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Exam Code: 642-582

Wireless LAN for Field Engineers Exam

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QUESTION 1:

What advice can you offer the Itexamworld trainee technician to resolve RF noise issues within the 2.4 GHz (802.11b or 802.11g) cell structure? (Choose all that apply.)

- A. To use a directional antenna when possible
- B. To use an amplifier in-line to overcome the noise
- C. To change the channel on which the Access Point is configured
- D. To use a diversity antenna on the Access Point

Answer: A, C

QUESTION 2:

When you find yourself in Japan, how many 2.4 GHz RF channels for DSSS will be available to you?

- A. 2
- B. 9
- C. 11
- D. 14

Answer: D

Explanation:

APs transmit and receive RF signals over channels within the 2.4 GHz frequency band. Regulatory domains determine the number of channels that wireless communications can use within the 2.4 GHz frequency band. The Cisco Aironet APs support up to 11 communication channels in North America, 13 channels in Europe (ETSI) and 14 channels in Japan. An access point broadcasts on a specific channel within the available channel range. To provide a stable wireless environment and reduce channel interference, you must specify non-overlapping channels for each AP. The recommended channels are 1, 6, and 11.

QUESTION 3:

Which of the following statements regarding 802.11g WLANs is valid? (Choose all that apply.)

- A. In WLANs, 802.11g devices are backward compatible to 802.11a devices.
- B. The spectral bandwidth is identical to the bandwidth of 802.11b spectral bandwidth in WLANs.
- C. In WLANs, 802.11g devices are backward compatible to 802.11b devices.
- D. The modulation for 54 Mb is identical to 802.11a modulation at 54Mbps.

Answer: B, C, D

Explanation:

802.11g

This is the most recently approved standard. This standard specifies an operational frequency of 2.4GHz and data rates up to 54Mbps. 802.11g systems are backward compatible with 802.11b systems because of the same operational frequencies. Like 802.11a, 802.11g uses the OFDM modulation scheme to achieve higher speeds.

802.11g uses the same modulation schemes as 802.11a, Orthogonal Frequency Division Multiplexing (OFDM). In contrast, 802.11b uses the less power-hungry complementary code keying.

QUESTION 4:

What does the 802.11g protection mechanism permit?

- A. 802.11g clients to roam to 802.11b APs
- B. the transmission of 802.11b client cards at 802.11g data rates
- C. the transmit power of an 802.11g AP to be set at 30 mW
- D. same cell transmission of 802.11b client cards with 802.11g clients without collisions

Answer: D

Explanation:

When 802.11b clients are associated to an 802.11g access point, the access point will turn on a protection mechanism called Request to Send/Clear to Send (RTS/CTS). Originally a mechanism for addressing the "hidden node problem" (a condition where two clients can maintain a link to an access point but, due to distance cannot hear each other), RTS/CTS adds a degree of determinism to the otherwise multiple access network. When RTS/CTS is invoked, clients must first request access to the medium from the access point with an RTS message. Until the access point replies to the client with a CTS message, the client will refrain from accessing the medium and transmitting its data packets. When received by clients other than the one that sent the original RTS, the CTS command is interpreted as a "do not send" command, causing them to refrain from accessing the medium. One can see that this mechanism will preclude 802.11b clients from transmitting simultaneously with an 802.11g client, thereby avoiding collisions that decrease throughput due to retries. One can see that this additional RTS/CTS process adds a significant amount of protocol overhead that also results in a decrease in network throughput.

QUESTION 5:

The newly appointed Itexamworld trainee technician is curious as to which way Cisco/Aironet WLAN radios perform their transmission. What can you tell him?

- A. full duplex
- B. single side-band
- C. half duplex
- D. depends upon data rate

Answer: C

Explanation:

802.11 environments are shared-media LANs that operate half duplex over a (potentially) noisy radio channel. Since a radio's receiver is turned off when the transmitter is activated, it is impossible to detect collisions. In addition, the AP must be able to hear all stations associated with it.

As all 802.11 environments provide half-duplex communication so Cisco/Aironet Wireless radios perform their transmission using Half duplex communication.

QUESTION 6:

What modulation is used when transmitting data at 11 Mbps under the 802.11b standard?

- A. QAM
- B. PSK
- C. CCK
- D. QPSK
- E. none of the above

Answer: C

Explanation:

Complementary Code Keying, a set of 64 eight-bit code words used to encode data for 5.5 and 11Mbps data rates in the 2.4GHz band of 802.11b wireless networking. The code words have unique mathematical properties that allow them to be correctly distinguished from one another by a receiver even in the presence of substantial noise and multipath interference.

QUESTION 7:

How much of the 2.4 GHz ISM band for transmission is utilized by an 802.11b radio?

- A. 1 MHz
- B. 11 MHz
- C. 22 MHz
- D. 83.5 MHz
- E. 802.11 MHz

Answer: C

Explanation:

In the U.S., the ISM band is divided into 11 channels of 5MHz apiece. An 802.11 wireless network adapter utilizes 22MHz of bandwidth due to signal spreading, so a station operating at one channel will overlap onto adjacent channels. If you've ever tried listening to a small alternative radio station that sits on

the dial close to a huge adult contemporary advertising machine, you'll appreciate how channel overlap can cause unacceptable signal distortion.

QUESTION 8:

Under the IEEE 802.11a specification, what is the maximum data rate?

- A. 11 Mbps
- B. 36 Mbps
- C. 48 Mbps
- D. 54 Mbps
- E. 108 Mbps

Answer: D

Explanation:

The 802.11a standard, which supports data rates of up to 54 Mbps, is the Fast Ethernet analog to 802.11b, which supports data rates of up to 11 Mbps.

QUESTION 9:

Why is it advantageous to have spread spectrum technology OFDM modulation? A.

The range improves as data rates increases.

B. It provides interoperability between 802.11g and 802.11a.

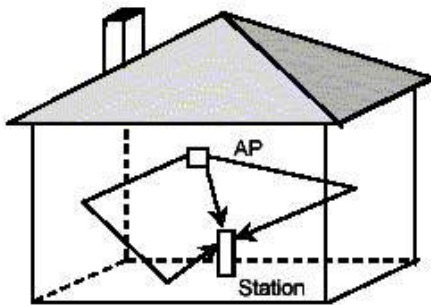
C. it has better performance for multipath interference than CCK modulation.

D. It requires less spectral bandwidth than CCK modulation.

Answer: C

Explanation:

OFDM is arguably the best waveform available today for WLAN applications. The main challenge designers of WLAN equipment face is signal impairment due to multipath. In the indoor environment, signals can arrive at the antenna by more than one path as shown in Figure.



QUESTION 10:

The PCM352 has two leds. Which of the leds indicate that the card is working properly? (Choose two.)

- A. green LED off; amber LED solid
- B. green LED off; amber LED blink sporadically
- C. green LED blinking fast; amber LED blinking sporadically
- D. green LED blinking slowly; amber LED blinking sporadically

Answer: C, D

Explanation: The Aironet client adapter card provides two LEDs to display card and link status information:

___Link Integrity/Power LED The link integrity and power LED provides visual confirmation that the adapter is receiving power (green) and that it is associated with the wireless network (green and blinks slowly).

_Link Activity LED The link activity LED provides a visual display of the level of transmit and receive activity from the client node radio transmitter. During normal operation, the amber LED blinks quickly and erratically in synch with network traffic. When a device error occurs, the amber LED blinks in a pattern according to the type of error encountered.

QUESTION 11:

What is the common network name used for devices in a WLAN subsystem?

- A. Data Beacon Rate (DTIM)
- B. Beacon Period (Kusec)
- C. SSID
- D. All of the above

Answer: SSID

Explanation: The SSID is often referred to as the wireless LAN workgroup number or the wireless cell number. It is a unique, case-sensitive, and up to 32-characters-long identifier that is appended to network packets. The SSID defines the name of the wireless LAN workgroup and is used to authenticate and establish communications with other wireless bridges and wireless APs sharing the same SSID.

QUESTION 12:

Which of the following antennas radiate in a 360 degree pattern? (Choose all that apply.)

- A. Yagi
- B. omni
- C. dipole

D. patch

Answer: B, C

Explanation: Ceiling Mount Omni-Directional Antenna

This indoor medium range antenna is designed to provide 360-degree coverage in an office space environment. Specifically, the antenna has a 360-degree horizontal coverage and a 38-degree vertical coverage.

Mast Mount Omni-Directional Antenna

The mast mount is primarily a short-range outdoor antenna. Much like the ceiling mount omni-directional antenna, the mast mount omni-directional antenna has a 360-degree horizontal coverage and a 38-degree vertical coverage.

High-Gain Mast Mount Omni-Directional Antenna

It is a medium range outdoor antenna that has a 360-degree horizontal coverage and is designed to be fastened to a mast and used for point-to-multipoint applications.

POS Diversity Dipole Omni-Directional Antenna

The antenna provides 360-degree horizontal coverage, a 75-degree vertical coverage, and a range of 350 feet at 1 Mbps and 100 feet at 11 Mbps.

Specifically, this antenna works with LMC adapters that have dual MMCX connectors.

QUESTION 13:

What is the length of Ethernet cabling that can be used when powering a 350 series Access point?

- A. 150 meters
- B. 100 meters
- C. 200 meters
- D. no limit

Answer: B

Explanation: The power injectors provide up to 15 watts (depending on the Cisco power supply model) over the unused wire pairs of a Category 5 Ethernet cable, supplying enough power to provide for up to a 100-meter cable run.

Reference: [http://cco-rtp-](http://cco-rtp-1.Cisco.com/en/US/products/hw/wireless/ps469/products_data_sheet09186a00800f927d.html)

[1.Cisco.com/en/US/products/hw/wireless/ps469/products_data_sheet09186a00800f927d.html](http://cco-rtp-1.Cisco.com/en/US/products/hw/wireless/ps469/products_data_sheet09186a00800f927d.html)

Note: The Cisco Aironet 350 APs are powered inline. This means that they receive their power through Ethernet cables. This Ethernet cable can be up to 300 feet in length.

Therefore, you do not need a power cord for the unit. All Ethernet powered solutions are limited to 300 feet, which should not present a problem for most installations within the 100-meter rule for Ethernet.

QUESTION 14:

Is the following statement true, WLAN and WLAN clients within an access point service area can receive data transmitted to/from the access point.

- A. This is not always true - must be judged case by case
- B. True
- C. True and False
- D. False

Answer: B

QUESTION 15:

When trying to provide coverage down a long hallway with an antenna at the end of the hallway. Which antenna should be used?

- A. 12 dBi omni
- B. 14.4 dBi omni
- C. 8.5 dBi patch
- D. 28.8 dBi dipole

Answer: C

Explanation: Patch antennas were chosen in this example because the beam is kept focused, and there will be no interference from others

QUESTION 16:

You are the network administrator at Itexamworld . Your newly appointed Itexamworld trainee wants to know what DC voltage is used to power a Access Point through the use of in-line power to the Ethernet port?

- A. 5 VDC
- B. -9 VDC
- C. -12 VDC
- D. 12 VDC
- E. -48 VDC

Answer: E

QUESTION 17:

When in adhoc mode, the Cisco Aironet wireless PCMCIA client can talk to which of the following devices? (Choose all that apply.)

- A. Cisco Aironet Access Points
- B. Cisco Aironet PCI wireless adaptor
- C. Cisco Aironet Workgroup Bridge (WGB)
- D. Cisco Aironet PCMCIA wireless adaptor

Answer: B, D

Explanation: Ad Hoc network mode provides wireless client nodes with the capability to establish peer-to-peer network connections with other wireless client nodes. When configured in Ad Hoc, infrastructure components are not required to establish the network connection. Two or more workstations configured to access the same wireless network is all that is needed. The primary use of Ad Hoc network mode configurations is for peer-to-peer file exchange between wireless clients over the wireless radio network.

QUESTION 18:

What IEEE standard do all Cisco Aironet 350 Series client adapters adhere to?

- A. 802.11a
- B. 802.11b
- C. 802.11g
- D. 802.11i

Answer: B

Explanation: The Cisco Aironet 350 is IEEE 802.11b-compliant so that it will interoperate with other vendor devices within your range of coverage. Cisco has designed the Aironet 350 series to meet the needs of mobile users and satellite offices so that they can maintain connectivity and have the freedom to move around and the flexibility to grow.

QUESTION 19:

What could happen to an antenna's radiation pattern as the gain of the antenna increases? (Choose all that apply.)

- A. The angle of radiation increases.
- B. The angle of radiation decreases.
- C. The coverage distance from the antenna increases.
- D. The coverage distance from the antenna decreases.

Answer: B, C

QUESTION 20:

What is the Service Set known as if an AP is connected to a wired network and a set of wireless stations?

- A. Extended
- B. Advanced
- C. Basic
- D. Intermediate

Answer: C

Explanation: Basic Service Set (BSS) networks The basic topology set of 802.11 systems is the basic service set (BSS). The BSS consists of at least one AP connected to the wired network infrastructure and a set of wireless end stations
