CISCO NETWORKING ACADEMY MODUL 4 – 7

4.1.3

1. True or false? The physical layer is only concerned with wired network connections.
   False
2. True or false? When a frame is encoded by the physical layer, all bits are sent over the media at the same time.
   False
3. The physical layer of the receiving device passes bits up to which higher level layer?
   Data link
4. What PDU is received by the physical layer for encoding and transmission?
   Frame

4.2.7

1. Which media uses patterns of microwaves to represent bits?
   Wireless
2. Which media uses patterns of light to represent bits?
   Fiber-optic
3. Which media uses electrical pulses to represent bits?
   Copper
4. Which of these is the name for the capacity of a medium to carry data?
   Bandwith
5. Which of these is a measure of the transfer of bits across the media?
   Throughput

4.3.6

1. Which of the following attaches antennas to wireless devices? It can also be bundled with fiber-optic cabling for two-way data transmission.
   Coaxial
2. Which of the following counters EMI and RFI by using shielding techniques and special connectors?
   STP
3. Which of the following is the most common network media?
   UTP
4. Which of the following terminates with BNC, N type and F type connectors?
   Coaxial

4.5.7

1. Which of the following fiber-optic cable types can help data travel approximately 500 meters?
   multimode
2. Which of the following fiber-optic cable types use light emitting diodes (LEDs) as a data light source transmitter?
   multimode
3. Which of the following fiber-optic cable types use lasers in a single stream as a data light source transmitter?
   Single-mode
4. Which of the following fiber-optic cable types is used to connect long-distance telephony and cable TV applications?
   Single-mode
5. Which of the following fiber-optic cable types can travel approximately 100 km?
   Single-mode
6. Which of the following fiber-optic cable types is used within a campus network?

Multimode

4.6.4

1. True or false. Wireless is not well suited for enterprise networks.
   false
2. True or false. Wireless LANs operate in full-duplex allowing all devices to send or receive data at the same time so the number of users does not impact performance.
   false
3. Which of the following wireless standards is best suited for industrial and IoT environments?
   zigbee
4. Which of the following wireless standards is used for Personal Area Networks (PANs) and allows devices to communicate over distances of 1 to 100 meters?
   Bluetooth

4.7.4

1. A network administrator is troubleshooting connectivity issues on a server. Using a tester, the administrator notices that the signals generated by the server NIC are distorted and not usable. In which layer of the OSI model is the error categorized?
   Physical layer
2. What type of cable is used to connect a workstation serial port to a Cisco router console port?
   rollover
3. Why are two strands of fiber used for a single fiber optic connection?
   They allow for full-duplex connectivity
4. Which procedure is used to reduce the effect of crosstalk in copper cables?
   Twisting opposing circuit wire pairs together
5. What is one advantage of using fiber optic cabling rather than copper cabling?
   It is able to carry signals much farther than copper cabling
6. A network administrator is designing a new network infrastructure that includes both wired and wireless connectivity. Under which situation would a wireless connection be recommended?
   The end-user device needs mobility when connecting to the network
7. Which type of UTP cable is used to connect a PC to a switch port?
   Straight-through
8. What is the definition of bandwidth?
   The amount of data that can flow from one place to another in a given amount of time
9. Which statement correctly describes frame encoding?
   It coverts bits into a predefined code in order to provide a predictable pattern to help distinguish data bits from control bits
10. What is a characteristic of UTP cabling?
    cancellation
11. A wireless LAN is being deployed inside the new one room office that is occupied by the park ranger. The office is located at the highest part of the national park. After network testing is complete, the technicians report that the wireless LAN signal is occasionally affected by some type of interference. What is a possible cause of the signal distortion?
    The microwave oven
12. What is the purpose of the OSI physical layer?
    Transmitting bits across the local media
13. Which characteristic describes crosstalk?
    The distortion of the transmitted messages from signals carried in adjacent wires
14. What is indicated by the term throughput?
    The measure of the bits transferred across the media over a given period of time

15. Which standards organization oversees development of wireless LAN standards?
    IEEE

5.1.4

1. Which is the binary equivalent to the 192.168.11.10 IP address?
   11000000.10101000.00001011.00001010
2. Which of the following is the binary equivalent to the 172.16.31.30 IP address?
   10101100.00010000.00011111.00011110

5.2.5

1. Which is the hexadecimal equivalent of 202?
   CA
2. Which is the hexadecimal equivalent of 254?
   FE
3. Which is the decimal equivalent of A9?
   169
4. Which of the following is the decimal equivalent of 7D?
   125

5.3.2

1. What is the binary representation for the decimal number 173?
   10101101
2. Given the binary address of 11101100 00010001 00001100 00001010, which address does this represent in dotted decimal format?
   236.17.12.10
3. How many binary bits exist within an IPv6 address?
   128
4. What is the binary equivalent of the decimal number 232?
   11101000
5. Which two statements are correct about IPv4 and IPv6 addresses? (Choose two.)
   IPv6 addresses are represented by hexadecimal numbers
   IPv4 addresses are 32 bits in length
6. Which IPv4 address format was created for ease of use by people and is expressed as 201.192.1.14?
   Dotted decimal
7. What is the dotted decimal representation of the IPv4 address 11001011.00000000.01110001.11010011?
   203.0.113.211
8. What is the decimal equivalent of the binary number 10010101?
   149
9. What is the decimal equivalent of the hex number 0x3F?
   63
10. What is the dotted decimal representation of the IPv4 address which is represented as the binary string 00001010.01100100.00010101.00000001?
    10.100.21.1
11. What is the decimal equivalent of 0xC9?
    201
12. Which is a valid hexadecimal number?
    f
13. What is the binary representation of 0xCA?
    11001010

14. How many bits are in an IPv4 address?
    32

6.1.5

1. What is another name for the OSI data link layer?
   Layer 2
2. The IEEE 802 LAN/MAN data link layer consists of which two sublayers? (Choose two.)
   Logical link control
   Media access control
3. What is the responsibility of the MAC sublayer?
   Provides the method to get the frame on and off the media
4. What Layer 2 function does a router perform? (Choose three.)
   Accepts a frame from a medium
   De-encapsulates the frame
   Re-encapsulates the packet into a new frame
5. The media access control method used depends on which two criteria?
   Media sharing
   topology
6. Which organization defines standards for the network access layer (i.e., the OSI physical and data link layers)?
   IEEE

6.2.9

1. Which topology displays networking device layer IP addresses?
   Logical topology
2. What kind of network would use point-to-point, hub and spoke, or mesh topologies?
   WAN
3. Which LAN topology is a hybrid topology?
   Extended star
4. Which duplex communication method is used in WLANs?
   Half-duplex
5. Which media access control method is used in legacy Ethernet LANs?
   Carrier sense multiple access/collision detection

6.3.5

1. What does the data link layer add to a Layer 3 packet to create a frame? (Choose two.)
   Header
   Trailer
2. What is the function of the last field in a data link layer frame?
   To determine whether the frame experienced transmission errors
3. Which lists the Layer 2 and Layer 3 address fields in the correct order?
   Destination NIC address, source NIC address, source IP address, destination IP address
4. Which of the following are data link layer protocols? (Choose three)
   802.11
   Ethernet
   PPP

6.4.2

1. What identifier is used at the data link layer to uniquely identify an Ethernet device?
   MAC address
2. What attribute of a NIC would place it at the data link layer of the OSI model?
   MAC address

3. Which two engineering organizations define open standards and protocols that apply to the data link layer? (Choose two.)
   Institute of electrical and electronics engineers (IEEE)
   International telecommunication union (ITU)
4. What is true concerning physical and logical topologies?
   Logical topologies refer to how a network transfers data between devices
5. What method is used to manage contention-based access on a wireless network?
   CSMA/CA
6. A technician has been asked to develop a physical topology for a network that provides a high level of redundancy. Which physical topology requires that every node is attached to every other node on the network?
   Mesh
7. Which statement describes the half-duplex mode of data transmission?
   Data that is transmitted over the network flows in one direction at a time
8. Which is a function of the Logical Link Control (LLC) sublayer?
   To identify which network layer protocol is being used
9. Which data link layer media access control method does Ethernet use with legacy Ethernet hubs?
   CSMA/CD
10. What are the two sublayers of the OSI model data link layer? (Choose two.)
    MAC
    LCC
11. Which layer of the OSI model is responsible for specifying the encapsulation method used for specific types of media?
    Data link
12. What type of physical topology can be created by connecting all Ethernet cables to a central device?
    Star
13. What are two services performed by the data link layer of the OSI model? (Choose two.)
    It provides media access control and performs error detection
    It accepts layer 3 packets and encapsulates them into frames
14. Although CSMA/CD is still a feature of Ethernet, why is it no longer necessary?
    The use of full-duplex capable layer 2 switches

7.1.5

1. Which part of an Ethernet Frame uses a pad to increase the frame field to at least 64 bytes?
   Data field
2. Which part of an Ethernet frame detects errors in the frame?
   Frame check sequence
3. Which part of an Ethernet Frame describes the higher-layer protocol that is encapsulated?
   Ether type
4. Which part of an Ethernet Frame notifies the receiver to get ready for a new frame?
   preamble
5. Which data link sublayer controls the network interface through software drivers?
   LCC
6. Which data link sublayer works with the upper layers to add application information for delivery of data to higher level protocols?
   LCC
7. What is a function of the MAC sublayer? (Choose three.)

Control access to the media
Checks for errors in received bits
Uses CSMA/CD or CSMA/CA to support ethernet technology

7.4.6

1. What are two methods for switching data between ports on a switch? (Choose two.)
   Cut-through switching
   Store-and-forward switching
2. Which switching method can be implemented using fast-forward switching or fragment-free switching?
   Cut-through switching
3. Which two types of memory buffering techniques are used by switches? (Choose two.)
   Port-based memory buffering
   Shared memory buffering
4. What feature automatically negotiates the best speed and duplex setting between interconnecting devices?
   autonegotiation

7.5.2

1. Which two characteristics describe Ethernet technology? (Choose two.)
   It is supported by IEEE 802.3 standards
   It uses unique MAC addresses to ensure that data is sent to the appropriate destination
2. What statement describes a characteristic of MAC addresses?
   They must be globally unique
3. What is the special value assigned to the first 24 bits of a multicast MAC address transporting an IPv4 packet?
   01-00-5E
4. What will a host on an Ethernet network do if it receives a frame with a unicast destination MAC address that does not match its own MAC address?
   It will discard the frame
5. Which network device makes forwarding decisions based on the destination MAC address that is contained in the frame?
   Switch
6. Which network device has the primary function to send data to a specific destination based on the information found in the MAC address table?
   Switch
7. Which function or operation is performed by the LLC sublayer?
   It communicates with upper protocol layers
8. What happens to runt frames received by a Cisco Ethernet switch?
   The frame is dropped
9. What addressing information is recorded by a switch to build its MAC address table?
   The source layer 2 address of incoming frames
10. What is auto-MDIX?
    A feature that detects ethernet cable type
11. What type of address is 01-00-5E-0A-00-02?
    An address that reaches a specific group of hosts
12. Which statement is true about MAC addresses?
    The first three bytes are used by the vendor assigned OUI
13. What are the two sizes (minimum and expected maximum) of an Ethernet frame? (Choose two.)
    1518 Bytes

64 Bytes

14. Which two functions or operations are performed by the MAC sublayer? (Choose two.)
    It adds a header and trailer to form an OSI layer 2 PDU
    It is responsible for media access control