoftAP
   c. Virtual WiFi, ICS
   d. ICS, WCN

   ANS: B PTS: 1 REF: 61

10. Which of the following is connected inline to each end device and adds power to the line?
    a. midspan device
    b. power sourcing equipment
    c. SoftAP
    d. EEG

    ANS: A PTS: 1 REF: 63

11. If you are installing an access point on a ceiling, but find there are no electrical outlets nearby to provide power to the AP, what technology should you deploy?
    a. WCN
    b. SoftAP
    c. POE
    d. Virtual Wifi

    ANS: C PTS: 1 REF: 61

12. Which of the following is a viable option for a large enterprise or campus wireless network?
    a. autonomous access point
    b. lightweight access point
    c. fat access point
    d. Soft access point

    ANS: B PTS: 1 REF: 53

13. Which of the following provides the management and configuration functions for a thin access point?
    a. wireless LAN controller
    b. fat access point
    c. PoE controller
    d. mesh access point

    ANS: A PTS: 1 REF: 53

14. Which of the following is NOT a major part of an autonomous access point?
    a. antenna
    b. wired network interface
    c. bridging software
    d. wireless switch

    ANS: D PTS: 1 REF: 51

15. Which is NOT a limitation of infrared wireless systems?
    a. lack of mobility
    b. doesn't work well indoors
    c. slow transmission speed
    d. limited range

    ANS: B PTS: 1 REF: 42

16. Which of the following is true about infrared transmissions?
    a. diffused transmission relies on reflected light
    b. directed transmission has a wide-focused beam
    c. they are most reliable outdoors
    d. mobility is their greatest strength

    ANS: A PTS: 1 REF: 41

MULTIPLE RESPONSE

1. Which of the following are advantages of having standards govern how a technology works? (Choose all that apply.)
   a. interoperability
   b. high profits from lower competition
   c. proprietary equipment
   d. lower costs

   ANS: A, D PTS: 1 REF: 38-39
2. Which of the following are improvements of the 802.11n standard over previous 802.11 standards? (Choose all that apply.)
   a. data rates up to 1.2 Gbps
   b. coverage area
   c. security
   d. different frequencies reduce interference

   ANS: B, C, D PTS: 1 REF: 44
3. Which of the following are modes in which a remote wireless bridge can function? (Choose all that apply.)
   a. switching mode
   b. nonroot mode
   c. routing mode
   d. repeater mode

   ANS: B, D PTS: 1 REF: 59-60
4. Which of the following are differences between a remote wireless bridge and an AP? (Choose all that apply.)
   a. remote wireless bridges have increased power
   b. remote wireless bridges have a directional antenna
   c. remote wireless bridges provides encryption
   d. remote wireless bridges only connect devices in close proximity

   ANS: A, B PTS: 1 REF: 57

COMPLETION

1. _____ ensure that devices from one vendor will function with those from other vendors.
   ANS: Standards
   PTS: 1 REF: 37
2. The IEEE _____ standard specified that wireless transmissions could occur via infrared light or radio waves.
   ANS: 802.11
   PTS: 1 REF: 40
3. Remote wireless _____ can connect 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: 59
4. A(n) _____ is a device that receives a signal from an emitter.
   ANS: detector
   PTS: 1 REF: 41
5. A _____ access point does not have to be individually connected by a cable to the wired network but can communicate with other access points of the same type to reach the wired connection.
   ANS: mesh
   PTS: 1 REF: 54

MATCHING

Match each term with the correct statement below.

a. directed transmission
b. emitter
c. form factor
d. nonroot mode
e. PoE injector
f. repeater mode
g. root bridge
h. wireless mesh network
i. wireless switch

1. device that contains the management and configuration functions for a lightweight access point
2. term used to refer to a wireless bridge operating in root mode
3. an infrared wireless transmission that requires that the emitter and detector be directly aimed at one another
4. a mode of a wireless bridge that allows the bridge to extend the distance between buildings
5. a small and inexpensive device that can inject power into an Ethernet cable
6. mode of a wireless bridge in which the bridge can transmit only to a wireless bridge that is in root mode
7. a network of wireless mesh access points that communicate between themselves
8. a term used to refer to the size and shape of a device
9. a device that transmits a signal and is used in an IEEE 802.11 infrared network

1. ANS: I PTS: 1 REF: 53
2. ANS: G PTS: 1 REF: 58
3. ANS: A PTS: 1 REF: 41
4. ANS: F PTS: 1 REF: 59
5. ANS: E PTS: 1 REF: 63
6. ANS: D PTS: 1 REF: 58
7. ANS: H PTS: 1 REF: 63
8. ANS: C PTS: 1 REF: 48
9. ANS: B PTS: 1 REF: 40

SHORT ANSWER

1. List the three sources of standards.
   ANS:
   De facto standards
   De jure standards
   Consortia-created standards
   PTS: 1 REF: 39
2. What are the two functions of an access point?
   ANS:
   First, the access point acts as the base station for the wireless network. Any device with a wireless NIC transmits its signal to an AP, which can then redirect the signal, if necessary, to other wireless devices. The second function of an AP is to act as a bridge between the wireless and wired networks.
   PTS: 1 REF: 51
3. A remote wireless bridges support two types of connections. Describe them.
   ANS:
   Remote wireless bridges support two types of connections, point-to-point and point-to-multipoint. In a point-to-point (PtP) configuration, two buildings are connected. In a point-to-multipoint (PtMP) configuration, multiple buildings are connected.
   PTS: 1 REF: 57
4. List and describe three advantages of standards for wireless technology.

ANS:
Interoperability. Standards ensure that devices from one vendor will function with those from other vendors. Devices that are not based on standards often cannot interoperate with similar devices from other vendors.
Competition. Standards serve to create competition. If a vendor creates a new device without regard to current standards, then it automatically owns the specifications for the device; the vendor might even take out a patent on the device. This makes it virtually impossible for another vendor to produce the same device; thus, competition among multiple vendors selling the same device is impossible. From the point of view of the consumer, standards are desirable because they encourage competition. Any vendor
can create a device based on a recognized standard. In order to compete, vendors will add additional features to their products, thus increasing the overall value for users.
Lower costs. Competition results in lower costs for both users and manufacturers. When several vendors make similar products based on the same standards, they compete against each other on the price, which in turn makes the product less expensive for users. Competition also results in lower costs for manufacturers. Because standards have been established, manufacturers do not need to invest large amounts of capital in research and development. This reduces start-up costs as well as the amount of time required to bring a product to market. Also, manufacturing to standards encourages manufacturers to deploy mass-production techniques and economies of scale to keep production costs low, with savings that in turn are passed on to users.
Protection. Standards help protect the user's investment in equipment. It is not uncommon for a proprietary vendor to phase out a product line, leaving a business that purchased the equipment with two choices: continue to use the now-obsolete system with escalating costs for supplies and technical support, or discard the legacy system and buy a new system. Both choices are costly. Standards, however, can help create a migration path for equipment upgrades. Newer standards are generally backward compatible or at least provide a means of migrating to equipment based on the newer standards at a minimal cost.
PTS: 1 REF: 37-38

5. Describe the difference between directed transmission and diffused transmission with respect to infrared transmissions.
ANS:
A directed transmission requires that the emitter and detector be directly aimed at one another in a line of sight (LoS) path. A diffused transmission relies on reflected light. The emitters on diffused transmissions have a wide-focused beam instead of a narrow beam and are pointed at the room's ceiling, which serves as the reflection point.
PTS: 1 REF: 41
6. List the four modes in which a wireless bridge can function.
ANS:
Root mode
Nonroot mode
Repeater mode
Access point mode
PTS: 1 REF: 58-59
7. What is a gateway and what types of gateways do you find in wireless networks?
ANS:
A gateway is a network device that acts as an entrance to another network. There are two types of gateways in wireless networks, Enterprise Encryption Gateways and residential WLAN gateways.
PTS: 1 REF: 59
8. List and describe the two terms used for measuring wireless network speeds.
ANS:

Data rate. The data rate is the theoretical maximum rated speed of a network. For example, the data rate for IEEE 802.11b is 11 Mbps. However, the data rate is only theoretical. Due to a variety of factors, a network rarely achieves its stated data rate.
Throughput. Throughput is the measure of how much actual data can be sent per unit of time across a network. Throughput is often used to measure the amount of data actually sent across a network in a real world setting. If two 802.11 devices are 30 feet (10 meters) apart, the throughput may only be 5.5 Mbps.
PTS: 1 REF: 43

9. Describe the Microsoft Windows 7 feature referred to as the wireless Hosted Network.
ANS:
This feature has two parts: the virtualization of the physical wireless NIC into multiple virtual wireless NICs (called Virtual WiFi) and a software-based wireless access point (SoftAP) that uses a designated virtual wireless NIC. The wireless Hosted Network allows users to extend the functionality of their portable laptop computer. For example, a user could set up her computer to create a wireless network so that other users can quickly share documents wirelessly between multiple computers. Another function allows a laptop's network connection to be shared by other computers and devices. For example, a user could connect her computer to the Internet and then turn her computer into an AP that shares the Internet connection with other wireless laptop devices, much like a hardware AP.
PTS: 1 REF: 60-61

10. Describe a PoE injector.
ANS:
PoE injector is a small, inexpensive device that can inject power into an Ethernet cable. These injectors can be endspan devices (such as a network switch enabled to provide power on each port) or a midspan device, which is connected inline to each end device and adds power to the line. Using PoE injectors, a standard, non–PoE-enabled Ethernet switch can be used to supply the data while the PoE injector provides the power.
PTS: 1 REF: 63