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Inhaltsverzeichnis

CCNA Final Exam Questions	2
Older Version: CCNA 1 Final Exam Answers v5.1	26

CCNA Final Exam Questions

1. What is a characteristic of a fault tolerant network?

- a network that protects confidential information from unauthorized access
- a network that can expand quickly to support new users and applications without impacting the performance of the service delivered to existing users
- a network that supports a mechanism for managing congestion and ensuring reliable delivery of content to all users
- a network that recovers quickly when a failure occurs and depends on redundancy to limit the impact of a failure

2. Three bank employees are using the corporate network. The first employee uses a web browser to view a company web page in order to read some announcements. The second employee accesses the corporate database to perform some financial transactions. The third employee participates in an important live audio conference with other corporate managers in branch offices. If QoS is implemented on this network, what will be the priorities from highest to lowest of the different data types?

- financial transactions, audio conference, web page
- audio conference, financial transactions, web page
- audio conference, web page, financial transactions
- financial transactions, web page, audio conference

3. What is a benefit of using cloud computing in networking?

- End users have the freedom to use personal tools to access information and communicate across a business network.
- Network capabilities are extended without requiring investment in new infrastructure, personnel, or software.
- Technology is integrated into every-day appliances allowing them to interconnect with other devices, making them more 'smart' or automated.
- Home networking uses existing electrical wiring to connect devices to the network wherever there is an electrical outlet, saving the cost of installing data cables.

4. What is the function of the shell in an OS?

- It interacts with the device hardware.
- It interfaces between the users and the kernel.
- It provides dedicated firewall services.
- It provides the intrusion protection services for the device.

5. Which connection provides a secure CLI session with encryption to a Cisco switch?

- a console connection
- an AUX connection
- a Telnet connection
- an SSH connection

6. A network technician is attempting to configure an interface by entering the following command: `SanJose(config)# ip address 192.168.2.1 255.255.255.0`. The command is rejected by the device. What is the reason for this?

- The command is being entered from the wrong mode of operation
- The command syntax is wrong

```
Enter configuration commands, one per line. End with CNTL/Z.
SW1(config)# enable password letmein
SW1(config)# enable secret secretin
SW1(config)# line console 0
SW1(config-line)# password lineconin
SW1(config-line)# login
SW1(config-line)# exit
SW1(config)# line vty 0 15
SW1(config-line)# password linevtyin
SW1(config-line)# login
SW1(config-line)# end
SW1#
```

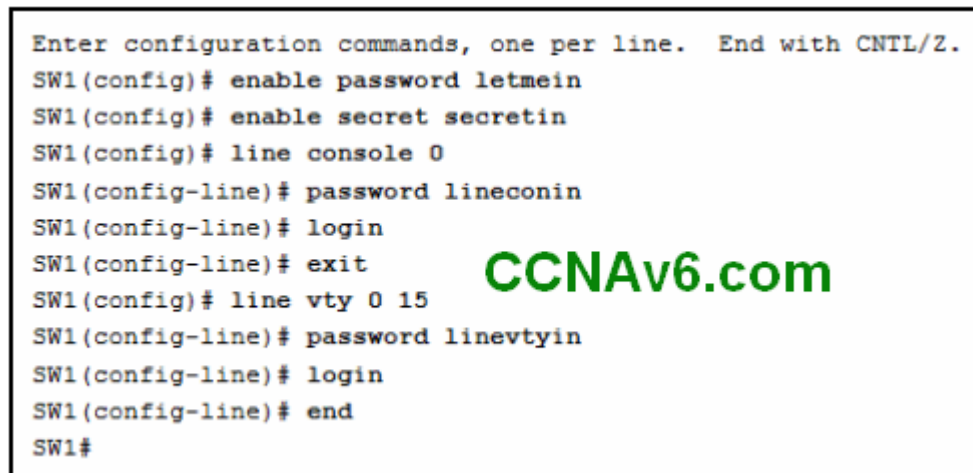


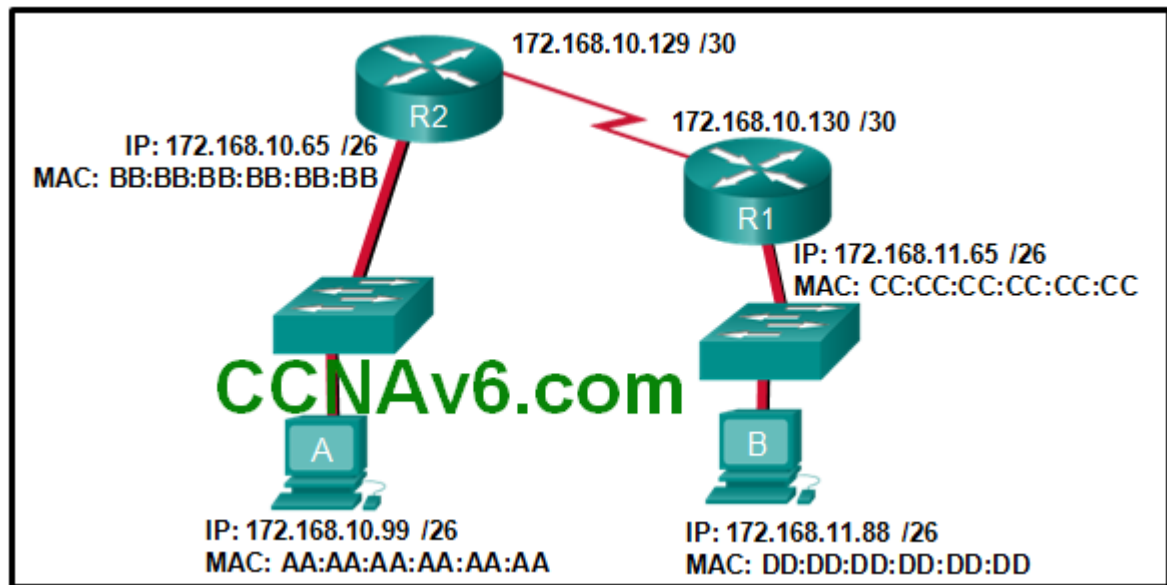
Abbildung 1: 2017-05-28_200126

- The subnet mask information is incorrect
 - The interface is shutdown and must be enabled before the switch will accept the IP address
7. An administrator uses the Ctrl-Shift-6 key combination on a switch after issuing the ping command. What is the purpose of using these keystrokes?
- To restart the ping process
 - To interrupt the ping process
 - To exit to a different configuration mode
 - To allow the user to complete the command
8. Refer to the exhibit. A network administrator is configuring access control to switch SW1. If the administrator uses a console connection to connect to the switch, which password is needed to access user EXEC mode?
- letmein
 - secretin
 - linevtyin
 - lineconin
9. On which switch interface would an administrator configure an IP address so that the switch can be managed remotely?
- FastEthernet0/1
 - VLAN 1
 - vty 0
 - console 0
10. What protocol is responsible for controlling the size of segments and the rate at which segments are exchanged between a web client and a web server?
- TCP
 - IP
 - HTTP
 - Ethernet
11. What is an advantage to using a protocol that is defined by an open standard?
- A company can monopolize the market

- The protocol can only be run on equipment from a specific vendor
 - An open standard protocol is not controlled or regulated by standards organizations
 - It encourages competition and promotes choices
12. **What are two benefits of using a layered network model? (Choose two.)**
- It assists in protocol design
 - It speeds up packet delivery
 - It prevents designers from creating their own model
 - It prevents technology in one layer from affecting other layers
 - It ensures a device at one layer can function at the next higher layer
13. **Which two OSI model layers have the same functionality as two layers of the TCP/IP model? (Choose two.)**
- data link
 - network
 - physical
 - session
 - transport
14. **Which name is assigned to the transport layer PDU?**
- bits
 - data
 - frame
 - packet
 - segment
15. **A network engineer is measuring the transfer of bits across the company backbone for a mission critical database application. The engineer notices that the network throughput appears lower than the bandwidth expected. Which three factors could influence the differences in throughput? (Choose three.)**
- the amount of traffic that is currently crossing the network
 - the sophistication of the encapsulation method applied to the data
 - the type of traffic that is crossing the network
 - the latency that is created by the number of network devices that the data is crossing
 - the bandwidth of the WAN connection to the Internet
 - the reliability of the gigabit Ethernet infrastructure of the backbone
16. **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?**
- presentation layer
 - network layer
 - physical layer
 - data link layer
17. **Which type of UTP cable is used to connect a PC to a switch port?**
- console
 - rollover
 - crossover
 - straight-through

18. **A network administrator is measuring the transfer of bits across the company backbone for a mission critical financial application. The administrator notices that the network throughput appears lower than the bandwidth expected. Which three factors could influence the differences in throughput? (Choose three.)**
- the amount of traffic that is currently crossing the network
 - the sophistication of the encapsulation method applied to the data
 - the type of traffic that is crossing the network
 - the latency that is created by the number of network devices that the data is crossing
 - the bandwidth of the WAN connection to the Internet
 - the reliability of the gigabit Ethernet infrastructure of the backbone
19. **What is a characteristic of UTP cabling?**
- cancellation
 - cladding
 - immunity to electrical hazards
 - woven copper braid or metallic foil
20. **What are two characteristics of fiber-optic cable? (Choose two.)**
- It is not affected by EMI or RFI
 - Each pair of cables is wrapped in metallic foil.
 - It combines the technique of cancellation, shielding, and twisting to protect data.
 - It typically contains 4 pairs of fiber-optic wires.
 - It is more expensive than UTP cabling is
21. **What is a characteristic of the LLC sublayer?**
- It provides the logical addressing required that identifies the device.
 - It provides delimitation of data according to the physical signaling requirements of the medium.
 - It places information in the frame allowing multiple Layer 3 protocols to use the same network interface and media
 - It defines software processes that provide services to the physical layer.
22. **A network team is comparing physical WAN topologies for connecting remote sites to a headquarters building. Which topology provides high availability and connects some, but not all, remote sites?**
- mesh
 - partial mesh
 - hub and spoke
 - point-to-point
23. **What method is used to manage contention-based access on a wireless network?**
- CSMA/CD
 - priority ordering
 - CSMA/CA
 - token passing
24. **What are the three primary functions provided by Layer 2 data encapsulation? (Choose three.)**
- error correction through a collision detection method
 - session control using port numbers

- data link layer addressing
 - placement and removal of frames from the media
 - detection of errors through CRC calculations
 - delimiting groups of bits into frames
 - conversion of bits into data signals
25. **What will a host on an Ethernet network do if it receives a frame with a destination MAC address that does not match its own MAC address?**
- It will discard the frame
 - It will forward the frame to the next host
 - It will remove the frame from the media
 - It will strip off the data-link frame to check the destination IP address
26. **What are two examples of the cut-through switching method? (Choose two.)**
- store-and-forward switching
 - fast-forward switching
 - CRC switching
 - fragment-free switching
 - QOS switching
27. **What are two actions performed by a Cisco switch? (Choose two.)**
- building a routing table that is based on the first IP address in the frame header
 - using the source MAC addresses of frames to build and maintain a MAC address table
 - forwarding frames with unknown destination IP addresses to the default gateway
 - utilizing the MAC address table to forward frames via the destination MAC address
 - examining the destination MAC address to add new entries to the MAC address table
28. **Which frame forwarding method receives the entire frame and performs a CRC check to detect errors before forwarding the frame?**
- cut-through switching
 - store-and-forward switching
 - fragment-free switching
 - fast-forward switching
29. **Refer to the exhibit. If host A sends an IP packet to host B, what will the destination address be in the frame when it leaves host A?**



- DD:DD:DD:DD:DD:DD
- 172.168.10.99
- CC:CC:CC:CC:CC:CC
- 172.168.10.65
- BB:BB:BB:BB:BB:BB
- AA:AA:AA:AA:AA:AA

30. What addresses are mapped by ARP?

- destination MAC address to a destination IPv4 address
- destination IPv4 address to the source MAC address
- destination IPv4 address to the destination host name
- destination MAC address to the source IPv4 address

31. What information is added during encapsulation at OSI Layer 3?

- source and destination MAC
- source and destination application protocol
- source and destination port number
- source and destination IP address

32. What are two services provided by the OSI network layer? (Choose two.)

- performing error detection
- routing packets toward the destination
- encapsulating PDUs from the transport layer
- placement of frames on the media
- collision detection

33. Refer to the exhibit. The network administrator for a small advertising company has chosen to use the 192.168.5.96/27 network for internal LAN addressing. As shown in the exhibit, a static IP address is assigned to the company web server. However, the web server cannot access the Internet. The administrator verifies that local workstations with IP addresses that are assigned by a DHCP server can access the Internet, and the web server is able to ping local workstations. Which component is incorrectly configured?

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

☐ Obtain an IP address automatically

☒ Use the following IP address:

IP address: 192 . 168 . 5 . 98

Subnet mask: 255 . 255 . 255 . 224

Default gateway: 192 . 168 . 5 . 1

☐ Obtain DNS server address automatically

☒ Use the following DNS server addresses:

Preferred DNS server: 128 . 208 . 3 . 254

Alternate DNS server: . . .

- subnet mask
- DNS address
- host IP address
- default gateway address

34. Why does a Layer 3 device perform the ANDing process on a destination IP address and subnet mask?

- to identify the broadcast address of the destination network
- to identify the host address of the destination host
- to identify faulty frames
- to identify the network address of the destination network

35. What are two functions of NVRAM? (Choose two.)

- to store the routing table
- to retain contents when power is removed
- to store the startup configuration file
- to contain the running configuration file
- to store the ARP table

36. Refer to the exhibit. What will be the result of entering this configuration the next time a network administrator connects a console cable to the router and no additional commands have been entered?


```
R1#config t
R1(config)#enable password Cisco123
R1(config)#enable secret Cisco234
R1(config)#service password-encryption
R1(config)#line con 0
R1(config-line)#password Cisco789
R1(config-line)#end
R1#copy running-config startup-config
R1#reload CCNAv6.com
```

- The administrator will be required to enter Cisco123
 - The administrator will be required to enter Cisco234
 - The administrator will be required to enter Cisco789
 - The administrator will be presented with the R1> prompt
37. What is the dotted decimal representation of the IPv4 address 11001011.00000000.01110001.11010011?
- 192.0.2.199
 - 198.51.100.201
 - 203.0.113.211
 - 209.165.201.223
38. What are three characteristics of multicast transmission? (Choose three.)
- The source address of a multicast transmission is in the range of 224.0.0.0 to 224.0.0.255
 - A single packet can be sent to a group of hosts
 - Multicast transmission can be used by routers to exchange routing information
 - Routers will not forward multicast addresses in the range of 224.0.0.0 to 224.0.0.255
 - Computers use multicast transmission to request IPv4 addresses.
 - Multicast messages map lower layer addresses to upper layer addresses.
39. What are the three ranges of IP addresses that are reserved for internal private use? (Choose three.)
- 10.0.0.0/8
 - 64.100.0.0/14
 - 127.16.0.0/12
 - 172.16.0.0/12
 - 192.31.7.0/24
 - 192.168.0.0/16
40. What purpose does NAT64 serve in IPv6?
- It converts IPv6 packets into IPv4 packets
 - It translates private IPv6 addresses into public IPv6 addresses
 - It enables companies to use IPv6 unique local addresses in the network
 - It converts regular IPv6 addresses into 64-bit addresses that can be used on the Internet
 - It converts the 48-bit MAC address into a 64-bit host address that can be used for automatic host addressing
41. What is the most compressed representation of the IPv6 address 2001:0000:0000:abcd:0000:0000:0000:0001?
- 2001:0:abcd::1
 - 2001:0:0:abcd::1

- 2001::abcd::1
 - 2001:0000:abcd::1
 - 2001::abcd:0:1
42. Which range of link-local addresses can be assigned to an IPv6-enabled interface?
- FEC0::/10
 - FDEE::/7
 - FE80::/10
 - FF00::/8
43. Which three addresses are valid public addresses? (Choose three.)
- 198.133.219.17
 - 192.168.1.245
 - 10.15.250.5
 - 128.107.12.117
 - 192.15.301.240
 - 64.104.78.227
44. Refer to the exhibit. On the basis of the output, which two statements about network connectivity are correct? (Choose two.)
- There is connectivity between this device and the device at 192.168.100.1
 - The connectivity between these two hosts allows for videoconferencing calls
 - There are 4 hops between this device and the device at 192.168.100.1
 - The average transmission time between the two hosts is 2 milliseconds.
 - This host does not have a default gateway configured.
45. What type of IPv6 address is FE80::1?
- loopback
 - link-local
 - multicast
 - global unicast
46. How many valid host addresses are available on an IPv4 subnet that is configured with a /26 mask?
- 254
 - 190
 - 192
 - 62
 - 64
47. A site administrator has been told that a particular network at the site must accommodate 126 hosts. Which subnet mask would be used that contains the required number of host bits?
- 255.255.255.0
 - 255.255.255.128
 - 255.255.255.224
 - 255.255.255.240

48. A network administrator wants to have the same subnet mask for three subnetworks at a small site. The site has the following networks and numbers of devices: Subnetwork A: IP phones – 10 addresses Subnetwork B: PCs – 8 addresses Subnetwork C: Printers – 2 addresses

What single subnet mask would be appropriate to use for the three subnetworks?

- 255.255.255.0
- 255.255.255.240
- 255.255.255.248
- 255.255.255.252

49. How many hosts are addressable on a network that has a mask of 255.255.255.248?

- 2
- 6
- 8
- 14
- 16
- 254

50. Which subnet would include the address 192.168.1.96 as a usable host address?

- 192.168.1.64/26
- 192.168.1.32/27
- 192.168.1.32/28
- 192.168.1.64/29

51. What subnet mask is needed if an IPv4 network has 40 devices that need IP addresses and address space is not to be wasted?

- 255.255.255.0
- 255.255.255.128
- 255.255.255.192
- 255.255.255.224
- 255.255.255.240

52. What are two characteristics shared by TCP and UDP? (Choose two.)

- default window size
- connectionless communication
- **port numbering***
- 3-way handshake
- ability to carry digitized voice
- **use of checksum***

53. Why are port numbers included in the TCP header of a segment?

- to indicate the correct router interface that should be used to forward a segment
- to identify which switch ports should receive or forward the segment
- to determine which Layer 3 protocol should be used to encapsulate the data
- **to enable a receiving host to forward the data to the appropriate application***
- to allow the receiving host to assemble the packet in the proper order

54. Refer to the exhibit. Consider the IP address of 192.168.10.0/24 that has been assigned to a high school building. The largest network in this building has 100 devices. If 192.168.10.0 is the network number for the largest network, what would be the network number for the next largest network, which has 40 devices?

- 192.168.10.0
- **192.168.10.128***
- 192.168.10.192
- 192.168.10.224
- 192.168.10.240

55. Which statement is true about variable-length subnet masking?

- Each subnet is the same size.
- **The size of each subnet may be different, depending on requirements.***
- Subnets may only be subnetted one additional time.
- Bits are returned, rather than borrowed, to create additional subnets.

56. In what two situations would UDP be the preferred transport protocol over TCP? (Choose two.)

- when applications need to guarantee that a packet arrives intact, in sequence, and unduplicated
- **when a faster delivery mechanism is needed***
- when delivery overhead is not an issue
- **when applications do not need to guarantee delivery of the data***
- when destination port numbers are dynamic

57. What important information is added to the TCP/IP transport layer header to ensure communication and connectivity with a remote network device?

- timing and synchronization
- **destination and source port numbers***
- destination and source physical addresses
- destination and source logical network addresses

58. What is the TCP mechanism used in congestion avoidance?

- three-way handshake
- socket pair
- two-way handshake
- **sliding window***

59. Which scenario describes a function provided by the transport layer?

- A student is using a classroom VoIP phone to call home. The unique identifier burned into the phone is a transport layer address used to contact another network device on the same network.
- A student is playing a short web-based movie with sound. The movie and sound are encoded within the transport layer header.
- **A student has two web browser windows open in order to access two web sites. The transport layer ensures the correct web page is delivered to the correct browser window.***
- A corporate worker is accessing a web server located on a corporate network. The transport layer formats the screen so the web page appears properly no matter what device is being used to view the web site.

60. A user opens three browsers on the same PC to access www.cisco.com to search for certification course information. The Cisco web server sends a datagram as a reply to the request from one

of the web browsers. Which information is used by the TCP/IP protocol stack in the PC to identify which of the three web browsers should receive the reply?

- the destination IP address
- **the destination port number***
- the source IP address
- the source port number

61. What are two ways that TCP uses the sequence numbers in a segment? (Choose two.)

- **to identify missing segments at the destination ***
- **to reassemble the segments at the remote location***
- to specify the order in which the segments travel from source to destination
- to limit the number of segments that can be sent out of an interface at one time
- to determine if the packet changed during transit

62. Which two tasks are functions of the presentation layer? (Choose two.)

- **compression***
- addressing
- **encryption***
- session control
- authentication

63. Which three statements characterize UDP? (Choose three.)

- **UDP provides basic connectionless transport layer functions.***
- UDP provides connection-oriented, fast transport of data at Layer 3.
- **UDP relies on application layer protocols for error detection. ***
- **UDP is a low overhead protocol that does not provide sequencing or flow control mechanisms.***
- UDP relies on IP for error detection and recovery.
- UDP provides sophisticated flow control mechanisms.

64. What is a key characteristic of the peer-to-peer networking model?

- wireless networking
- social networking without the Internet
- network printing using a print server
- **resource sharing without a dedicated server***

65. A technician can ping the IP address of the web server of a remote company but cannot successfully ping the URL address of the same web server. Which software utility can the technician use to diagnose the problem?

- tracer
- ipconfig
- netstat
- **nslookup***

66. Which domain name would be an example of a top-level domain?

- www.cisco.com
- cisco.com
- **.com***
- root.cisco.com

67. A PC obtains its IP address from a DHCP server. If the PC is taken off the network for repair, what happens to the IP address configuration?
- The configuration is permanent and nothing changes.
 - The address lease is automatically renewed until the PC is returned.
 - **The address is returned to the pool for reuse when the lease expires.***
 - The configuration is held by the server to be reissued when the PC is returned.
68. When planning for network growth, where in the network should packet captures take place to assess network traffic?
- **on as many different network segments as possible***
 - only at the edge of the network
 - between hosts and the default gateway
 - only on the busiest network segment
69. A wireless host needs to request an IP address. What protocol would be used to process the request?
- FTP
 - HTTP
 - **DHCP***
 - ICMP
 - SNMP
70. Which example of malicious code would be classified as a Trojan horse?
- **malware that was written to look like a video game***
 - malware that requires manual user intervention to spread between systems
 - malware that attaches itself to a legitimate program and spreads to other programs when launched
 - malware that can automatically spread from one system to another by exploiting a vulnerability in the target
71. When applied to a router, which command would help mitigate brute-force password attacks against the router?
- exec-timeout 30
 - service password-encryption
 - banner motd *Maxfailedlogins* = 5
 - **login block-for 60 attempts 5 within 60***
72. A network technician suspects that a particular network connection between two Cisco switches is having a duplex mismatch. Which command would the technician use to see the Layer 1 and Layer 2 details of a switch port?
- show mac-address-table
 - show ip interface brief
 - **show interfaces***
 - show running-config
73. Where are Cisco IOS debug output messages sent by default?
- Syslog server
 - **console line***
 - memory buffers
 - vty lines

74. Match the description with the associated IOS mode. (not all options are used.)

Match the description with the associated IOS mode. (Not all options are used.)

- changes made affect the operation of the device as a whole
- accessed by entering the **enable** command
- identified by a prompt ending with the # character
- limited number of basic monitoring commands
- accessed by entering the **configure terminal** command
- the first entrance into the CLI of an IOS device
- used to enable the password for vty lines

- Question

Match the description with the associated IOS mode. (Not all options are used.)

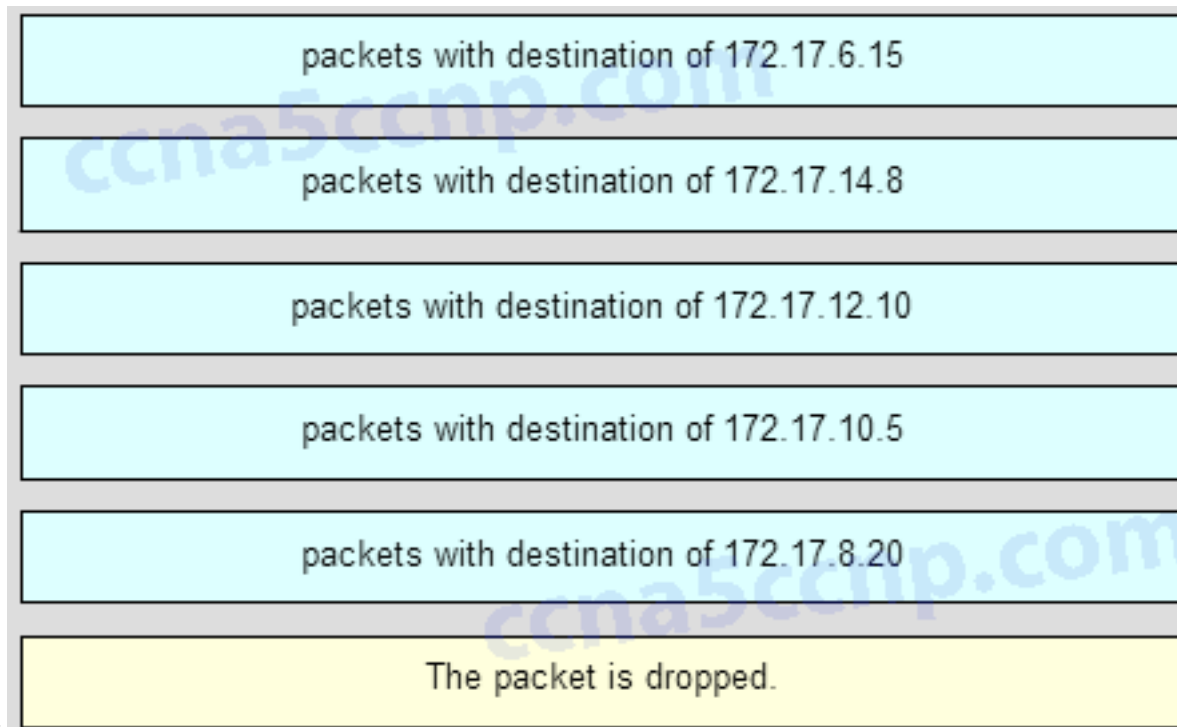
changes made affect the operation of the device as a whole	user EXEC mode
accessed by entering the enable command	privileged EXEC mode
identified by a prompt ending with the # character	global configuration mode
limited number of basic monitoring commands	
accessed by entering the configure terminal command	
the first entrance into the CLI of an IOS device	
used to enable the password for vty lines	

- Answer

75. Refer to the exhibit. Match the packets with their destination IP address to the exiting interfaces on the router. (Not all targets are used.)

packets with destination of 172.17.10.5
packets with destination of 172.17.12.10
packets with destination of 172.17.14.8
packets with destination of 172.17.8.20
packets with destination of 172.17.6.15

- Question



- Answer

76. Refer to the exhibit. An administrator is testing connectivity to a remote device with the IP address 10.1.1.1. What does the output of this command indicate?

- Connectivity to the remote device was successful.
- **A router along the path did not have a route to the destination.***
- A ping packet is being blocked by a security device along the path.
- The connection timed out while waiting for a reply from the remote device.

77. A user is unable to reach the web site when typing `http://www.cisco.com` in a web browser, but can reach the same site by typing `http://72.163.4.161`. What is the issue?

- default gateway
- DHCP
- TCP/IP protocol stack
- **DNS ***

78. A company is expanding its business to other countries. All branch offices must remain connected to corporate headquarters at all times. Which network technology is required to support this requirement?

- LAN
- MAN
- **WAN***
- WLAN

79. A home user is looking for an ISP connection that provides high speed digital transmission over regular phone lines. What ISP connection type should be used?

- **DSL***
- dial-up
- satellite

- cell modem
- cable modem

80. How does quality of service help a network support a wide range of applications and services?

- by limiting the impact of a network failure
- by allowing quick recovery from network failures
- **by providing mechanisms to manage congested network traffic***
- by providing the ability for the network to grow to accommodate new users

81. What source IP address does a router use by default when the traceroute command is issued?

- the highest configured IP address on the router
- the lowest configured IP address on the router
- a loopback IP address
- **the IP address of the outbound interface***

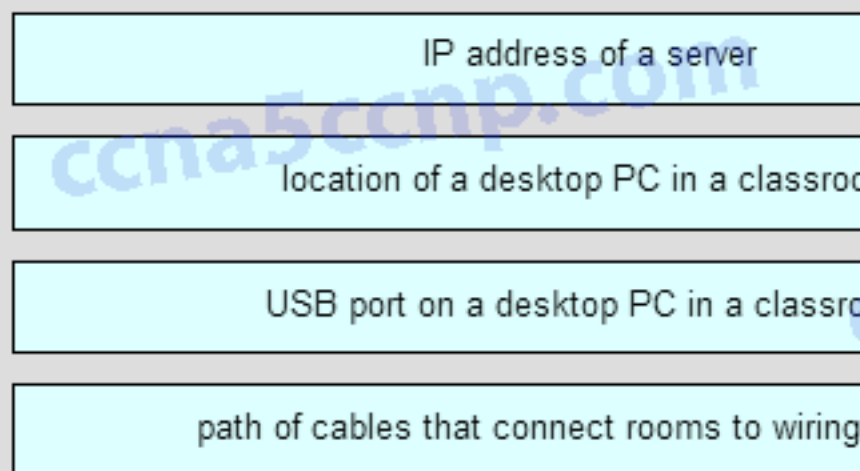
82. After making configuration changes on a Cisco switch, a network administrator issues a copy running-config startup-config command. What is the result of issuing this command?

- The new configuration will be stored in flash memory.
- **The new configuration will be loaded if the switch is restarted.***
- The current IOS file will be replaced with the newly configured file.
- The configuration changes will be removed and the original configuration will be restored.

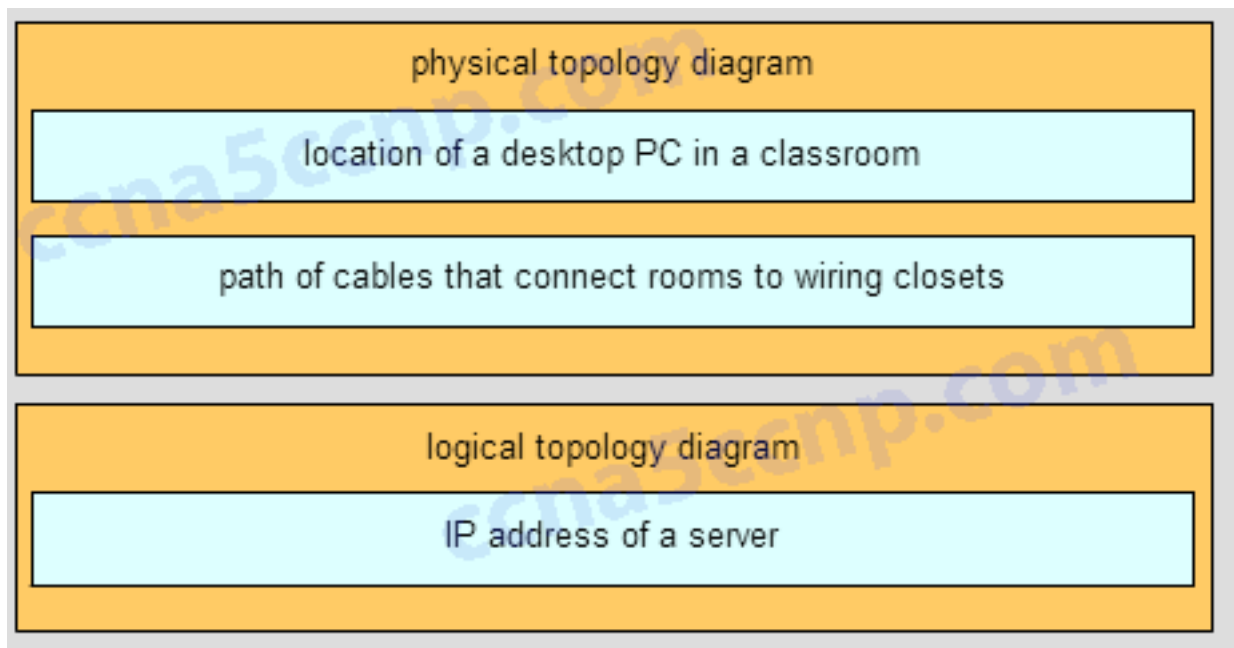
83. Refer to the exhibit. A network administrator is configuring access control to switch SW1. If the administrator has already logged into a Telnet session on the switch, which password is needed to access privileged EXEC mode?

- letmein
- **secretin***
- lineconin
- linevtyin

84. Match each item to the type of topology diagram on which it is typically identified.



(Not all options are used.)Question



85. Which connection provides a secure CLI session with encryption to a Cisco network device?
- a console connection
 - an AUX connection
 - a Telnet connection
 - **an SSH connection***
86. What function does pressing the Tab key have when entering a command in IOS?
- It aborts the current command and returns to configuration mode.
 - It exits configuration mode and returns to user EXEC mode.
 - It moves the cursor to the beginning of the next line.
 - **It completes the remainder of a partially typed word in a command.***
87. What layer is responsible for routing messages through an internetwork in the TCP/IP model?
- **internet***
 - transport
 - network access
 - session
88. Which statement accurately describes a TCP/IP encapsulation process when a PC is sending data to the network?
- Data is sent from the internet layer to the network access layer.
 - Packets are sent from the network access layer to the transport layer.
 - **Segments are sent from the transport layer to the internet layer.***
 - Frames are sent from the network access layer to the internet layer.
89. What unique address is embedded in an Ethernet NIC and used for communication on an Ethernet network?
- host address
 - IP address
 - **MAC address***
 - network address
 - k layer

90. Which procedure is used to reduce the effect of crosstalk in copper cables?
- requiring proper grounding connections
 - **twisting opposing circuit wire pairs together***
 - wrapping the bundle of wires with metallic shielding
 - designing a cable infrastructure to avoid crosstalk interference
 - avoiding sharp bends during installation
91. During the encapsulation process, what occurs at the data link layer for a PC connected to an Ethernet network?
- An IP address is added.
 - The logical address is added.
 - **The physical address is added.***
 - The process port number is added.
92. What are two characteristics of Ethernet MAC addresses? (Choose two.)
- **They are globally unique.***
 - They are routable on the Internet.
 - **They are expressed as 12 hexadecimal digits.***
 - MAC addresses use a flexible hierarchical structure.
 - MAC addresses must be unique for both Ethernet and serial interfaces on a device.
93. If a device receives an Ethernet frame of 60 bytes, what will it do?
- **drop the frame***
 - process the frame as it is
 - send an error message to the sending device
 - add random data bytes to make it 64 bytes long and then forward it
94. Under which two circumstances will a switch flood a frame out of every port except the port that the frame was received on? (Choose two.)
- **The frame has the broadcast address as the destination address. ***
 - **The destination address is unknown to the switch.***
 - The source address in the frame header is the broadcast address.
 - The source address in the frame is a multicast address.
 - The destination address in the frame is a known unicast address.
95. Which switching method has the lowest level of latency?
- cut-through
 - store-and-forward
 - fragment-free
 - **fast-forward***
96. Which two commands can be used on a Windows host to display the routing table? (Choose two.)
- netstat -s
 - **route print***
 - show ip route
 - **netstat -r***
 - tracert
97. Which two functions are primary functions of a router? (Choose two.)

- **packet forwarding***
- microsegmentation
- domain name resolution
- **path selection***
- flow control

98. What is the binary representation of 0xCA?

- 10111010
- 11010101
- **11001010***
- 11011010

99. At a minimum, which address is required on IPv6-enabled interfaces?

- **link-local***
- unique local
- site local
- global unicast

100. Which service provides dynamic global IPv6 addressing to end devices without using a server that keeps a record of available IPv6 addresses?

- stateful DHCPv6
- **SLAAC***
- static IPv6 addressing
- stateless DHCPv6

101. What is the purpose of the command `ping ::1`?

- **It tests the internal configuration of an IPv6 host.***
- It tests the broadcast capability of all hosts on the subnet.
- It tests the multicast connectivity to all hosts on the subnet.
- It tests the reachability of the default gateway for the network.

102. How many usable IP addresses are available on the 192.168.1.0/27 network?

- 256
- 254
- 62
- **30***
- 16
- 32

103. What is the process of dividing a data stream into smaller pieces before transmission?

- **segmentation***
- encapsulation
- encoding
- flow control

104. When IPv4 addressing is manually configured on a web server, which property of the IPv4 configuration identifies the network and host portion for an IPv4 address?

- DNS server address
- **subnet mask***
- default gateway

- DHCP server address
105. Which two roles can a computer assume in a peer-to-peer network where a file is being shared between two computers? (Choose two.)
- **client***
 - master
 - **server***
 - slave
 - transient
106. Which two protocols operate at the highest layer of the TCP/IP protocol stack? (Choose two.)
- **DNS***
 - Ethernet
 - IP
 - **POP***
 - TCP
 - UDP
107. What is one difference between the client-server and peer-to-peer network models?
- Only in the client-server model can file transfers occur.
 - **Every device in a peer-to-peer network can function as a client or a server.***
 - A peer-to-peer network transfers data faster than a transfer using a client-server network.
 - A data transfer that uses a device serving in a client role requires that a dedicated server be present.
108. What is the function of the HTTP GET message?
- **to request an HTML page from a web server***
 - to send error information from a web server to a web client
 - to upload content to a web server from a web client
 - to retrieve client email from an email server using TCP port 110
109. Which networking model is being used when an author uploads one chapter document to a file server of a book publisher?
- peer-to-peer
 - master-slave
 - **client/server***
 - point-to-point
110. What network service resolves the URL entered on a PC to the IP address of the destination server?
- **DNS***
 - DHCP
 - FTP
 - SNMP
111. A network engineer is analyzing reports from a recently performed network baseline. Which situation would depict a possible latency issue?
- a change in the bandwidth according to the show interfaces output
 - a next-hop timeout from a traceroute
 - **an increase in host-to-host ping response times***

- a change in the amount of RAM according to the show version output
112. Which firewall feature is used to ensure that packets coming into a network are legitimate responses to requests initiated from internal hosts?
- **stateful packet inspection***
 - URL filtering
 - application filtering
 - packet filtering
113. What is one indication that a Windows computer did not receive an IPv4 address from a DHCP server?
- The computer cannot ping 127.0.0.1.
 - Windows displays a DHCP timeout message.
 - **The computer receives an IP address that starts with 169.254***
 - The computer cannot ping other devices on the same network with IP addresses in the 169.254.0.0/16 range.
114. Which command can an administrator issue on a Cisco router to send debug messages to the vty lines?
- **terminal monitor***
 - logging console
 - logging buffered
 - logging synchronous
115. **Fill in the blank.** During data communications, a host may need to send a single message to a specific group of destination hosts simultaneously. This message is in the form of a **Multicast** *message.
116. A medium-sized business is researching available options for connecting to the Internet. The company is looking for a high speed option with dedicated, symmetric access. Which connection type should the company choose?
- DSL
 - dialup
 - satellite
 - **leased line***
 - cable modem
117. What is the purpose of having a converged network?
- to provide high speed connectivity to all end devices
 - to make sure that all types of data packets will be treated equally
 - to achieve fault tolerance and high availability of data network infrastructure devices
 - **to reduce the cost of deploying and maintaining the communication infrastructure***
118. What characteristic of a network enables it to quickly grow to support new users and applications without impacting the performance of the service being delivered to existing users?
- reliability
 - **scalability***
 - quality of service
 - accessibility

119. After several configuration changes are made to a router, the copy running-configuration startup-configuration command is issued. Where will the changes be stored?
- flash
 - ROM
 - **NVRAM***
 - RAM
 - the configuration register
 - a TFTP server
120. Refer to the exhibit. From global configuration mode, an administrator is attempting to create a message-of-the-day banner by using the command banner motd V Authorized access only! Violators will be prosecuted! V When users log in using Telnet, the banner does not appear correctly. What is the problem?
- The banner message is too long.
 - **The delimiting character appears in the banner message.***
 - The symbol “!” signals the end of a banner message.
 - Message-of-the-day banners will only appear when a user logs in through the console port.
121. What are three characteristics of an SVI? (Choose three.)
- It is designed as a security protocol to protect switch ports.
 - **It is not associated with any physical interface on a switch.***
 - It is a special interface that allows connectivity by different types of media.
 - It is required to allow connectivity by any device at any location.
 - **It provides a means to remotely manage a switch. ***
 - **It is associated with VLAN1 by default.***
122. A technician configures a switch with these commands:
- ```
SwitchA(config)# interface vlan 1
SwitchA(config-if)# ip address 192.168.1.1 255.255.255.0
SwitchA(config-if)# no shutdown
```
- What is the technician configuring?
- Telnet access
  - **SVI\***
  - password encryption
  - physical switchport access
123. In computer communication, what is the purpose of message encoding?
- **to convert information to the appropriate form for transmission\***
  - to interpret information
  - to break large messages into smaller frames
  - to negotiate correct timing for successful communication
124. What is a characteristic of multicast messages?
- **They are sent to a select group of hosts.\***
  - They must be acknowledged.
  - They are sent to a single destination.



- They are sent to all hosts on a network.

125. A large corporation has modified its network to allow users to access network resources from their personal laptops and smart phones. Which networking trend does this describe?

- **bring your own device\***
- video conferencing
- online collaboration
- cloud computing

126.

127. True or False. A dedicated server is not needed when implementing a peer-to-peer network.

- **true\***
- false

128. Which term refers to a network that provides secure access to the corporate offices by suppliers, customers and collaborators?

- Internet
- intranet
- **extranet\***
- extendednet

**Explain:** The term Internet refers to the worldwide collection of connected networks. Intranet refers to a private connection of LANs and WANS that belong to an organization and is designed to be accessible to the members of the organization, employees, or others with authorization. Extranets provide secure and safe access to suppliers, customers, and collaborators. Extendednet is not a type of network.

129.

130. What subnet mask is required to support 512 subnets on networks 172.28.0.0/16?

- 255.255.240.0
- 255.255.255.224
- 255.255.255.240
- **255.255.255.128\***
- 255.255.252.0

131.

132. A DHCP server is used to IP addresses dynamically to the hosts on a network. The address pool is configured with 10.29.244.0/25. There are 19 printers on this network that need to use reserve static IP addresses from the pool. How many IP address in the pool are left to be assign to other hosts?

- 210
- 60
- 109
- **107\***
- 146

## Older Version: CCNA 1 Final Exam Answers v5.1

1. What is a function of the data link layer?
  - provides the formatting of data
  - **provides for the exchange of data over a common local media\***
  - provides end-to-end delivery of data between hosts
  - provides delivery of data between two applications
2. Which communication tool allows real-time collaboration?
  - wiki
  - e-mail
  - weblog
  - **instant messaging\***
3. A host is accessing a Web server on a remote network. Which three functions are performed by intermediary network devices during this conversation? (Choose three.)
  - **regenerating data signals\***
  - acting as a client or a server
  - providing a channel over which messages travel
  - **applying security settings to control the flow of data \***
  - **notifying other devices when errors occur\***
  - serving as the source or destination of the messages
4. Refer to the exhibit. From which location did this router load the IOS?
  - **flash memory\***
  - NVRAM?
  - RAM
  - ROM
  - a TFTP server?
5. Refer to the exhibit. Which action will be successful?
  - PC1 can send a ping to 192.168.1.1?.
  - PC1 can send a ping to 192.168.1.254?.
  - **PC2 can send a ping to 192.168.1.1.\***
  - PC2 can send a ping to 192.168.1.254?.
6. **Fill in the blank.** Port numbers ranging from 0 to 1023 are considered to be **Well Known** ports.
7. **Fill in the blank.** ISOC, IANA, EIA, and IEEE represent **standards** organizations which help to promote and maintain an open Internet.
8. Refer to the exhibit. An administrator is trying to configure the switch but receives the error message that is displayed in the exhibit. What is the problem?
  - The entire command, configure terminal, must be used.
  - The administrator is already in global configuration mode.
  - **The administrator must first enter privileged EXEC mode before issuing the command.\***
  - The administrator must connect via the console port to access global configuration mode.
9. A company is expanding its business to other countries. All branch offices must remain connected to corporate headquarters at all times. Which network technology is required to support this requirement?

- LAN
- MAN
- **WAN\***
- WLAN

10. A network administrator is upgrading a small business network to give high priority to real-time applications traffic. What two types of network services is the network administrator trying to accommodate? (Choose two.)

- SNMP
- instant messaging
- **voice\***
- FTP
- **video\***

11. Match the situation with the appropriate use of network media.

backbone cabling in an enterprise

guest access in a coffee shop

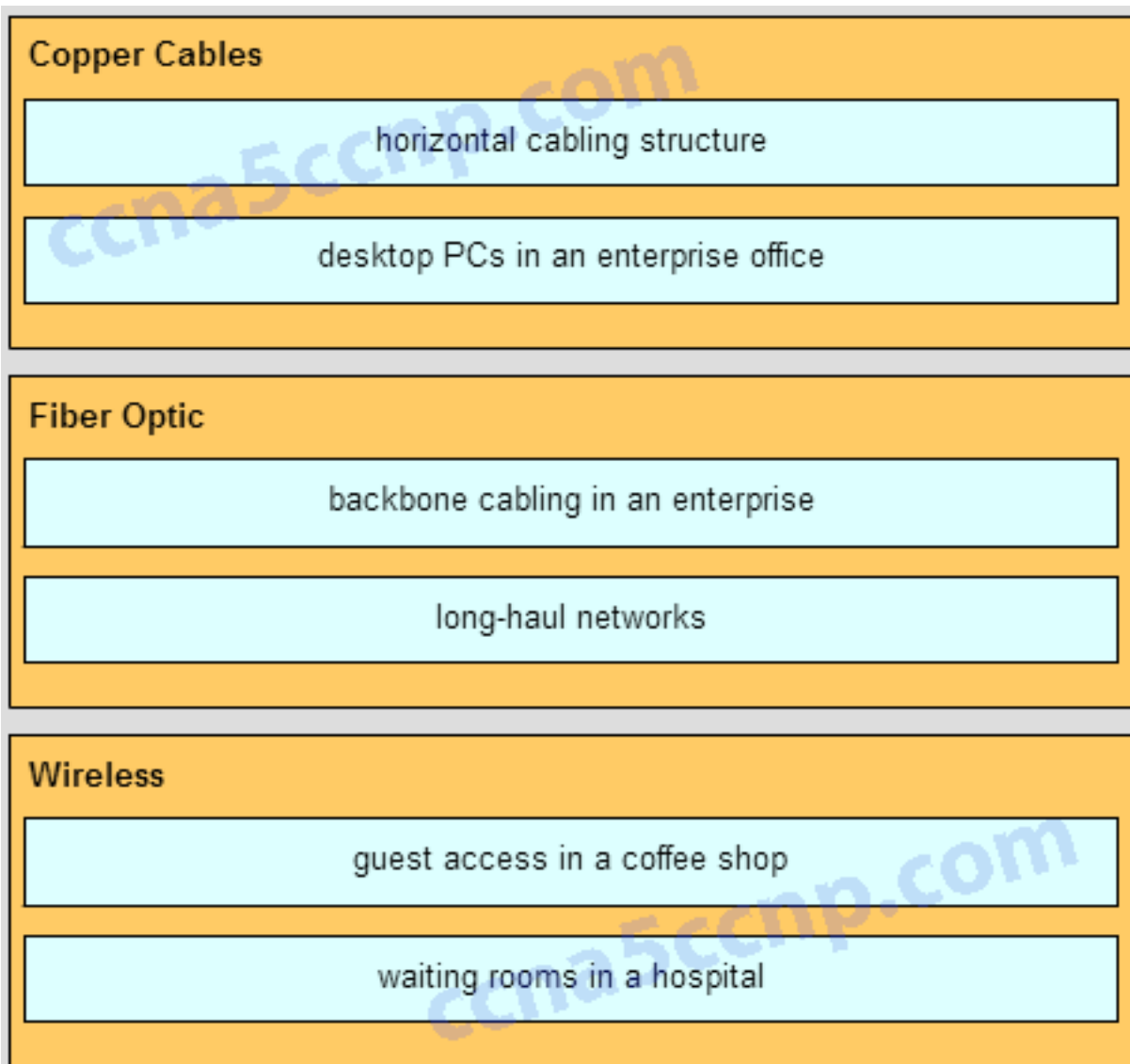
horizontal cabling structure

waiting rooms in a hospital

desktop PCs in an enterprise office

long-haul networks

- Question



- Answer

12. Which IPv4 address can be pinged to test the internal TCP/IP operation of a host?

- 0.0.0.0
- 0.0.0.1
- **127.0.0.1\***
- 192.168.1.1
- 255.255.255.255

13. What three application layer protocols are part of the TCP/IP protocol suite? (Choose three.)

- ARP
- **DHCP\***
- **DNS\***
- **FTP\***
- NAT
- PPP

14. Which two protocols function at the internet layer? (Choose two)

- ARP
- BOOTP

- **ICMP\***
  - **IP\***
  - PPP
15. Which publicly available resources describe protocols, processes, and technologies for the Internet but do not give implementation details?
- **Request for Comments\***
  - IRTF research papers
  - protocol models
  - IEEE standards
16. Which address on a PC does not change, even if the PC is moved to a different network?
- IP address
  - default gateway address
  - **MAC address\***
  - logical address
17. What is the protocol that is used to discover a physical address from a known logical address and what message type does it use?
- ARP, multicast
  - DNS, unicast
  - DNS, broadcast
  - **ARP, broadcast\***
  - PING, multicast
  - PING, broadcast
18. What will happen if the default gateway address is incorrectly configured on a host?
- The host cannot communicate with other hosts in the local network.
  - The switch will not forward packets initiated by the host.
  - The host will have to use ARP to determine the correct address of the default gateway.
  - **The host cannot communicate with hosts in other networks.\***
  - A ping from the host to 127.0.0.1 would not be successful.
19. What is an important function of the physical layer of the OSI model?
- It accepts frames from the physical media.
  - It encapsulates upper layer data into frames.
  - It defines the media access method performed by the hardware interface.
  - **It encodes frames into electrical, optical, or radio wave signals.\***
20. Which two statements describe the characteristics of fiber-optic cabling? (Choose two.)
- **Fiber-optic cabling does not conduct electricity.\***
  - Fiber-optic cabling has high signal loss.
  - **Fiber-optic cabling is primarily used as backbone cabling.\***
  - Multimode fiber-optic cabling carries signals from multiple sending devices.
  - Fiber-optic cabling uses LEDs for single-mode cables and laser technology for multimode cables.
21. What is contained in the trailer of a data-link frame?
- logical address
  - physical address

- data
  - **error detection\***
22. Refer to the exhibit. A ping to PC3 is issued from PC0, PC1, and PC2 in this exact order. Which MAC addresses will be contained in the S1 MAC address table that is associated with the Fa0/1 port?
- **just PC0 and PC1 MAC addresses\***
  - just the PC0 MAC address
  - PC0, PC1, and PC2 MAC addresses
  - just the PC1 MAC address
  - just the PC2 MAC address?
23. How does a Layer 3 switch differ from a Layer 2 switch?
- A Layer 3 switch supports VLANs, but a Layer 2 switch does not.
  - **An IP address can be assigned to a physical port of a Layer 3 switch. However, this is not supported in Layer 2 switches.\***
  - A Layer 3 switch maintains an IP address table instead of a MAC address table.
  - A Layer 3 switch learns the MAC addresses that are associated with each of its ports. However, a Layer 2 switch does not.
24. What is the purpose of the routing process?
- to encapsulate data that is used to communicate across a network
  - **to select the paths that are used to direct traffic to destination networks\***
  - to convert a URL name into an IP address
  - to provide secure Internet file transfer
  - to forward traffic on the basis of MAC addresses
25. Which technology provides a solution to IPv4 address depletion by allowing multiple devices to share one public IP address?
- ARP
  - DNS
  - **NAT\***
  - SMB
  - DHCP
  - HTTP
26. Refer to the exhibit. Consider the IP address configuration shown from PC1. What is a description of the default gateway address?
- It is the IP address of the Router1 interface that connects the company to the Internet.
  - **It is the IP address of the Router1 interface that connects the PC1 LAN to Router1.\***
  - It is the IP address of Switch1 that connects PC1 to other devices on the same LAN.
  - It is the IP address of the ISP network device located in the cloud.
27. Which of the following are primary functions of a router? (Choose two.)
- **packet switching\***
  - microsegmentation
  - domain name resolution
  - **path selection\***
  - flow control

28. Which two statements correctly describe a router memory type and its contents? (Choose two.)
- **ROM is nonvolatile and contains basic diagnostic software.\***
  - FLASH is nonvolatile and contains a limited portion of the IOS.
  - ROM is nonvolatile and stores the running IOS.
  - **RAM is volatile and stores the IP routing table.\***
  - NVRAM is nonvolatile and stores other system files.
29. In which default order will a router search for startup configuration information?
- NVRAM, RAM, TFTP
  - **NVRAM, TFTP, setup mode\***
  - setup mode, NVRAM, TFTP
  - TFTP, ROM, NVRAM
  - flash, ROM, setup mode
30. What happens when part of an Internet VoIP transmission is not delivered to the destination?
- A delivery failure message is sent to the source host.
  - The part of the VoIP transmission that was lost is re-sent.
  - The entire transmission is re-sent.
  - **The transmission continues without the missing portion.\***
31. Which three IP addresses are private ? (Choose three.)
- **10.172.168.1\***
  - 172.32.5.2
  - 192.167.10.10
  - **172.20.4.4 \***
  - **192.168.5.254\***
  - 224.6.6.6
32. How many bits make up the single IPv6 hextet :10CD:?
- 4
  - 8
  - **16\***
  - 32
33. What is the effect of configuring the ipv6 unicast-routing command on a router?
- to assign the router to the all-nodes multicast group
  - **to enable the router as an IPv6 router\***
  - to permit only unicast packets on the router
  - to prevent the router from joining the all-routers multicast group
34. Which group of IPv6 addresses cannot be allocated as a host source address?
- FEC0::/10?
  - FDF0::/7?
  - FEBF::/10?
  - **FF00::/8\***
35. What is the purpose of ICMP messages?
- to inform routers about network topology changes
  - to ensure the delivery of an IP packet
  - **to provide feedback of IP packet transmissions\***

- to monitor the process of a domain name to IP address resolution
36. Refer to the exhibit. A technician has configured a user workstation with the IP address and default subnet masks that are shown. Although the user can access all local LAN resources, the user cannot access any Internet sites by using either FQDN or IP addresses. Based upon the exhibit, what could account for this failure?
- The DNS server addresses are incorrect.
  - **The default gateway address is incorrect.\***
  - The wrong subnet mask was assigned to the workstation.
  - The workstation is not in the same network as the DNS servers.
37. A network administrator needs to monitor network traffic to and from servers in a data center. Which features of an IP addressing scheme should be applied to these devices?
- random static addresses to improve security
  - addresses from different subnets for redundancy
  - **predictable static IP addresses for easier identification\***
  - dynamic addresses to reduce the probability of duplicate addresses
38. Refer to the exhibit. Which IP addressing scheme should be changed?
- Site 1
  - **Site 2\***
  - Site 3
  - Site 4
39. Which two notations are useable nibble boundaries when subnetting in IPv6? (Choose two.)
- /62
  - **/64\***
  - /66
  - **/68\***
  - /70
40. A host PC has just booted and is attempting to lease an address through DHCP. Which two messages will the client typically broadcast on the network? (Choose two.)
- **DHCPDISCOVER\***
  - DHCPOFFER
  - **DHCPREQUEST\***
  - DHCPACK
  - DHCPNACK
41. What is the purpose of the network security accounting function?
- to require users to prove who they are
  - to determine which resources a user can access
  - **to keep track of the actions of a user\***
  - to provide challenge and response questions
42. Refer to the exhibit. The network administrator enters these commands into the R1 router:
- ```
R1# copy running-config tftp
```
- Address or name of remote host []?
- When the router prompts for an address or remote host name, what IP address should the administrator enter at the prompt?

- 192.168.9.254
- 192.168.10.1
- 192.168.10.2
- **192.168.11.252***
- 192.168.11.254

43. Match the IPv6 address to the IPv6 address type. (Not all options are used.)

Link-Local
FE80:0:56BA:FFEE:A0B4:47FF:FE36:532B
FE80::1

Multicast
FF02::2
FF02::1:FF3A:25C9

Global Unicast
2001:DB8:10::12
2001:DB8:A1:0B:C78::1

44. What two preconfigured settings that affect security are found on most new wireless routers? (Choose two.)

- **broadcast SSID***
- MAC filtering enabled
- WEP encryption enabled
- PSK authentication required
- **default administrator password***

45. Which type of wireless security generates dynamic encryption keys each time a client associates with an AP?

- EAP
- PSK
- WEP
- **WPA***

46. Fill in the blank. TFTP* is a best-effort, connectionless application layer protocol that is used to transfer files.

47. Which two components are necessary for a wireless client to be installed on a WLAN? (Choose two.)

- media

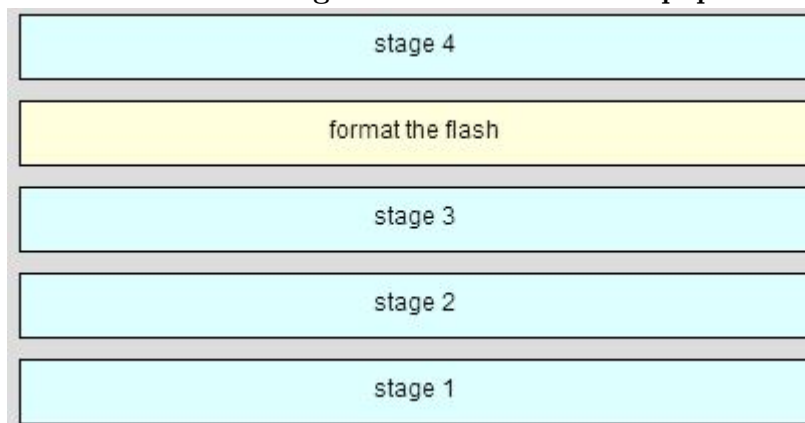
- **wireless NIC***
- custom adapter
- crossover cable
- wireless bridge
- **wireless client software***

48. Consider the following range of addresses:

2001:0DB8:BC15:00A0:0000:: 2001:0DB8:BC15:00A1:0000:: 2001:0DB8:BC15:00A2:0000::
... 2001:0DB8:BC15:00AF:0000::

The prefix-length for the range of addresses is **/60***

49. Match the phases to their correct stage in the router bootup process. (Not all



options are used.)

50. A host is accessing an FTP server on a remote network. Which three functions are performed by intermediary network devices during this conversation? (Choose three.)

- **regenerating data signals***
- acting as a client or a server
- providing a channel over which messages travel
- **applying security settings to control the flow of data***
- **notifying other devices when errors occur***
- serving as the source or destination of the messages

51. When is a dial-up connection used to connect to an ISP?

- when a cellular telephone provides the service
- when a high-speed connection is provided over a cable TV network
- when a satellite dish is used
- **when a regular telephone line is used***

52. On a school network, students are surfing the web, searching the library database, and attending an audio conference with their sister school in Japan. If network traffic is prioritized with QoS, how will the traffic be classified from highest priority to lowest priority?

- **audio conference, database, HTTP***
- database, HTTP, audio conference
- audio conference, HTTP, database
- database, audio conference, HTTP

53. During normal operation, from which location do most Cisco routers run the IOS?

- **RAM***
- flash

- NVRAM
- disk drive

54. Which keys act as a hot key combination that is used to interrupt an IOS process?

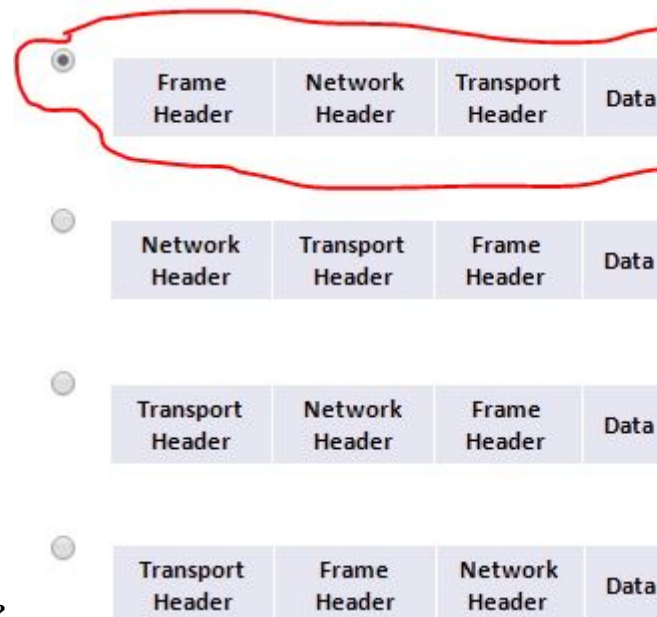
- Ctrl-Shift-X
- **Ctrl-Shift-6***
- Ctrl-Z
- Ctrl-C

55. Refer to the exhibit. An administrator wants to change the name of a brand new switch, using the hostname command as shown. What prompt will display after the command is issued??

- HR Switch(config)#?
- **Switch(config)#?***
- HRSwitch(config)#?
- HR(config)#?
- Switch#

56. A technician uses the ping 127.0.0.1 command. What is the technician testing?

- **the TCP/IP stack on a network host***
- connectivity between two adjacent Cisco devices
- connectivity between a PC and the default gateway
- connectivity between two PCs on the same network
- physical connectivity of a particular PC and the network



57. What is the correct order for PDU encapsulation?

58. Which device should be used for enabling a host to communicate with another host on a different network?

- switch
- hub
- **router***
- host

59. A network technician is measuring the transfer of bits across the company backbone for a mission critical application. The technician notices that the network throughput appears lower than the

bandwidth expected. Which three factors could influence the differences in throughput? (Choose three.)

- **the amount of traffic that is currently crossing the network***
- the sophistication of the encapsulation method applied to the data
- **the type of traffic that is crossing the network***
- **the latency that is created by the number of network devices that the data is crossing***
- the bandwidth of the WAN connection to the Internet
- the reliability of the gigabit Ethernet infrastructure of the backbone

60. Which characteristics describe fiber optic cable? (Choose two.)

- **It is not affected by EMI or RFI.***
- Each pair of cables is wrapped in metallic foil.
- It combines the technique of cancellation, shielding and twisting to protect data.
- It has a maximum speed of 100 Mbps.
- **It is the most expensive type of LAN cabling***

61. What are two features of a physical, star network topology? (Choose two.)

- **It is straightforward to troubleshoot.***
- End devices are connected together by a bus.
- **It is easy to add and remove end devices.***
- All end devices are connected in a chain to each other.
- Each end system is connected to its respective neighbor.

62. A frame is transmitted from one networking device to another. Why does the receiving device check the FCS field in the frame?

- to determine the physical address of the sending device
- to verify the network layer protocol information
- to compare the interface media type between the sending and receiving ends
- **to check the frame for possible transmission errors***
- to verify that the frame destination matches the MAC address of the receiving device

63. What will a Layer 2 switch do when the destination MAC address of a received frame is not in the MAC table?

- It initiates an ARP request.
- It broadcasts the frame out of all ports on the switch.
- It notifies the sending host that the frame cannot be delivered.
- **It forwards the frame out of all ports except for the port at which the frame was received.***

64. Which parameter does the router use to choose the path to the destination when there are multiple routes available?

- **the lower metric value that is associated with the destination network***
- the lower gateway IP address to get to the destination network
- the higher metric value that is associated with the destination network
- the higher gateway IP address to get to the destination network

65. Which two statements describe the functions or characteristics of ROM in a router? (Choose two.)

- stores routing tables

- allows software to be updated without replacing pluggable chips on the motherboard
 - **maintains instructions for POST diagnostics***
 - holds ARP cache
 - **stores bootstrap program***
66. Which statement describes a characteristic of the Cisco router management ports?
- A console port is used for remote management of the router.
 - **A console port is not used for packet forwarding.***
 - Serial and DSL interfaces are types of management ports.
 - Each Cisco router has a LED indicator to provide information about the status of the management ports.
67. What happens when part of an Internet radio transmission is not delivered to the destination?
- A delivery failure message is sent to the source host.
 - The part of the radio transmission that was lost is re-sent.
 - The entire transmission is re-sent.
 - **The transmission continues without the missing portion.***
68. What types of addresses make up the majority of addresses within the /8 block IPv4 bit space?
- private addresses
 - **public addresses***
 - multicast addresses
 - experimental addresses
69. Refer to the exhibit. What is the maximum TTL value that is used to reach the destination www.cisco.com??
- 11
 - 12
 - **13***
 - 14
70. A company has a network address of 192.168.1.64 with a subnet mask of 255.255.255.192. The company wants to create two subnetworks that would contain 10 hosts and 18 hosts respectively. Which two networks would achieve that? (Choose two.)
- 192.168.1.16/28
 - **192.168.1.64/27***
 - 192.168.1.128/27
 - **192.168.1.96/28***
 - 192.168.1.192/28
71. In a network that uses IPv4, what prefix would best fit a subnet containing 100 hosts?
- /23
 - /24
 - **/25***
 - /26
72. Which protocol supports rapid delivery of streaming media?
- Transmission Control Protocol
 - **Real-Time Transport Protocol***
 - Secure File Transfer Protocol

- Video over Internet Protocol

73. Why would a network administrator use the tracert utility?

- to determine the active TCP connections on a PC
- to check information about a DNS name in the DNS server
- **to identify where a packet was lost or delayed on a network***
- to display the IP address, default gateway, and DNS server address for a PC

74. Refer to the exhibit. What is the significance of the asterisk (*) in the exhibited output?

- The asterisk shows which file system was used to boot the system.
- **The asterisk designates which file system is the default file system.***
- An asterisk indicates that the file system is bootable.
- An asterisk designates that the file system has at least one file that uses that file system.

75. Which WLAN security protocol generates a new dynamic key each time a client establishes a connection with the AP?

- EAP
- PSK
- WEP
- **WPA***

76. **Fill in the blank.** Point-to-point communications where both devices can transmit and receive on the medium at the same time are known as **full-duplex**

77. **Match each characteristic to the appropriate email protocol.** (Not all options are

used.)

POP
does not require a centralized backup solution
mail is deleted as it is downloaded
desirable for an ISP or large business

IMAP
downloads copies of email messages to the client
original messages must be manually deleted
requires a larger amount of disk space

78. A host is accessing a Telnet server on a remote network. Which three functions are performed by intermediary network devices during this conversation? (Choose three.)

- **regenerating data signals***
- acting as a client or a server
- providing a channel over which messages travel
- **applying security settings to control the flow of data***

- **notifying other devices when errors occur***
 - serving as the source or destination of the messages
79. Refer to the exhibit. Which area would most likely be an extranet for the company network that is shown?
- area A
 - area B
 - **area C***
 - area D
80. Three office workers are using the corporate network. The first employee uses a web browser to view a company web page in order to read some announcements. The second employee accesses the corporate database to perform some financial transactions. The third employee participates in an important live audio conference with other office workers in branch offices. If QoS is implemented on this network, what will be the priorities from highest to lowest of the different data types?
- **audio conference, financial transactions, web page***
 - financial transactions, web page, audio conference
 - audio conference, web page, financial transactions
 - financial transactions, audio conference, web page
81. During normal operation, from which location do most Cisco switches and routers run the IOS?
- **RAM***
 - flash
 - NVRAM
 - disk drive
82. A network administrator is making changes to the configuration of a router. After making the changes and verifying the results, the administrator issues the copy running-config startup-config command. What will happen after this command executes?
- The configuration will be copied to flash.
 - **The configuration will load when the router is restarted.***
 - The new configuration file will replace the IOS file.
 - The changes will be lost when the router restarts.
83. What information does the loopback test provide?
- **The TCP/IP stack on the device is working correctly.***
 - The device has end-to-end connectivity.
 - DHCP is working correctly.
 - The Ethernet cable is working correctly.
 - The device has the correct IP address on the network.
84. What happens when a switch receives a frame and the calculated CRC value is different than the value that is in the FCS field?
- The switch places the new CRC value in the FCS field and forwards the frame.
 - The switch notifies the source of the bad frame.
 - **The switch drops the frame.***
 - The switch floods the frame to all ports except the port through which the frame arrived to notify the hosts of the error.
85. Which destination address is used in an ARP request frame?

- 0.0.0.0
- 255.255.255.255
- **FFFF.FFFF.FFFF***
- 127.0.0.1
- 01-00-5E-00-AA-23

86. What is the auto-MDIX feature on a switch?

- the automatic configuration of an interface for 10/100/1000 Mb/s operation
- **the automatic configuration of an interface for a straight-through or a crossover Ethernet cable connection***
- the automatic configuration of full-duplex operation over a single Ethernet copper or optical cable
- the ability to turn a switch interface on or off accordingly if an active connection is detected

87. What are the two main components of Cisco Express Forwarding (CEF)? (Choose two.)

- **adjacency tables***
- MAC-address tables
- routing tables
- ARP tables
- **forwarding information base (FIB)***

88. Which statement describes the sequence of processes executed by a router when it receives a packet from a host to be delivered to a host on another network?

- It receives the packet and forwards it directly to the destination host.
- **It de-encapsulates the packet, selects the appropriate path, and encapsulates the packet to forward it toward the destination host***
- It de-encapsulates the packet and forwards it toward the destination host.
- It selects the path and forwards it toward the destination host.

89. Refer to the exhibit. Router R1 has two interfaces that were configured with correct IP addresses and subnet masks. Why does the show ip route command output not display any information about the directly connected networks??

- The directly connected networks have to be created manually to be displayed in the routing table.
- The routing table will only display information about these networks when the router receives a packet.
- **The no shutdown command was not issued on these interfaces.***
- The gateway of last resort was not configured.

90. What happens when part of an Internet television transmission is not delivered to the destination?

- A delivery failure message is sent to the source host.
- The part of the television transmission that was lost is re-sent.
- The entire transmission is re-sent.
- **The transmission continues without the missing portion.***

91. Which three statements characterize the transport layer protocols? (Choose three.)

- **TCP and UDP port numbers are used by application layer protocols.***
- TCP uses port numbers to provide reliable transportation of IP packets.
- UDP uses windowing and acknowledgments for reliable transfer of data.
- **TCP uses windowing and sequencing to provide reliable transfer of data.***

- **TCP is a connection-oriented protocol. UDP is a connectionless protocol.***

92. Which statement is true regarding the UDP client process during a session with a server?

- **Datagrams that arrive in a different order than that in which they were sent are not placed in order.***
- A session must be established before datagrams can be exchanged.
- A three-way handshake takes place before the transmission of data begins.
- Application servers have to use port numbers above 1024 in order to be UDP capable.

93. Which two components are configured via software in order for a PC to participate in a network environment? (Choose two.)

- MAC address
- **IP address***
- kernel
- shell
- **subnet mask***

94. Which two reasons generally make DHCP the preferred method of assigning IP addresses to hosts on large networks? (Choose two.)

- **It eliminates most address configuration errors.***
- It ensures that addresses are only applied to devices that require a permanent address.
- It guarantees that every device that needs an address will get one.
- It provides an address only to devices that are authorized to be connected to the network.
- **It reduces the burden on network support staff.***

95. What is the subnet address for the address 2001:DB8:BC15:A:12AB::1/64?

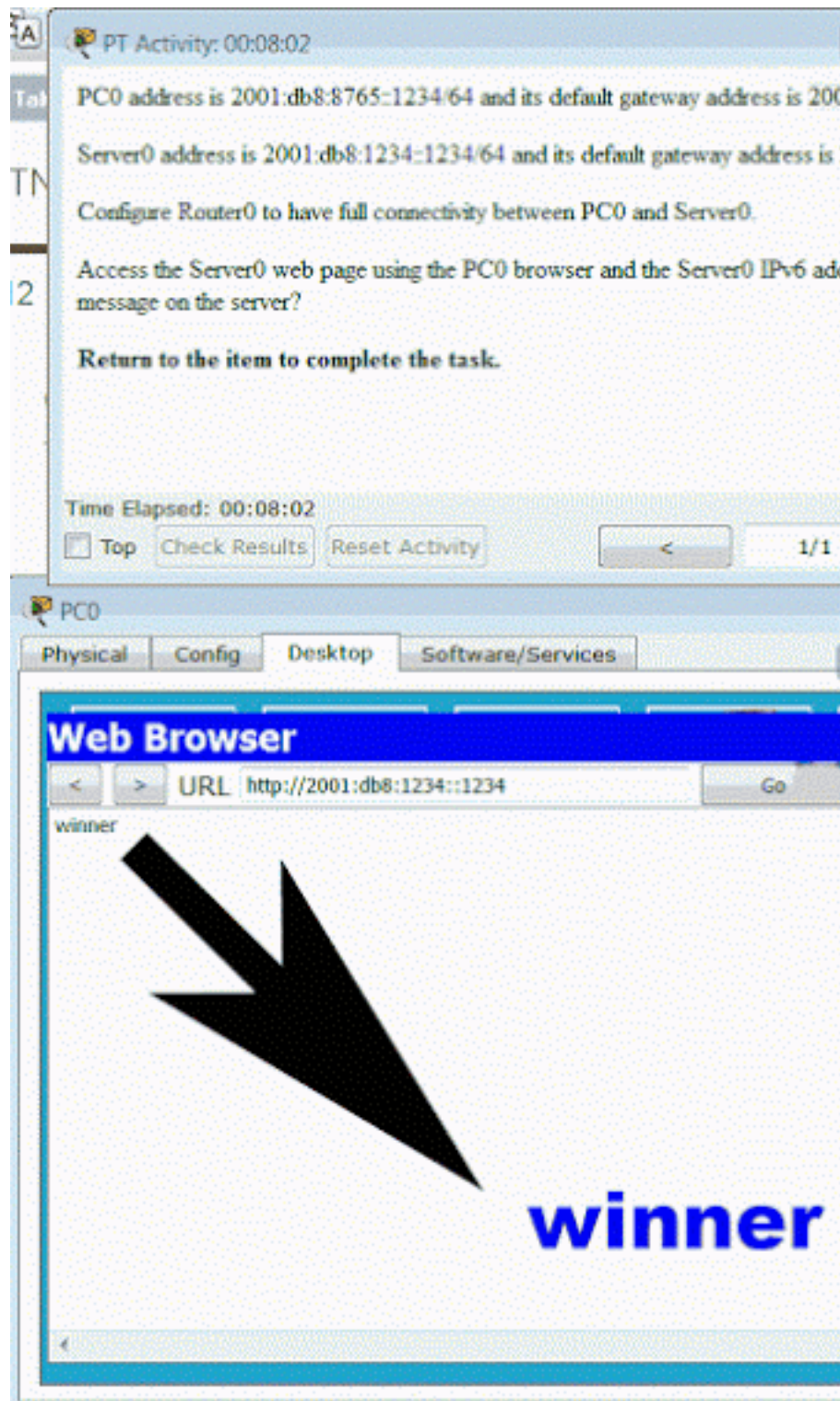
- 2001:DB8:BC15::0
- **2001:DB8:BC15:A::0***
- 2001:DB8:BC15:A:1::1
- 2001:DB8:BC15:A:12::0

96. What is the purpose of the network security authentication function?

- **to require users to prove who they are***
- to determine which resources a user can access
- to keep track of the actions of a user
- to provide challenge and response questions

97. Which type of wireless security makes use of dynamic encryption keys each time a client associates with an AP?

- EAP
- PSK
- WEP
- **WPA***



98. **Launch PT – Hide and Save PT.**

Open the PT activity. Perform the tasks in the activity instructions and then fill in the blank.
The Server0 message isb "**winner**"

99. Which field in an IPv4 packet header will typically stay the same during its transmission?

- Packet Length
- **Destination Address***
- Flag
- Time-to-Live

100. Launch PT – Hide and Save PT

Open the PT Activity. Perform the tasks in the activity instructions and then answer the qu

- 2001:db8:abc:1::1
- **2001:db8:abc:5::1***
- 2001:db8:abc:5::2
- 2001:db8:abc:10::15

101. What must be configured to enable Cisco Express Forwarding (CEF) on most Cisco devices that perform Layer 3 switching?

- Manually configure next-hop Layer 2 addresses.
- Issue the no shutdown command on routed ports.
- **CEF is enabled by default, so no configuration is necessary.***
- Manually map Layer 2 addresses to Layer 3 addresses to populate the forwarding information base (FIB).

102. What is the purpose of adjacency tables as used in Cisco Express Forwarding (CEF)?

- to populate the forwarding information base (FIB)
- **to maintain Layer 2 next-hop addresses***
- to allow the separation of Layer 2 and Layer 3 decision making
- to update the forwarding information base (FIB)

103. Which statement describes a characteristic of the network layer in the OSI model?

- It manages the data transport between the processes running on each host.
- In the encapsulation process, it adds source and destination port numbers to the IP header.
- When a packet arrives at the destination host, its IP header is checked by the network layer to determine where the packet has to be routed.
- **Its protocols specify the packet structure and processing used to carry the data from one host to another.***

104. A user gets an IP address of 192.168.0.1 from the company network administrator. A friend of the user at a different company gets the same IP address on another PC. How can two PCs use the same IP address and still reach the Internet, send and receive email, and search the web?

- Both users must be using the same Internet Service Provider.
- **ISPs use Network Address Translation to change a user IP address into an address that can be used on the Internet.***
- ISPs use Domain Name Service to change a user IP address into a public IP address that can be used on the Internet.
- Both users must be on the same network.

105. Why does HTTP use TCP as the transport layer protocol?

- to ensure the fastest possible download speed
- because HTTP is a best-effort protocol
- because transmission errors can be tolerated easily
- **because HTTP requires reliable delivery***

106. What is the valid most compressed format possible of the IPv6 address 2001:0DB8:0000:AB00:0000:0000:0000:0000?

- **2001:DB8:0:AB00::1234***

- 2001:DB8:0:AB::1234
- 2001:DB8::AB00::1234
- 2001:DB8:0:AB:0:1234

107. What field content is used by ICMPv6 to determine that a packet has expired?

- TTL field
- CRC field
- **Hop Limit field***
- Time Exceeded field

108. Which firewall technique blocks incoming packets unless they are responses to internal requests?

- port filtering
- **stateful packet inspection***
- URL filtering
- application filtering

109. A network technician is investigating network connectivity from a PC to a remote host with the address 10.1.1.5. Which command issued on the PC will return to the technician the complete path to the remote host?

- trace 10.1.1.5
- traceroute 10.1.1.5
- **tracert 10.1.1.5***
- ping 10.1.1.5

110. **Fill in the blank. To prevent faulty network devices from carrying dangerous voltage levels, equipment must be grounded *correctly**

111. What is a possible hazard that can be caused by network cables in a fire?

- **The cable insulation could be flammable.***
- Users could be exposed to excessive voltage.
- Network cables could be exposed to water.
- The network cable could explode.

112. What device is commonly used to verify a UTP cable?

- a multimeter
- an Optical Time Domain Reflectometer
- **a cable tester***
- an ohmmeter

113. What needs to be checked when testing a UTP network cable?

- capacitance
- **wire map***
- inductance
- flexibility

114. Refer to the exhibit. A ping to PC2 is issued from PC0, PC1, and PC3 in this exact order. Which MAC addresses will be contained in the S1 MAC address table that is associated with the Fa0/1 port?

- ****just PC0 and PC1 MAC addresses*****
- just the PC0 MAC address
- PC0, PC1, and PC2 MAC addresses
- just the PC1 MAC address
- just the PC2 MAC address

115. Which function is provided by TCP?

- data encapsulation
- **detection of missing packets***
- communication session control
- path determination for data packets

116. What does a router use to determine where to send data it receives from the network?

- an ARP table
- **a routing table***
- the destination PC physical address
- a switching table

117. Which router interface should be used for direct remote access to the router via a modem?

- an inband router interface
- a console port
- a serial WAN interface
- **an AUX port***

118. A technician is configuring a router to allow for all forms of management access. As part of each different type of access, the technician is trying to type the command login. Which configuration mode should be entered to do this task?

- user executive mode
- global configuration mode
- **any line configuration mode***
- privileged EXEC mode

119. Which three statements characterize the transport layer protocols? (Choose three.)

- **TCP and UDP port numbers are used by application layer protocols.***
- TCP uses port numbers to provide reliable transportation of IP packets.
- UDP uses windowing and acknowledgments for reliable transfer of data.
- **TCP uses windowing and sequencing to provide reliable transfer of data.***
- **TCP is a connection-oriented protocol. UDP is a connectionless protocol.***

120. Refer to the exhibit. A TCP segment from a server has been captured by Wireshark, which is running on a host. What acknowledgement number will the host return for the TCP segment that has been received?

- 2
- 21
- 250
- ****306*****
- 2921

121. Which statement is true about an interface that is configured with the IPv6 address command?

- IPv6 traffic-forwarding is enabled on the interface.
- **A link-local IPv6 address is automatically configured on the interface.***
- A global unicast IPv6 address is dynamically configured on the interface.
- Any IPv4 addresses that are assigned to the interface are replaced with an IPv6 address.

122. Refer to the exhibit. An administrator must send a message to everyone on the router A network. What is the broadcast address for network 172.16.16.0/22?

- 172.16.16.255
- 172.16.20.255
- ****172.16.19.255*****
- 172.16.23.255
- 172.16.255.255

123. A network administrator is variably subnetting a given block of IPv4 addresses. Which combination of network addresses and prefix lengths will make the most efficient use of addresses when the need is for 2 subnets capable of supporting 10 hosts and 1 subnet that can support 6 hosts?

- **10.1.1.128/28* 10.1.1.144/28* 10.1.1.160/29***
- 10.1.1.128/28 10.1.1.144/28 10.1.1.160/28
- 10.1.1.128/28 10.1.1.140/28 10.1.1.158/26
- 10.1.1.128/26 10.1.1.144/26 10.1.1.160/26
- 10.1.1.128/26 10.1.1.140/26 10.1.1.158/28

124. How many additional bits should be borrowed from a /26 subnet mask in order to create subnets for WAN links that need only 2 useable addresses?

- 2
- 3
- **4***
- 5
- 6

125. A network administrator requires access to manage routers and switches locally and remotely. Match the description to the access method. (Not all options are used.)

remote access method that uses encryption
preferred out-of-band access method
FTP
remote access via a dialup connection
unsecure remote access

126. Refer to the exhibit. The administrator configured the access to the console and the vty lines of a router. Which conclusion can be drawn from this configuration?

- Unauthorized individuals can connect to the router via Telnet without entering a password.
 - ****Because the IOS includes the login command on the vty lines by default, access to the**
 - Access to the vty lines will not be allowed via Telnet by anyone.
 - Because the login command was omitted, the password cisco command is not applied to the
127. An administrator issued the service password-encryption command to apply encryption to the passwords configured for enable password, vty, and console lines. What will be the consequences if the administrator later issues the no service password-encryption command?
- It will remove encryption from all passwords.
 - It will reverse only the vty and console password encryptions.
 - **It will not reverse any encryption.***
 - It will reverse only the enable password encryption.
128. After making configuration changes, a network administrator issues a copy running-config startup-config command in a Cisco switch. What is the result of issuing this command?
- The new configuration will be stored in flash memory.
 - **The new configuration will be loaded if the switch is restarted.***
 - The current IOS file will be replaced with the newly configured file.
 - The configuration changes will be removed and the original configuration will be restored.
129. What are two features of ARP? (Choose two.)
- **If a host is ready to send a packet to a local destination device and it has the IP address but not the MAC address of the destination, it generates an ARP broadcast.***
 - An ARP request is sent to all devices on the Ethernet LAN and contains the IP address of the destination host and its multicast MAC address.
 - When a host is encapsulating a packet into a frame, it refers to the MAC address table to determine the mapping of IP addresses to MAC addresses.
 - If no device responds to the ARP request, then the originating node will broadcast the data packet to all devices on the network segment.
 - **If a device receiving an ARP request has the destination IPv4 address, it responds with an ARP reply.***
130. A network administrator is enabling services on a newly installed server. Which two statements describe how services are used on a server? (Choose two.)
- Data sent with a service that uses TCP is received in the order the data was sent.
 - **A port is considered to be open when it has an active server application that is assigned to it.***
 - An individual server can have two services that are assigned to the same port number.
 - An individual server cannot have multiple services running at the same time.
 - **Server security can be improved by closing ports that are associated with unused services.***
131. Given the binary address of 11101100 00010001 00001100 00001010, which address does this represent in dotted decimal format?
- 234.17.10.9
 - 234.16.12.10
 - 236.17.12.6

- **236.17.12.10***

132. A particular telnet site does not appear to be responding on a Windows 7 computer. What command could the technician use to show any cached DNS entries for this web page?

- ipconfig /all
- arp -a
- **ipconfig /displaydns***
- nslookup

133. Fill in the blank.

Network devices come in two physical configurations. Devices that have expansion slots that provide the flexibility to add new modules have a Modular * configuration.

Refer to the exhibit. What is the maximum TTL value that is used to reach the destination www.cisco.com?

- 11
- 12
- **13***
- 14

134. Which statement is true about DHCP operation?

- **When a device that is configured to use DHCP boots, the client broadcasts a DHCPDISCOVER message to identify any available DHCP servers on the network.***
- A client must wait for lease expiration before it sends another DHCPREQUEST message.
- The DHCPDISCOVER message contains the IP address and sub net mask to be assigned, the IP address of the DNS server, and the IP address of the default gateway.
- If the client receives several DHCPOFFER messages from different servers, it sends a unicast DHCPREQUEST message to the server from which it chooses to obtain the IP information.

135. Which type of wireless security is easily compromised?

- EAP
- PSK
- **WEP***
- WPA

136. A network administrator notices that the throughput on the network appears lower than expected when compared to the end-to-end network bandwidth. Which three factors can explain this difference? (Choose three.)

- **the amount of traffic***
- the type of data encapsulation in use
- **the type of traffic***
- the number and type of network devices that the data is crossing*
- the bandwidth of the connection to the ISP
- the reliability of the network backbone

137. A host PC is attempting to lease an address through DHCP. What message is sent by the server to the client know it is able to use the provided IP information?

- DHCPDISCOVER
- **DHCPOFFER***
- DHCPREQUEST

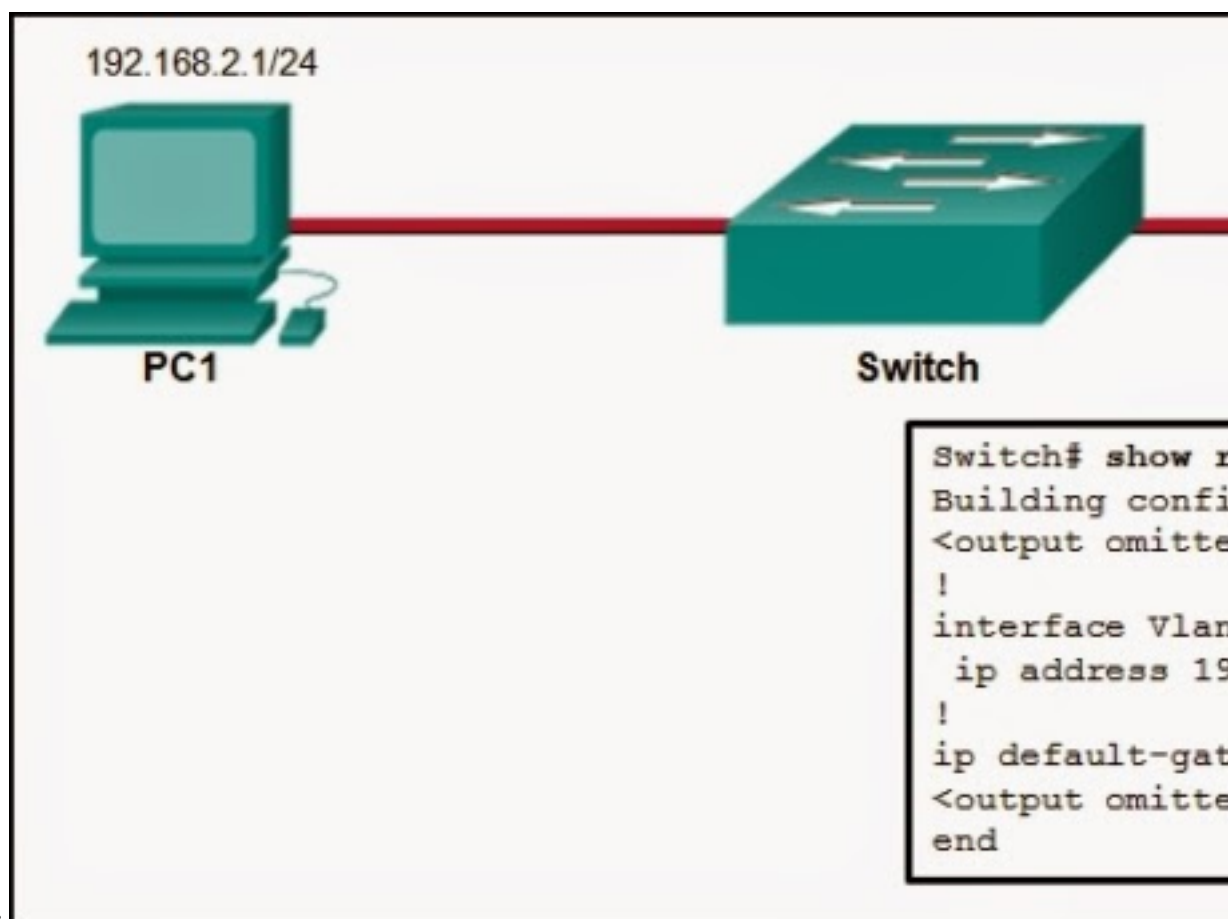
- DHCPACK
- DHCPNACK

138. A network administrator is configuring access control to switch SW1. If the administrator uses console line to connect to the switch, which password is needed to access user EXEC mode?

- letmein
- secretin
- **lineconin***
- linevtyin

139. How many bits would need to be borrowed if a network admin were given the IP addressing scheme of 172.16.0.0/16 and needed no more than 16 subnet with equal number of hosts?

- 10
- 12
- 2
- 4*
- 8



140. **Question:** It will give 4 options about ping, the correct one is: **The PC2 will be able to ping 192.168.1.1***

141. Which statement best describes the operation of the File Transfer Protocol?

- An FTP client uses a source port number of 21 and a randomly generated destination port number during the establishment of control traffic with an FTP Server.

- An FTP client uses a source port number of 20 and a randomly generated destination port number during the establishment of data traffic with an FTP Server.
 - **An FTP server uses a source port number of 20 and a randomly generated destination port number during the establishment of control traffic with an FTP client.***
 - An FTP server uses a source port number of 21 and a randomly generated destination port number during the establishment of control traffic with an FTP client.
142. A client is establishing a TCP session with a server. How is the acknowledgment number in the response segment to the client determined?
- **The acknowledgment number field is modified by adding 1 to the randomly chosen initial sequence number in response to the client.***
 - The acknowledgment number is set to 11 to signify an acknowledgment packet and synchronization packet back to the client.
 - The acknowledgment number field uses a random source port number in response to the client.
 - The acknowledgment number is set to 1 to signify an acknowledgment packet back to the client.
143. Why does layer 3 device perform the ANDing process on a destination IP and subnet Mask?
- to identify host address and destination host;
 - **to identify network address of destination host;***
 - to identify faulty frames;
 - to identify broadcast address of destination network;
144. There was also a question about if you activated service password encryption in the past and you prompt “no service password encryption” what password are modified ?
- **no password at all;***
 - password of the lines are in clear;
 - login password;
 - ?
145. What type of communication rule would best describe CSMA/CD?
- message encapsulation
 - flow control
 - message encoding
 - **access method***
146. What is the primary reason to subnet IPv6 prefixes?
- to conserve IPv6 addresses
 - to avoid wasting IPv6 addresses
 - to conserve IPv6 prefixes
 - **to create a hierarchical Layer 3 network design***
147. Which statement describes data throughput?
- It is the measure of the bits transferred across the media under perfect conditions.
 - **It is the measure of the bits transferred across the media over a given period of time.***
 - It indicates the capacity of a particular medium to carry data.
 - It is the guaranteed data transfer rate offered by an ISP.

148. **Fill in the blank. Use a number.** IPv4 multicast addresses are directly mapped to IEEE 802 (Ethernet) MAC addresses using the last **4** of the 28 available bits in the IPv4 multicast group address.
149. How could a faulty network device create a source of hazard for a user? (Choose two.)
- **It could stop functioning.***
 - It could apply dangerous voltage to other pieces of equipment.
 - **It could explode.***
 - It could produce an unsafe electromagnetic field.
 - It could apply dangerous voltage to itself.
150. What are three important considerations when planning the structure of an IP addressing scheme? (Choose three.)
- **preventing duplication of addresses***
 - **providing and controlling access***
 - documenting the network
 - monitoring security and performance
 - **conserving addresses***
 - implementing new services
151. What is the metric value that is used to reach the 10.1.1.0 network in the following routing table entry? D 10.1.1.0/24 [90/2170112] via 209.165.200.226, 00:00:05, Serial0/0/0
- 24
 - 90
 - 05
 - **2170112***
152. Which two services or protocols use the preferred UDP protocol for fast transmission and low overhead? (Choose two)
- **VoIP***
 - **DNS***
 - HTTP
 - FTP
 - POP3
153. What action does a DHCPv4 client take if it receives more than one DHCPOFFER from multiple DHCP servers?
- **It sends a DHCPREQUEST that identifies which lease offer the client is accepting.***
 - It sends a DHCPNAK and begins the DHCP process over again.
 - It discards both offers and sends a new DHCPDISCOVER.
 - It accepts both DHCPOFFER messages and sends a DHCPACK.
154. To what legacy address class does the address 10.0.0.0 belong?
- Class B
 - Class D
 - **Class A***
 - Class C
 - Class E

155. How many IPv4 addresses are available to be assigned to hosts on a network that has a mask of 255.255.255.248?

- 16
- 14
- 8
- 254
- **6***
- 2

156. What type of communication medium is used with a wireless LAN connection?

- **radio waves***
- fiber
- microwave
- UTP

157. Which method of IPv6 prefix assignment relies on the prefix contained in RA messages?

- EUI-64
- static
- **SLAAC***
- stateful DHCPv6

158. What is a characteristic of DNS?

- **DNS servers can cache recent queries to reduce DNS query traffic.***
- DNS servers are programmed to drop requests for name translations that are not within their zone.
- All DNS servers must maintain mappings for the entire DNS structure.
- DNS relies on a hub-and-spoke topology with centralized servers.

159. What is the prefix for the host address 2001:DB8:BC15:A:12AB::1/64?

- 2001:DB8:BC15
- **2001:DB8:BC15:A***
- 2001:DB8:BC15:A:1
- 2001:DB8:BC15:A:12

160. What information is maintained in the CEF adjacency table?

- Layer 2 next hops
- **MAC address to IPv4 address mappings***
- IP address to interface mappings
- the IP addresses of all neighboring routers

161. Which command can an administrator issue on a Cisco router to send debug messages to the vty lines?

- **terminal monitor***
- logging console
- logging buffered
- logging synchronous

162. What is an example of a top-level domain?

- root.cisco.com
- **http://www.cisco.com**

- **.com***
- cisco.com

163. Which protocol requires the establishment of a session between sender and receiver hosts prior to transmitting data?

- UDP
- **TCP***
- IP
- ICMP

164. Which two protocols operate at the top layer of the TCP/IP protocol suite? (Choose two.)

- TCP
- IP
- UDP
- **POP**
- **DNS**
- Ethernet

165. What does a client do when it has UDP datagrams to send?

- It sends to the server a segment with the SYN flag set to synchronize the conversation.
- **It just sends the datagrams.***
- It queries the server to see if it is ready to receive data.
- It sends a simplified three-way handshake to the server.

166. What is a characteristic of multicast messages?

- They are sent to all hosts on a network.
- They must be acknowledged.
- **They are sent to a select group of hosts.***
- They are sent to a single destination.

167. Which protocol or service uses UDP for a client-to-server communication and TCP for server-to-server communication?

- FTP
- HTTP
- **DNS ***
- SMTP

168. In what networking model would eDonkey, eMule, BitTorrent, Bitcoin, and LionShare be used?

- master-slave
- client-based
- **peer-to-peer ***
- point-to-point