Proof knowledge questions on Wireless LANs (questions and answers)

Question 1

A new subnet is using an IEEE 802.11b a wireless LAN. What is the maximum data rate specified for this WLAN?

A. 11 mbps
B. 100 mbps
C. 54 mbps
D. 10 mbps
E. 1000 mbps
F. 16 mbps

Answer: A

Explanation:
The maximum speed for 802.11b is 11 Mbps.

Incorrect Answers:
A => This is the maximum speed for legacy Ethernet networks.
C => This is the maximum speed supported by the other prevalent wireless standards, 802.11a and 802.11g.
D, E => This is the maximum speed of Ethernet and GigaEthernet connections.
F => This is the maximum data rate for token ring.

Question 2

Which IEEE standard is used to define Wi-Fi?

A. IEEE 802.3
B. IEEE 802.5
C. IEEE 802.11h
D. IEEE 802.11c
E. IEEE 802.11

Answer: E

Explanation:
IEEE 802.11 was the original standard for wireless networks. However, the standard had a few ambiguities allowed for potential problems with compatibility between devices. To ensure compatibility, a group of companies formed the Wireless Ethernet Compatibility Alliance (WECA), which has come to be known as the Wi-Fi Alliance, to ensure that their products would work together. The term Wi-Fi is now used to refer to any IEEE 802.11 wireless network products that have passed the Wi-Fi Alliance certification tests.

Incorrect Answers:
A => This is the standard used for Ethernet networks.
B => This is the standard used in Token Ring networks.

C, D => These standards are not currently used. The most prevalent types of wireless 802.11 networks are 802.11a, 802.11b, and 802.11g.

Question 3

802.1b is being utilized in the vhb-LAB wireless network. Which spread spectrum technology does the 802.1b standard define for operation in this network?

A. FHSS
B. IR
C. DSSS and FHSS
D. DSSS
E. IR, FHSS and DSSS
F. None of the above

Answer: D

Question 4

Two users have established wireless communication directly between their wireless laptops. What type of wireless topology has been created by these employees?

A. ESS
B. IBSS
C. SSID
D. BSS
E. None of the above

Answer: B

Question 5

A single 802.11g access point has been configured and installed in the center of a square shaped university office. A few wireless users are experiencing slow performance and drops while most users are operating at peak efficiency. From the list below, what are three likely causes of this problem?
(choose three)

A. Null SSID
B. Mismatched TKIP encryption
C. Cordless phones
D. Antenna type or direction
E. Mismatched SSID
F. Metal file cabinets
G. Microwave ovens in the break room

Answer: C, D, F

Explanation:

C => If you have cordless phones or other wireless electronics in your home or office, your computer might not be able to "hear" your router over the noise from the other wireless devices. To quiet the noise, avoid wireless electronics that use the 2.8GHz frequency. Instead, look for cordless phones that use the 5.8GHz or 900MHz frequencies.

D => The antennas supplied with your router are designed to be omni-directional, meaning they broadcast in all directions around the router. If your router is near an outside wall, half of the wireless signals will be sent outside your office, and much of your router's power will be wasted. Since most users operate at peak efficiency in our example, it could be that a few of the users are simply placed too far from the antenna, or the antenna is not placed in the center of the office.

F => Metal, walls, and floors will interfere with your router's wireless signals. The closer your router is to these obstructions, the more severe the interference, and the weaker your connection will be.

Question 6

You are responsible for securing a Wireless LAN using WPA. Which two statements best describe the wireless security standard that is defined by WPA? (choose two)

A. It requires use of an open authentication method
B. It specifies the use of a dynamic encryption keys that change each time a client establishes a connection
C. It includes authentication by PSK
D. It specifies use of a static encryption key that must be changed frequently to enhance security

Answer: B, C

Explanation:

WPA is a more powerful security technology for Wi-Fi networks than WEP. It provides:

- strong data protection by using encryption as well as
- strong access controls and user authentication.

WPA utilizes 128-bit encryption keys and dynamic session keys to ensure your wireless network's privacy and enterprise security.
There are two basic forms for encryption of WPA:

- TKIP or
- AES. Not all WPA hardware supports AES.

WPA-PSK is basically an authentication mechanism in which users provide some form of credentials to verify that they should be allowed access to a network. This requires a single password entered into each WLAN node (Access Points, Wireless Routers, client adapters, bridges). As long as the passwords match, a client will be granted access to a WLAN. Encryption mechanisms used for WPA and WPA-PSK are the same. The only difference between the two is in WPA-PSK, authentication is reduced to a simple common password, instead of user-specific credentials.
The Pre-Shared Key (PSK) mode of WPA is considered vulnerable to the same risks as any other shared password system -dictionary attacks for example. Another issue may be key management difficulties such as removing a user once access has been granted where the key is shared among multiple users, not likely in a home environment.

Reference: http://www.dslreports.com/faq/wifisecurity/2.2_WPA

Question 7

In an effort to increase security within a wireless network, WPA is being utilized. Which two statements shown below best describe the wireless security standard that is defined by WPA?
(choose two)

A. It requires use of an open authentication method
B. It specifies use of a static encryption key that must be changed frequently to enhance security
C. It includes authentication by PSK
D. It specifies the use of dynamic encryption keys that change each time a client establishes a connection
E. It requires that all access points and wireless devices use the same encryption key
F. WPA works only with Cisco access points

Answer: C, D

Question 8

A network manager has chosen WPA over WEP in their wireless network. What is one reason why WPA encryption is preferred over WEP in this network?

A. The WPA key values remain the same until the client configuration is changed.
B. The values of WPA keys can change dynamically while the system is used.
C. The access point and the client are manually configured with different WPA key values.
D. A WPA key is longer and requires more special characters than the WEP key.
E. None of the above

Answer: B

Question 9

You need to add a wireless access point to a new office. Which additional configuration step is necessary in order to connect to an access point that has SSID broadcasting disabled?

A. Configure open authentication on the AP and the client
B. Set the SSID value in the client software to public
C. Set the SSID value on the client to the SSID configured on the AP
D. Configure MAC address filtering to permit the client to connect to the AP
E. None of the above

Answer: C

Question 10

Which of the following data network would you implement if you wanted a wireless network that had a relatively high data rate, but was limited to very short distances?

A. Broadband personal comm. Service (PCS)
B. Broadband circuit
C. Infrared
D. Spread spectrum
E. Cable

Answer: C

Explanation:
A good example of the range of an infrared is a television remote control or a garage door opener. Infrared networks are capable of high data rates, but they are limited in the distance between the infrared points, and also by the fact that a line of sight between the nodes is usually required.

Incorrect Answers:
A, D => Although these are both wireless methods, the data rate capabilities are somewhat limited, especially when compared to infrared links.
B, E => Although these are both capable of relatively high data rates, they do not use wireless technology.

Question 11
You need to troubleshoot an interference issue in case of a wireless LAN.
Which two devices can interfere with the operation of this network because they operate on similar frequencies?
(choose two)

A. Microwave oven
B. AM radio
C. Toaster
D. Copier
E. Cordless phone
F. IP phone
G. I-pod

Answer: A, E