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# ***CCNA: CISCO Certified Network Associate Study Guide Bonus Exam for Ancillaries***

1. The primary architectural model for networks is?
  - A. Cisco's three-layer hierarchical model.
  - B. Department of Defense (DoD) model.
  - C. Open Systems Interconnection (OSI) model.
  - D. TCP/IP model.

**Answer: C**

2. Cisco's three-layer model is used for which of the following?
  - A. Help in network design.
  - B. Network implementation.
  - C. Maintaining any size network.
  - D. All of the above.

**Answer: D**

3. If you wanted to have 16 subnets with a Class C network ID, which subnet mask would you use?
  - A. 255.255.255.252
  - B. 255.255.255.248
  - C. 255.255.255.240
  - D. 255.255.255.255

**Answer: C**

4. Which of the following would be considered a benefit of the OSI and Cisco models?
  - A. Grouping various simple network operations into one large complex task.
  - B. Grouping various network operations into distinct functional layers that require changes in all layers if a change is made in any one of the layers.

- C. Changing one layer without having to change all layers.
- D. Defining proprietary interfaces.

**Answer: C**

5. True or false: One of the primary functions of OSI specifications is to enable data transfer between disparate hosts.
- A. True
  - B. False

**Answer: A**

6. The upper layers of the OSI model are responsible for what?
- A. Applications communicating between hosts.
  - B. Applications communicating between each other on the same device.
  - C. Networks communicating between hosts.
  - D. Networks communicating between each other.

**Answer: A**

7. True or False: The OSI upper layers are fully knowledgeable of the networking functions performed by the lower layers and participate in network address resolution.
- A. True
  - B. False

**Answer: B**

Explanation: The OSI upper layers know nothing about networking functions of the lower layers.

8. The OSI lower layers are responsible for what?
- A. Data transfer on the physical media
  - B. Data transfer through routers and/or switches
  - C. Segmentation and reassembly of the data stream
  - D. All of the above

**Answer: D.**

Explanation: The four bottom layers of the OSI model define how data is transferred through a physical wire or through

switches and routers, and how to rebuild a data stream from a transmitting host to a destination host's application.

9. The Application layer is responsible for which of the following?
- A. Framing
  - B. Data encryption, compression, and translation services
  - C. File, print, message, database, and application services
  - D. End-to-end connections

**Answer: C**

10. Which of the following is NOT associated with the Application layer?
- A. MPEG
  - B. WWW
  - C. SMTP
  - D. Electronic Data Interchange (EDI)

**Answer: A**

11. Which of the following are associated with the Presentation layer?
- A. PICT
  - B. SQL
  - C. JPEG
  - D. MPEG
  - E. RPC
  - F. X Window
  - G. ASP

**Answer: A, B, & C.**

12. Segmentation and reassembly of data from the upper-layer applications occurs at what layer?
- A. The Application layer
  - B. The Presentation layer
  - C. The Session layer
  - D. The Transport layer

**Answer: D**

13. What prevents a sending host on one side of the connection from overflowing the buffers in the receiving host?
- A. Resistors
  - B. Flow control
  - C. BRI
  - D. Full duplex

**Answer: B**

14. What controls how much information is transferred from one end to the other?
- A. Broadcast domains
  - B. IEEE
  - C. Windowing
  - D. Bit registers

**Answer: C**

15. Which command is used to manually encrypt passwords on a Cisco router?
- A. Router#service password-encryption
  - B. Router(config)#service-password-encryption
  - C. Router(config)#service password-encryption
  - D. Router(config)#set password encrypt on

**Answer: C**

Explanation: To manually encrypt your password, use the service password-encryption command from the Router(config)# prompt.

16. What is the difference between data packets and route update packets?
- A. Data packets update neighbor routers about network connections and router update packets and used to transport user data.
  - B. Data packets transport user data through the internetwork and route update packets are used to update neighbor routers about network connections.

- C. Data packets are used to transport inter-router data between routers and router update packets update previous information.
- D. Data packets are used to transmit network addresses and router update packets are used to transmit changes to host addresses.

**Answer: B**

17. Select the correct statements:

- A. Routers break up broadcast domains.
- B. Routers break up collision domains.
- C. Routers use physical addresses to forward frames on a network.
- D. Routers use access lists to control security on packets entering or exiting various interfaces.

**Answer: A, B, & D**

18. Name the two sublayers and the specification number of the IEEE Ethernet Data Link layer:

- A. \_\_\_\_\_
- B. \_\_\_\_\_

**Answer: A: Media Access Control (MAC) 802.3**

**B: Logical Link Control (LLC) 802.2**

19. True or False: Switches and bridges both work at the network layer.

- A. True
- B. False

**Answer: B.**

Explanation: False. Switches and bridges both work at the Data Link layer and filter the network using hardware (MAC) addresses.

20. The correct subnet mask for CIDR value /25 is:

- A. 255.255.252.0
- B. 255.255.255.192
- C. 255.255.255.128

D. 255.255.254.0

**Answer: C**

21. Which OSI layer is responsible for combining bits into bytes and bytes into frames?

- A. The Transport layer
- B. The Network layer
- C. The Data Link layer
- D. The Physical layer

**Answer: C**

22. State the term applied to each layer's Protocol Data Unit (PDU):

- A. Transport layer: \_\_\_\_\_
- B. Network layer: \_\_\_\_\_
- C. Data Link layer: \_\_\_\_\_
- D. Physical layer: \_\_\_\_\_

**Answer:**

A: Transport layer: Segment

B: Network layer: Packet

C: Data Link layer: Frame

D: Physical layer: Bits

23. State the three layers in the Cisco hierarchical model:

- A. \_\_\_\_\_
- B. \_\_\_\_\_
- C. \_\_\_\_\_

**Answer:**

A: Core layer

B: Distribution layer

C: Access layer

24. The recommended maximum length of a 10BaseT cable is?

- A. 100 meters
- B. 185 meters

- C. 500 meters
- D. 1000 meters

**Answer: A**

25. What type of connector do serial connectors on a Cisco router use?
- A. DB9 to DB15
  - B. AUI
  - C. Proprietary Cisco 60-pin serial connector
  - D. RS232

**Answer: C**

26. Which of the following are Layer 2 switch functions?
- A. Address learning.
  - B. Network learning.
  - C. Forward/filter decisions
  - D. Loop avoidance

**Answer: A, C, and D**

27. What happens if a destination hardware address is not listed in the MAC database of a switch?
- A. The frame is deleted.
  - B. The frame is transmitted out of the interface on which it was received.
  - C. The frame is broadcasted out of all active interfaces.
  - D. The frame is broadcasted out of all active interfaces except the interface on which it was received.

**Answer: D**

28. Which of the following will prevent a broadcast storm?
- A. Forward/Filter decisions
  - B. Address learning
  - C. Bridges
  - D. Loop avoidance scheme

**Answer: D**

29. Which protocol will find all links in a network and shut down redundant links?
- A. STP
  - B. UTP
  - C. NFS
  - D. DIX

**Answer: A**

30. In any given network, how many *root bridges* may exist?
- A. Two
  - B. One
  - C. As many as there are connections to the network.
  - D. Three

**Answer: B**

31. Name the four Spanning-Tree port states:
- A. \_\_\_\_\_
  - B. \_\_\_\_\_
  - C. \_\_\_\_\_
  - D. \_\_\_\_\_

**Answer:**

- A: Blocking
- B: Listening
- C: Learning
- D: Forwarding

32. Name the three switching modes:
- A. \_\_\_\_\_
  - B. \_\_\_\_\_
  - C. \_\_\_\_\_

**Answer:**

- A: Store and forward
- B: Cut-through
- C: FragmentFree



33. Which of the switching modes checks the first 64 bytes of a frame for fragmentation before forwarding?
- A. Store and forward
  - B. Cut-through
  - C. FragmentFree

**Answer: C**

34. Which of the switch modes waits until the complete data frame is received before forwarding?
- A. Store and forward
  - B. Cut-through
  - C. FragmentFree

**Answer: A**

35. Which of the switching modes waits for the destination hardware address to be received, looks up the destination address in the MAC filter table, and then forwards the frame?
- A. Store and forward
  - B. Cut-through
  - C. FragmentFree

**Answer: B**

36. Name the four layers of the DoD reference model:
- A. \_\_\_\_\_
  - B. \_\_\_\_\_
  - C. \_\_\_\_\_
  - D. \_\_\_\_\_

**Answer:**

A: Process/Application layer

B: Host-to-Host layer

C: Internet layer

D: Network Access layer

37. Telnet is a terminal \_\_\_\_\_ protocol.

**Answer: emulation**

38. Which of the following protocols allows two different types of file systems to interoperate?
- A. TFTP
  - B. NFS
  - C. LPD
  - D. DNS

**Answer: B**

39. Which of the following protocols allows a diskless workstation to learn its own IP address and the IP address and host name of a server?
- A. DHCP
  - B. BootP
  - C. FTP
  - D. UDP

**Answer: B**

40. Which of the following information can be provided by a DHCP server?
- A. IP address
  - B. Subnet mask
  - C. Domain name
  - D. Default gateway (routers)
  - E. DNS
  - F. WINS information
  - G. All of the above.

**Answer: G**

41. Which of the following protocols creates a *virtual circuit* to transmit data?
- A. UDP
  - B. TCP
  - C. IP
  - D. ICMP

**Answer: B**

42. Match the following protocols with their port numbers:

- A. FTP: \_\_\_\_\_ port 144
- B. News: \_\_\_\_\_ port 23
- C. Telnet: \_\_\_\_\_ port 69
- D. TFTP: \_\_\_\_\_ port 53
- E. DNS: \_\_\_\_\_ port 21
- F. POP3: \_\_\_\_\_ port 110
- G. UDP: \_\_\_\_\_ port 6
- H. TCP: \_\_\_\_\_ port 17

**Answer:**

- A: FTP: port 21
- B: News: port 144
- C: Telnet: port 23
- D: TFTP: port 69
- E: DNS: port 53
- F: POP3: port 110
- G: UDP: port 17
- H: TCP: port 6

43. Which protocol is used to find the hardware address of a host from a known IP address?

- A. RARP
- B. ARP
- C. DNS
- D. DHCP

**Answer: B**

44. The binary equivalent of the decimal number 192 is:

- A. 11100000
- B. 11000000
- C. 01000000
- D. 10000000

**Answer: B**

45. What are the four simple steps that Cisco recommends for network troubleshooting?
- A. \_\_\_\_\_
  - B. \_\_\_\_\_
  - C. \_\_\_\_\_
  - D. \_\_\_\_\_

**Answer:**

- A: Ping the loopback (127.0.0.1)
  - B. Ping the IP address of the host NIC
  - C. Ping the IP address of the default gateway
  - D. Ping a device on a different subnet
46. When discussing reserved IP addresses which of the following is interpreted to mean “all networks?”
- A. Node address of all 1s
  - B. Network address of all 1s
  - C. Network address of all 0s
  - D. Node address of all 0s

**Answer: B**

47. Which of the following are methods of connection to a Cisco router?
- A. Console port
  - B. Telnet
  - C. Auxiliary port
  - D. All of the above

**Answer: D**

48. True or false: When a router first powers up it will look for and load a valid configuration file from *flash memory*.
- A. True
  - B. False

**Answer: B**

Explanation: When a router first powers up it will look for and load the Cisco IOS from flash memory.

49. What two options are available when using the setup mode?
- A. Primary Management and Extended mode
  - B. Primary Management and Basic Setup mode
  - C. Basic Management and Extended Setup mode
  - D. Extended Management and Extended Basic mode

**Answer: C**

50. Which mode enables you to view and change the configuration of a Cisco router?
- A. Basic Management mode
  - B. Extended Setup mode
  - C. User mode
  - D. Privileged mode

**Answer: D**

51. The running-config is stored in what memory?
- A. NVRAM
  - B. DRAM
  - C. Flash memory
  - D. Short-term memory

**Answer: B**

52. What command mode must you be in if you wish to change the configuration of a router?
- A. User mode
  - B. Administrative Exec mode
  - C. Privileged mode
  - D. Superuser mode

**Answer: C**

Explanation: Privileged mode allows a user to both view and change the configuration of a router.

53. When setting the auxiliary password what command must you remember to use so the router will prompt for authentication?
- A. Logon

- B. Login
- C. Authentication
- D. Password

**Answer: B**

54. Which command is used to manually encrypt your passwords?

- A. Manual encryption
- B. Manual-encryption
- C. Service password encryption
- D. Service password-encryption

**Answer: D**

55. Which command is used to enable an interface?

- A. No shutdown
- B. Interface turn on
- C. Interface turn-on
- D. No shut-down interface

**Answer: A**

56. What is the default administrative distance of a static route if you use an exit interface instead of a next hop address?

- A. 1
- B. 0
- C. 15
- D. 110

**Answer: B**

**Explanation:** The default administrative distance of a static route is 0 if you use an exit interface instead of a next hop address.

57. Which of the following information will enable a router to route packets?

- A. Possible routers to all remote networks
- B. The best route to each remote network
- C. How to maintain and verify routing information

- D. The destination address
- E. The neighbor routers from which it can learn about remote networks
- F. All of the above.

**Answer: F**

58. True or False: Routers, by default, only know about their directly-connected networks.

- A. True
- B. False

**Answer: A**

59. When using default routing, what command must you use so that remote subnets not listed in the routing table will not be dropped?

- A. ip route
- B. classful
- C. ip classless
- D. do not drop

**Answer: C**

60. \_\_\_\_\_ is the process of an administrator manually adding routes in each router's routing table.

**Answer: Static routing**

61. \_\_\_\_\_ is used to send packets with a remote destination network not in the routing table to the next hop router.

**Answer: Default routing**

62. \_\_\_\_\_ is the process of using protocols to find and update routing tables on routers.

**Answer: Dynamic routing**

63. On what type of networks can default routing be used?

- A. Dynamic
- B. Static
- C. Stub
- D. Homogeneous

**Answer: C**

Explanation: You can only use default routing on stub networks-those with only one exit path out of the network.

64. State the definition of an autonomous system (AS).

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**Answer:** An autonomous system (AS) is a collection of networks under a common administrative domain.

65. For what purpose is an administrative distance (AD) used?
- A. To administer a remote network
  - B. To administer a remote router
  - C. To rate the trustworthiness of a remote network
  - D. To rate the trustworthiness of routing information received on a router from a neighbor router

**Answer: D**

66. State the three classes of routing protocols:

- A. \_\_\_\_\_
- B. \_\_\_\_\_
- C. \_\_\_\_\_

**Answer:**

A: Distance vector routing protocols.

B: Link state routing protocols.

C: Hybrid routing protocols.

67. In OSPF routing, what do you call two or more routers that have an interface on a common network, such as two routers on a point-to-point serial link?

**Answer:** Neighbors

68. Correctly identify the type of routing protocols required for the following protocols:

- A. EIGRP: \_\_\_\_\_
- B. IGRP: \_\_\_\_\_
- C. RIP: \_\_\_\_\_
- D. OSPF: \_\_\_\_\_



**Answer:**

A. EIGRP: Hybrid or Advanced Distance Vector

B: IGRP: Distance vector

C: RIP: Distance vector

D: OSPF: Link state

69. RIP uses only \_\_\_\_\_ to determine the best path to an internetwork.

**Answer:** hop count

70. RIP can perform load balancing for up to how many equal-cost links?

A. One

B. Two

C. Four

D. Six

**Answer:** D

71. What is the default maximum hop count for RIP?

A. One

B. Six

C. Fifteen

D. Sixteen

**Answer:** C

72. A solution for routing loop problems that reduces incorrect routing information and routing overhead in a distance-vector network by not enabling information to be sent back in the direction from which it was received is known as \_\_\_\_\_.

**Answer:** Split horizon.

73. \_\_\_\_\_ are messages transmitted by a router back to the originator after route poisoning has occurred.

**Answer:** Poison reverse updates.

74. \_\_\_\_\_ prevent regular update messages from reinstating a route that has gone down.

**Answer:** Holddowns

75. State three instances when triggered updates will reset the holddown timer:

A. \_\_\_\_\_

B. \_\_\_\_\_

C. \_\_\_\_\_

**Answer:**

A: The holddown timer expires

B: The router receives a processing task proportional to the number of links in the internetworks

C: Another update is received indicating the network status has changed.

76. True or False: RIP version 1 uses only classful routing and RIP version 2 uses classless routing.

A. True

B. False

**Answer. A**

77. State three different timers that RIP uses to regulate its performance:

A. \_\_\_\_\_

B. \_\_\_\_\_

C. \_\_\_\_\_

**Answer:**

A: Route update timer

B: Route invalid timer

C: Route flush timer.

78. Which of the following is the correct command to turn on the RIP protocol?

A. `turnon rip`

B. `turn-on rip`

C. `router rip`

D. `router rip turn-on`

**Answer: C**

79. Which of the following statements is correct when describing IGRP?
- A. IGRP is an open distance-vector routing protocol.
  - B. IGRP is a Cisco proprietary distance-vector routing protocol.
  - C. IGRP is a Cisco proprietary link-state routing protocol.
  - D. IGRP is an open link-state routing protocol.

**Answer: B**

80. What is the default setting for IGRP update timers?
- A. 10 seconds.
  - B. 30 seconds.
  - C. 60 seconds.
  - D. 90 seconds.

**Answer: D**

81. What is the default setting for IGRP invalid timers?
- A. The same as the update period
  - B. Twice the update period
  - C. Three times the update period
  - D. Four times the update period

**Answer: C**

82. What is the default setting for IGRP holddown timers?
- A. The same as the update period plus 10 seconds
  - B. Three times the update timer period plus 10 seconds
  - C. Three times the update timer period plus 30 seconds
  - D. The same as the update period plus 30 seconds

**Answer: B**

83. What is the default setting for IGRP flush timers?
- A. Seven times the routing update period
  - B. Six times the routing update period plus 10 seconds
  - C. Six times the routing update period plus 30 seconds

D. Three times the routing update period plus 10 seconds

**Answer:** A

84. True or False: Using route distribution, routers within an autonomous system can use different AS numbers to communicate routing information.

- A. True
- B. False

**Answer:** A

Explanation: All routers within an autonomous system must use the same AS number or they will not communicate with routing information unless route redistribution is used.

85. True or False: A VLAN is a logical grouping of network users and resources connected to administratively defined port on a switch.

- A. True
- B. False

**Answer:** A

86. Name two different types of links in a switched environment:

- A. \_\_\_\_\_
- B. \_\_\_\_\_

**Answer:**

- A: Access links
- B: Trunk links

87. \_\_\_\_\_ uniquely assigns a user-defined ID to each frame on a switched network with VLANs configured.

**Answer:** Frame tagging

88. What method(s) can be used to identify which frames belong to which VLANs:

- A. Inter switch Link (ISL)
- B. Spanning Tree
- C. 802.1q
- D. VLAN database

**Answer:** A and C

89. What allows you to make a single switch port part of multiple VLANs at the same time?
- A. STP
  - B. Intra-VLAN routing
  - C. Trunking
  - D. Frame Tagging

Answer: C

90. Name the three different modes of operation within a VTP domain?
- A. \_\_\_\_\_
  - B. \_\_\_\_\_
  - C. \_\_\_\_\_

**Answer:**

A: Server

B: Client

C: Transparent

91. Which of the following is used to store a Cisco router's IOS by default?
- A. Flash memory
  - B. NVRAM
  - C. RAM
  - D. DRAM

**Answer: A**

92. Which of the following is used to store a router and switch configuration?
- A. Flash memory
  - B. NVRAM
  - C. RAM
  - D. DRAM

**Answer: B**

93. \_\_\_\_\_ is used to control how the router boots up.

**Answer:** The configuration register

94. True or False: *0x* in the configuration register means that the digits that follow are in hexadecimal.

- A. True
- B. False

**Answer:** A

95. True or False: Cisco Discovery Protocol (CDP) is a proprietary protocol designed by Cisco to help administrators collect information about both locally attached and remote devices.

- A. True
- B. False

**Answer:** A

96. Which of the following commands is used to display global parameters for the CDP timer and holdtime?

- A. `sh cdp nei`
- B. `sh cdp`
- C. `sh nei`
- D. `sh cdp neighbor detail`

**Answer:** B

97. What is the default VTP Mode of operation for all Cisco catalyst switches?

- A. Server
- B. Agent
- C. Client
- D. Neighbor

**Answer:** A

98. The \_\_\_\_\_ command shows the hop or hops that a packet traverses on its way to a remote device.

**Answer:** `traceroute`

99. The \_\_\_\_\_ command is used to provide name resolution on the router on which it was built.

**Answer:** `ip host`

100. You want to use a routing protocol that utilizes the benefits of both distance vector and link state. Which routing protocol will you use?
- A. UDP
  - B. RIP
  - C. EIGRP
  - D. OSPF

**Answer: C**

101. What conditions must be met for Neighborship establishment?
- A. Hello or ACK received
  - B. AS numbers mismatch
  - C. AS numbers match
  - D. Identical metrics (M values)
  - E. Identical metrics (K values)

**Answer: A, C and E**

102. True or False: Routers that belong to different AS automatically share routing information and they don't become neighbors.
- A. True
  - B. False

**Answer: B**

103. True or False: EIGRP uses the Dynamic Update Algorithm (DUAL) for selecting and maintaining the best path to each remote network.
- A. True
  - B. False

**Answer: B**

Explanation: EIGRP uses Diffusing Update Algorithm (DUAL).

104. By default EIGRP uses a combination of which metrics for route determination?
- A. Bandwidth

- B. Delay
- C. Load
- D. Reliability
- E. Desirability
- F. Hello
- G. Neighborhood

**Answer:** A and B

Explanation: By default EIGRP uses only bandwidth and delay of the line by default. EIGRP can be configured to use load and reliability as two additional metrics.

105. True or False: The Autonomous Systems (AS) can be dynamically assigned in OSPF because of the Dijkstra algorithm.
- A. True
  - B. False

**Answer:** B

106. True or False: OSPF is a Cisco proprietary routing protocol created by CCIE #1020, Paul Dijkstra.
- A. True
  - B. False

**Answer:** B

Explanation: OSPF is an open standards routing protocol and uses the Dijkstra algorithm to find the shortest path. CCIE lore tells us that the first CCIE was #1025.

107. True or False: SPF tree calculation is used by switches to prevent loops in a switched LAN network.
- A. True
  - B. False

**Answer:** B

108. Which type of OSPF network will elect a backup designated router? (Choose two.)
- A. Broadcast Multi-access
  - B. Non-broadcast multi-access



- C. Point-to-point
- D. Broadcast multipoint
- E. Stub

**Answer:** A and B

109. True or False: Compared to RIP in larger networks, OSPF introduces significant routing overhead, however the convergence times are reduced.

- A. True
- B. False

**Answer:** B

Explanation: OSPF reduces routing overhead and decreases convergence times when compared to RIP in larger networks.

110. Which command will prevent EIGRP from sending or receiving Hello packets on a given interface?

**Answer:** Router(config-router)#passive-interface *int*

111. True or False: An EIGRP route table records information about routers with which Neighborhood relationships have been formed.

- A. True
- B. False

**Answer:** B

Explanation: A route table stores the routes that are currently used to make routing decision.

112. How is EIGRP implemented on a router?

- A. ip route eigrp as
- B. router ip eigrp as
- C. router eigrp process-id
- D. router eigrp as

**Answer:** D

113. True or False: Named access lists are an exclusive replacement for extended IP access lists.

- A. True
- B. False

**Answer: B**

Explanation: Named access lists are an alternative to both standard and extended access lists.

114. What is the default administrative distance of OSPF?
- A. 90
  - B. 100
  - C. 110
  - D. 120

**Answer: C**

115. Which command is used to display OSPF information for one or all OSPF processes running on the router?

**Answer:** Lab\_A#show ip ospf

116. Which command summarizes the pertinent OSPF information regarding neighbors and the adjacency state?

**Answer:** Lab\_A#show ip ospf neighbor

117. The access list type that only examines the source IP address in a packet, is:

- A. Source Access List
- B. Standard Access Lists
- C. Extended Access Lists
- D. Simple Access Lists

**Answer: B**

118. Indicate whether the following statements are either true or false.

- A. Packets are always compared to each line of the access list in sequential order.
- B. Packets are compared to all lines of the access list.
- C. There is an implicit “deny” at the beginning of each access list.

**Answer:**

A: True

B: False. Packets are compared with lines of the access list only until a match is made.

C: False. There is an implicit “deny” at the end of each access list.

119. Extended access lists (IP) check for which of the following?

- A. Source IP address
- B. Destination IP address
- C. Protocol field
- D. Port number

**Answer:** A, B, C, and D

120. Standard access lists (IP) check for which of the following?

- A. Source IP address
- B. Destination IP address
- C. Protocol field
- D. Port number

**Answer:** A

121. \_\_\_\_\_ are used with access lists to specify a host, network, or part of a network.

**Answer:** Wildcards

122. \_\_\_\_\_ is located at the subscribers premises.

**Answer:** Customer Premises Equipment (CPE)

123. The \_\_\_\_\_ is the last responsibility of the service provider.

**Answer:** Demarcation (demarc)

124. The \_\_\_\_\_ connects the demarc to the closest switching office.

**Answer:** Local loop

125. The \_\_\_\_\_ connects the customer to the provider’s switching network.

**Answer:** Central Office (CO)

Explanation: Central Office (CO) is also sometimes referred to as a Point-of-Presence (POP).

126. \_\_\_\_\_ is a set of digital services that transmit voice and data over existing phone lines.

**Answer:** Integrated Services Digital Network (ISDN)

127. \_\_\_\_\_ was created to be used as a connection-oriented protocol at the Data Link layer for use with X.25.

**Answer:** Link Access Procedure, Balanced (LAPB)

128. \_\_\_\_\_ is a proprietary connection-oriented protocol used at the Data Link layer and carries no identification of the type of protocol being carried inside its encapsulation.

**Answer:** High-Level Data Link Control (HDLC)

129. Name the four components of PPP:

- A. \_\_\_\_\_
- B. \_\_\_\_\_
- C. \_\_\_\_\_
- D. \_\_\_\_\_

**Answer:**

A: EIA/TIA-232-C

B: HDLC

C: LCP

D: NCP

130. State the two methods of authentication that can be used with PPP links:

- A. \_\_\_\_\_
- B. \_\_\_\_\_

**Answer:**

A: Password Authentication Protocol (PAP)

B: Challenge Authentication Protocol (CHAP)

131. Frame Relay provides a communications interface between which of the following?

- A. Demarc and the CO
- B. Demarc and the local loop
- C. DTE and DCE
- D. DTE and the CO

**Answer:** C

132. Frame Relay virtual circuits are identified by which of the following?

- A. VPI
- B. DLCI
- C. VCI
- D. CSU/DSU

**Answer: B**

133. \_\_\_\_\_ identify the virtual circuit (PVC or SVC) to the routers and provider's switches participating in the Frame Relay network.

**Answer: DLCIs**

134. \_\_\_\_\_ is a signaling standard between a CPE device (router) and a frame switch and is responsible for managing and maintaining status between these devices.

**Answer: Local Management Interface (LMI)**

135. Beginning with which IOS version is the LMI type auto-sensed?

- A. IOS version 11.2
- B. IOS version 12
- C. IOS version 10.5
- D. None of the above

**Answer: A**

136. Name the three different LMI types:

- A. \_\_\_\_\_
- B. \_\_\_\_\_
- C. \_\_\_\_\_

**Answer:**

A: Cisco

B: ANSI

C: ITU-T (Q933a)

137. Which of the following are ways to map IP devices to DLCIs?

- A. Use the `inverse-arp` function.

- B. Use the Frame Relay `map` command.
- C. Use the Frame Relay `dlci` command.
- D. Use the `arp` function.

**Answer:** A and B

138. \_\_\_\_\_ is typically used with ISDN to provide data encapsulation, link integrity, and authentication.

**Answer:** PPP

139. State the use of the following ISDN protocols that begin with the letters listed below:

- A. Protocols beginning with the letter E: \_\_\_\_\_
- B. Protocols beginning with the letter I: \_\_\_\_\_
- C. Protocol beginning with the letter Q: \_\_\_\_\_

**Answer:**

A: Deal with using ISDN on the existing telephone network.

B: Deal with concepts, aspects, and services.

C: Cover switching and signaling.

140. Which of the following correctly identifies ISDN BRI:

- A. 1B+2D
- B. 2B+1D
- C. 1B+23D
- D. 23B+D1

**Answer:** B

141. Which of the following correctly identifies ISDN PRI:

- A. 1B+2D
- B. 2B+1D
- C. 1B+23D
- D. 23B+D1

**Answer:** D

142. \_\_\_\_\_ is used to allow two or more Cisco routers to dial an ISDN dial-up connection on an as-needed basis.

**Answer:** Dial-On-Demand Routing (DDR)

143. Which of the following correctly identifies the two types of operating systems that can run on Cisco switches?
- A. IOS-based
  - B. Map-based
  - C. Set-based
  - D. Flash-based

**Answer:** A, and C

144. Identify the three configuration options available for Cisco switches?
- A. Command Line Interface (CLI)
  - B. Web-based using the Visual Switch Manager (VSM)
  - C. Original menu system
  - D. Plug-and-play

**Answer:** A, B, and C

145. Which type of cable should be used when connecting between Cisco switches?
- A. Straight-through
  - B. Cross-over
  - C. Null modem
  - D. Cisco proprietary DB9

**Answer:** B

146. A Catalyst switch is configured by default to be what type of server?
- A. VTY
  - B. VTP
  - C. VPI
  - D. VCI

**Answer:** B

147. Bridges and switches use which of the following to filter a network?
- A. Network addresses.
  - B. Network addresses and subnet masks

- C. ATM addresses
- D. MAC addresses

**Answer: D**

148. True or False: When configuring a Cisco switch both the duplex command and the simplex command can be used.
- A. True
  - B. False

**Answer: B**

Explanation: You can only set the duplex command on the 1900 switch as all ports are fixed speeds.