



Exam : 640-821

**Title : Introduction to Cisco Networking
Technologies (INTRO)**

Ver : 10.03.07

QUESTION 1:

Exhibit

```

CertkillerC # show interfaces serial 0/0
Serial0/0 is administratively down line protocol is down
Hardware is HD64570
Internet address is 192.168.100.1/24
MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
  reliability 255/255, txload 1/255, rxload 1/255
Encapsulation HDLC, loopback not set

```

The result of the show interfaces serial 0/0 command is displayed in the exhibit. What command should be executed to make this interface operational?

- A. Certkiller C(config-if)#enable
- B. Certkiller C(config-if)# no keepalive
- C. Certkiller C(config-if)# encapsulation ppp
- D. Certkiller C(config-if)# no shutdown
- E. Certkiller C(config-if)# clockrate 56000
- F. Certkiller C(config-if)# line protocol up

Answer: D

Explanation:

no shutdown	Enable the interface and the configuration changes you have just made on the interface.
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<p>Serial0 is administratively down, line protocol is up.</p>	<p>The possible causes for this state are:</p> <ul style="list-style-type: none"> • The serial interface has been disabled with the shutdown interface configuration command. • Different interfaces on the router are using the same IP address. 	<p>The following are some steps you can take to isolate the problem:</p> <ul style="list-style-type: none"> • Use the show configuration privileged EXEC command to display the serial port configuration. If "shutdown" is displayed after "interface Serial0," use the no shutdown interface configuration command to enable the interface. • Use the show interface privileged EXEC command to display the IP addresses for all router interfaces. Use the ip address interface configuration command to assign unique IP addresses to the router interfaces.
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QUESTION 2:

Which command will reinitialize the router and totally replace the running configuration with the current startup configuration?

- A. Certkiller B#reload
- B. Certkiller B# copy tftp startup-config
- C. Certkiller B# copy startup.-config running-config
- D. Certkiller B# copy running-config flash
- E. Certkiller B# setup

Answer: A

Explanation:

Enter the copy system:running-config nvram:startup-config command to save your configuration changes to your startup configuration so that they will not be lost if there is a system reload or power outage. For example:

Router# copy system:running-config nvram:startup-config Building configuration...

It might take a minute or two to save the configuration. After the configuration has been saved, the following output appears:

[OK] Router#On most platforms, this task saves the configuration to NVRAM. On the Class A Flash file system platforms, this task saves the configuration to the location specified by the CONFIG_FILE environment variable. The CONFIG_FILE variable defaults to NVRAM.

QUESTION 3:

Which is the correct fallback sequence for loading the Cisco IOS?

- A. ROM, Flash, NVRAM
- B. ROM, TFTP server, Flash
- C. Flash, TFTP server ROM
- D. Flash NVRAM, RAM

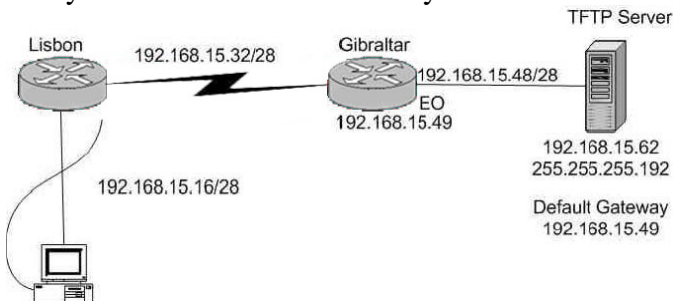
Answer: C

Explanation:

By default, a Cisco IOS router will normally boot up from flash where the IOS is stored. If the IOS is not found or has become corrupted, the router will then send an all hosts broadcast (255.255.255.255) to find a TFTP server to download the IOS from. Should that fail, the router will boot up in ROM Monitor mode as a last resort.

QUESTION 4:

Study the Exhibit below carefully:



A new router has been installed in the branch office in Lisbon. However, the network administrator cannot make a backup of the IOS image of the new route to the TFTP server located in the Gibraltar office. Following the network diagram, can you identify the cause of the problem?

- A. IP address of the TFTP server not correct.
- B. Incorrect subnet mask of the TFTP server.
- C. Default gateway of the TFTP server not properly set.
- D. Subnet mask on the Lisbon router not correct
- E. Incorrect IP address configured on E0 of the Gibraltar router

Answer: B

Explanation:

An incorrect subnet mask on the TFTP server is the cause of this problem. If you look at the subnet masks of all the other devices you'll notice that they are /28. If you rewrite the subnet mask of the TFTP server, of 255.255.255.192 you'll notice that it translates to a subnet mask of /26. A subnet mask of 255.255.255.240, which is a /28, applied to the TFTP server will fix this problem.

QUESTION 5:

You are the network administrator at Certkiller . Certkiller users report that they cannot access resources on the LAN attached to interface e0 of router CK1 . You want to view the current IP addressing and the Layer 1 and Layer 2 status of this interface.

Which of the following commands could you use? (Choose three.)

- A. CK1 # show version
- B. CK1 # show protocols
- C. CK1 # show interfaces
- D. CK1 # show controllers
- E. CK1 # show ip interface
- F. CK1 # show startup-config

Answer: C, D, E

Explanation:

showinterfaces is used to see the IP addresses and layer 2 information configured on the interfaces.

showcontrollers is used to see the layer 1 statistics. It tells about the V.35 cables whether they are physically attached or not.

showip interfaces is used to see the IP addresses configured on the interfaces.

QUESTION 6:

You are a network technician at Certkiller . You are troubleshooting a LAN connectivity problem.

Which of the following router IOS commands could you use? (Select three options.)

- A. show ip route

- B. winipcfg
- C. tracert
- D. show interfaces
- E. traceroute
- F. ping

Answer: A D F

Explanation

A: The show ip route command displays the IP route table.

D: The show interfaces EXEC command to display statistics for all interfaces configured on the router or access server.

F: The ping command tests connectivity to a remote node.

QUESTION 7:

You are a technician at Certkiller . Your newly appointed Certkiller trainee wants to know what command she can use to verify the active configuration on a Cisco router.

What would your reply be?

- A. Router# show memory
- B. Router# show startup-config
- C. Router# show running-config
- D. Router# show flash

Answer: C

Explanation:

The two commands that list the currently used configuration in a router is reloaded are show running-config and write terminal.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) page 494

QUESTION 8:

You are a technician at Certkiller . Your newly appointed Certkiller trainee is troubleshooting a connectivity problem on the Certkiller network. She asks you what command she should use to test application layer connectivity the between source and destination.

What would your reply be?

- A. ping
- B. telnet
- C. traceroute
- D. verify

E. trace

Answer: B

Explanation:

Telnet - The standard terminal emulation protocol in the TCP/IP protocol stack. Telnet is used for remote terminal connection, enabling users to log in to remote systems and use resources as if they were connected to a local system.

I was going to choose answer A (ping), but the keyword in the question is "application layer". Ping only needs to hit the NIC and that would mean layer 1 (Physical layer).

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) page 589

QUESTION 9:

You are the network administrator at Certkiller . Your assistant made a number of errors when utilizing the router setup mode facility. You want to exit setup mode without applying the changes that your assistant made.

What should you do? (Select two.)

- A. Type exit at the setup dialog.
- B. Type close at the setup dialog.
- C. Press the Ctrl-C key combination.
- D. Press the Ctrl-X key combination.
- E. Issue the copy startup-config command.
- F. Issue the 'write e' command.
- G. Issue the "write mem" command

Answer: A, C

Explanation:

The command 'exit' will set you back from wherever you were without saving any changes. Pressing Ctrl-C will do the same thing.

Incorrect Answers:

- B. This is an invalid command
 - E. This command is used to save the configuration stored on NVRAM to a location.
 - F. This will have the effect of erasing the running configuration, and setting the router configuration back to the factory default settings.
 - G. This is an old command that is still supported on the latest Cisco IOS. It is short for "write memory" and has the same effect as the "copy running-config startup-config" command.
-

QUESTION 10:

With regard to bandwidth, which of the following statements are true? (Choose all

that apply.)

- A. Bandwidth availability is decreasing.
- B. Bandwidth availability is infinite.
- C. Bandwidth is used when analyzing network performance.
- D. Bandwidth availability is finite.
- E. Bandwidth availability is fixed.

Answer: C, D

Explanation: C is correct because performance analyzing software is notorious for consuming bandwidth. Most network management devices use SNMP, which consumes bandwidth. D is correct because although new technologies are providing for more bandwidth and a network can be engineered to give more priority to different devices, there is a finite amount of bandwidth available at any given time.

Incorrect Answers:

- A. This is incorrect because new technologies are actually increasing the amount of potential bandwidth.
- B. For any given network, the amount of bandwidth available to end users is usually fixed, and based on the speed of the connection to access connection. For example, any given PC with a 10/100 NIC will be limited to 100Mbps of throughput at any given time.
- E. This is incorrect because it's always possible to upgrade a scalable technology or allocate resources differently.

QUESTION 11:

You are the network administrator at Certkiller . From your workstation you telnet to a router VTY line. You perform a number of configurations on the router. You now want to terminate the telnet connection.

What command must you issue to terminate the Telnet connection?

- A. close
- B. disable
- C. disconnect
- D. suspend
- E. exit

Answer: C

Explanation:

Terminating a Telnet session

Use the disconnect from the router you Telnetted from.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) Page 398

QUESTION 12:

Why is the show processes command used on a router before a debug command is entered?

- A. to verify that the CPU utilization is low enough to handle the effects of a debug command
- B. to verify the amount of space in flash memory
- C. to view the number of timers that are currently in use
- D. to check if the load meter file has enough space left to store the output of the debug command
- E. to verify the IOS version that is running

Answer: A

Explanation :Show processes commands displays the utilization of CPU.

QUESTION 13:

An administrator issues the show ip interface s0/0 command and the output displays the line Serial0/0 is up, line protocol is up

What does "line protocol is up" specifically indicate about the interface?

- A. The cable is attached properly.
- B. CDP has discovered the connected device.
- C. Keepalives are being received on the interface.
- D. A carrier detect signal has been received from the connected device.
- E. IP is correctly configured on the interface.

Answer: C

Explanation:

Line serial0/0 is up : This statement represents that the physical connection is good. And

line protocol is up : represents that datalink layer is ok so receiving the keepalives are being received on the interface.

```
Router>show interface ethernet 0
```

```
Ethernet0 is administratively down, line protocol is down , using hub 0
```

```
Hardware is Lance, address is 0010.7b3a.cf84 (bia 0010.7b3a.cf84)
```

```
MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
```

```
Encapsulation ARPA, loopback not set, keepalive set (10 sec)
```

```
ARP type: ARPA, ARP Timeout 04:00:00
```

```
Last input never, output 01:05:35, output hang never
```

```
Last clearing of "show interface" counters never
```

```
Queueing strategy: fifo
```

```
Output queue 0/40, 0 drops; input queue 0/75, 0 drops
```

```
5 minute input rate 0 bits/sec, 0 packets/sec
```



```
5 minute output rate 0 bits/sec, 0 packets/sec
0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 input packets with dribble condition detected
63 packets output, 11676 bytes, 0 underruns
0 output errors, 0 collisions, 1 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Router>
```

QUESTION 14:

What command will disable CDP on a router interface?

- A. Certkiller 1(config-if)# no cdp enable
- B. Certkiller 1(config-if)# no cdp
- C. Certkiller 1(config-if)# no cdp run
- D. Certkiller 1(config-if)# no cdp active

Answer: A

Explanation:

CDP is a proprietary protocol designed by Cisco to help administrators collect information about both locally attached and remote devices. By using CDP, you can gather hardware and protocol information about neighbor devices majorly useful info for troubleshooting and documenting the network.

To disable the CDP on particular interface use the no cdp enable command. To disable the cdp on router use no cdp run on global configuration mode.

QUESTION 15:

What is ROM Monitor (ROMMON)?

- A. a memory component for storing the saved configuration file
- B. a memory management tool
- C. an operating system used for hardware troubleshooting and for password recovery
- D. temporary storage space for the router operating files
- E. the source of the primary Cisco IOS software image

Answer: C

Explanation:

The ROM Monitor is a very limited codeset that enables you to perform elementary functions to manually get the router or switch back to a functioning state. You can perform low-level diagnostics and even copy a new IOS file to the Cisco device over the console port.

QUESTION 16:

Refer to the graphic. A network administrator is having trouble with a serial interface and has attempted to view its status with a show command as shown in the graphic. Why was the error message displayed?

```
CertKiller1> show serial 0/0
%Invalid input detected at '^' marker.
```

- A. Part of the command is missing.
- B. There is no serial 0/0 interface on the router.
- C. The interface designation must be typed as "s0/0".
- D. The status of serial interfaces cannot be viewed with a show command.
- E. The command cannot be entered in this router mode.

Answer: A

Explanation: This command missing the some command, it needs to add the interface command between show and serial 0/0.

QUESTION 17:

You are a network technician at Certkiller , Inc. You are required to establish a Telnet session with a cisco router.

Which of the following commands should you use?

- A. Certkiller 1(config)# line console 0
Certkiller 1(config-if)# enable password Certkiller
- B. Certkiller 1(config)# line vty 0
Certkiller 1(config-line)# enable password Certkiller
- C. Certkiller 1(config)# line vty 0
Certkiller 1(config-line)# enable secret Certkiller
Certkiller 1(config-line)# login
- D. Certkiller 1(config)# line console 0
Certkiller 1(config-line)# enable secret Certkiller
Certkiller 1(config-line)# login
- E. Certkiller 1(config)# line console 0
Certkiller 1(config-line)# password Certkiller
Certkiller 1(config-line)# login

```
F. Certkiller 1(config)# line vty 0
Certkiller 1(config-line)# password Certkiller
Certkiller 1(config-line)# login
```

Answer: F

Explanation:

```
Access from Password Type Configuration
Telnet vty password line vty 0 4
login
password cisco
```

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) Page 177

QUESTION 18:

You are logged into a router and wish to view the layer 3 information about your neighboring Cisco routers. What IOS command gives layer 3 information for of the directly connected router interfaces?

- A. show ip links
- B. show cdp neighbor
- C. show cdp neighbor detail
- D. show ip clients
- E. show ip route
- F. None of the above

Answer: C

Explanation:

To display detailed information about neighboring devices discovered using Cisco Discovery Protocol (CDP), use the show cdp neighbors privileged EXEC command. Detail - (Optional) Displays detailed information about a neighbor (or neighbors) including network address, enabled protocols, hold time, and software version.

Incorrect Answers:

- A, D. These are invalid commands.
 - B. The "show cdp neighbor" command, without the "detail" keyword will not display the additional layer 3 protocol information.
 - E. This will show all routes from all other routers within the domain. We wish to see information from just the direct interface neighbors.
-

QUESTION 19:

While troubleshooting a connectivity problem on the network, you issue the ping command from your PC command prompt, but the output shows "request times

out."

At which OSI layer is this problem associated with?

- A. The data link layer
- B. The application layer
- C. The access layer
- D. The session layer
- E. The network layer

Answer: E

Explanation:

TCP/IP includes ICMP, a protocol designed to help manage and control the operation of a TCP/IP network. The ICMP protocol provides a wide variety of information about a network's health and operational status. Control message is the most descriptive part of a name. ICMP helps control and manage IP's work and therefore is considered part of TCP/IP's network layer.

Reference:

CCNA Self-Study CCNA ICND exam certification Guide (Cisco Press, ISBN 1-58720-083-X) page 277.

QUESTION 20:

A Certkiller .com technician is troubleshooting connectivity problems between two routers that are directly connected through the serial line. The technician notices that the serial line is up but cannot see any neighbors displayed in the output of the show cdp neighbors command.

In which OSI layer is the problem most likely occurring?

- A. Physical
- B. Data link
- C. Network layer
- D. Transport layer
- E. Application layer

Answer: B

Explanation:

As the question states that serial line is up, it means the problem is not on the Network layer. The administrator cannot see any output by issuing the show cdp neighbors command. It means that CDP is disabled and CDP is a protocol that runs over Layer2 (the data link layer) on all Cisco routers, bridges, access servers, and switches.

QUESTION 21:

Which Layer 4 protocol is used for a Telnet connection?

- A. IP
- B. ICMP
- C. DNS
- D. TCP
- E. UDP

Answer: D

Explanation:

TCP is a reliable connection-oriented protocol. TCP uses acknowledgments, sequencing, and flow control to ensure reliability (please refer back to the "Transport Layer" section of the OSI model for definitions of these terms). A TCP segment contains fields for the Sequence, Acknowledgment, and Windowing numbers. These fields help make sure that datagrams arrive undamaged. This is considered to be reliable delivery.

TCP uses Positive Acknowledgment and Retransmission (PAR):

- * The source device begins a timer when a segment is sent and retransmits if the timer runs out before an acknowledgment is received.
- * The source device keeps track of segments that are sent and requires an acknowledgment for each segment.
- * The destination device acknowledges when a segment is received by sending a packet to the source that iterates the next sequence number it is looking for from the source.

Figure 1.4. TCP segment header format.	
Source Port	Destination Port
Sequence Number	
Acknowledgement Number	
Miscellaneous Flags	Window (Flow Control)
Checksum	Urgent
Options	

QUESTION 22:

The routers in the diagram are being used to prototype a WAN. The two routers are interconnected with back-to-back cables between their serial interfaces. How should the serial interface of the Test1 router be configured to establish Layer 3 connectivity between the two routers?



```
CertKiller1#show controllers serial 3
CD2430 unit 0, Channel 1, Chip Revision 0D, Microcode 18
Channel mode is synchronous serial
idb 0x262BF4, buffer size 1524, V.35 DTE cable

Global registers
rpilr 0x75, rir 0x0, risr 0x0, rfoc 0x0, rdr 0x17
tpilr 0x73, tir 0x0, tisir 0x0, tftc 0x0, tdr 0x10
mpilr 0x77, mir 0x0, misr 0x0
bercnt 0x0, stk 0x0
Per-channel registers for channel 1
-- output omitted --
```

- A. Certkiller 1(config)#interface serial 3
Certkiller 1(config-if)# clock rate 64000
Certkiller 1(config-if)# no shutdown
- B. Certkiller 1(config)#interface serial 3
Certkiller 1(config-if)# ip address 192.168.10.3 255.255.255.0
Certkiller 1(config-if)# clock rate 64000
- C. Certkiller 1(config)#interface serial 3
Certkiller 1(config-if)# ip address 192.168.10.3 255.255.255.0
Certkiller 1(config-if)# clock rate 64000
Certkiller 1(config-if)# no shutdown
- D. Certkiller 1(config)#interface serial 3
Certkiller 1(config-if)# ip address 192.168.10.3 255.255.255.0
Certkiller 1(config-if)# no shutdown

Answer: D

Explanation: When examining the interface using the show controllers command, DTE cable is connected so no need to specify the clock rate and bandwidth, just specify the IP Address and bring up the interface.

QUESTION 23:

You are a technician at Certkiller . You tell your newly appointed Certkiller trainee about public networks IP Address classes. Your trainee now wants to know if all the IP Address Classes can be assigned for public use. What would your reply be?

- A. All except Class E addresses.
- B. Only Class A and Class B addresses.
- C. Only Class B and Class C addresses.
- D. All except Class D and Class E addresses.
- E. Only Class A, Class C and Class E addresses.

Answer: D

Explanation:

RFC 7980 defines the IP protocol, including multiple different classes of networks. IP defines three different network classes, called A, B, and C, from which individual hosts are assigned IP addresses. TCP/IP defines Class D (multicast) addresses and Class E (experimental) addresses as well.

Reference:

Certkiller 640-821 Study Guide, Section 2, "IP Addressing and Subnetting"

QUESTION 24:

Which of the following IP addresses for the network 124.16.32.55/28 can be assigned to hosts? (Choose three)

- A. 124.16.32.45
- B. 124.16.32.48
- C. 124.16.32.57
- D. 124.16.32.60
- E. 124.16.32.62
- F. 124.16.32.63

Answer: C, D, E

Explanation:

In this vlsn address, 124.16.32.55 is the IP address. The /28 indicates that the subnet mask is a 28 bit mask. This equates to 11111111.11111111.11111111.11110000 in binary, or 255.255.255.240. To determine the network address, we use a mathematical operation call Logical ANDing in which we compare the binary values of the IP address and the subnet mask. In binary, the IP address is

01111100.00010000.00100000.00110111. We compare corresponding bits:

11111111.11111111.11111111.11110000

01111100.00010000.00100000.00110111

Each corresponding bit that is 1 in both IP address and subnet mask remains 1. All other bits become 0. This gives us:

01111100.00010000.00100000.00110000

In decimal format, this is: 124.16.32.48

We can calculate the number of hosts on the network by using the $2^n - 2$ formula where n = number of hosts bits (i.e. bits not used for the subnet mask). In this case $n = 4$. $2^4 - 2 = 14$. Thus network 124.16.32.48 supports 14 hosts but remember that 124.16.32.48 is the network address so the 14 hosts will be 124.16.32.49-62.

Incorrect Answers:

A: Using logical ANDing will reveal that 124.16.32.45/28 is a host on the 124.16.32.32 network.

B: 124.16.32.48/28 is the network address for 124.16.32.55/28.

D: 124.16.32.63/28 is the broadcast address for 124.16.32.55/28.

Reference:

Certkiller 640-821 Study Guide, Section 2, "IP Addressing and Subnetting"

QUESTION 25:

You are the network administrator at Certkiller . Certkiller has been assigned the IP address 189.66.1.0 by its Internet Service Provider. Your newly appointed Certkiller trainee wants to know how many hosts will be supported on each subnet if you divide the network by using the 255.255.255.224 subnet mask. What would your reply be?

- A. 14
- B. 16
- C. 30
- D. 32
- E. 62
- F. 64

Answer: C

The subnet mask 255.255.255.224 is a 27 bit mask (11111111.11111111.11111111.11100000). It uses 3 bits from the host Id for the network ID, leaving 5 bits for host addresses. We can calculate the number of hosts supported by this subnet by using the $2^n - 2$ formula where n represents the number of host bits. In this case it will be 5. $2^5 - 2$ gives us 30.

Incorrect Answers:

A: Subnet mask 255.255.255.240 will give us 14 host addresses.

B: Subnet mask 255.255.255.240 will give us a total of 16 addresses. However, we must still subtract two addresses (the network address and the broadcast address) to determine the maximum number of hosts the subnet will support.

D: Subnet mask 255.255.255.224 will give us a total of 32 addresses. However, we must still subtract two addresses (the network address and the broadcast address) to determine the maximum number of hosts the subnet will support.

E: Subnet mask 255.255.255.192 will give us 62 host addresses.

F: Subnet mask 255.255.255.192 will give us a total of 64 addresses. However, we must still subtract two addresses (the network address and the broadcast address) to determine the maximum number of hosts the subnet will support.

Reference:

Certkiller 640-821 Study Guide, Section 2, "IP Addressing and Subnetting"

QUESTION 26:

In the following is the MAC address of your NIC:

C9-3F-32-B4-DC-19

What is the OUI portion expressed in binary format?

- A. 11001100-00111111-00011000
- B. 11000110-11000000-00011111
- C. 11001110-00011111-01100000
- D. 11001001-00111111-00110010
- E. 11001100-01111000-00011000
- F. 11111000-01100111-00011001

Answer: D

Explanation:

The first half of the address identifies the manufacturer of the card. This code, which is assigned to each manufactory by the IEEE, is called the organizationally unique identifier (OUI). In this example, the OUI is: C9-3F-32. This equates to 11001001-00111111-00110010

Reference:

Certkiller 640-821 Study Guide, Appendix A "Decimal, Hexadecimal and Binary Conversion Table"

QUESTION 27:

You are a technician at Certkiller . Your newly appointed Certkiller trainee wants to know what the binary value for 172 is.
What would your reply be?

- A. 10010010
- B. 10011001
- C. 10101100
- D. 10100110
- E. 11100011

Answer: C

Explanation:

$10101100 = 128 + 0 + 32 + 0 + 8 + 4 + 0 + 0 = 172$

QUESTION 28:

Study the following exhibit:



Taking the information from the above exhibit; which command line below would correctly configure serial port0 on the Certkiller 2 router with the LAST usable host addresses on the 192.216.32.32 subnet?

- A. Certkiller 2(config-if)# ip address 192.216.32.63 255.255.255.248

- B. Certkiller 2(config-if)# ip address 192.216.32.38 255.255.255.240
- C. Certkiller 2(config-if)# ip address 192.216.32.39 255.255.255.248
- D. Certkiller 2(config-if)# ip address 192.216.32.63 255.255.255.248 no shut
- E. Certkiller 2(config-if)# ip address 192.216.32.39 255.255.255.248 no shut
- F. Certkiller 2(config-if)# ip address 192.216.32.38 255.255.255.248

Answer: F

Explanation:

F is the correct answer, as the last usable IP address on this subnet is 192.216.32.38. The subnet mask for a /29 is 255.255.255.248

Mask/29 11111111.11111111.11111111.11111000 255.255.255.248

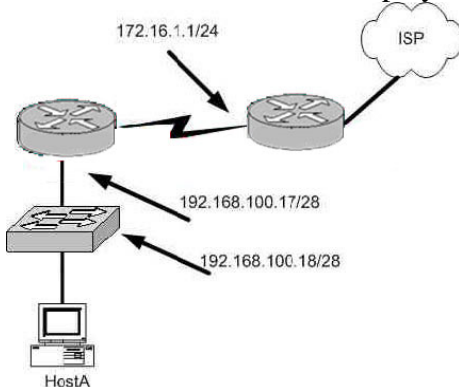
Subnet 11000000.11011000.00100000.00100000 192.216.32.32

Broadcast 11000000.11011000.00100000.00100111 192.216.32.39

Address range = 192.216.32.33 - 192.216.32.38

QUESTION 29:

The Certkiller Network is displayed as follows:



What is a valid possible IP address configuration for Host A?

- A. IP 192.168.100.31 255.255.255.240 default-gateway 192.168.100.18
- B. IP 192.168.100.30 255.255.255.240 default-gateway 172.16.1.1
- C. IP 192.168.100.20 255.255.255.240 default-gateway 192.168.100.17
- D. IP 192.168.100.21 255.255.255.248 default-gateway 192.168.100.17
- E. IP 192.168.100.19 255.255.255.248 default-gateway 172.16.1.1

Answer: C

Explanation:

The network mask for a /28 is 255.255.255.240. The default gateway is always the IP address of the router on the local subnet, and the valid IP range for this network is 192.168.100.17 - 192.168.100.30. Choice C is the only one that meets all of these.

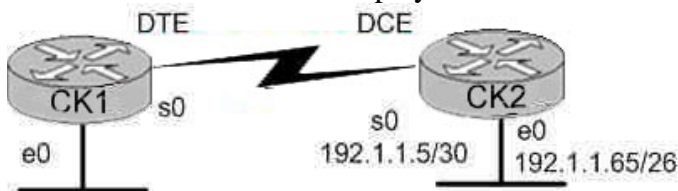
Incorrect Answers:

- A. The IP address 192.168.100.31 is the broadcast address. It cannot be used for the host.

- B. The default gateway should be the first exit point for the network that the host is on. In this case it should be the router interface address 192.168.100.17.
- D. The network uses a 28 bit subnet mask (11111111.11111111.11111111.11110000). This equates to 255.255.255.240, not 255.255.255.248.
- E. The network uses a 28 bit subnet mask (11111111.11111111.11111111.11110000). This equates to 255.255.255.240, not 255.255.255.248. Also, the default gateway should be the first exit point for the network that the host is on. In this case it should be the router interface address 192.168.100.17.

QUESTION 30:

The Certkiller network is displayed below:



In this network, you must configure router CK1 to provide connectivity to router CK2 . The entire network must utilize the 192.1.1.0/24 network. If RIP is being used as the routing protocol, which 3 sets of commands will need to be completed on CK1 ? (Choose 3).

- A. CK1 (config)# interface ethernet 0
CK1 (config-if)# ip address 192.1.1.129 255.255.255.192
CK1 (config-if)# no shutdown
- B. CK1 (config)# interface ethernet 0
CK1 (config-if)# ip address 192.1.1.97 255.255.255.192
CK1 (config-if)# no shutdown
- C. CK1 (config)# interface serial 0
CK1 (config-if)# ip address 192.1.1.4 255.255.255.252
CK1 (config-if)# clock rate 56000
- D. CK1 (config)# interface serial 0
CK1 (config-if)# ip address 192.1.1.6 255.255.255.252
CK1 (config-if)# no shutdown
- E. CK1 (config)# router rip
CK1 (config-router)# network 192.1.1.4
CK1 (config-router)# network 192.1.1.128
- F. CK1 (config)# router rip
CK1 (config-router)# version 2
CK1 (config-router)# network 192.1.1.0

Answer: A, D, F

Explanation:

Subnetting a Class C Address

We start by using the first subnet mask available with a Class C address, which borrows

2 bits for subnetting.

For this example, I'll be using 255.255.255.192. To review the binary translation of 192:
192 = 11000000

Here, the 1s represent the subnet bits, and the 0s represent the host bits available in each subnet. 192 provides 2 bits for subnetting and 6 bits for defining the hosts in each subnet. What are the subnets? Since the subnet bits can't be both off or on at the same time, the only two valid subnets are these:

01000000 = 64 (all host bits off) revealing host addresses from .65-----.127

10000000 = 128 (all host bits off) revealing host addresses from .129-----.190

The valid hosts would be defined as the numbers between the subnets, minus the all-host-bits-off and all-host-bits-on numbers.

In Choice A, a valid host is configured on E0 interface of the router 192.1.1.129/26 so it is correct. Choice D is correct because each WAN link uses the /30 or 255.255.255.252 mask revealing 2 valid host addresses. Serial 0 is configured with the address 192.1.1.6/30, which comes from the subnet 192.1.1.4/30. Valid hosts in this subnet are 192.1.1.5/30 and 192.1.1.6/30

Choice F is correct because we RIP version 2 will be required in this case as VLSM information needs to be carried throughout the network, and VLSM is not supported on RIP version 1.

QUESTION 31:

Which of the following addresses can be assigned to a host when using a subnet mask of 255.255.254.0? (Select three)

- A. 113.10.4.0
- B. 186.54.3.0
- C. 175.33.3.255
- D. 26.35.3.255
- E. 152.135.7.0
- F. 17.35.36.0

Answer: B, C, E

Explanation:

These are all valid host IP addresses within the /23 subnet.

Incorrect Answers:

- A. This is the network address for the 113.10.4.0/23 subnet.
- D. This is the broadcast address for the 26.35.2.0/23 subnet.
- F. This is the network address for the 17.35.36.0/23 subnet.

QUESTION 32:

Which command will assign the last usable IP address from the 192.168.32.128/28 subnetwork to a router interface?

- A. Certkiller A(config-if)# ip address 192.168.32.142 255.255.255.240
- B. Certkiller A(config-if)# ip address 192.168.32.143 255.255.255.240
- C. Certkiller A(config-if)# ip address 192.168.32.158 255.255.255.240
- D. Certkiller A(config-if)# ip address 192.168.32.145 255.255.255.240
- E. Certkiller A(config-if)# ip address 192.168.32.144 255.255.255.240
- F. Certkiller A(config-if)# ip address 192.168.32.158 255.255.255.240

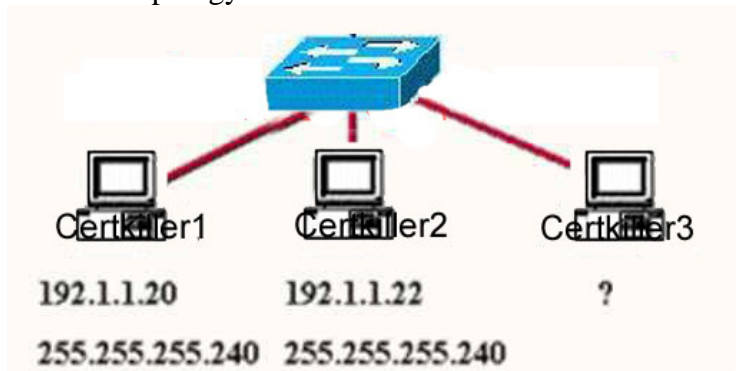
Answer: A

Explanation:

The last usable IP address would be $128 + (16-2) = 142$. Because only last 4 bits of the last octet are used for host addressing.

QUESTION 33:

Network topology exhibit



A Certkiller .com network administrator is adding host Certkiller 3 to the network shown in the exhibit.

Which IP address can be assigned this host on this network?

- A. 192.1.1.14
- B. 192.1.1.18
- C. 192.1.1.20
- D. 192.1.1.30
- E. 192.1.1.31
- F. 192.1.1.36

Answer: B, D

Explanation:

Subnet Mask of 255.255.255.240 means 4-bits of subnetting. When we do 4-bits of subnetting, we have a total of 16 subnets having 16 hosts each. Subnets will be

- 192.1.1.0 ----- 191.1.1.15 (0-15)
- 192.1.1.16 ---- 191.1.1.31 (16-31)
- 192.1.1.32 ---- 191.1.1.47 (32-47)

192.1.1.240---- 192.1.1.255 (240-255)

Only choices B and D are in the valid range 192.1.1.16 ---- 191.1.1.31 (16-31)

QUESTION 34:

You have the binary number 10011101. Convert it to its decimal and hexadecimal equivalents. (Select two answer choices)

- A. 158
- B. 0x9D
- C. 156
- D. 157
- E. 0x19
- F. 0x9F

Answer: B, D

Explanation:

$$10011101 = 128+0+0+16+8+4+0+1 = 157$$

For hexadecimal, we break up the binary number 10011101 into the 2 parts:

1001 = 9 and 1101 = 13, this is D in hexadecimal, so the number is 0x9D. We can further verify by taking the hex number 9D and converting it to decimal by taking 16 times 9, and then adding 13 for D ($0x9D = (16 \times 9) + 13 = 157$).

QUESTION 35:

The subnet mask on the serial interface of a router is expressed in binary as 11111000 for the last octet. How do you express the binary number 11111000 in decimal?

- A. 210
- B. 224
- C. 240
- D. 248
- E. 252

Answer: D

Explanation:

$128 + 64 + 32 + 16 + 8 = 248$. Since this is the last octet of the interface, the subnet mask would be expressed as a /29.

Reference:

CCNA Self-Study CCNA ICND exam certification Guide (Cisco Press, ISBN

1-58720-083-X) Page 559

Incorrect Answers:

- A. The number 210 would be 11010010 in binary.
- B. The number 224 would be 11100000 in binary.
- C. The number 240 would be 11110000 in binary
- E. The number 252 would be 11111100 in binary. This is known as a /30 and is used often in point-point links, since there are only 2 available addresses for use in this subnet.

QUESTION 36:

Which one of the binary number ranges shown below corresponds to the value of the first octet in Class B address range?

- A. 10000000-11101111
- B. 11000000-11101111
- C. 10000000-10111111
- D. 10000000-11111111
- E. 11000000-10111111

Answer: C

Explanation:

Class B addresses are in the range 128.0.0.0 through 191.255.255.255.

In binary, the first octet (128 through 191) equates to 10000000-10111111

Incorrect Answers:

- A. Binary 10000000 does equate to 128 but binary 11101111 equates to 239
- B. Binary 11000000 equates to 192 and binary 11101111 equates to 239
- D. Binary 10000000 does equate to 128 but binary 11011111 equates to 223
- E. Binary 11000000 equates to 192 but binary 10111111 does equate to 191

QUESTION 37:

How would the number 231 be expressed as a binary number?

- A. 11011011
- B. 11110011
- C. 11100111
- D. 11111001
- E. 11010011

Answer: C

Explanation

Decimal number 231 equates to 11100111 in binary (128+64+32+0+0+4+2+1)

Incorrect Answers:

- A: Binary 11011011 equates to 219 (128+64+0+16+8+0+2+1)
B: Binary 11110011 equates to 243 (128+64+32+16+0+0+2+1)
D: Binary 11101011 equates to 249 (128+64+32+16+8+0+0+1)
E: Binary 11010011 equates to 211 (128+64+0+16+0+0+2+1)
-

QUESTION 38:

How would the number 172 be expressed in binary form?

- A. 10010010
B. 10011001
C. 10101100
D. 10101110

Answer: C

Explanation:

$$10101100 = 128 + 0 + 32 + 0 + 8 + 4 + 0 + 0 = 172$$

Incorrect Answers:

- A. Binary 10010010 = 128+0+0+16+0+0+2+0=146
B. Binary 10011001 = 128+0+0+16+8+0+0+1=153
D. Binary 10101110 = 128+0+32+0+8+4+2+0= 174
-

QUESTION 39:

What is the subnet address of 172.16.159.159/22?

- A. 172.16.128.0
B. 172.16.156.0
C. 172.16.159.128
D. 172.16.159.0
E. 172.16.192.0
F. 172.16.0.0

Answer: B

Explanation: In question total 6 bits borrowed from the host address so subnet mask is 255.255.252. And network address is : 256-252=4

There can be four host in one network but valid address is only two because one reserved for broadcast and another reserved to network.

So B answer is correct.

QUESTION 40:

Which two statements describe the IP address 10.16.3.65/23? (Choose two.)

- A. The lowest host address in the subnet is 10.16.2.1 255.255.254.0.
- B. The last valid host address in the subnet is 10.16.2.254 255.255.254.0
- C. The network is not subnetted.
- D. The broadcast address of the subnet is 10.16.3.255 255.255.254.0.
- E. The subnet address is 10.16.3.0 255.255.254.0.

Answer: A,D

Explanation: Total 7 bits borrowed from the host address so 255.255.254 is the subnetmask So answer A and D are correct.

QUESTION 41:

What is the subnet address for the IP address 172.19.20.23/28?

- A. 172.19.20.0
- B. 172.19.20.15
- C. 172.19.20.32
- D. 172.19.20.16
- E. 172.19.20.20

Answer: D

Explanation: In this question total 4 bits is borrowed from the host address so 240 is the subnet mask.

11110000 : total Network is 16 and total Valid number of hosts on per network is 14.

Network ID: 256-240=16

Second Range of subnetted address is between 16-32 So D answer is correct.

QUESTION 42:

In a routine check on the state of the network, you discover that the existing copy of the Cisco IOS is outdated and needs to be updated.

Which of the following commands would you issue to replace the Cisco router IOS with the newer version?

- A. Router# copy tftp flash
- B. Router# copy flash run
- C. Router(config)# restore flash
- D. Router(config)# repair flash
- E. Router> copy start flash
- F. Router# copy start flash

Answer: A

The command "copy tftp flash" will copy the new IOS version upgrade from your

networks TFTP server (assuming of course you have a TFTP server with the new version of IOS standing by).

Incorrect Answers:

C, D. The copy tftp flash command should be issued from the enable command prompt. It is not necessary to go into configuration mode.

E. This will have the reverse effect, and will copy the IOS image on your router onto a folder in your TFTP server.

QUESTION 43:

One of your trainees wants to know which of the following mentioned below are represented in the router IOS file naming conventions. What can you tell her? (Select three options.)

- A. Distribution channel failures
- B. Feature capabilities
- C. Memory capacity needs
- D. Hardware product platform
- E. Programming language requirements
- F. Run location and compression status

Answer: B D F

Explanation:

Image Naming Conventions

You can identify the platform, features, and image location by the name of the image. The naming convention is platform-features-type for images that are stored on a UNIX system

The platform variable indicates which platforms can use this image. Examples of platform variables include rsp (Cisco 7000 series with RSP7000 and Cisco 7500 series), c1600 (Cisco 1600 series), and c1005 (Cisco 1005).

The features variable identifies the feature sets supported by the image.

The type field can contain the following characters:

f-The image runs from Flash memory.

m-The image runs from RAM.

r-The image runs from ROM.

l-The image is relocatable.

z-The image is zip compressed.

x-The image is mzip compressed.

Source:

http://www.cisco.com/en/US/products/sw/iosswrel/ps1835/products_configuration_guide_chapter09186a00800c6c63.html#1026053

QUESTION 44:

You are a technician at Certkiller . You are troubleshooting a connectivity problem

on the Certkiller network. You want to isolate the problem. You suspect that a router on the route to an unreachable network is at fault.

What IOS user EXEC command should you issue?

- A. Router> ping
- B. Router> trace
- C. Router> show ip route
- D. Router> show interface
- E. Router> show cdp neighbors

Answer: D

Explanation:

Show interface - Lists interface statistics, including IP addresses.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) page 369

QUESTION 45:

You are a technician at Certkiller . Your newly appointed Certkiller trainee wants to know which network services the Cisco IOS provides.

What would your reply be? (Choose all that apply.)

- A. Routing and switching functions.
- B. Network topology definitions.
- C. Access to network resources.
- D. Quality of Service.
- E. Fault tolerance.

Answer: A B C

Explanation

These are all basic network services provided by all IOS versions. These services are included in all IOS versions and feature sets.

Incorrect Answers:

- D. Content filtering, such as java applet stripping, URL filtering, virus removal, etc are not normally performed by Cisco router and switch IOS.
- E. Intrusion detection and network security services are normally performed by firewalls and servers.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5)

QUESTION 46:

You are a network technician at Certkiller , Inc. You are currently troubleshooting a

Cisco router. You issue the show ip route command. The output from the command is displayed in the following exhibit:

```
Certkiller 1#show ip route
```

```
Codes: C - connected, S - static, I - IGRP, R- RIP, M - mobile, B - BGP
```

```
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inner area
```

```
E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
```

```
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, * - Candidate
```

```
default
```

```
U - per-user static route
```

```
Gateway of last resort is not set
```

```
R 192.168.8.0/24 [120/1] via 192.168.2.2, 00:00:10, Serial0
```

```
C 192.168.9.0/24 is directly connected, Serial1
```

```
R 192.168.10.0/24 [120/7] via 192.168.9.1, 00:00:02, Serial1
```

```
R 192.168.11.0/24 [120/7] via 192.168.9.1, 00:00:03, Serial1
```

```
C 192.168.1.0/24 is directly connected, Ethernet0
```

```
C 192.168.2.0/24 is directly connected, Serial0
```

```
R 192.168.3.0/24 [120/1] via 192.168.2.2, 00:00:10, Serial0
```

```
R 192.168.4.0/24 [120/15] via 192.168.2.2, 00:00:10, Serial0
```

```
R 192.168.5.0/24 [120/15] via 192.168.2.2, 00:00:10, Serial0
```

```
R 192.168.6.0/24 [120/15] via 192.168.2.2, 00:00:10, Serial0
```

```
R 192.168.7.0/24 [120/1] via 192.168.2.2, 00:00:10, Serial0
```

Which route will not be entered into the routing table of a neighboring router?

A. R 192.168.11.0/24 [120/7] via 192.168.9.1, 00:00:03, Serial1

B. C 192.168.1.0/24 is directly connected, Ethernet0

C. R 192.168.8.0/24 [120/1] via 192.168.2.2, 00:00:10, Serial0

D. R 192.168.5.0/24 [120/15] via 192.168.2.2, 00:00:10, Serial0

Answer: D

Explanation: RIP has the maximum hop count of 15. This route already has a hop count of 15 and adding one would make it unreachable (see below). This route will be discarded.

```
R 202.30.5.0/24 [120/15] via 202.30.2.2, 00:00:10, Serial0
```

QUESTION 47:

You want the text "Unauthorized access prohibited!" to be displayed before the login prompt every time someone tries to initiate a Telnet session to a router, as shown in the example below:

```
Router#telnet 192.168.15.1
```

```
Trying 192.168.15.1 ... Open
```

```
Unauthorized access prohibited!
```

```
User Access Verification
```

```
Password:
```

Which command can be used to configure this message?

- A. loginbanner x Unauthorized access prohibited! X
- B. bannerexec y Unauthorized access prohibited! Y
- C. banner motd x Unauthorized access prohibited! X
- D. vtv motd "Unauthorized access prohibited!"

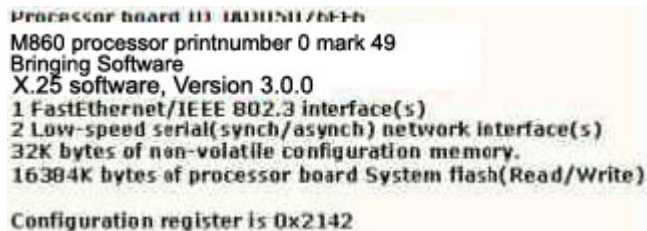
Answer: C

Explanation:

The message text that is displayed when users log into the router is called the "message of the day" banner, and it can be changed with the "banner motd" command as shown in answer choice C.

QUESTION 48:

Exhibit:



```
Processor board ID 1A0151176E9h
M860 processor printnumber 0 mark 49
Bringing Software
X.25 software, Version 3.0.0
1 FastEthernet/IEEE 802.3 interface(s)
2 Low-speed serial(synch/asynch) network interface(s)
32K bytes of non-volatile configuration memory.
16384K bytes of processor board System flash(Read/Write)

Configuration register is 0x2142
```

You need to troubleshoot a Cisco router at the Toronto office of Certkiller .com. The router loses its configuration each time it is rebooted. You study the output displayed in the exhibit.

What is the cause of the problem?

- A. The configuration register is misconfigured
- B. NVRAM failed POST
- C. There is insufficient flash memory
- D. There is insufficient RAM for the IOSD image
- E. There is insufficient NVRAM

Answer: A

Explanation:

The configuration register value of 0x2142 is used to bypass the saved NVRAM router configuration and is normally only used for password recovery procedures. The correct configuration register value is typically 0x2102. The following table displays some of the

common values and their meanings:

Configuration Register Setting	Router Behavior
0x102	<ul style="list-style-type: none"> • Ignores break • 9600 console baud
0x1202	<ul style="list-style-type: none"> • 1200 baud rate
0x2101	<ul style="list-style-type: none"> • Boots into bootstrap • Ignores break • Boots into ROM if initial boot fails • 9600 console baud rate
0x2102	<ul style="list-style-type: none"> • Ignores break • Boots into ROM if initial boot fails • 9600 console baud rate default value for most platforms
0x2120	<ul style="list-style-type: none"> • Boots into ROMmon • 19200 console speed
0x2122	<ul style="list-style-type: none"> • Ignores break • Boots into ROM if initial boot fails • 19200 console baud rate
0x2124	<ul style="list-style-type: none"> • NetBoot • Ignores break • Boots into ROM if initial boot fails • 19200 console speed
0x2142	<ul style="list-style-type: none"> • Ignores break • Boots into ROM if initial boot fails • 9600 console baud rate • Ignores the contents of Non-Volatile RAM (NVRAM) (ignores configuration)
0x2902	<ul style="list-style-type: none"> • Ignores break • Boots into ROM if initial boot fails • 4800 console baud rate
0x2922	<ul style="list-style-type: none"> • Ignores break • Boots into ROM if initial boot fails • 38400 console baud rate
0x3122	<ul style="list-style-type: none"> • Ignores break • Boots into ROM if initial boot fails • 57600 console baud rate
0x3902	<ul style="list-style-type: none"> • Ignores break • Boots into ROM if initial boot fails • 2400 console baud rate
0x3922	<ul style="list-style-type: none"> • Ignores break • Boots into ROM if initial boot fails

QUESTION 49:

From the Remote27 router, you attempt to telnet to a router named Certkiller 1 as shown below:

```
Reemote27#
```

```
Remote27#telnet Certkiller 1
```

```
Trying Certkiller 1 (10.0.0.1)... Open
```

```
Password required, but none set
```

```
[Connection to access1 closed by foreign host]
```

```
Remote27#
```

You are unable to connect to the Certkiller 1 router. Which of the following command sequences will correct this problem?

- A. Certkiller 1(config)# line console 0
Certkiller 1(config-line)# password cisco
- B. Remote27(config)# line console 0
Remote27(config-line)# login
Remote27(config-line)# password cisco
- C. Certkiller 1(config)# line vty 0 4
Certkiller 1(config-line)# login
Certkiller 1(config-line)# password cisco

D. Remote27(config)# line vty 0 4
Remote27(config-line)# login
Remote27(config-line)# password cisco
E. Certkiller 1(config)# enable password cisco
F. Remote27(config)# enable password cisco

Answer: C

Explanation:

The following describes the correct configuration guidelines for setting up telnet access to a router:

Background Information

If you try to telnet to a router that does not have a Telnet password configured, you will get the following error message:

```
Router-1#telnet 10.3.3.1Trying 10.3.3.1 ... OpenPassword required, but none set[Connection to 10.3.3.1 closed by foreign host]Configure
```

In this section, you are presented with the information to configure a Telnet password.

Configurations

This document uses this configuration:

* Router-2

In order to set up the router to allow Telnet access, use the line vty command. This command allows for the configuration of Virtual Terminal (VTY) lines for remote console access. You can configure the router to accept one or more Telnet sessions. It is strongly suggested that you configure password checking with the login and password line configuration commands. The example below configures the router to accept five sessions, with the password "letmein":

Router-2

```
Router-2(config)#line vty 0 4Router-2(config-line)#login% Login disabled on line 66, until 'password' is set% Login disabled on line 67, until 'password' is set% Login disabled on line 68, until 'password' is set% Login disabled on line 69, until 'password' is set% Login disabled on line 70, until 'password' is setRouter-2(config-line)#password letmeinVerify
```

To verify that the router is correctly configured for Telnet, issue the show running-config command.

```
Router-2#show running-configBuilding configuration...hostname Router-2..line vty 0 4password letmeinlogin..!end
```

You should now be able to telnet to the router.

```
Router-1#telnet10.3.3.1Trying10.3.3.1 ... OpenUserAccessVerificationPassword:letmeinRouter-2#
```

QUESTION 50:

You are trying to connect directly into an existing Cisco router. You want to telnet to the local Cisco router using TCP/IP but cannot create a session.

What should you do to resolve the problem?

- A. Use a straight-through cable to connect your computer's COM port to the router's console port.
- B. Use a crossover cable to connect your computer's COM port to the router's console port.
- C. Use a straight-through cable to connect your computer's COM port to the router's Ethernet port.
- D. Use a crossover cable to connect your computer's Ethernet port to the router's Ethernet port.
- E. Use a rollover cable to connect your computer's Ethernet port to the router's Ethernet port.
- F. Use a straight-through cable to connect your computer's Ethernet port to the router's Ethernet port.

Answer: D

Explanation:

In order to connect directly to a router via telnet, you must connect to the router via one of the LAN ports. When connecting directly to the Ethernet port with a PC without the use of a switch or hub, a crossover cable must be used.

Incorrect Answers:

- A, B, C. In order to telnet directly into the router via a TCP/IP connection, the COM port of the PC can not be used. The COM port is used for direct terminal emulation programs such as hyperterminal.
- E. Rollover cables are used for console connections into the router, not for TCP/IP connections.
- F. Straight through cables are used for connections into a switch or hub from the PC. It will not work for direct Ethernet connections into the router.

QUESTION 51:

What kind of message does a PING send out to test connectivity?

- A. ICMP echo request
- B. Information interrupt request
- C. Timestamp reply
- D. Source quench
- E. None of the above

Answer: A

Explanation:

The ping command sends an ICMP echo request packet to the stated destination address. The TCP/IP software at the destination then replies to the ping echo request packet with a similar packet, called the ICMP echo reply.

Reference: CCNA Self-Study CCNA ICND exam certification Guide (Cisco Press, ISBN 1-58720-083-X) Page 146

QUESTION 52:

While logged into a router you manually shut down the serial 0 interface using the "shutdown" interface configuration command. You then issue the "show interface serial 0" command in exec mode. What could you expect the status of the serial 0 interface to be?

- A. Serial 0 is up, line protocol is up
- B. Serial 0 is up, line protocol is down
- C. Serial 0 is down, line protocol is down
- D. Serial 0 is down, line protocol is up
- E. Serial 0 is administratively down, line protocol is down
- F. Serial 0 is administratively down, line protocol is up

Answer: E

Explanation:

To bring down an interface for administrative reasons and, as a side effect, remove the connected router from the routing table, you can use the shutdown interface subcommand. To enable the interface back up, issue the "no shutdown" configuration command.

Incorrect Answers:

- A. This is the status of a fully operational interface.
- B, C. These are the results of line problems or configuration errors.
- D, F. These two interface conditions should never be seen.

QUESTION 53:

A network associate needs to configure a router by connecting a remote computer to the router through the router auxiliary port. Which two statements describe the hardware required to make the connection to the router? (Choose two.)

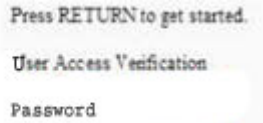
- A. The auxiliary port must be connected to a modem.
- B. The auxiliary port must be connected to an Ethernet LAN.
- C. The technician needs an RJ-45 to DB25 adapter.
- D. The technician needs an Ethernet transceiver.

Answer: A,C

Explanation: Auxiliary port is used to connect from modem, as well as console port using console cable. If you would like to connect to router via ethernet you require the RJ-45 connector.

QUESTION 54:

What set of router configuration commands causes the message shown in the exhibit?



- A. Certkiller 1(config)# line console 0
Certkiller 1(config-line)# service password-encryption
Certkiller 1(config-line)# login
- B. Certkiller 1(config)# line console 0
Certkiller 1(config-line)# enable password cisco
Certkiller 1(config-line)# login
- C. Certkiller 1(config)# line console 0
Certkiller 1(config-line)# enable password cisco
Certkiller 1(config-line)# logging synchronous
- D. Certkiller 1(config)# line console 0
Certkiller 1(config-line)# enable secret cisco
Certkiller 1(config-line)# login
- E. Certkiller 1(config)# line console 0
Certkiller 1(config-line)# password cisco
Certkiller 1(config-line)# login

Answer: E

Explanation: Answer E is correct because console password was set so when you try to access the router via console port it ask for the password.

QUESTION 55:

You are a network technician at Certkiller . You are working with a 2500 series Cisco router. You are performing the password recovery procedure. You have just typed the following command:

o/r 0x2142

Your newly appointed trainee is curious about why this command is used. What should you tell him?

- A. It is used to restart the router.
- B. It is used to bypass the configuration in NVRAM.
- C. It is used to enter ROM Monitor mode.
- D. It is used to view the lost password.
- E. It is used to save the changes to the configuration.

Answer: B

Explanation:

The o/r 0x2142 command changes the value of config-register to 2142, so that the Router ignores the NVRAM contents when it boots.

Reference:

http://www.cisco.com/en/US/products/hw/routers/ps233/products_password_recovery09186a0080094795.shtml

QUESTION 56:

The initial boot system commands on a Cisco router are stored in a startup configuration file in NVRAM. If NVRAM this file is not in NVRAM, where does the router look for the Cisco IOS?

- A. In ROM
- B. In RAM
- C. In Flash memory
- D. In Bootstrap

Answer: C

Explanation:

Flash memory - Either an EEPROM or a PCMCIA card, Flash memory stores fully functional IOS images and is the default location where the router gets its IOS at boot time. Flash memory also can be used to store any other files, including configuration files.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) page 187

QUESTION 57:

Where does a router store the current configuration file while in operation?

- A. In ROM
- B. In RAM
- C. On a TFTP server
- D. IN NVRAM
- E. In flash memory

Answer: B

Explanation:

IOS on a router uses a configuration file for the initial configuration at router startup and the active, running configuration file. The startup configuration file is in NVRAM; the other file, which is in RAM, is the one that the router uses during operation. When the router first comes up, the router copies the stored configuration file from MVRAM into RAM, so the running and startup configuration files are identical at that point.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) Page 188

QUESTION 58:

You are a technician at Certkiller . Your newly appointed Certkiller trainee wants to know what sequence of events occurs when a router is powered up.
What would your reply be?

- A. POST, locate configuration statements, apply configuration statements, locate Cisco IOS software, load Cisco IOS software.
- B. Locate Cisco IOS software, load Cisco IOS software, locate configuration statements, apply configuration statements, POST.
- C. Test software routines, POST, load configuration files, load Cisco IOS software, test Cisco IOS software.
- D. POST, locate Cisco IOS software, load the Cisco IOS software, locate configuration statements, apply configuration statements.
- E. Load and test IOS, load configuration files, test software routines, POST.

Answer: D

Explanation:

The router performs a power-on self-test (POST) to discover and verify the hardware.
The router loads and runs bootstrap code from ROM.
The router finds the IOS or other software and loads it.
The router finds the configuration file and loads it into running config.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) page 197

QUESTION 59:

In the router IOS binary image file name c7200-ajs40-mx, what does c7200 represent?

- A. The memory capacity requirements
- B. The hardware product platform
- C. The distribution channel
- D. The feature capabilities
- E. The run location and compression status

Answer: B

Explanation:

Cisco has a Cisco IOS image naming convention for identifying the platform or board for

which the binary software is built, the package feature content of the image, and the area of memory used by the image at run time. The image name follows a three-part format: PFFFF-FFFF-MM

where PFFFF represents the platform; FFFF represents features; and MM represents run-time memory and compression format.

Reference:

[http://www.cisco.com/en/US/products/sw/iosswrel/ios_abcs_ios_networking_the_enterprise0900aecd800a4e14.h](http://www.cisco.com/en/US/products/sw/iosswrel/ios_abcs_ios_networking_the_enterprise0900aecd800a4e14.html)

QUESTION 60:

What determines the IOS that the router will load?

- A. the load register and the startup system command
- B. the configuration register and the setup command
- C. the start up register and startup system command
- D. the configuration register and boot system commands
- E. the boot register and the startup system command

Answer: D

Explanation:

The order in which the router looks for system bootstrap information depends on the boot field

Setting is in the configuration register. The config register number is in NVRAM

Default is usually 0x2102 or 0x102 for routers with built-in flash

Router command "show version" will tell you what the Hex number is

Router(config)#config-register 0x101 (to boot from ROM)

Router(config)#config-register 0x102 (or 0x2102 to boot from NVRAM)

QUESTION 61:

What is the purpose of using the copy flash tftp command on a router?

- A. to copy an IOS image to the router
- B. to create a backup copy of the IOS
- C. to move the IOS image from a server to the router
- D. to backup the router configuration to a server

Answer: B

Explanation: #copy flash tftp : Which commands copies the ios file from flash memory to tftp server.

Similarly # copy tftp flash : Which copies the file from tftp server to flash memory.

QUESTION 62:

DRAG DROP

Your Certkiller.com boss asks you to match the descriptions to the corresponding router modes.

Router mode	Place description here
User EXEC mode	Place here
privileged EXEC mode	Place here
Global configuration mode	Place here
specific configuration mode	Place here
Setup mode	Place here

Descriptions, select from these

Interactive configuration dialog
Provides access to all other router commands
Commands that affect interfaces/processes only
Commands that affect the entire system
Limited to basic monitoring commands

Answer:

Your Certkiller.com boss asks you to match the descriptions to the corresponding router modes.

Router mode	Place description here
User EXEC mode	Limited to basic monitoring command
privileged EXEC mode	Provides access to all other router commands
Global configuration mode	Commands that affect the entire system
specific configuration mode	Commands that affect interfaces/processes only
Setup mode	Interactive configuration dialog

QUESTION 63:

You are the network administrator at Certkiller .com. You want to telnet to a router on the Certkiller network, however, the connection is denied. You verify connectivity to the router by pinging the router successfully. You need to enter a set of commands on the remote router to allow Telnet connectivity. Which commands should you use?

- A. router(config)# line con 0
router(config-line)# password welcome
router(config-line)# login
- B. router(config)# line aux 0 4
router(config-line)# password welcome
router(config-line)# login
- C. router(config)# line vty 0 4
router(config-line)# password welcome
router(config-line)# login
- D. router(config)# line tty 0 4

```
router(config-line)# password welcome  
router(config-line)# enable login
```

Answer: C

Explanation:

Several concurrent Telnet connections to a router are allowed. The line vty 0 4 command signifies that this configuration applies to vtys (virtual teletypes/terminals) 0 through 4.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) page 178

QUESTION 64:

How can an administrator determine if a router has been configured when it is first powered up?

- A. A configured router prompts for a password
- B. A configured router goes to the privileged mode prompt
- C. An un configured router goes into the setup dialog
- D. An un configured router goes to the enable mode prompt

Answer: C

Explanation:

If non-configured router is started, then goes to setup mode and ask for minimum configuration i.e hostname, ip address to interfaces, enable password etc. If router is already configured boots by implementing startup-config.

QUESTION 65:

What will cause a router to enter setup mode? (Choose two.)

- A. The configuration file is missing in NVRAM.
- B. The configuration register is set to 0x2100.
- C. Boot system commands are misconfigured in the running-configuration.
- D. The setup command was issued from the privileged mode prompt.
- E. The IOS is missing.
- F. The IOS is corrupt.

Answer: A,D

Explanation: When router boots up, it checks the valid configuration into NVRAM and tries to load the configuration. If there is not configuration router automatically goes into setup dialog. From setup dialog, you able to configuration the basic

configuration. As well you can run the setup command manually from privileged mode using setup command.

QUESTION 66:

DRAG DROP

As a network technician at Certkiller .com you are required to construct the command sequence to configure an IP address on a serial interface.

Note: you are configuring a hub named Certkiller 1. You do not use all options.

Commands, select from these

CertKiller1#interface s0/0	CertKiller1 (config)#interface s0/0
CertKiller(config-if)#no shutdown	CertKiller1 (config)#ip address 172.16.20.21 255.255.255.0
CertKiller1 (config-if)#ip address 10.8.5.255 255.255.255.0	CertKiller1 (config-if)#enable interface
CertKiller1 (config-if)#ip address 1192.18.2.63 255.255.255.224	CertKiller (config-if)#description T1 to WAN
CertKiller(config-if)#banner motd ! T1 to WAN !	CertKiller1#configure terminal

Definitions

Enter global configuration mode
Enter interface configuration mode
Configure the interface IP address
Enable the interface
Label the interface

Commands, place here

Place here
Place here
Place here
Place here
Place here

Answer:

Commands, select from these

CertKiller1#interface s0/0
CertKiller1 (config)#ip address 172.16.20.21 255.255.255.0
CertKiller1 (config)#interface s0/0
CertKiller1 (config-if)#ip address 1192.18.2.63 255.255.255.224
CertKiller(config-if)#banner motd ! T1 to WAN !

Definitions

Enter global configuration mode
Enter interface configuration mode
Configure the interface IP address
Enable the interface
Label the interface

Commands, place here

CertKiller1#configure terminal
CertKiller1 (config)#interface s0/0
CertKiller1 (config-if)#ip address 10.8.5.255 255.255.255.0
CertKiller(config-if)#no shutdown
CertKiller (config-if)#description T1 to WAN

Explanation:

1. Global Configuration mode is the mode allows to configure the router and takes effect immediately. You can enter into the global configuration mode using configure terminal command.
2. Interface Configuration mode allows to configure the interface on particular interface like, setting ip address, setting bandwidth, clock rate, encapsulation type, duplex , speed etc. Use interface interface name command to enter into the interface configuration mode.
3. After Entering into the Interface Configuration mode you can assign the IP Address into the interface using the ip address IPAddress subnetmask.
4. You have the option of whether shutdown the interface or bring up the interface, using the shutdown command can shutdown the interface and using no shutdown command can bring up the interface up.
5. You can add the description of interface using the description command.

QUESTION 67:

You are logged into a router and with to view the layer 3 information about your neighboring Cisco routers. What IOS command gives layer 3 information for of the directly connected router interfaces?

- A. show ip links
- B. show cdp neighbor
- C. show cdp neighbor detail
- D. show ip clients
- E. show ip route
- F. None of the above

Answer: C

Explanation:

To display detailed information about neighboring devices discovered using Cisco Discovery Protocol (CDP), use the show cdp neighbors privileged EXEC command. Detail - (Optional) Displays detailed information about a neighbor (or neighbors) including network address, enabled protocols, hold time, and software version.

Incorrect Answers:

- A, D. These are invalid commands.
- B. The "show cdp neighbor" command, without the "detail" keyword will not display the additional layer 3 protocol information.
- E. This will show all routes from all other routers within the domain. We wish to see information from just the direct interface neighbors.

QUESTION 68:

You are logged into a router and with to view the layer 3 information about your neighboring Cisco routers. What IOS command gives layer 3 information for of the

directly connected router interfaces?

- A. show ip links
- B. show cdp neighbor
- C. show cdp neighbor detail
- D. show ip clients
- E. show ip route
- F. None of the above

Answer: C

Explanation:

To display detailed information about neighboring devices discovered using Cisco Discovery Protocol (CDP), use the show cdp neighbors privileged EXEC command. Detail - (Optional) Displays detailed information about a neighbor (or neighbors) including network address, enabled protocols, hold time, and software version.

Incorrect Answers:

- A, D. These are invalid commands.
- B. The "show cdp neighbor" command, without the "detail" keyword will not display the additional layer 3 protocol information.
- E. This will show all routes from all other routers within the domain. We wish to see information from just the direct interface neighbors.

QUESTION 69:

Which of the following IOS commands could you use to troubleshoot a router connectivity problem on an IP network? (Select all valid answers)

- A. show ip route
- B. ipconfig
- C. tracet
- D. show interfaces
- E. traceroute
- F. ping
- G. All of the above

Answer: A, D, E, F

Explanation:

- A. The show ip route command displays the IP route table.
- D. The show interfaces EXEC command to display statistics for all interfaces configured on the router or access server.
- E. Traceroute is a valid router command, used to trace the path to a destination, and provide the latency associated with each hop.
- F. The ping command tests connectivity to a remote node.

Incorrect Answers:

B, C. These are commands used on PC hosts. They are invalid router commands.

QUESTION 70:

What command verifies connectivity between two hosts by sending and receiving ICMP echo messages?

- A. ping
- B. tracert
- C. netstat
- D. show cdp neighbors detail
- E. show ip route
- F. traceroute

Answer: A

Explanation:

Packet Internet Groper (PING) uses ICMP echo requests and replies to verify network connectivity. It is most commonly used to verify connectivity to another device and to monitor the operational status of a device.

QUESTION 71:

You are attempting to troubleshoot some problems within your local network. Which of the following are router IOS commands that can be used to troubleshoot LAN connectivity problems? (Choose all that apply)

- A. ping
- B. tracert
- C. ipconfig
- D. show ip route
- E. winipcfg
- F. show interfaces
- G. All of the above

Answer: A, D, F

Explanation:

All three of these are valid Cisco IOS commands that can be used to verify and troubleshoot connectivity issues on a LAN or WAN.

Incorrect Answers:

B. "Tracert" is not a valid Cisco IOS command. This command can be used while at the command prompt window of a PC, but the corresponding Cisco command is "traceroute."
C, E. These are commands that can be useful in troubleshooting connectivity problems with an individual PC, but they are not valid commands within a Cisco router.

QUESTION 72:

Which router IOS commands can be used to troubleshoot LAN connectivity problems? (Select three)

- A. Ping
- B. Tracert
- C. Ipconfig
- D. Show ip route
- E. Winipcfg
- F. Show interfaces

Answer: A, D, F

Explanation:

While all of the above commands are useful in gathering network information and troubleshooting, only choices A, D, and F are Cisco IOS problems, while the other choices are DOS command prompt commands used by windows based stations.

QUESTION 73:

After logging into a router, you issue the "show ip route" command as shown below:

```
RouterCertKiller# Show ip route
<some output text omitted>
Gateway of last resort is not set.

1 172.16.0.0[110/84632] via 192.168.6.3,00:00:13, FastEthernet0/0
R 192.168.3.0 [120/3] via 192.168.2.2,00:00:09, Serial0/0
C 192.168.2.0 is directly connected, Serial0/0
C 192.168.6.0 is directly connected, FastEthernet0/0
```

Based on the information above, what does the expression [120/3] represent in the second line of the routing table?

- A. 120 is the bandwidth allocation and 3 is the routing process number.
- B. 120 is the administrative distance and 3 is the metric for that route.
- C. The number 120 is the value of the update timer and 3 is the number of updates received.
- D. The number 120 is the UDP port for forwarding traffic and 3 is the number of bridges.

Answer: B

Explanation:

To decide which route to use, IOS uses a concept called Administrative Distance. Administrative distance is a number that denotes how believable an entire routing protocol is on a single router. The lower the number, the better, or more believable the routing protocol.

Route Type Administrative Distance

- * Connected 0
- * EIGRP 90
- * IGRP 100
- * OSPF 110
- * RIP 120

For RIP, the metric is the hop count, so in this case the route is 3 hops away.

Reference:

CCNA Self-Study CCNA ICND exam certification Guide (Cisco Press, ISBN 1-58720-083-X) Page 177

QUESTION 74:

A network administrator is having trouble with a remote router. The administrator connects to the router by Telnet and types a debug command, but no debug output appears on the screen. What command should the administrator type to view the debug output?

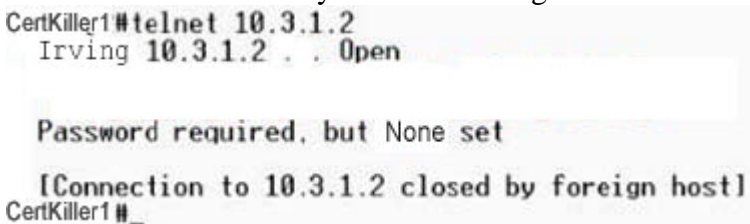
- A. Certkiller 1# show debug
- B. Certkiller 1# debug all
- C. Certkiller 1# terminal monitor
- D. Certkiller 1# no debug *
- E. Certkiller 1# enable debug

Answer: C

Explanation: terminal monitor command enables the log to display in console.

QUESTION 75:

Refer to the exhibit. Why was this message received?



```
CertKiller1#telnet 10.3.1.2
Irving 10.3.1.2 . . Open

Password required, but None set

[Connection to 10.3.1.2 closed by foreign host]
CertKiller1#_
```

- A. The login command has not been set on CON 0.
- B. The login command has not been set on the VTY ports.
- C. No enable password has been set.
- D. No VTY password has been set.
- E. No enable secret password has been set.
- F. No console password has been set.

Answer: D

Explanation: This error is generated due to unset of telnet password. You need to set the telnet password using:

```
Router(config)#line vty 0 4
```

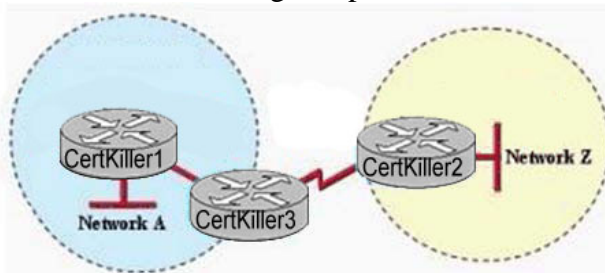
```
Router(config-line)#password telnet
```

```
Router(Config-line)#login
```

QUESTION 76:

Refer to the exhibit. A person is trying to send a file from a host on Network A of the Certkiller .com to a server on Network Z of the SNAFU Company. The file transfer fails. The host on Network A can communicate with other hosts on Network

A. Which command, issued from router Certkiller 1, would be the most useful for troubleshooting this problem?



- A. show version
- B. show flash:
- C. show interfaces
- D. show history
- E. show controllers serial

Answer: C

Explanation: This problem due to the communication problem with the ftp server. Using the show interface command can verify the ip address, speed and duplex etc configuration. So, this is the most useful tool.

QUESTION 77:

A router is not operating as expected and the network administrator wants to verify that the router booted using the correct IOS image. Which command should be used to determine which IOS is running on the router?

- A. show memory
- B. show flash
- C. show version
- D. show startup-config
- E. show config-register

Answer: C

Explanation:

Show version - info about router and IOS running in RAM

The screenshot shows the output of the 'show version' command on a Cisco router. The output is annotated with several callouts:

- IOS version:** Points to the first line of the output: "Cisco Internetwork Operating System Software IOS (tm) 1700 Software (C1700-BNSY-L), Version 12.2(11)P, RELEASE SOFTWARE (fc1)".
- Platform:** Points to the line: "ROM: System Bootstrap, Version 11.1(10)AA, EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)".
- Feature set:** Points to the line: "ROM: 1700 Software (C1700-BOOT-R), Version 11.1(10)AA, EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)".
- Location to be used for loading the IOS:** Points to the line: "System image file is \"flash:cl1700-bnsy-l.122-11.12c\", booted via flash".
- System image file & location:** Points to the same line as above.
- Number & type of interfaces on the router:** Points to the line: "1 Ethernet/IEEE 802.3 interface(s) 2 serial(sync/async) network interface(s)".
- Configuration register setting:** Points to the line: "Configuration register is 0x2102".
- Router up time:** Points to the line: "GAD uptime is 3 weeks 6 days 2 hours, 41 minutes".
- Last restart method:** Points to the line: "System restarted by power-on".
- Boot ROM version:** Points to the line: "ROM: System Bootstrap, Version 11.1(10)AA, EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)".

QUESTION 78:

Which Cisco IOS command identifies the system hardware and the IOS currently running on a router?

- A. show version
- B. show startup-config
- C. show running-config
- D. show processes
- E. show controllers

Answer: A

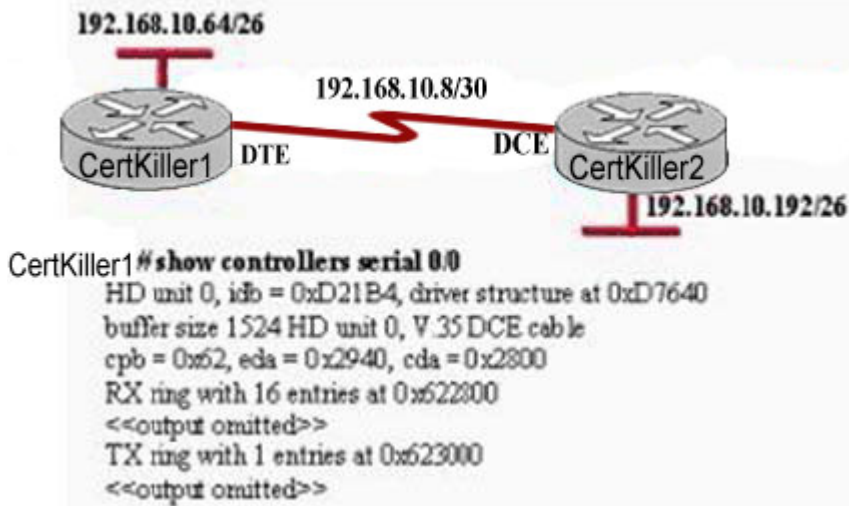
Explanation:

show version command displays the information regarding hardware of router, IOS name, version as well as registry settings of router.

This is a duplicate of the screenshot above, showing the 'show version' command output with callouts for: IOS version, Platform, Feature set, Location to be used for loading the IOS, System image file & location, Number & type of interfaces on the router, Configuration register setting, Router up time, and Last restart method.

QUESTION 79:

An administrator cannot connect from Certkiller 1 to Certkiller 2. To troubleshoot this problem, the administrator has entered the command shown in the exhibit. Based on the output shown, what could be the problem?



- A. The serial interface has a full buffer.
- B. The serial interface is configured for half duplex.
- C. The serial interface has the wrong type of cable attached.
- D. The serial interface does not have a cable attached.
- E. The serial interface is configured for the wrong frame size.

Answer: C

Explanation: According to figure DTE cable should connect to Certkiller 1 on interface but while examining using show controllers serial 0/0 command it showing that DCE is connected so wrong type of cable is connected on interface.

QUESTION 80:

Refer to the output of the three router commands shown in the exhibit. A new technician has been told to add a new LAN to the company router. Why has the technician received the error message that is shown following the last command?


```
CertKiller1 # show version
Cisco Internetwork Operating System Software
IOS (tm) C2600 Software (C2600-DO3S-M), Version 12.1(5)T12,
RELEASE SOFTWARE (fc1)
TAC Support: http://www.cisco.com/tac
Copyright (c) 1986 2002 by cisco Systems, Inc
Copyright (c) 1986 2002 by cisco Systems, Inc
System image file is "flash:c2600-do3s-mz.121-5.T12.bin"

ROM: System Bootstrap, Version 12.2(10r)1, RELEASE
SOFTWARE (fc1)
Copyright (c) 1986 2002 by cisco Systems, Inc
Router uptime is 10 minutes
System returned to ROM by power-on
System image file is "flash:c2600-do3s-mz.121-5.T12.bin"

cisco 2621 (MPC860) processor (revision 0x00) with
44032K/5120K bytes of memory

Processor board ID JAD06390AR4 (617842770)
M860 processor part number 0, mask 49
Bridging software.
X.25 software, Version 3.0.0.
Basic Rate ISDN software, Version 1.1.
2 FastEthernet/IEEE 802.3 interface(s)
2 Low-speed serial(sync/async) network interface(s)
1 ISDN Basic Rate interface(s)
32K bytes of non-volatile configuration memory.
16384K bytes of processor board System flash (Read/Write)

Configuration register is 0x2102

CertKiller1 # configure terminal
Enter configuration commands, one per line.
End with CNTL/Z.
CertKiller1 (config)# interface e0
% Invalid input detected at '^' marker.
```

- A. The command was entered from the wrong prompt.
- B. The router does not support LAN interfaces that use Ethernet.
- C. The interface was already configured.
- D. The IOS software loaded on the router is outdated.
- E. The interface type does not exist on this router platform.

Answer: E

Explanation: show version command displays the information regarding version of IOS, name of IOS image, configuration register as well all interface name of router. According to the output of show version, there is no ethernet interface so trying to configure the invalid interface.

QUESTION 81:

DRAG DROP

Match the commands with their corresponding function. Not all commands are used.

Commands, select from these

telnet	ping 10.0.01
arp -a	tracert
ipconfig /all	ping 127.0.0.1

Functions

Displays PC network configuration
Displays the list of routers on a path to a network destination
Tests VTY configuration
Tests TCP/IP protocol stack
Displays IP to MAC address mappings on a Windows PC

Commands,place here

Place here
Place here
Place here
Place here
Place here

Answer:

Displays PC Network Configuration à ipconfig/all

Displays the list of routers on a path to a network destination àtracert

Tests VTY configuration à telnet

Tests TCP/IP stack à ping 127.0.0.1

Displays IP to MAC address mappings on a Windows PC àarp -a

In Windows ipconfig/all commands displays all the network configuration information and tracert command shows the internal and external path of the destination.

You can test whether telnet is enabled on router or not using telnet command.

You can check whether TCP/IP protocol is working or not in your PC by pinging to the 127.0.0.1 IP Address. And MAC address table of your windows pc can display using the arp -a command.

QUESTION 82:

Which of the following IP addresses is a private IP address?

- A. 12.0.0.1
- B. 168.172.19.39
- C. 172.20.14.36
- D. 172.33.194.30
- E. 192.168.42.34

Answer: C, E

Explanation:

Private IP Address Ranges (RFC 1918)

Class	From	To	CIDR Mask	Decimal Mask
Class A (24 Bit)	10.0.0.0	10.255.255.255	/8	255.0.0.0
Class B (20 Bit)	172.16.0.0	172.31.255.255	/12	255.240.0.0
Class C (16 Bit)	192.168.0.0	192.168.255.255	/16	255.255.0.0

QUESTION 83:

You are the network administrator at Certkiller . The Certkiller network has a single Class C IP address. VLSM is implemented on the network. Which subnet mask would be the most efficient for point-to-point serial links on the Certkiller network?

- A. 255.255.255.0
- B. 255.255.255.240
- C. 255.255.255.248
- D. 255.255.255.252
- E. 255.255.255.254

Answer: D

Explanation:

Point-to-Point serial links needs two IP addresses to be configured on both sides of the interfaces. It means we require 2 host addresses. With 2 host bits we get 4 hosts out of which all zero's and all one's is not used so we have two usable hosts.

Subnet mask in this case would be 11111111.11111111.11111111.11111100

Where last 2 are the host bits to achieve 2 valid hosts.

Subnet mask will be 255.255.255.252

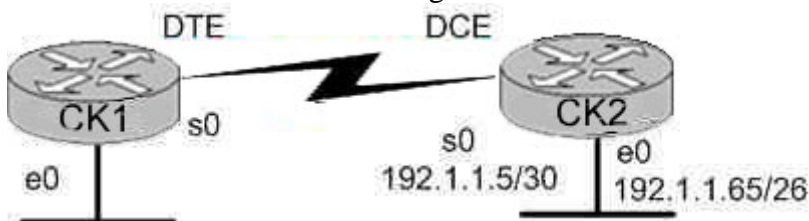
Network Bits = 30 means /30

Host Bits = 2

Number of Hosts = $2^n - 2 = 2^2 - 2 = 4 - 2 = 2$ valid hosts

QUESTION 84:

You are the network administrator at Certkiller . The Certkiller network has the address of 192.1.1.0/24 and is using RIP as the routing protocol. A portion of the network is shown in the following exhibit:



You want to configure router CK1 for LAN-to-LAN communication with router CK2 .

Which series of commands should you issue? (Choose three.)

- A. CK1 (config)# interface ethernet 0
CK1 (config-if)# ip address 192.1.1.129 255.255.255.192
CK1 (config-if)# no shutdown
- B. CK1 (config)# interface ethernet 0
CK1 (config-if)# ip address 192.1.1.97 255.255.255.192
CK1 (config-if)# no shutdown
- C. CK1 (config)# interface serial 0
CK1 (config-if)# ip address 192.1.1.4 255.255.255.252
CK1 (config-if)# clock rate 56000
- D. CK1 (config)# interface serial 0
CK1 (config-if)# ip address 192.1.1.6 255.255.255.252
CK1 (config-if)# no shutdown
- E. CK1 (config)# router rip
CK1 (config-router)# network 192.1.1.4
CK1 (config-router)# network 192.1.1.128
- F. CK1 (config)# router rip
CK1 (config-router)# version 2
CK1 (config-router)# network 192.1.1.0

Answer: A, D, F

Explanation:

Subnetting a Class C Address

We start by using the first subnet mask available with a Class C address, which borrows 2 bits for subnetting.

For this example, I'll be using 255.255.255.192. To review the binary translation of 192:
192 = 11000000

Here, the 1s represent the subnet bits, and the 0s represent the host bits available in each subnet. 192 provides 2 bits for subnetting and 6 bits for defining the hosts in each subnet. What are the subnets? Since the subnet bits can't be both off or on at the same time, the only

two valid subnets are these:

01000000 = 64 (all host bits off) revealing host addresses from .65-----.127

10000000 = 128 (all host bits off) revealing host addresses from .129-----.190

The valid hosts would be defined as the numbers between the subnets, minus the all-host-bits-off

and all-host-bits-on numbers.

In Choice A a valid host is configured on E0 interface of the router 192.1.1.129/26 so it is correct.

Choice D is correct because each WAN link uses the /30 or 255.255.255.252 mask revealing 2 valid host addresses. Serial 0 is configured with the address 192.1.1.6/30 . This is from the subnet 192.1.1.4/30. Valid hosts in this subnet are 192.1.1.5/30 and 192.1.1.6/30

Choice F is correct because we have done subnetting in the scenario and RIPv1 doesn't

carry the subnet information so we'll have to use RIPv2 which supports subnetting and can carry subnet information.

QUESTION 85:

You are the newly appointed Certkiller trainee. Your supervisor tells you that the IP address for your workstation is 172.16.209.10/22. He wants to know what the subnetwork number of your workstation is.

What will your reply be?

- A. 172.16.42.0
- B. 172.16.107.0
- C. 172.16.208.0
- D. 172.16.252.0
- E. 172.16.254.0

Answer: C

Explanation:

172.16.209.10/22 means 10101100.00010000.11010001.00001010 in binary form.
Network portion is 22 bits that means 10101100.00010000.110100001.00001010
Converting the network portion to decimal results in the address 172.16.208.0/22

QUESTION 86:

Study the Exhibit below carefully:



Using the information in the exhibit above, which of the following command lines would configure the serial0 port on the Certkiller 2 router with the last usable host address in the 192.216.32.32 subnet correctly?

- A. Certkiller 2(config-if)# ip address 192.216.32.63 255.255.255.248
- B. Certkiller 2(config-if)# ip address 192.216.32.38 255.255.255.240
- C. Certkiller 2(config-if)# ip address 192.216.32.39 255.255.255.248
- D. Certkiller 2(config-if)# ip address 192.216.32.63 255.255.255.248 no shut
- E. Certkiller 2(config-if)# ip address 192.216.32.39 255.255.255.248 no shut
- F. Certkiller 2(config-if)# ip address 192.216.32.38 255.255.255.248

Answer: F

Explanation: The last usable IP address on this subnet is 192.216.32.38. The subnet mask for a /29 is 255.255.255.248

Mask/29 11111111.11111111.11111111.11111000 255.255.255.248

Subnet 11000000.11011000.00100000.00100000 192.216.32.32

Broadcast 11000000.11011000.00100000.00100111 192.216.32.39
Address range = 192.216.32.33 - 192.216.32.38

QUESTION 87:

Which of the following addresses can be assigned to network hosts when given a subnet mask of 255.255.255.224? (Choose all that apply.)

- A. 15.234.118.63
- B. 92.11.178.93
- C. 134.178.18.56
- D. 192.168.16.87
- E. 201.45.116.159
- F. 217.63.12.192

Answer: B, C, D

Since the subnet mask is 255.255.255.224, the number of network hosts that is available is 30. Every network boundary will be a multiple of 32. This means that every subnet will be a multiple (0, 32, 64, 96, 128, 160, 192, 224) and the broadcast address for each of these subnets will be one less this number (31, 63, 95, 127, 159, 191, 223). Therefore, any IP address that does not end in one of these numbers will be a valid host IP address.

- C. Valid Host in subnetwork 2 (92.11.178.64 to 92.11.178.95)
- D. Valid Host in subnetwork 1 (134.178.18.32 to 134.178.18.63)
- E. Valid Host in subnetwork 2 (192.168.16.64 to 192.168.16.95)

Incorrect Answers:

- A. This will be the broadcast address for the 16.23.118.32/27 network.
 - B. This will be the broadcast address for the 87.45.16.128/27 network
 - F. This will be the network address for the 217.168.166.192/27 network.
-

QUESTION 88:

Which of the following IP addresses for the network 27.35.16.32/28 can be assigned to hosts? Choose three

- A. 27.35.16.32
- B. 27.35.16.33
- C. 27.35.16.48
- D. 27.35.16.47
- E. 27.35.16.45
- F. 27.35.16.44

Answer: B, E, F

Explanation:
25 26 27 /28

.128 64 32 16 8 4 2 1
/28 0 0 0 0 1 1 1 1
network 32 0 0 1 0 0 0 0 0
next network 0 0 1 1 0 0 0 0 0

(which
equals 48)

Range of host values are:

RANGE 0 0 1 0 0 0 0 1

TO RANGE 0 0 1 0 1 1 1 0

network is 32

the next network is $32 + 16 = 48$

the range is $32 + 1$ to $48 - 2$.

this results in a range 33 to 46.

and b, e, f

Incorrect answers:

32 cannot be used it is the network; 47 cannot be used it is the broadcast.

- A. IS A NETWORK
- C. IS A NETWORK
- D. IS A BROADCAST

QUESTION 89:

Which of the following addresses can be assigned to network hosts when given a subnet mask of 255.255.255.224? (Select three options.)

- A. 201.45.116.159
- B. 134.178.18.62
- C. 192.168.16.91
- D. 92.11.178.93
- E. 217.63.12. 24
- F. 15.234.118.63

Answer: B, C, D

Explanation

B: Valid host in subnetwork 1 (134.178.18.32 to 134.178.18.63)

C: Valid host in subnetwork 3 (192.168.16.64 to 192.168.16.95)

D: Valid host in subnetwork 2 (92.11.178.64 to 92.11.178.95)

QUESTION 90:

You are a network administrator at Certkiller . You must configure a new subnetwork at the Certkiller branch office in Berlin. You have been provided with the subnet mask of 255.255.255.224. You want to assign IP addresses to hosts on the subnet.

Which of the following IP addresses would you use? (Choose all that apply.)

- A. 16.23.118.63
- B. 87.45.16.159
- C. 92.11.178.93
- D. 134.178.18.56
- E. 192.168.16.87
- F. 217.168.166.192

Answer: C, D, E

Explanation:

C: Valid Host in subnetwork 2 (92.11.178.64 to 92.11.178.95)

D: Valid Host in subnetwork 1 (134.178.18.32 to 134.178.18.63)

E: Valid Host in subnetwork 2 (192.168.16.64 to 192.168.16.95)

QUESTION 91:

You are a network technician at Certkiller . Certkiller has a class C network license. The company requires 5 usable subnets. Each subnet must accommodate at least 18 hosts.

Which network mask should you use?

- A. 225.225.224.0.
- B. 225.225.240.0.
- C. 225.225.255.0.
- D. 255.255.255.224
- E. 225.225.255.240

Answer: D

Explanation:

Default subnet mask for class C network is 255.255.255.0. If one has to create 5 subnets, then 3 bits are required. With 3 bits we can create 6 subnets. Remaining 5 bits are used for Hosts. One can create 30 hosts using 5 bits in host field. This matches with requirement.

QUESTION 92:

You are a network technician at Certkiller , Inc. You are planning a network installation for the company. The design requires 100 separate subnetworks, resulting in the acquisition of a Class B network address.

Which of the following subnet masks will provide the 100 subnetworks required, if 500 usable host addresses are required per subnet?

- A. 255.255.0.0

- B. 255.255.224.0
- C. 255.255.254.0
- D. 255.255.255.0
- E. 255.255.255.224
- F. 255.255.255.254

Answer: C

Explanation: We need a 9-bit subnet mask to provide 500 usable host addresses

QUESTION 93:

You are a network technician at Certkiller , Inc.

You must assign static IP addresses to the servers in the Certkiller network. For network 192.168.20.24/29 the router is assigned the first usable host address while the sales server is given the last usable host address.

Which of the following should be entered into the IP properties box for the sales server?

- A. IP address: 192.168.20.32 Subnet Mask 255.255.255.240 Default Gateway: 192.168.20.17
- B. IP address: 192.168.20.31 Subnet Mask 255.255.255.224 Default Gateway: 192.168.20.25
- C. IP address: 192.168.20.30 Subnet Mask 255.255.255.248 Default Gateway: 192.168.20.25
- D. IP address: 192.168.20.1 Subnet Mask: 255.255.255.248 Default Gateway: 192.168.20.254
- E. IP address: 192.168.20.254 Subnet Mask: 255.255.255.240 Default Gateway: 192.168.20.24

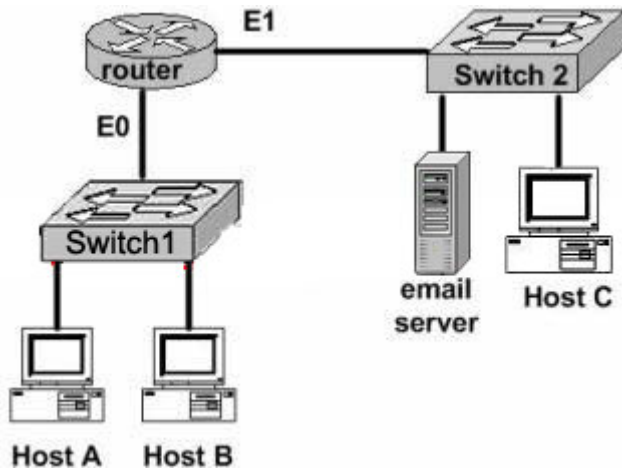
Answer: C

Explanation

A subnet mask uses 29 bits. This means that it uses 5 bits in the 4th octet. This equates to 255.255.255.248. This network has 3 bits for hosts. Using the $2^n - 2$ formula ($2^3 - 2$ in this case), we are left with 6 ($2 * 2 * 2 - 2 = 6$) host addresses. 192.168.20.24 is the network address. Therefore the next address (192.168.20.25) would be the first host address. This address must be assigned to the router, which serves as the gateway for the network. The last available host address would be 192.168.20.30 (192.168.20.24+6). This address is assigned to the server.

QUESTION 94:

You are the network administrator at Certkiller . The network is shown in the following exhibit:



Host A needs to communicate with the email server attached to Switch 2. What address will be placed in the destination address field of the packet when it leaves Host A?

- A. Switch 1's IP address.
- B. Switch 2's IP address.
- C. HOST A's IP address.
- D. The E0 interface's IP address.
- E. The E1 interface's IP address.
- F. The email server's IP address.

Answer: F

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) Page 26

QUESTION 95:

You are a technician at Certkiller . Certkiller plans to implement a public network. The company's ISP suggested that Certkiller register a Class IP address. The Certkiller CEO wants to know how many usable IP addresses are provided in a Class C address.

What would your reply be?

- A. 128
- B. 192
- C. 254
- D. 256
- E. 510

Answer: C

Class C addresses range from 192.0.0.1 through 223.225.225.225 and default subnet mask of 255.255.255.0. In Class C addresses, the first 24 bits are used as for the network ID while only the last 8 bits is used for the host ID. Using the $2^n - 2$ formula, we can

640-821

calculate that Class C addresses can support a maximum of 16,777,214 (224-2) networks and 254 (28-2) hosts.

Reference:

Certkiller 640-821 Study Guide version 1.1, Section 2.1.3 "IP Address Classes";

Certkiller 640-821 Study Guide version 1.1, Section 2.1.4 "CIDR Notation".

QUESTION 96:

What is the subnet for the host IP address 201.100.5.68/28?

- A. 201.100.5.0
- B. 201.100.5.32
- C. 201.100.5.64
- D. 201.100.5.65
- E. 201.100.5.31
- F. 201.100.5.1

Answer: C

Explanation:

This question is much easier than it appears when you convert it to binary and do the Boolean operation as shown below:

IP address 201.100.5.68 = 11001001.01100100.00000101.01000100

/28 mask = 11111111.11111111.11111111.11000000

AND result = 11001001.01100100.00000101.01000000

AND in decimal= 200 . 100 . 5 . 64

QUESTION 97:

3 addresses are shown in binary form below:

- A. 01100100.00001010.11101011.00100111
- B. 10101100.00010010.10011110.00001111
- C. 11000000.10100111.10110010.01000101

Regarding these three binary addresses in the above exhibit; which statements below are correct? (Select three)

- A. Address C is a public Class C address.
- B. Address C is a private Class C address.
- C. Address B is a public Class B address.
- D. Address A is a public Class A address.
- E. Address B is a private Class B address.
- F. Address A is a private Class A address.

Answer: A, D, E

Explanation:

- A. Address C converts to 192.167.178.69 in decimal, which is a public class C address.
 - D. Address A converts to 100.10.235.39, which is a public class A IP address.
 - E. Address B converts to 172.18.158.15, which is a private (RFC 1918) IP address.
-

QUESTION 98:

How many subnetworks and hosts are available per subnet if you apply a /28 mask to the 210.10.2.0 class C network?

- A. 30 networks and 6 hosts.
- B. 6 networks and 30 hosts.
- C. 8 networks and 32 hosts.
- D. 32 networks and 18 hosts.
- E. 14 networks and 14 hosts.
- F. None of the above

Answer: E

Explanation:

A 28 bit subnet mask (11111111.11111111.11111111.11110000) applied to a class C network uses a 4 bits for networks, and leaves 4 bits for hosts. Using the 2^n-2 formula, we have 2^4-2 (or $2 \times 2 \times 2 \times 2 - 2$) which gives us 14 for both the number of networks, and the number of hosts.

Incorrect Answers:

- A. This would be the result of a /29 (255.255.255.248) network.
 - B. This would be the result of a /27 (255.255.255.224) network.
 - C. This is not possible, as we must subtract two from the subnets and hosts for the network and broadcast addresses.
 - D. This is not a possible combination of networks and hosts.
-

QUESTION 99:

The Certkiller network was assigned the Class C network 199.166.131.0 from the ISP. If the administrator at Certkiller were to subnet this class C network using the 255.255.255.224 subnet mask, how many hosts will they be able to support on each subnet?

- A. 14
- B. 16
- C. 30
- D. 32
- E. 62
- F. 64

Answer: C

Explanation:

The subnet mask 255.255.255.224 is a 27 bit mask (11111111.11111111.11111111.11100000). It uses 3 bits from the last octet for the network ID, leaving 5 bits for host addresses. We can calculate the number of hosts supported by this subnet by using the $2^n - 2$ formula where n represents the number of host bits. In this case it will be 5. $2^5 - 2$ gives us 30.

Incorrect Answers:

- A. Subnet mask 255.255.255.240 will give us 14 host addresses.
- B. Subnet mask 255.255.255.240 will give us a total of 16 addresses. However, we must still subtract two addresses (the network address and the broadcast address) to determine the maximum number of hosts the subnet will support.
- D. Subnet mask 255.255.255.224 will give us a total of 32 addresses. However, we must still subtract two addresses (the network address and the broadcast address) to determine the maximum number of hosts the subnet will support.
- E. Subnet mask 255.255.255.192 will give us 62 host addresses.
- F. Subnet mask 255.255.255.192 will give us a total of 64 addresses. However, we must still subtract two addresses (the network address and the broadcast address) to determine the maximum number of hosts the subnet will support.

QUESTION 100:

What is the subnet for the host IP address 172.16.210.0/22?

- A. 172.16.42.0
- B. 172.16.107.0
- C. 172.16.208.0
- D. 172.16.252.0
- E. 172.16.254.0
- F. None of the above

Answer: C

Explanation:

This question is much easier than it appears when you convert it to binary and do the Boolean operation as shown below:

IP address 172.16.210.0 = 10101100.00010000.11010010.00000000

/22 mask = 11111111.11111111.11111100.00000000

AND result = 11111111.11111111.11010000.00000000

AND in decimal = 172 . 16 . 208 . 0

QUESTION 101:

A network administrator needs to create 29 subnetworks while maximizing the number of host addresses available on each subnet. How many bits must be borrowed from the host field of the network address to provide the required number of subnets with the most hosts per subnet?

- A. 7
- B. 3
- C. 2
- D. 4
- E. 5
- F. 6

Answer: E

Explanation: Answer E is correct because when administrator use the 5 bits for network, will gets 32 subnetwork.

11111000.

Subnet mask: 248

QUESTION 102:

When you power up a Cisco router; in what memory is the start-up configuration normally stored in?

- A. RAM
- B. ROM
- C. FLASH
- D. NVRAM

Answer: D

Explanation:

The startup configuration is stored in the Non-Volatile RAM.

Incorrect Answers:

- A, B. No configuration information is stored in RAM or ROM.
 - C. The IOS is normally stored in the flash memory, not the saved configuration.
-

QUESTION 103:

You just purchased a refurbished router that contains a configuration from a previous deployment. What should you do, before entering a new configuration into the router?

- A. RAM should be erased and the router restarted.
- B. Flash should be erased and the router restarted.
- C. NVRAM should be erased and the router restarted.

D. The new configuration should be entered and saved.

Answer: D

Explanation:

It is never in your best interest to completely purge the contents of a router. It's safer to save a new configuration and implement it later while the router is up and running, then it is to start from scratch. That way if there's a problem with the router, you'll be more likely to isolate it while it is still running on the original configuration.

QUESTION 104:

You have just purchased a brand new router and wish to have the router prompt you through the initial configuration commands. Which router mode does this describe?

- A. ROM Monitor mode
- B. SETUP mode
- C. Autoflash mode
- D. RXBOOT mode
- E. None of the above

Answer: B

Explanation:

Setup mode is a convenient mode that walks you through the setup procedure by prompting you with specific questions and options one by one.

QUESTION 105:

After working all night and successfully configuring a Cisco router for the Certkiller network you save your changes on the startup config, reboot the router, and go out for a cigarette. When you return, none of your changes are active and the router boots to the initial configuration mode! Which of the choices below indicates the source of your problem?

- A. Hardware failure in NVRAM prevents the router from loading the config
- B. Startup-config in flash is corrupt and cannot be analyzed
- C. Router configuration-register set to bypass startup configuration
- D. Startup-config in NVRAM is corrupt and cannot be analyzed
- E. None of the above

Answer: C

Explanation:

The default configuration-register setting of 0x2102 loads the IOS from flash and the

configuration from NVRAM.

However, for password recovery, you can set the register to 0x2142 and the startup-config file in NVRAM will be bypassed. The problem described here is that the config register was not changed back to 0x2102 before the router was rebooted, so the active configuration is bypassed. Simply setting the config register back to 0x2102 will fix this problem.

Incorrect Answers:

A, B, D. All of these describe hardware or software errors. In the event that this is the problem, errors will be generated and the router will fail to boot properly. In these cases, the router will not return to the initial startup configuration.

QUESTION 106:

Which of the following commands will display the name of the IOS image file being used in a Cisco router?

- A. Router# show IOS
- B. Router# show version
- C. Router# show image
- D. Router# show protocols
- E. Router# show flash

Answer: B, E

The IOS command "Show flash" displays all the image files in it. There could be more than one file. However, "show version" displays the one that is currently in use by the router.

Incorrect answers:

- A, C. These are invalid commands.
 - D. The command "show protocols" will show the routed protocols in use by the router and by interface conditions and their IP address, if configured.
-

QUESTION 107:

After making changes to the router, you issue the "copy running-config startup-config" command to save changes. After reloading the router, the router comes up in setup mode. You again make changes, save them, and reboot. Again, the router comes up in setup mode.

What is the most likely cause of this?

- A. The NVRAM is corrupted.
- B. The boot system commands were omitted in the configuration.
- C. The configuration register setting is incorrect.
- D. The upgraded configuration incompatible with the hardware platform.
- E. The upgraded IOS incompatible with the hardware.

Answer: C

Explanation:

When you enter the command, "copy running-config startup-config" you save your current settings to NVRAM. The problem described in this question is that it appears the router is set to bypass the NVRAM, making it come up in the initial configuration dialog. The most likely cause of a router with the configuration register settings set incorrectly is that the router recently went through the password recovery procedure.

QUESTION 108:

You need to upgrade the IOS of an existing router on your network. The new IOS image is located on a TFTP server that you have set up within the network. What command should you issue in order to download the new IOS version?

- A. Router# copy tftp flash
- B. Router# copy flash run
- C. Router(config)# restore flash
- D. Router(config)# repair flash
- E. Router# copy flash tftp
- F. Router# copy start flash

Answer: A

Explanation:

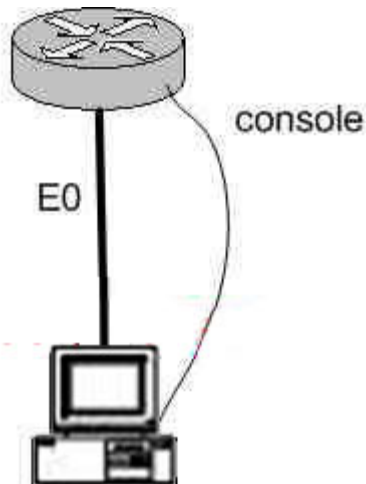
The command "copy tftp flash" will copy the new IOS version upgrade from your networks TFTP server (assuming of course you have a TFTP server with the new version of IOS standing by).

Incorrect Answers:

- C, D. The copy tftp flash command should be issued from the enable command prompt. It is not necessary to go into configuration mode.
 - E. This will have the reverse effect, and will copy the IOS image on your router onto a folder in your TFTP server.
-

QUESTION 109:

Study the exhibit below:



You just connected your computer directly to the E0 port of a router and you're running a console session. Which of the following steps below are required to successfully implement the "copy flash tftp" command and upload the flash image onto the TFTP server? (Select three answer choices)

- A. TFTP server software must be activated.
- B. TFTP server software must be running on the administrator's workstation.
- C. There must be space in the flash memory of the router to accommodate the file to be copied.
- D. The copy flash tftp command must provide the IP address of the administrator's workstation.
- E. The administrator's workstation must be on the same subnet as the router E0 interface.
- F. The Ethernet connection between the router and the administrator's workstation must be via straight-through cable.

Answer: B, D, E

Explanation:

The sole purpose of the 'copy flash tftp' command is to copy the routers configuration file to the TFTP server to save it. The first logical variable for this operation is that the TFTP software is actually running. So B is correct. D is correct because the IOS won't be able to send off if it doesn't even know where the TFTP server is. Finally, TFTP server must be on the same subnet as the connectivity must be direct and the TFTP and router will need to know how to reach each other.

Incorrect Answers:

- A. The TFTP can't just be activated, it has to be running in the right place.
- C. This is not valid because you aren't downloading into the flash, you're uploading out of the flash, so space isn't a concern.
- F. A cross over cable must be used when connecting from a PC directly into the router's Ethernet interface.

QUESTION 110:

What kind of information can you deduce from an IOS image file name? (Select three answer choices)

- A. Distribution channel failures
- B. Feature capabilities
- C. Memory capacity needs
- D. Hardware product platform
- E. Programming language requirements
- F. Run location and compression status

Answer: B, D, F

Explanation:

Image Naming Conventions

You can identify the platform, features, and image location by the name of the image. The naming convention is platform-features-type for images that are stored on a UNIX system.

The platform variable indicates which platforms can use this image. Examples of platform variables include rsp (Cisco 7000 series with RSP7000 and Cisco 7500 series), c1600 (Cisco 1600 series), and c1005 (Cisco 1005).

The features variable identifies the feature sets supported by the image.

The type field can contain the following characters:

f-The image runs from Flash memory.

m-The image runs from RAM.

r-The image runs from ROM.

l-The image is relocatable.

z-The image is zip compressed.

x-The image is mzip compressed.

QUESTION 111:

You wish to upgrade the IOS of a router without removing the image currently installed.

What command will display the amount of memory that is being used by the current IOS image and whether there is enough room available to hold both the current and new images?

- A. Router# show version
- B. Router# show flash
- C. Router# show memory
- D. Router# show buffers
- E. Router# show running-config
- F. All of the above

Answer: B

Explanation:

The "show flash" command is used to display the layout and contents of the flash memory file system. It will show name of the file system, as well as the number of bytes used and the number available within the flash memory.

QUESTION 112:

You are a trainee technician at Certkiller , Inc. Your instructor tells you to backup an IOS image of a Cisco device to a Windows 2003 server on the network.

What should you do first? (Choose three.)

- A. Make sure that the network server can be accessed.
- B. Check that the authentication for access is set.
- C. Assure that the network server has adequate space for the code image.
- D. Verify any file naming and path requirements.
- E. Make sure that the server can load and run the bootstrap code.

Answer: A, C, D

Explanation:

In order to properly back up the Cisco IOS image onto a Windows server, you should ensure that the server is reachable and that you have the proper permissions to save files to the server. In addition to this, the server will need enough space to hold the backup file.

Incorrect Answers:

E. In order to simply back up the IOS file, the server needs to only be able to save it to a hard disk. It does not need to load, read, or boot the image.

QUESTION 113:

At a branch location, Certkiller .com has deployed a non modular router that is equipped with two serial interfaces and two Ethernet interfaces.

What additional equipment must be used to allow the branch office to connect to the central office by using an ISDN service?

- A. a serial cable with a V.35 to RJ45 adapter
- B. a CSU/DSU
- C. an external ISDN TA and NT1
- D. The non-modular router cannot connect to an ISDN service. The network administrator must purchase a modular router with an ISDN BRI-U card.

Answer: C

Explanation:

ISDN Terminals

NT1 The network termination 1 (NT1) device implements the ISDN Physical layer specifications and connects the user devices to the ISDN network by converting the network from a four-wire to the two-wire network used by ISDN. Basically, I'll call this a "U" reference point that connects into the telco. I'll talk about reference points next.

TA A terminal adapter (TA) converts TE2 non-ISDN signaling to signal that's used by the ISDN switch. It connects into an NT1 device for conversion into a two-wire ISDN network.

QUESTION 114:

An elementary school has a computer in every classroom. One entire wing of the school connects to a centrally located hub. The teachers have reported a slowdown in the past few weeks to the network administrator. The network administrator has analyzed the network and documented a steep increase in utilization as the teachers use a new network-based classroom management application. Which solution will improve the performance the most?

- A. Install a router and install another hub in the affected wing.
- B. Reboot the router that connects to the hub.
- C. Replace the hub with a switch.
- D. Ensure all devices in the affected wing have a default gateway.
- E. Install a repeater in the affected wing.

Answer: C

Explanation:

By default, switches break up collision domains. Collision domain is an Ethernet term used to describe the following network scenario. One particular device sends a packet on a network segment, forcing every other device on that segment to pay attention to it. At the same time, a different device tries to transmit, which leads to a collision, after which both devices must retransmit, one at a time. Not good-very inefficient! You'll typically find this situation in a hub environment where each host segment connects to a hub that represents only one collision domain and only one broadcast domain. By contrast, each and every port on a switch represents its own collision domain. Where hub can't break collision as well as broadcast. Similarly hub provides low bandwidth where switch provides more bandwidth to all ports. Suppose there are 10 ports with 100 mbps bandwidth then hub provides only 10 mbps to each port but switch provides 100mbps to all ports.

QUESTION 115:

You are the network administrator at Certkiller . You issue the show ip route command on a router during routine maintenance. The output from the show ip route command indicates a network that is advertised by both RIP and IGRP as an IGRP route. Your Certkiller assistant wants to know why the RIP route to the

network is not used in the routing table.
What will your reply be?

- A. IGRP has a faster update timer.
- B. IGRP has a lower administrative distance.
- C. RIP has a higher metric value for that route.
- D. The IGRP route has fewer hops.
- E. The RIP path has a routing loop.

Answer: B

Explanation:

To device which route to use, IOS uses a concept called administrative distance. Administrative distance is a number that denotes how believable an entire routing protocol is on a single router. The lower the number, the better, or more believable, the routing protocol. For instance, RIP has a default administrative distance of 120, and IGRP defaults to 100, making IGRP more believable than RIP. So, when both routing protocols learn routes to the same subnet, the router adds only the IGRP route to the routing table.

CCNA ICND Exam Certification Guide by Wendell Odem
Reference: Pg.177

QUESTION 116:

You are a technician at Certkiller . Your newly appointed Certkiller trainee wants to know what the CDP is.

What would your reply be? (Choose all that apply.)

- A. It is globally enabled by default on Cisco routers.
- B. It is globally enabled by default on all routers.
- C. It is a proprietary protocol.
- D. It is a non-proprietary protocol.
- E. It can be used to gather hardware and protocol information about neighbor devices.

Answer: A, C, E

Explanation:

Cisco Discovery Protocol (CDP) is a Cisco proprietary protocol designed to help administrators collect information about local and remote devices. You can use the CDP to gather hardware and protocol information about neighbor devices, which can be useful for troubleshooting and documenting the network.

The CDP discovers basic information about neighboring routers and switches, without needing to know the passwords for the neighboring devices. CDP supports any LAN, HDLC, Frame Relay, and ATM interface- in fact, it supports any interface that supports the use of SNAP headers. The router or switch can discover Layer 2 and layer 3 addressing details of neighboring router without even configuring that Layer 3 protocol -

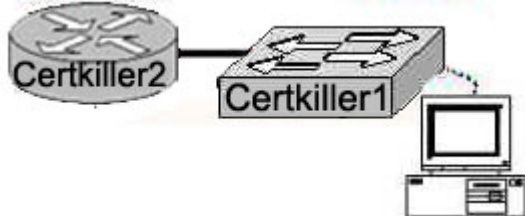
this is because CDP is not dependant on any particular Layer 3 protocol.

Reference:

Certkiller 640-821 Study Guide, Section 3.4 "Using the Cisco Discovery Protocol"

QUESTION 117:

Network topology exhibit



A Cisco router Certkiller 2 and a Catalyst Switch Certkiller switch are connected as shown in the exhibit. The Certkiller .com technician is working on a computer that is connected to the management console of the switch. In order to configure the default gateway for the switch, the technician needs to learn the IP address of the attached router interface.

Which IOS command will provide this information in the absence of Layer 3 connectivity?

- A. ping router_ip_address
- B. ping switchr_ip_address
- C. show ip rarp
- D. show cdp neighbors detail
- E. show ip neighbors
- F. show dhcp-config

Answer: D

Explanation: With the command show cdp neighbors detail, you will see the direct connected and active cisco cdp devices.

QUESTION 118:

If NVRAM lacks boot system commands, where does the router look for the Cisco IOS by default?

- A. ROM
- B. RAM
- C. Flash
- D. Bootstrap
- E. Startup-.config

Answer: C

Explanation:

Flash memory - Either an EEPROM or a PCMCIA card, Flash memory stores fully functional IOS images and is the default location where the router gets its IOS at boot time. Flash memory also can be used to store any other files, including configuration files.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) page 187

QUESTION 119:

What information is supplied by CDP? Select three.

- A. Device identifiers
- B. Capabilities list
- C. Platform
- D. Route identifier
- E. Neighbour traffic data

Answer: A, B, C

Explanation:

CDP is a Cisco proprietary protocol; to support forwarding CDP messages over an interface, that interface must support SNAP headers. Any LAN interface, HDLC, Frame Relay, and ATM all support CDP. The router or switch can discover Layer 3 addressing details of neighboring routers—without even configuring that Layer 3 protocol—because CDP is not dependent on any particular Layer 3 protocol.

CDP discovers several useful details from the neighboring device:

- **Device Identifier**—Typically the host name.
 - **Address list**—Network and data link addresses.
 - **Port Identifier**—Text that identifies the port, which is another name for an interface.
 - **Capabilities list**—Information on what the device does—for instance, a router or switch.
 - **Platform**—The model and OS level running in the device.
-

QUESTION 120:

Which of the following commands will provide you with information regarding the Layer 3 configuration of directly connected router interfaces?

- A. show ip links
- B. show cdp neighbors
- C. show cdp neighbors detail
- D. show ip clients
- E. show ip route

Answer: C

Explanation:

CDP is the cisco proprietary protocol developed by cisco is used to collect the

information of locally attached or remote devices. If you unable to ping but connected interface's status for interface and line is up then you can use the show cdp neighbor detail to collect the Router's ID interface, assigned IP Address, platform etc.

The following is sample output for the show cdp neighbors detail command.

```
router#show cdp neighbors detail
```

```
-----  
Device ID: lab-7206  
Entry address(es):  
IP address: 172.19.169.83  
Platform: cisco 7206VXR, Capabilities: Router  
Interface: Ethernet0, Port ID (outgoing port): FastEthernet0/0/0  
Holdtime : 123 sec  
Version :  
Cisco Internetwork Operating System Software  
IOS (tm) 5800 Software (C5800-P4-M), Version 12.1(2)  
Copyright (c) 1986-2002 by Cisco Systems, Inc.  
advertisement version: 2  
Duplex: half
```

QUESTION 121:

You are a technician at Certkiller . You tell your newly appointed Certkiller trainee about CDP and that it is enabled by default on all Cisco routers. Your trainee wants to how you would disable CDP on a router.

What would your reply be?

- A. Issue the router(config)# no cdp run command.
- B. Issue the router(config-if)# no cdp enable command.
- C. Issue the router(config-if)# no cdp command.
- D. Issue the router(config-if)# cdp disable command.

Answer: A

Explanation:

The no cdp run global command disables CDP for the entire device.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) Page 393

QUESTION 122:

Which IOS user EXEC command will allow a network technician to determine which router in the path to an unreachable network host should be examined more closely for the cause of the network failure?

- A. Certkiller B> telnet

- B. Certkiller B > ping
- C. Certkiller B > trace
- D. Certkiller B > show ip route
- E. Certkiller B > show interface
- F. Certkiller B > show cdp neighbors

Answer: B

Explanation:

Packet Internet Groper (PING) uses ICMP echo requests and replies to verify network connectivity. It is most commonly used to verify connectivity to another device and to monitor the operational status of a device.

QUESTION 123:

Which router console commands are used to manage telnet sessions to other routers? Select three.

- A. Certkiller D# disconnect 3
- B. Certkiller D# exit session 2
- C. Certkiller D# kill connection 1
- D. Certkiller D# show sessions
- E. Certkiller D# show connection all
- F. Certkiller D# resume 4

Answer: A, D, F

Explanation:

A = will disconnect session number 3

D = will show all active sessions

F = will resume session number 4

Function	Command Options
Telnet to another device	Use telnet exec command. Just type the host or IP address from exec mode.
Suspend a Telnet session	Press the key sequence Ctrl-Shift-6, then x
Discover currently suspended Telnet session	Use the where exec command Use the show sessions exec command
Resume a suspended Telnet session	Use the resume command, with no parameter, to reconnect to the most recently suspended <u>Telnet</u> . Use the resume x command, where x is the number of the suspended <u>Telnet</u> session based on the output of show sessions. Just press Enter in exec mode to resume to the most recently suspended <u>Telnet</u> session.
Terminate a suspended telnet	Resume connection, and log out using the quit command. Use the disconnect command on the router you <u>Telnetted</u> from.

Reference: Cisco Press CCNA INTRO p.392

QUESTION 124:

What is the purpose of assigning an IP address to a switch?

- A. Provides local hosts with a default gateway address
- B. Allows remote management of the switch.
- C. Allows the switch to respond to ARP requests between two hosts
- D. Ensures that hosts on the same LAN can communicate with each other.

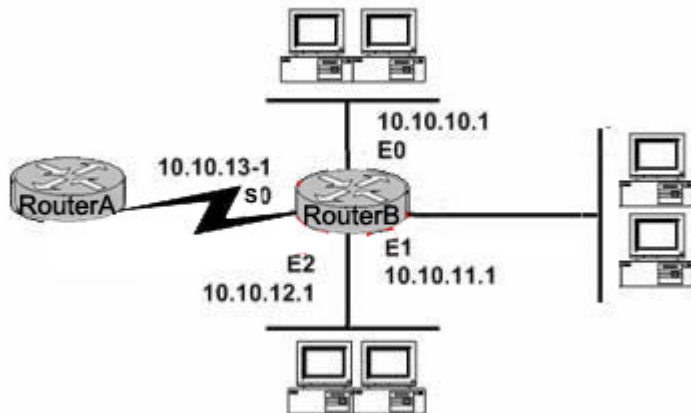
Answer: B

Explanation:

Switch is a layer 2 device and doesn't use network layer for packet forwarding. The IP address may be used only for administrative purposes such as Telnet access or for network management purposes.

QUESTION 125:

You are the network administrator at Certkiller .com. The internal Certkiller network is shown in the following exhibit:



With regard to the IP addressing information in the exhibit, which interface will Router B use to forward an IP datagram to a host with an IP address of 10.10.10.10?

- A. S0
- B. E0
- C. E1
- D. E2

Answer: B

Explanation:

IP address 10.10.10.10 is on the 10.10.10.0 network. This network is attached to the E0

interface on RouterB. This would thus be the path to an address on the 10.10.10.0 network.

QUESTION 126:

A host computer has been correctly configured with a static IP address, but the default gateway is incorrectly set. Which layer of the OSI model will be first affected by this configuration error?

- A. Layer 1
- B. Layer 2
- C. Layer 3
- D. Layer 4
- E. Layer 5
- F. Layer 6
- E. Layer 7

Answer: C

Explanation : IP Addressing and IP routing resides on the OSI Network layer, which is layer 3.

QUESTION 127:

Which of the following is the binary equivalent of the decimal number 231?

- A. 11011011
- B. 11110011
- C. 11100111
- D. 11111001
- E. 11010011

Answer: C

Explanation

Decimal number 231 equates to 11100111 in binary (128+64+32+0+0+4+2+1)

Incorrect Answers:

- A: Binary 11011011 equates to 219 (128+64+0+16+8+0+2+1)
 - B: Binary 11110011 equates to 243 (128+64+32+16+0+0+2+1)
 - D: Binary 11101011 equates to 249 (128+64+32+16+8+0+0+1)
 - E: Binary 11010011 equates to 211 (128+64+0+16+0+0+2+1)
-

QUESTION 128:

You are a network technician at Certkiller , Inc. Your trainee wants to know which of the following is the range of binary values for the first octet in Class B addresses. What would your response be?

- A. 10000000-11101111
- B. 11000000-11101111
- C. 10000000-10111111
- D. 10000000-11111111
- E. 11000000-10111111

Answer: C

Explanation

Class B addresses are in the range 128.0.0.0 through 191.255.255.255.

In binary, the first octet (128 through 191) equates to 10000000-10111111

Incorrect Answers:

A: binary 10000000 does equate to 128 but binary 11101111 equates to 239

B: binary 11000000 equates to 192 and binary 11101111 equates to 239

D: binary 10000000 does equate to 128 but binary 11011111 equates to 223

E: binary 11000000 equates to 192 but binary 10111111 does equate to 191

QUESTION 129:

DRAG DROP

Match the hex and decimal numbers on the left with the corresponding binary number on the right. Please note: Not all options apply.

F1	10101010
1F	11000000
192 (decimal)	11110001
96 (decimal)	10011111
9F	
F9	
85 (decimal)	
170 (decimal)	

Answer:

Explanation:

170 (Decimal) = 10101010

192 (Decimal) = 11000000

F1 (241 = Decimal) = 11110001

9F (159 = Decimal) = 10011111

DEC	HEX	BIN	DEC	HEX	BIN	DEC	HEX	BIN
0	00	00000000	43	2B	00101011	86	56	01010110
1	01	00000001	44	2C	00101100	87	57	01010111
2	02	00000010	45	2D	00101101	88	58	01011000
3	03	00000011	46	2E	00101110	89	59	01011001
4	04	00000100	47	2F	00101111	90	5A	01011010
5	05	00000101	48	30	00110000	91	5B	01011011
6	06	00000110	49	31	00110001	92	5C	01011100
7	07	00000111	50	32	00110010	93	5D	01011101
8	08	00001000	51	33	00110011	94	5E	01011110
9	09	00001001	52	34	00110100	95	5F	01011111
10	0A	00001010	53	35	00110101	96	60	01100000
11	0B	00001011	54	36	00110110	97	61	01100001
12	0C	00001100	55	37	00110111	98	62	01100010
13	0D	00001101	56	38	00111000	99	63	01100011
14	0E	00001110	57	39	00111001	100	64	01100100
15	0F	00001111	58	3A	00111010	101	65	01100101
16	10	00010000	59	3B	00111011	102	66	01100110
17	11	00010001	60	3C	00111100	103	67	01100111
18	12	00010010	61	3D	00111101	104	68	01101000
19	13	00010011	62	3E	00111110	105	69	01101001
20	14	00010100	63	3F	00111111	106	6A	01101010
21	15	00010101	64	40	01000000	107	6B	01101011
22	16	00010110	65	41	01000001	108	6C	01101100
23	17	00010111	66	42	01000010	109	6D	01101101
24	18	00011000	67	43	01000011	110	6E	01101110
25	19	00011001	68	44	01000100	111	6F	01101111
26	1A	00011010	69	45	01000101	112	70	01110000
27	1B	00011011	70	46	01000110	113	71	01110001
28	1C	00011100	71	47	01000111	114	72	01110010
29	1D	00011101	72	48	01001000	115	73	01110011
30	1E	00011110	73	49	01001001	116	74	01110100
31	1F	00011111	74	4A	01001010	117	75	01110101
32	20	00100000	75	4B	01001011	118	76	01110110
33	21	00100001	76	4C	01001100	119	77	01110111
34	22	00100010	77	4D	01001101	120	78	01111000
35	23	00100011	78	4E	01001110	121	79	01111001
36	24	00100100	79	4F	01001111	122	7A	01111010
37	25	00100101	80	50	01010000	123	7B	01111011
38	26	00100110	81	51	01010001	124	7C	01111100
39	27	00100111	82	52	01010010	125	7D	01111101
40	28	00101000	83	53	01010011	126	7E	01111110
41	29	00101001	84	54	01010100	127	7F	01111111
42	2A	00101010	85	55	01010101			

DEC	HEX	BIN	DEC	HEX	BIN	DEC	HEX	BIN
128	80	10000000	171	AB	10101011	214	D6	11010110
129	81	10000001	172	AC	10101100	215	D7	11010111
130	82	10000010	173	AD	10101101	216	D8	11011000
131	83	10000011	174	AE	10101110	217	D9	11011001
132	84	10000100	175	AF	10101111	218	DA	11011010
133	85	10000101	176	B0	10110000	219	DB	11011011
134	86	10000110	177	B1	10110001	220	DC	11011100
135	87	10000111	178	B2	10110010	221	DD	11011101
136	88	10001000	179	B3	10110011	222	DE	11011110
137	89	10001001	180	B4	10110100	223	DF	11011111
138	8A	10001010	181	B5	10110101	224	E0	11100000
139	8B	10001011	182	B6	10110110	225	E1	11100001
140	8C	10001100	183	B7	10110111	226	E2	11100010
141	8D	10001101	184	B8	10111000	227	E3	11100011
142	8E	10001110	185	B9	10111001	228	E4	11100100
143	8F	10001111	186	BA	10111010	229	E5	11100101
144	90	10010000	187	BB	10111011	230	E6	11100110
145	91	10010001	188	BC	10111100	231	E7	11100111
146	92	10010010	189	BD	10111101	232	E8	11101000
147	93	10010011	190	BE	10111110	233	E9	11101001
148	94	10010100	191	BF	10111111	234	EA	11101010
149	95	10010101	192	C0	11000000	235	EB	11101011
150	96	10010110	193	C1	11000001	236	EC	11101100
151	97	10010111	194	C2	11000010	237	ED	11101101
152	98	10011000	195	C3	11000011	238	EE	11101110
153	99	10011001	196	C4	11000100	239	EF	11101111
154	9A	10011010	197	C5	11000101	240	F0	11110000
155	9B	10011011	198	C6	11000110	241	F1	11110001
156	9C	10011100	199	C7	11000111	242	F2	11110010
157	9D	10011101	200	C8	11001000	243	F3	11110011
158	9E	10011110	201	C9	11001001	244	F4	11110100
159	9F	10011111	202	CA	11001010	245	F5	11110101
160	A0	10100000	203	CB	11001011	246	F6	11110110
161	A1	10100001	204	CC	11001100	247	F7	11110111
162	A2	10100010	205	CD	11001101	248	F8	11111000
163	A3	10100011	206	CE	11001110	249	F9	11111001
164	A4	10100100	207	CF	11001111	250	FA	11111010
165	A5	10100101	208	D0	11010000	251	FB	11111011
166	A6	10100110	209	D1	11010001	252	FC	11111100
167	A7	10100111	210	D2	11010010	253	FD	11111101
168	A8	10101000	211	D3	11010011	254	FE	11111110
169	A9	10101001	212	D4	11010100	255	FF	11111111
170	AA	10101010	213	D5	11010101			

Reference:

http://www.cisco.com/en/US/products/hw/switches/ps2246/products_programming_reference_guide_chapter091

QUESTION 130:

In the following is the MAC address of your NIC:

C9-3F-32-B4-DC-19

What is the OUI portion expressed in decimal format?

- A. 172-47-10
- B. 198-59-21
- C. 201-63-50
- D. 204-73-54
- E. 212-92-64
- F. 224-96-69

Answer: C

Explanation:

The first half of the address identifies the manufacturer of the card. This code, which is assigned to each manufactory by the IEEE, is called the organizationally unique identifier (OUI). In this example, the OUI is:

C9-3F-32. This equates to 201-63-50.

Reference:

Certkiller 640-821 Study Guide, Appendix A "Decimal, Hexadecimal and Binary Conversion Table"

QUESTION 131:

You are a technician at Certkiller . Your newly appointed Certkiller trainee wants to know what the binary value for c9-3f is.

What would your reply be?

- A. 10010010-00011101
- B. 10101100-00100110
- C. 11000011-01101100
- D. 11001001-00111111
- E. 11100110-00011101
- F. 11100111-00001100

Answer: D

Explanation:

c9-3f is the hexadecimal equivalent of 201-63 in binary, this is 11001001-00111111

QUESTION 132:

What does the term computer language refer to?

- A. Binary
- B. Decimal
- C. Hexadecimal
- D. Octal

Answer: A

Computers speak in binary code; meaning that every piece of data is fundamentally either a 1 or a 0, and all data aspects within a computer is a series of 1s and 0s.

QUESTION 133:

You have a Class C network, and you need ten subnets. You wish to have as many addresses available for hosts as possible. Which one of the following subnet masks should you use?

- A. 255.255.255.192
- B. 255.255.255.224
- C. 255.255.255.240
- D. 255.255.255.248
- E. None of the above

Answer: C

Explanation:

Using the $2^n - 2$ formula, we will need to use 4 bits for subnetting, as this will provide for $2^4 - 2 = 14$ subnets. The subnet mask for 4 bits is then 255.255.255.240.

Incorrect Answers:

- A. This will give us only 2 bits for the network mask, which will provide only 2 networks.
 - B. This will give us 3 bits for the network mask, which will provide for only 6 networks.
 - D. This will use 5 bits for the network mask, providing 30 networks. However, it will provide for only for 6 host addresses in each network, so C is a better choice.
-

QUESTION 134:

Which of the following is an example of a valid unicast host IP address?

- A. 172.31.128.255./18
- B. 255.255.255.255
- C. 192.168.24.59/30
- D. FFFF.FFFF.FFFF

- E. 224.1.5.2
- F. All of the above

Answer: A

Explanation

The address 172.32.128.255 /18 is 10101100.00100000.10|000000.11111111 in binary, so this is indeed a valid host address.

Incorrect Answers:

- B. This is the all 1's broadcast address.
- C. Although at first glance this answer would appear to be a valid IP address, the /30 means the network mask is 255.255.255.252, and the 192.168.24.59 address is the broadcast address for the 192.168.24.56/30 network.
- D. This is the all 1's broadcast MAC address
- E. This is a multicast IP address.

QUESTION 135:

Which OSI layer header contains the address of a destination host that is another network?

- A. application
- B. presentation
- C. session
- D. transport
- E. network
- F. data link
- G. physical

Answer: E

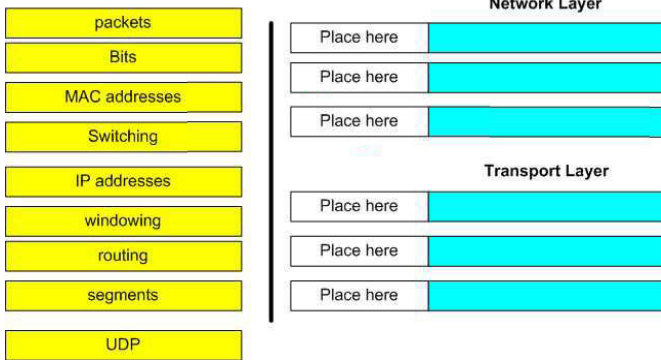
Explanation:

Only network address contains this information. To transmit the packets the sender uses network address and datalink address. But the layer 2 address represents just the address of the next hop device on the way to the sender. It is changed on each hop. Network address remains the same.

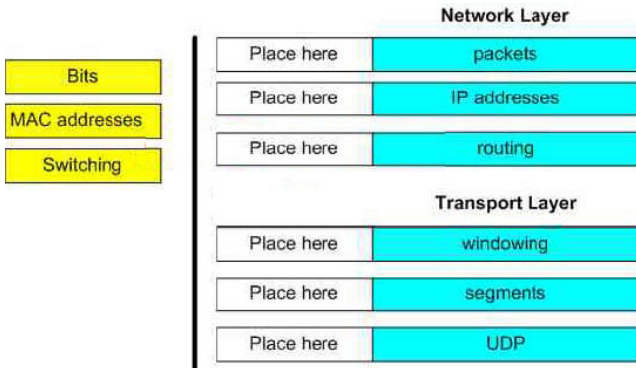
QUESTION 136:

DRAG DROP

The terms on the left can be associated with different OSI layers illustrated on the right. Can you make the correct associations? (Please note: Not all options are used)



Answer:



QUESTION 137:

What are the basic network services that is provided by the Cisco IOS? (Select three options.)

- A. Defines topology
- B. Access to network resources
- C. Routing and switching functions
- D. Creation of VLANs
- E. Quality of service

Answer: A B C

Explanation

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5)

QUESTION 138:

You are a network technician at Certkiller , Inc. Your newly appointed trainee wants to segment a network.

What devices would you advice him? (Choose all that apply.)

- A. Use switch and hub converters.

- B. Use media converters.
- C. Use switches.
- D. Use routers.
- E. Use bridges.
- F. Use repeaters.

Answer: C, D, E

Explanation:

Switches and bridges forward broadcast but routers do not forward broadcasts by default (they can via the "ip helper-address" command).

Switches, bridges and routers can segment an Ethernet collision domain via the use of VLAN's

Incorrect Answers:

A. Hubs is incorrect because a hub doesn't segment a network, it only allows more hosts on one. Hubs operate at layer one, and is used primarily to physically add more stations to the LAN.

B. This also incorrect because the job of a repeater is to repeat a signal so it can exceed distance limitations. It also operates at layer one and provides no means for logical LAN segmentation.

F. This is incorrect because media converters work by converting data from a different media type to work with the media of a LAN. It also operates at layer one and provides no means for logical LAN segmentation.

QUESTION 139:

You are a network technician at Certkiller , Inc. Your trainee wants to know what the characteristics of microsegmentation are.

What would your response be?? (Select two options.)

- A. Dedicated paths between sending and receiving hosts are established.
- B. Multiple subnetwork broadcast addresses are created.
- C. Multiple ARP tables are needed.
- D. The decrease in the number of collision domains.
- E. Broadcast domains are enhanced.
- F. Bandwidth is dedicated to connect hosts.

Answer: A, F

Explanation:

Microsegmentation works exactly the same way as it is defined. The network is segmented into smaller pieces to reduce the collision domains. This is done through the use of VLANs. A is correct because dedicated paths are established, and F is correct because all these new paths do take up some overhead. Every host within a VLAN will have the overhead of a VLAN ID tag added to each frame. Although this additional

overhead is minimal, it is overhead nonetheless.

Incorrect Answers:

B. This would only be true if the switch was layer 3 capable, or a trunk was created to a router with multiple subinterfaces for each VLAN. If traffic from one VLAN needs to be sent to hosts on another VLAN, then inter-VLAN routing is required, and this will indeed add additional subnet broadcast addresses. However, the process of segmentation itself does not require inter-VLAN routing, so choice B is not necessarily true.

C. Only one ARP table is needed per switch.

D, E: Segmenting the network through the use of VLANs will actually increase the total number of collision domains.

QUESTION 140:

What is the most common layer 2 device?

- A. Hub
- B. Bridge
- C. Switch
- D. Router

Answer: C

Explanation:

A switch segments the network and uses an ASIC for fast switching. It has become the most common layer two device.

QUESTION 141:

One of the features of the OSPF routing protocol is that it maintains a topology database of information about other routers in the network.

Which of the following is a characteristic of this topology database?

- A. All entries in the topology database will be included on each router.
- B. All routers in the same OSPF area will have one topology database.
- C. The Dijkstra algorithm is used in the creation of the topology database.
- D. LSA packets are used to update and maintain the topology database.

Answer: D

Explanation:

The LSA (link state advertisement) is used to describe a subnet, network mask, metric, etc. pertaining to the routing entries. It is what keeps the OSPF topology database updated and maintained.

Incorrect Answers:

A. This is incorrect because every entry in the topology database won't necessarily be

included on each router.

B. This is incorrect because each router has its own topology database.

C. This is incorrect because although the Dijkstra algorithm is associated with OSPF, it works by processing the information that's already in the database, not for creating the database.

Reference: CCNA Self-Study CCNA ICND Exam Certification Guide (Cisco Press, ISBN 1-58720-083-X) Page 192.

QUESTION 142:

Which of the following pieces of information is displayed by the show host command? (Select two options.)

- A. The IP addresses of workstations allowed gain access to the router.
- B. Permanent name-to-address mappings created using the ip host command.
- C. Temporary and permanent DNS entries.
- D. The names of the routers created using the hostname command.
- E. The length of time a host has been connected via Telnet.

Answer: B, D

Explanation:

The "show host" command lists all host names and corresponding IP addresses, as configured in the router.

Incorrect Answers:

A, C. These are invalid.

E. This is the result of the "show users" command, not the "show ip hosts" command.

QUESTION 143:

You are a technician at Certkiller . You tell your newly appointed Certkiller trainee that Ethernet networks are broadcast domains and collision domains. Your trainee wants to know what happens when a collision occurs on the network.

What would your reply be? (Choose all that apply.)

- A. Each device stops transmitting for a short time.
- B. A jam signal informs all devices that a collision occurred.
- C. When data transmission resumes, the devices that were involved in the collision have priority to transmit.
- D. The devices that are involved in the collision stops transmitting for a short time.
- E. The collision invokes a random back-off algorithm.

Answer: A, B, E

A. Each (all) devices stop transmitting for a short time.

- B. A jamming signal is sent out to all devices that a collision has occurred.
- E. The collision invokes a back-off algorithm

QUESTION 144:

A group of hosts are physically connected to the same switch. The hosts are used by employees of different departments and therefore do not need to directly exchange data on a regular basis.

Which technology can a network administrator deploy to reduce unnecessary broadcast traffic between these hosts?

- A. Micro segmentation
- B. Transparent switching
- C. peer-to-peer networking
- D. port security
- E. store-and-forward switching
- F. virtual local area networks

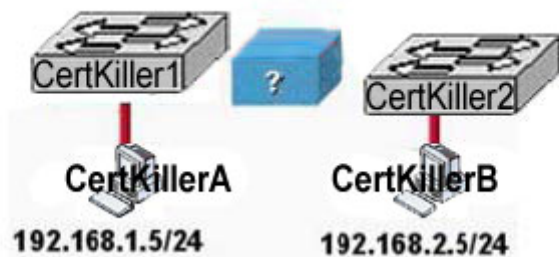
Answer: A

Explanation: The micro segmentation provides Dedicated paths between sending and receiving hosts are established. As well as provides the additional bandwidth to connect the host.

Micro segmentation works exactly the same way as it is defined. The network is segmented into smaller pieces to reduce the collision domains as well as broadcast domain-using VLAN.

QUESTION 145:

Refer to the exhibit. What is needed to allow host A to ping host B?



- A. a backbone switch connecting the switches with either fiber optic or straight-through cables
- B. a crossover cable connecting the switches
- C. a router connected to the switches with straight-through cables
- D. a straight-through cable connecting the switches
- E. a CSU/DSU connected to the switches with straight-through cables

Answer: C

Explanation: Router is Layers 3 device is used for inter-network communication. In output there are two different networks, but both switch needs to connect to router using the straight-through cable.

QUESTION 146:

How does a switch differ from a hub?

- A. A switch operates at a lower, more efficient layer of the OSI model.
- B. A switch does not induce any latency into the frame transfer time.
- C. A switch decreases the number of collision domains.
- D. A switch tracks MAC addresses of directly-connected devices.
- E. A switch decreases the number of broadcast domains.

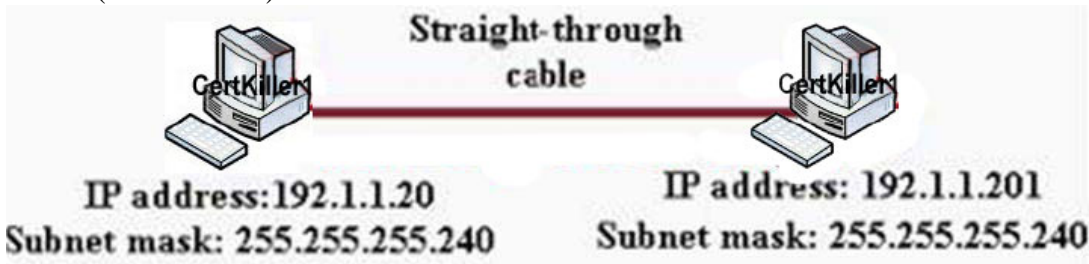
Answer: D

Explanation:

- | A switch is essentially a fast, multi-port bridge, which can contain dozens of ports.
- | Rather than creating two collision domains, each port creates its own collision domain.
- | In a network of twenty nodes, twenty collision domains exist if each node is plugged into its own switch port.
- | If an uplink port is included, one switch creates twenty-one single-node collision domains.
- | A switch dynamically builds and maintains a Content-Addressable Memory (CAM) table, holding all of the necessary MAC information for each port.

QUESTION 147:

A network administrator is connecting PC hosts Certkiller A and Certkiller B directly through their Ethernet interfaces as shown in the graphic. Ping attempts between the hosts are unsuccessful. What can be done to provide connectivity between the hosts? (Choose two.)



- A. The subnet masks should be set to 255.255.255.0.
- B. The hosts must be reconfigured to use private IP addresses for direct connections of this type.
- C. A default gateway needs to be set on each host.

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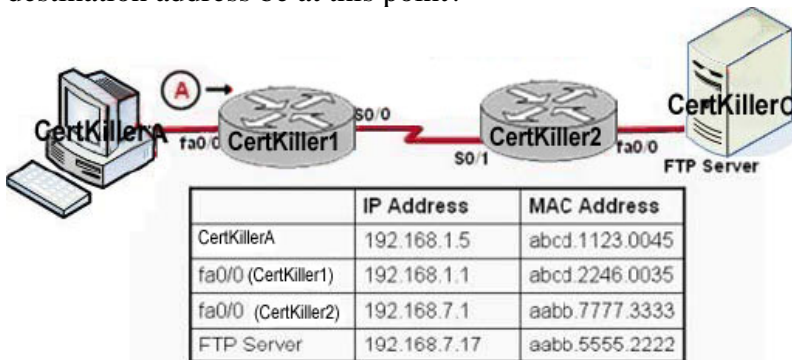
- D. A rollover cable should be used in place of the straight-through cable
- E. A crossover cable should be used in place of the straight-through cable.
- F. The subnet masks should be set to 255.255.255.192.

Answer: A,E

Explanation: This problem due to the misconfigured of subnet mask as well as straight-through cable is used to connect. Better use the correct subnet mask as well as host to host connection using crossover cable.

QUESTION 148:

Refer to the exhibit. Host Certkiller A is transferring a file to the FTP server. Point A represents the frame as it goes toward the Certkiller 1 router. What will the Layer 2 destination address be at this point?



- A. 192.168.7.17
- B. abcd.1123.0045
- C. aabb.555.2222
- D. 192.168.1.1
- E. abcd.2246.0035

Answer: E

Explanation: While packets traveling from the host, first layer 2 destination address will be the MAC address of the entering into router's interface address.

QUESTION 149:

DRAG DROP

Your boss, Mrs Certkiller, asks you to match the options with the appropriate OSI layers.

Not all options will be used.

Options, select from these

- Ethernet hubs
- Routers
- Word processing programs

- TFTP Protocol
- LAN switches

OSI Layer

- Operate at the network layer
- Operate at the data link layer
- Operate at the physical layer
- Operate at the application layer

Options place here

- Place here
- Place here
- Place here
- Place here

Answer:

Options, select from these

- Word processing programs

OSI Layer

- Operate at the network layer
- Operate at the data link layer
- Operate at the physical layer
- Operate at the application layer

Options place here

- Routers
- LAN switches
- Ethernet hubs
- TFTP Protocol

Explanation:

- i. Router is used to make internetwork communication so it operates on Layer 3.
- ii. LAN Switches : Which works on Layer 2 called Datalink layer. Datalink layers divides into two different parts one is LLC and another MAC table.

- iii. Ethernet Hub : which is called the layers one device, which can't break collision and broadcast domain.
 - iv. TFTP protocol: FTP, HTTP, WWW, TFTP, telnet these applications are works on Application layer.
-

QUESTION 150:

Your trainee, Mrs Certkiller, wants to know which of the following is a Layer 2 protocol used to maintain a loop-free network. What will you tell her?

- A. RIP
- B. STP
- C. VNP
- D. CDP
- E. VTP

Answer: B

Explanation:

STP (spanning tree protocol) operates on layer 2 to prevent loops in switches and bridges.

Incorrect Answers:

A, C. RIP and IGRP are routing protocols, which are used at layer 3 to maintain a loop free routed environment.

D. CDP does indeed operate at layer 2, but it does not provide for a loop free topology. CDP is used by Cisco devices to discover information about their neighbors.

E. VTP is the VLAN Trunking Protocol, used to pass VLAN information through switches. It relies on the STP mechanism to provide a loop free network.

QUESTION 151:

Which of the following WAN protocols is used for out-of-band signaling?

- A. HDLC
- B. NCP
- C. PAP
- D. LAPD
- E. LAPB

Answer: D

Explanation:

Out-of-band signaling is telecommunication signaling (exchange of information in order to control a telephone call) that is done on a channel that is dedicated for the purpose and separate from the channels used for the telephone call. An example of this is the D

channel on an ISDN BRI circuit. LAPD is used by ISDN lines for signaling to set up and bring down circuits. LAPD is formally defined in Q.921.

QUESTION 152:

What components are required to directly connect two PCs so they are able to participate in a simple peer-to-peer network? Choose three

- A. Straight-through cable
- B. Compatible network interfaces
- C. Networking protocol
- D. Hub
- E. Crossover cable
- F. router

Answer: B, C, E

Explanation:

This cable can be used to directly connect two computers to each other without the use of a hub or switch.

Crossover cables are terminated with CAT 5 RJ-45 (RJ stands for "Registered Jack") modular plugs. RJ-45 plugs are similar to those you'll see on the end of your telephone cable except they have eight versus four contacts on the end of the plug. Also, make sure the ends you select are rated for CAT 5 wiring.

QUESTION 153:

What kind of cable should be used to establish a trunked line between two Catalyst 2950 switches?

- A. a straight-through cable
- B. an EIA/TIA-232 serial cable
- C. an auxiliary cable
- D. a modem cable
- E. a cross-over cable

Answer: E

Explanation:

A crossover cable is used to connect to same devices, or devices from the same OSI layer.

QUESTION 154:

You are a network technician at Certkiller . Your trainee wants to know which wireless data command type has a high data rate but is limited to very short

distances.

What would your response be?

- A. broadband personal comm. Service (PCS)
- B. narrowband
- C. infrared
- D. spread spectrum
- E. cable

Answer: C

Explanation:

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

Incorrect answers:

A, D. Although these are both wireless methods, the data rate capabilities are somewhat limited, especially when compared to infrared links.

B, E. Although these are both capable of relatively high data rates, they do not use wireless technology.

QUESTION 155:

Which of the following standards defines Wi-Fi?

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

Answer: E

Explanation:

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

Reference:

Certkiller 640-821 Study Guide version 1.1, Section 1.4.8 "Wireless Networks".

QUESTION 156:

What is the IEEE standard associated with Gigabit Ethernet? (Select two answer choices)

- A. 802.11
- B. 802.5
- C. 802.3ab
- D. 802.3ae
- E. 802.3z
- F. 802.3u

Answer: C, E

Explanation:

The IEEE 802.3z standard describes 1000BASE-SX.

The 1000BaseT standard was released in June 1999, defined by IEEE 802.3ab.

Incorrect Answers:

- A. This describes the standard used for wireless networks.
- B. This is the standard for token ring networks.
- D. On June 17, 2002 the IEEE 802.3ae specification for 10 Gigabit Ethernet was approved as an IEEE standard by the IEEE Standards Association (IEEE-SA) Standards Board.
- F. IEEE 802.3u describes the standard for 100BASE-TX.

QUESTION 157:

Which of the following statements correctly describe the differences between half-duplex and full-duplex Ethernet? (Select two answer choices.)

- A. Full-duplex Ethernet uses CSMA/CD to prevent collisions.
- B. Half-duplex Ethernet uses a loopback circuit to detect collisions.
- C. A full-duplex Ethernet card allows 20Mbps for data transmission.
- D. Full-duplex Ethernet makes use of two pairs of wires for data.
- E. An Ethernet hub can operate both half and full duplex simultaneously.

Answer: B, D

Explanation:

Half-duplex Ethernet send and receives on the same line, so a loopback needs to be set to detect collisions. Alternatively, full-duplex Ethernet doesn't have to because it uses two pairs of wire, one to send and the other to receive. Collisions are not possible on full duplex Ethernet networks.

Incorrect Answers:

- A. Full duplex uses both pairs of wires, so transmissions are sent on the first pair, and data that is received come in on the other pair. This prevents collisions.

C. Full duplex allows for data to be sent and received at the same time. It will not double the amount of bandwidth at any given time. The speed of the Ethernet link will remain at 10/100.

E. Hubs are shared devices and can only support one mode, unlike switches.

QUESTION 158:

Why is full-duplex Ethernet superior to its single-duplex counterpart? (Select two answer choices.)

- A. It uses inexpensive hubs
- B. It operates without collisions
- C. It operates on switches
- D. It provides faster data transfer
- E. It utilizes fewer wiring pairs

Answer: B, D

Explanation:

Full duplex Ethernet allows concurrent sending and receiving, which allows the full bandwidth to be used for both sending and receiving. The result is a collision free network with increased throughput.

Incorrect Answers:

A, C. These are incorrect because full duplex doesn't require hubs or switches. Full duplex operation can be used on switch and router ports, as well as PC hosts.

E. This is incorrect because full duplex actually uses more wiring pairs. In full duplex, both wire pairs are used. Half duplex uses only a single pair.

QUESTION 159:

Which IEEE standard is used to define Wi-Fi?

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

Answer: E

Explanation:

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

802.11 wireless network products that have passed the Wi-Fi Alliance certification tests.

Incorrect Answers:

A. This is the standard used for Ethernet networks.

B. This is the standard used in Token Ring networks.

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

QUESTION 160:

What is the maximum data rate specified by the IEEE 802.11B standard for wireless LANS?

A. 10 Mbps

B. 11 Mbps

C. 54 Mbps

D. 100 Mbps

E. none of the above

Answer: B

Explanation:

The maximum speed for 802.11b is 11 Mbps.

Incorrect Answers:

A. This is the maximum speed for legacy Ethernet networks.

C. This is the maximum speed supported by the other prevalent wireless standards, 802.11a and 802.11g.

D. This is the maximum speed of fast Ethernet connections.

QUESTION 161:

Assuming you build networks to exact specifications, what is the recommended maximum length a 10BaseT cable can be before it has to be segmented or repeated?

A. 100 meters

B. 100 feet

C. 100 yards

D. 200 meters

Answer: A

Explanation:

The distance standards are in meters and 10BaseT has a distance restriction of 100 meters. If you go further then that, you compromise data integrity. 10BastT is the predominant cable type used in Ethernet networks.

QUESTION 162:

Which of the following are true of Ethernet technology?

- A. Hosts use a logical ring topology.
- B. Hosts use a logical bus topology
- C. Hosts must wait for an electronic signal to transfer data.
- D. Hosts are directly connected to a wiring concentrator called a MSAU.

Answer: B

Explanation:

LAN topologies define the manner in which network devices are organized. Four common LAN topologies exist: bus, ring, star, and tree. These topologies are logical architectures, but the actual devices need not be physically organized in these configurations. Logical bus and ring topologies, for example, are commonly organized physically as a star. A bus topology is a linear LAN architecture in which transmissions from network stations propagate the length of the medium and are received by all other stations. Of the three most widely used LAN implementations, Ethernet/IEEE 802.3 networks, including 100BaseT, implement a bus topology, which is illustrated in Figure 2-3.

Figure2-3: Some networks implement a local bus topology.



Reference: <http://www.pulsewan.com/lanintro.htm>

QUESTION 163:

With regard to Ethernet media access methods, which of the following are true?
(Choose all that apply.)

- A. A device waits for an electronic signal before transmitting.
- B. A device listens and waits until the media is not busy before transmitting.
- C. All devices on an Ethernet segment see data that passes on the network medium.
- D. Only the sender and the receiver devices see data that passes on the network medium.
- E. Ethernet networks allow you to configured devices with higher transmission priority.

Answer: B, C

Explanation:

Ethernet uses the CSMA/CD access method.

CSMA/CD logic helps prevent collisions and also defines how to act when a collision does occur. The CSMA/CD algorithm works like this:

1. A device with a frame to send listens until the Ethernet is not busy.
2. When the Ethernet is not busy, the sender begins sending the frame.

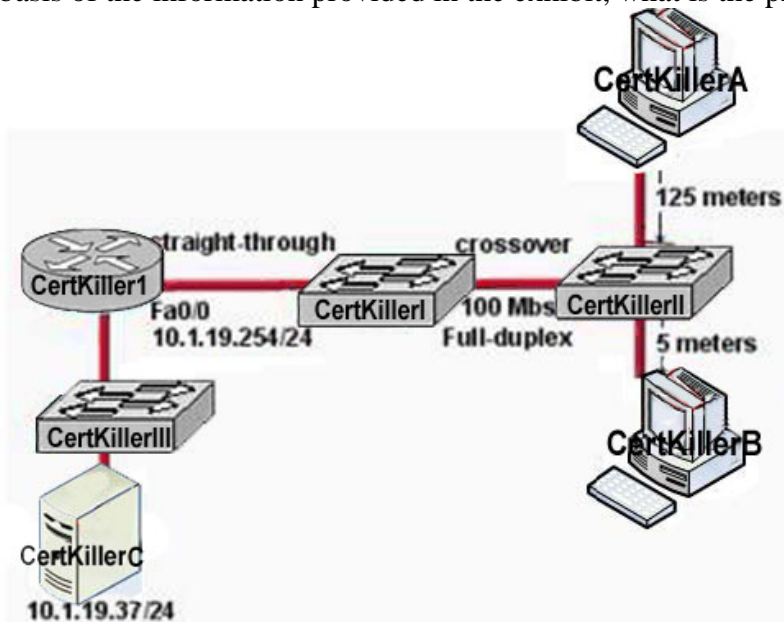
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3. The sender listens to make sure that no collision occurred.
 4. Once the senders hear the collision, they each send a jamming signal, to ensure that all stations recognize the collision.
 5. After the jamming is complete, each sender randomizes a timer and waits that long.
 6. When each timer expires, the process starts over with Step 1.
- So, all devices on the Ethernet need to use CSMA/CD to avoid collisions and to recover when inadvertent collisions occur.

Reference: Cisco CCNA intro 640-821 p.55

QUESTION 164:

The internetwork shown in the diagram is experiencing network delays. On the basis of the information provided in the exhibit, what is the problem?



- A. The connection between Switch1 and Switch2 should be half-duplex.
- B. The cable between Router1 and Switch1 should be a crossover.
- C. The cable connecting Host A to Switch2 is too long.
- D. The server is on a different subnet than router interface Fa0/0.
- E. The cable between Switch1 and Switch2 should be straight-through.

Answer: C

Explanation: The network delays is generated due to too long of the cable connected to switch 2.

QUESTION 165:

Which type of cable should be used to make a connection between the Fa0/0 port on a router and the Fa0/0 port switch?

- A. Rollover cable
- B. Console cable
- C. Crossover cable
- D. Straight-through cable
- E. Serial cable

Answer: D

Explanation:

The Fast Ethernet ports on a switch and router are both RJ-45 ports. It means we have same devices at both ends. To connect similar devices we use a crossover cable.

QUESTION 166:

What components are required to directly connect two PCs so they are able to participate in a simple peer-to-peer network? Choose three

- A. Straight-through cable
- B. Compatible network interfaces
- C. Networking protocol
- D. Hub
- E. Crossover cable
- F. router

Answer: B, C, E

Explanation:

This cable can be used to directly connect two computers to each other without the use of a hub or switch.

Crossover cables are terminated with CAT 5 RJ-45 (RJ stands for "Registered Jack") modular plugs. RJ-45 plugs are similar to those you'll see on the end of your telephone cable except they have eight versus four contacts on the end of the plug. Also, make sure the ends you select are rated for CAT 5 wiring.

QUESTION 167:

Which Layer 1 devices can be used to enlarge the area covered by a single LAN segment? Select two

- A. Switch
- B. Router
- C. NIC
- D. hub
- E. Repeater
- F. RJ-45 transceiver

Answer: D, E

Explanation:

Both hub, Repeater, Router and Switch repeat the packet. But only hub and Repeater do not segment the network. Repeaters and Hubs are contained in layer one of the OSI model (Physical layer) while a switch lies in layer two and a router is in layer 3.

QUESTION 168:

Exhibit



The exhibit shows some common router ports.
Which port can be used for a WAN T1 connection?

- A. AUI
- B. BRI
- C. Console
- D. Serial 0

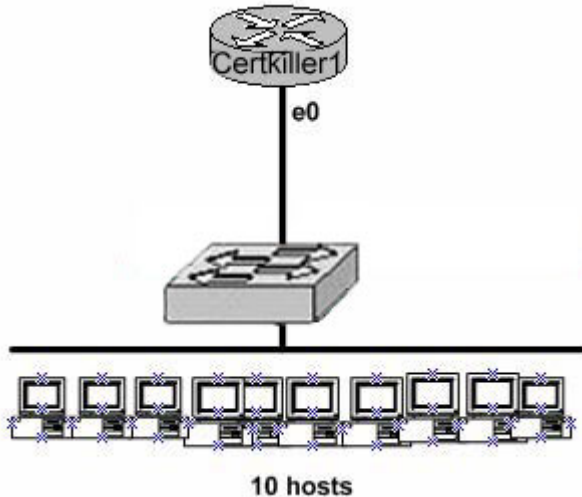
Answer: D

Explanation:

There are only two ways to connect to a T1 line, either with a serial cable to an external T1 DSU/CSU or by using an internal CSU/DSU interface commonly found in most modern routers.

QUESTION 169:

You are a network technician at Certkiller , Inc. The Certkiller network topology is shown in the following exhibit:



Each host is connected through its own 10Mbps half-duplex switch port to the e0 interface of the router Certkiller 1.
What is the bandwidth available to each host?

- A. 1 Mbps
- B. 10 Mbps
- C. 20 Mbps
- D. 100 Mbps
- E. 120 Mbps

Answer: B

Explanation:

Although ten hosts are sharing a 10Mbps half duplex connection, there are still 10Mbps available to them under the best hypothetical circumstances. Unlike hubs, each switch port will be allocated the entire bandwidth. Hubs are shared devices, so in this example if there was a hub in place then the 10 hosts would all be sharing one 10Mbps connection.

QUESTION 170:

Which of the following are true of Ethernet technology?

- A. Hosts use a logical ring topology.
- B. Hosts use a logical bus topology
- C. Hosts must wait for an electronic signal to transfer data.
- D. Hosts are directly connected to a wiring concentrator called a MSAU.

Answer: B

Explanation:

LAN topologies define the manner in which network devices are organized. Four common LAN topologies exist: bus, ring, star, and tree. These topologies are logical

architectures, but the actual devices need not be physically organized in these configurations. Logical bus and ring topologies, for example, are commonly organized physically as a star. A bus topology is a linear LAN architecture in which transmissions from network stations propagate the length of the medium and are received by all other stations. Of the three most widely used LAN implementations, Ethernet/IEEE 802.3 networks, including 100BaseT, implement a bus topology, which is illustrated in Figure 2-3.

Figure2-3: Some networks implement a local bus topology.



Reference: <http://www.pulsewan.com/lanintro.htm>

QUESTION 171:

Which of the following statements are true?

- A. Each pair of wires in a UTP cable is wrapped in a metallic foil.
- B. The four pairs of wires in a UTP cable are wrapped in a metallic braid or foil.
- C. UTP uses RJ-11 connectors.
- D. UTP uses RJ-45 connectors.
- E. UTP is immune to EMI.

Answer: D

Explanation:

UTP cables use Regulated Jack 45 (RJ-45) connectors. It has a maximum length of 100 m and a maximum transmission speed of 1 Gbps. It is easy to install but is susceptible to eavesdropping and electro-magnetic interference (EMI)

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) Page 306

QUESTION 172:

You are the network administrator at Certkiller . You want to connect a 100Base-T network to a router.

To which of the following interfaces can you connect the network?

- A. Serial
- B. ISDN BRI
- C. Console
- D. WIC
- E. Ethernet

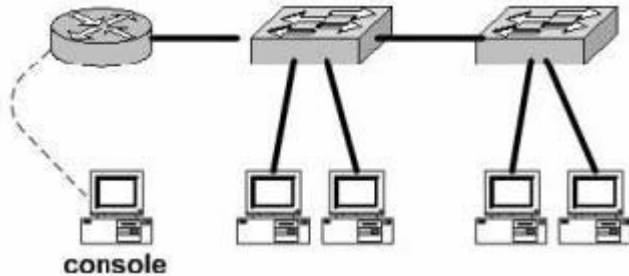
Answer: E

Explanation:

100Base-T networks are Ethernet networks.

QUESTION 173:

You are the network administrator at Certkiller . The network topology for the Certkiller network is shown in the following exhibit:



Which types of cables are required to interconnect the device in the Certkiller network? (Choose three.)

- A. V.35 cable
- B. Crossover cable
- C. USB cable
- D. RJ-11 cable
- E. Rollover cable
- F. Straight-through cable

Answer: B, E, F

Explanation:

B = Between switches or switches and hubs or workstation and workstation

E = Between a workstation and a router console port

F = Between a workstation and a switch or a workstation and a hub

Wrong Answers:

A = The V.35 is an DCE/DTE cable.

C:= Used to attach devices to a PC.

D:= Telephone cable.

QUESTION 174:

You are the network administrator at Certkiller . You want to implement a network medium that is not susceptible to EMI.

Which type of cabling should you use?

- A. Thicknet coaxial cable.
- B. Thinnet coaxial cable.
- C. Category 5 UTP cable.
- D. Category 5 STP cable.
- E. Fiber optic cable.

Answer: E

Explanation:

Fiber - More secure, long distance, not susceptible to EMI, highest speeds.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) page 297

QUESTION 175:

WAN data link encapsulation types include which of the following? Choose two

- A. T1
- B. Frame Relay
- C. DSL
- D. PPP
- E. ISDN

Answer: B, D

Explanation:

Frame relay and PPP is used with WAN encapsulation.

Frame Relay most closely compares to the OSI data link layer (Layer 2). If you remember that the word "frame" describes the data link layer protocol data unit (PDU), it will be easy to remember that Frame Relay relates to OSI Layer 2. Like other data-link protocols, Frame Relay can be used to deliver packets (Layer 3 PDUs) between routers.

QUESTION 176:

Exhibit

- 1) The IOS image in flash is missing
- 2) No Network connectivity is available.
- 3) The router fallback IOS image is corrupt.

How will a Cisco 2600 series router respond if the conditions listed in the exhibit exist during the boot process?

- A. The router will enter setup mode.
- B. The router will enter ROM monitor mode.
- C. The router will enter global configuration mode.
- D. The boot will hang until an IOS is available.

Answer: B

Explanation:

Cisco router can look for IOS in FLASH, TFTP server, and ROM. The default option is to look for IOS only in FLASH, and in case the IOS in flash is corrupt, to look in

ROM.

You can add the following commands to the configuration file to make a router to look for IOS image in FLASH, then TFTP server, then in ROM:

```
boot system flash ios_filename  
boot system TFTP ios_filename TFTP_address  
boot system rom
```

These 3 lines in the configuration file will force the router to look for IOS in the FLASH first, then in TFTP server, and then in rom.

QUESTION 177:

DRAG DROP

Exhibit:

Drag the characteristics on the left to the associated routing protocol on the right.
(Not all characteristics will be used.)

Select these	Place RIP Version 1 characteristics here
has a default administrative distance of 100	place here
has a default administrative distance of 110	place here
has a default administrative distance of 120	place here
has a maximum hop count of 15	Place IGRP characteristics here
has a maximum hop count of 224	place here
has a maximum hop count of 255	place here
use hop count to determine best path	Place EIGRP characteristics here
uses DUAL algorithm	place here
uses SPF algorithm	place here
supports classless routing	place here

Answer:

Select these	Place RIP Version 1 characteristics here
has a default administrative distance of 110	use hop count to determine best path
has a maximum hop count of 15	has a maximum hop count of 15
	has a default administrative distance of 120
	Place IGRP characteristics here
	has a maximum hop count of 255
	has a default administrative distance of 100
	Place EIGRP characteristics here
uses SPF algorithm	uses DUAL algorithm
	supports classless routing
	has a maximum hop count of 224

QUESTION 178:

You are a network administrator at Certkiller . To routers on the Certkiller network, router CK1 and router CK2 are configured to run OSPF. However, the two routers cannot establish an adjacency relationship on their common Ethernet link. In troubleshooting this problem you issue the show ip ospf interface e0 command for routers CK1 and CK2 . The output from the command is shown in the following exhibit:

```
CK1 : Ethernet is up, line protocol is up
Internet address 192.168.1.2/24, Area 0
Process ID 1, Router ID 192.168.31.33, Network Type BROADCAST, Cost: 10
Transmit Delay is 1 sec, State DR, Priority 1
Designated Router (ID) 192.168.31.33, Interface address 192.168.1.2
No backup designated router on this network
Time intervals configured, Hello 5, Dead 20, Wait 20, Retransmit 5
CK2 : Ethernet0 is up, line protocol is up
Internet address 192.168.1.1/24, Area 0
```

Process ID 2, Router ID 192.168.31.11, Network Type BROADCAST, Cost: 10
Transmit Delay is 1 sec, State DR, Priority 1
Designated Router (ID) 192.168.31.11, Interface address 192.168.1.1
No backup designated router on this network
Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
Based on the exhibit, what is the probable cause of this problem?

- A. The OSPF area is misconfigured.
- B. The priority on CK2 should be set lower.
- C. The cost on CK2 should be set lower.
- D. The hello and dead timers are misconfigured.
- E. You need to add a backup designated router to the network.
- F. The OSPF process ID numbers do not match.

Answer: D

Explanation:

OSPF routers must have the same hello intervals and the same dead intervals to exchange information. By default, the dead interval is four times the value of the hello interval. This means that a router has four chances to send a hello packet before being declared dead.

On broadcast OSPF networks, the default hello interval is 10 seconds and the default dead interval is 40 seconds. On nonbroadcast networks, the default hello interval is 30 seconds and the default dead interval is 120 seconds. These default values result in efficient OSPF operation and seldom need to be modified. As shown in the output, the hello timer on router CK1 was changed to 5 seconds, with the dead timer being set to 20 seconds.

Incorrect Answers:

- A. Both routers are configured to be in area 0.
- B. In this example the adjacency should come up regardless of which one was the DR/BRD. Therefore, setting the priority on one router will not solve this problem.
- C. This will not solve the adjacency issue.
- E. Only the DR is absolutely required on the Ethernet subnet, not the BDR.
- F. Unlike other protocols, the routing process ID's do not necessarily need to match in OSPF for routing to work.

QUESTION 179:

Which of the following routing protocols minimize the effects of the problems created by discontinuous networks? (Choose three.)

- A. RIP v1
- B. RIP v2
- C. EIGRP
- D. IGRP
- E. OSPF

F. VLSM

Answer: B, C, E

Explanation:

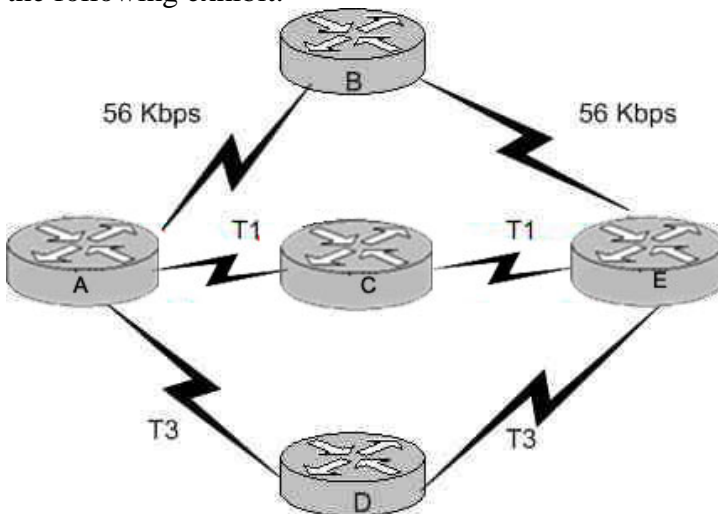
OSPF provides support for discontinuous networks, since every area has a collection of networks and OSPF attaches a mask to each advertisement.

RIPv1 and IGRP are classful protocols. Whenever RIP advertises a network across a different major net boundary, RIP summarizes the advertised network at the major net boundary.

http://www.cisco.com/en/US/tech/CK365/CK480/technologies_q_and_a_item09186a0080094704.shtml#q7

QUESTION 180:

You are the network administrator at Certkiller . The Certkiller network is shown in the following exhibit:



With regard to the routing decision router A will make to reach router E, which of the following statements are true? (Choose three.)

- A. Router A will determine that all paths have an equal cost if RIP is the routing protocol.
- B. Router A will install only the ADE path in its routing table if RIP is the routing protocol.
- C. Router A will determine that path ACE has the lowest cost if IGRP is the routing protocol.
- D. Router A will determine that path ADE has the lowest cost if IGRP is the routing protocol.
- E. Router A will use the route information learned by IGRP if both RIP and IGRP are configured on router A.
- F. Router A will use the route information learned by RIP if both RIP and IGRP are configured on router A.

Answer: A, D, E

Explanation:

Choice E is correct because:

IGRP's default administrative distance is 100; RIP's default administrative distance is 120.

And the protocol with less administrative distance is always preferred.

IGRP can load-balance up to six unequal links. RIP networks must have the same hop count to load-balance, whereas IGRP uses bandwidth to determine how to load-balance.

To load-balance over unequal-cost links, you must use the variance command, which controls the load balancing between the best metric and the worst acceptable metric.

Speed of T3 line is 45Mbps and IGRP uses BW as a metric for the shortest path selection so it will use the route via Routers ADE so, choice D is correct.

QUESTION 181:

A newly assigned trainee wants to know from you what the "Inside Global" address represents in the configuration of NAT. What can you tell him?

- A. The MAC address used by inside hosts to connect to the Internet.
- B. The summarized address for all internal subnetted addresses.
- C. A private IP address assigned to a host on the inside network.
- D. A registered address that represents an inside host to an outside network.
- E. A unique IP address used on an intranet.

Answer: D

Explanation:

With NAT, Cisco defines 4 different types of addresses as follows:

* Inside local address - The IP address assigned to a host on the inside network. This is the address configured as a parameter of the computer's OS or received via dynamic address allocation protocols such as DHCP. The address is likely not a legitimate IP address assigned by the Network Information Center (NIC) or service provider.

* Inside global address - A legitimate IP address assigned by the NIC or service provider that represents one or more inside local IP addresses to the outside world.

* Outside local address - The IP address of an outside host as it appears to the inside network. Not necessarily a legitimate address, it is allocated from an address space routable on the inside.

* Outside global address - The IP address assigned to a host on the outside network by the host's owner. The address is allocated from a globally routable address or network space.

The above definitions still leave a lot to be interpreted. For this example, this document redefines these terms by first defining "local address" and "global address." Keep in mind that the terms "inside" and "outside" are NAT definitions. Interfaces on a NAT router are defined as "inside" or "outside" with the NAT configuration commands, ip nat inside and ip nat outside. Networks to which these interfaces connect can then be thought of as "inside" networks or "outside" networks, respectively.

* Local address - A local address is any address that appears on the "inside" portion of the network.

* Global address - A global address is any address that appears on the "outside" portion of the network.

QUESTION 182:

You need to establish a telnet session to verify the status of a physical connection. You then issue the debug frame-relay lmi command. However, after 40 seconds, you do not get any output resulting from the debug command. Why are no messages displayed?

- A. The IP addresses are configured incorrectly.
- B. Frame Relay LMI messages not displayed in real time.
- C. The administrator must issue the enable frame-relay lmi debug command.
- D. The administrator must issue the terminal monitor command.
- E. Debug messages can only be received once through the console port.
- F. The administrator must issue the show frame-relay lmi vty 0 4 command-

Answer: D

Explanation:

In order to see any debugging output from a remote telnet session, the "terminal monitor" command will need to be issued. By default, the network server sends the output from the debug commands to the console terminal. Sending output to a terminal (virtual console) produces less overhead than sending it to the console. Use the privileged EXEC command terminal monitor to send output to a terminal.

Reference:

<http://www.cisco.com/univercd/cc/td/doc/product/software/ios112/dbook/dapple.htm>

QUESTION 183:

You are a network technician at Certkiller , Inc. You have been asked to set up Frame Relay for point-to-point subinterfaces. Which of the following should not be configured?

- A. The local DLCI on each subinterface of the Frame Relay.
- B. The Frame Relay encapsulation on the physical interface.
- C. An IP address on the physical interface.
- D. The subinterface only.

Answer: C

Explanation

Frame Relay does not require IP addresses on physical interfaces.

QUESTION 184:

Study the Exhibit below carefully:

```
RouterA# show running-config
<some output text omitted>
interface serial0/0
```

```
bandwidth 64
ip address 172.16.100.2 255.255.0
encapsulation frame-relay
frame-relay map ip 172.16.100.1 200 broadcast
```



The Hong Kong office with Router Certkiller 1, has a communication problem with the Tokyo branch office which has Router Certkiller 2. The scenario is the following: Router Certkiller 1 is unable to reach Router Certkiller 2. Both routers are running IOS version 12.0.

After reviewing the command output and graphic, your boss wants to know what is the most probable cause of the problem. What should you tell him?

- A. Bandwidth configuration incorrect
- B. IP address not correct
- C. Improper map statement
- D. Improper LMI configuration

Answer: C

Explanation: From looking at the diagram you can see that Hong Kong's DLCI is 100, while Tokyo's DLCI is 200.

The Frame Relay map command is an interface configuration mode command that statically defines a mapping between a network layer address and a DLCI.

Incorrect Answers:

- A. The bandwidth statement is not used by the routers at a physical or data link layer, so this statement will not have any impact on the function of the frame relay circuit.
- B. We do not know what the IP address of the Tokyo side is, so this can not be assumed.
- D. The default LMI type is Cisco, and since both routers in this network appear to be Cisco's, we can assume that this is acceptable.

QUESTION 185:

Which of the following commands will display the CHAP authentication process as it occurs between the two routers in the network when you know that all WAN links inside the company's network use PPP with CHAP for authentication security?

- A. show ppp authentication
- B. debug PAP authentication
- C. debug PPP authentication
- D. show interface serial0
- E. show CHAP authentication

Answer: C

Explanation:

Whenever you're asked to display a process in real time, you must use a debug command as show commands do not display anything in real time. Debug PPP authentication will display the authentication process of a PPP line, including the CHAP process.

Incorrect Answers:

- A, D, E. This will not display the output in real time.
- B. We wish to see information relating to CHAP, not PAP.

Reference:

CCNA Self-Study CCNA ICND exam certification Guide (Cisco Press, ISBN 1-58720-083-X) Page 314.

QUESTION 186:

Which of the following WAN technologies provides small offices and private homes using normal telephone lines with higher speed digital dial-up service?

- A. X25
- B. Frame Relay
- C. ATM
- D. ISDN
- E. ATX

Answer: D

Explanation:

ISDN stands for Integrated Services Digital Network, precisely because it was designed to be integrated with current digital telephone services. It was originally designed to bring relatively high speed voice and data services to home users, as well as corporate users.

Note: This question is obviously a bit dated, as a better choice in today's marketplace would be DSL, which also provides even higher speeds over the existing telephone infrastructure.

QUESTION 187:

You are a technician at Certkiller . Your newly appointed Certkiller trainee wants to know what the purpose of Inverse ARP is.

What will your reply be?

- A. It is used to map a known IP address to a MAC address
- B. It is used to map a known DLCI to a MAC address
- C. It is used to map a known MAC address to an IP address
- D. It is used to map a known DLCI to an IP address
- E. It is used to map a known MAC address to DLCI
- F. It is used to map a known DLCI to a MAC address

Answer: D

Explanation:

Just as ARP resolves IP addresses to MAC addresses, Inverse ARP maps a known DLCI to an IP address.

Incorrect Answers:

A, C. ARP and Reverse ARP (RARP) are used for IP address/MAC address mappings.
B, E. DLCI do not have a need to discover the MAC address of a host, so a DLCI is never mapped to a MAC address.

QUESTION 188:

You are a network administrator at Certkiller . Your assistant has been attempting to establish a link between interface s0/0 on router CK1 and interface s0/0 on router CK2 but his attempts have failed. He asks for your assistance.

You issue the show interface s0/0 command on router CK1 and router CK2 . The output from the show interface s0/0 commands is shown in the following exhibit:

CK1 :

```
Serial0/0 is up, line protocol is down
Hardware is HD64570
Internet address is 210.93.105.1/24
MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation HDLC, loopback not set
Keepalive set (10 sec)
```

CK2 :

```
Serial0/0 is up, line protocol is down
Hardware is HD64570
Internet address is 210.93.105.2/24
MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation PPP, loopback not set
Keepalive set (10 sec)
```

Based on the exhibit, what is the most likely cause of this problem?

- A. The loopback is not set.
- B. The serial cable is faulty.
- C. The subnet mask is not configured properly.
- D. The IP address is not configured properly.
- E. The Layer 2 frame types are not compatible.

Answer: E

Explanation:

Router#sh int s0/0

Serial0/0 is up, line protocol is down

If you see that the line is up but the protocol is down, as just above, you are experiencing a clocking (keepalive) or framing problem. Check the keepalives on both ends to make sure that they match, that the clock rate is set if needed, and that the encapsulation type is the same on both ends. This up/down status would be considered a Data Link Layer (Layer 2) problem.

QUESTION 189:

You are a network technician at Certkiller . Due to rapid expansion, Certkiller is leaning towards scalable WAN technology. Immediate plans for the company include an additional 7 regional offices with all sites requiring continuous connectivity, but the current head office has no free ports available. Which of the following WAN technologies will meet the requirements?

- A. Frame Relay
- B. Broadband cable
- C. ISDN-BRI
- D. ADSL
- E. Dedicated PPP/HDLC links
- F. ISDN

Answer: D

Explanation:

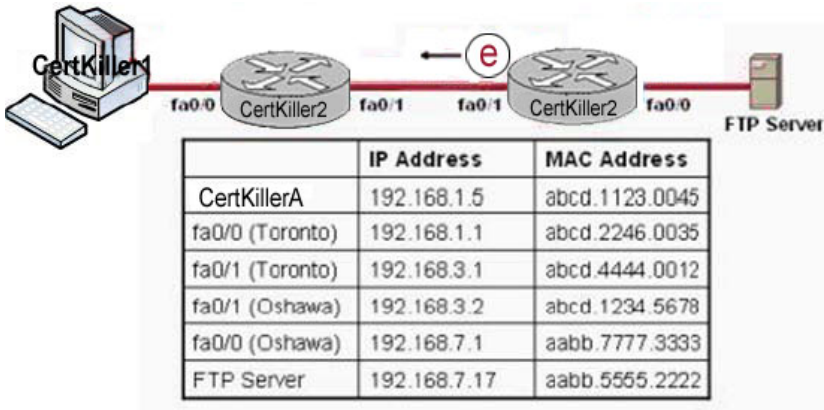
ADSL work by using a modem and is always on. The question tells you that the HQ router has no free ports, so by using an ADSL modem, it will be the best choice for this question. The cable modem would also be a good choice, but without much security, the ADSL is the better answer.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) Page 465

QUESTION 190:

Refer to the exhibit. HostB is sending a file to HostA. B represents the frame as it leaves the Oshawa router. What is the Layer 2 destination address of the frame at this point?



- A. aabb.5555.2222
- B. abcd.2246.0035
- C. abcd.1234.5678
- D. abcd.1123.0045
- E. abcd.4444.0012

Answer: E

Explanation: When packets transfer from one host to another, source address is source address, physical address is existing router's interface address. Similarly destination ip address is destination host address as well as physical address is router's interface address.

QUESTION 191:

You are a network technician at Certkiller , Inc. Your trainee wants to know which command is used to display the placement and direction of an IP access control list on a router.

What would your response be?

- A. show interface list
- B. show ip route
- C. show ip interface
- D. show ip interface brief
- E. show interface

Answer: C

Explanation:

The command "show ip interface" will include a reference to the access lists enabled on the interface.

QUESTION 192:

If pressed for time, how would you go about quickly configuring a router for basic operations?

- A. ROM Monitor mode
- B. SETUP mode
- C. Autoflash mode
- D. RXBOOT mode

Answer: B

Explanation:

Setup mode is a convenient mode that walks you through the setup procedure by prompting you with specific questions and options one by one.

QUESTION 193:

Which command can be used to determine the type of cable attached to the Serial 0/0 interface on a router?

- A. show interfaces serial 0/0
- B. show running-config
- C. show version
- D. show controllers serial 0/0
- E. show ip interface
- F. show line serial 0/0

Answer: D

The show controllers command shows that the physical layer is working and what type of cable is connected. In the output below, Prasit is connected at the DCE end and Spicey at the DTE end.

```
prasit#show controllers serial 0 HD unit 1, idb = 0xF22E4, driver structure at 0xF7778  
buffer size 1524 HD unit 0 1, V.35 DCE cable, clockrate 64000!--- Output suppressed.
```

QUESTION 194:

You are a network technician at Certkiller , Inc. You have been assigned a junior trainee named Ellen. She wants you to describe what is specific for a global command.

What would your response be?

- A. A command that can be entered in any configuration mode.
- B. A command that supports all protocols.
- C. A command that is implemented in all IOS versions.
- D. A command that is set once and affects the entire router.
- E. A command that is available in every release of IOS.

Answer: D

Explanation:

When you enter global configuration mode and enter a command, it is applied to the running configuration file that is currently running in ram. The configuration of a global command affects the entire router. An example of a global command is one used for the hostname of the router.

Incorrect Answers:

- A. Global configuration commands must be performed while in global configuration mode. For example, when you are in the interface configuration mode, you most likely will need to exit out into global mode to type in the commands.
- B. Global commands do not necessarily support every protocol.
- C. This is not necessarily true, since there are certain global commands that are supported on one feature set that are not on a different feature set of IOS.
- E. Global commands can become outdated, and can be replaced by newer commands in the newer releases of IOS.

QUESTION 195:

The Certkiller .com administrator has made changes to the router configuration but cannot remember if those changes were saved.

Which of the following commands allows the administrator to see the configuration that will load when the router is restarted?

- A. Certkiller C# show memory
- B. Certkiller C# show startup-config
- C. Certkiller C# show running-config
- D. Certkiller C# show restart

Answer: B

Explanation:

Show startup-config command displays the contents of the NVRAM. When we reload a router, it loads the configuration from NVRAM. So, the administrator can check from the show startup-config command whether he has saved the temporary configurations from Running-config (RAM) to Startup-config (NVRAM).

QUESTION 196:

Documenting the name of the IOS image file of each router in the network is part of updating network documentation.

Which of the following commands can be used to obtain this information?

- A. Router# show IOS
- B. Router# show version

- C. Router# show image
- D. Router# show protocols
- E. Router# show flash

Answer: B

"Show flash" displays all the image files in it. There could be more than one file. However, "show version" displays the one that is currently in use by the router.

Incorrect answers:

D: Show Protocols will shows routed Protocol using by the router, all interface conditions and their IP address if configured.

A,C: There are no such commands.

QUESTION 197:

You are a network technician at Certkiller . You apply the access list illustrated below to interface E0 on a Cisco router. The interface is connected to the 192.168.1.8/29 LAN.

```
access-list 123 deny tcp 192.168.166.18 0.0.0.7 eq 20 any
```

```
access-list 123 deny tcp 192.168.166.18 0.0.0.7 eq 21 any
```

What are the consequences of this specific access list?

- A. All traffic will be allowed to exit E0 except FTP traffic.
- B. FTP traffic from 192.168.166.19 to any host will be denied.
- C. FTP traffic from 192.168.166.22 to any host will be denied.
- D. All traffic exiting E0 will be denied.
- E. All FTP traffic to network 192.168.166.18/29 from any host will be denied.

Answer: D

Explanation:

By default access list is having implicit deny statement at the end. In this example there is no permit statement, so it will deny all traffic exiting E0 Interface.

Incorrect answers

A: It will deny FTP and Telnet Traffic

B,C,E: It will deny all traffic in addition to the condition mentioned in the answer.

Because there is no permit statement at the end.

QUESTION 198:

DRAG DROP

On the left are access list conditions and on the right design goals. Match up the corresponding pairs. (Please note: Not all options are used)

640-821

```
deny icmp any 192.168.47.5 0.0.0.0
```

```
permit ip 192.168.45.32 0.0.0.31 192.168.47.32 0.0.0.15
```

```
deny icmp any 192.168.47.5 0.0.0.31
```

```
permit tcp any 192.168.47.4 0.0.0.0 eq 80
```

```
permit tcp 192.168.47.4 0.0.0.0 any eq
```

```
deny ip any 192.168.47.32 0.0.0.15
```

```
Allow all web access to server 192.168.47.4
```

```
Block all IP access to subnet 192.168.47.32/28
```

```
Block all ping messages only to server 192.168.47.5/27
```

```
Allow access from subnet 192.168.45.32/27 to subnet  
192.168.47.32/28
```

Answer:

```
deny icmp any 192.168.47.5 0.0.0.31
```

```
permit tcp 192.168.47.4 0.0.0.0 any eq
```

```
permit tcp any 192.168.47.4 0.0.0.0 eq 80
```

```
deny ip any 192.168.47.32 0.0.0.15
```

```
deny icmp any 192.168.47.5 0.0.0.0
```

```
permit ip 192.168.45.32 0.0.0.31 192.168.47.32 0.0.0.15
```

QUESTION 199:

Which of the following commands displays the configurable parameters and statistics of all interfaces on a router?

- A. show interfaces
- B. show processes
- C. show running-config
- D. show versions
- E. show startup-config

Answer: A

Explanation:

show interfaces - stats on the router interfaces

show controllers serial - hardware info CK serial interfaces

showip interface serial 0/0 : Displays the configuration parameters and statistics of serial 0/0.

Show ip interface brief : Brief information about all interfaces.

QUESTION 200:

Refer to the graphic. A network associate is planning to copy a new IOS image into the Paden router. This new image requires 8 MB of flash memory and 32 MB of RAM. How will the IOS proceed with the copy process?

CertKiller1#show flash

```
System flash directory:
File Length Name/status
 1 8760520 c4500-js-mz.122-7b.bin
[8760584 bytes used, 16405240 available, 25165824 total]
24576K bytes of processor board System flash (Read/Write)
```

- A. The new IOS will be copied into flash memory and the current image will remain.
- B. IOS will issue an error message because flash memory is not large enough to hold the new image.
- C. During the copy process, the current IOS image will be erased.
- D. The current IOS image must be manually erased before IOS will allow the new image to be copied.

Answer: A

Explanation: This information from the flash, showing the information of ios image name, size and other information.

QUESTION 201:

The following commands are entered on the router:

```
Certkiller 1(config)# enable secret fortress
Certkiller 1(config)# line con 0
Certkiller 1(config-line)# login
Certkiller 1(config-line)# password n0way1n
Certkiller 1(config-line)# exit
Certkiller 1(config)# service password-encryption
What is the purpose of the last command entered?
```

- A. to require the user to enter an encrypted password during the login process
- B. to prevent the vty, console, and enable passwords from being displayed in plain text in the configuration files
- C. to provide login encryption services between hosts attached to the router
- D. to encrypt the enable secret password

Answer: B

Explanation: Telnet connection will not enable until you set the password and by default password displays in plain text format when you issue the show running-configuration or show startup-configuration command so to display the password in encrypted format use the service password-encryption command in global configuration mode.

QUESTION 202:

What is the difference between the Cisco router IOS commands show cdp neighbor detail and show cdp entry?

- A. The show cdp entry command shows neighbor information for specific neighbors only, while show cdp neighbor detail lists each neighbor with detailed output on each.
- B. The show cdp entry command shows neighbor information for all neighbors with one line of output for each, while show cdp neighbor detail lists each neighbor with detailed output on each.
- C. The show cdp neighbor detail command shows all neighbor information, while show cdp entry displays only one line of output for each neighbor.
- D. The show cdp neighbor detail command shows neighbor information for a single neighbor only, while show cdp entry displays detailed output on each neighbor known.

Answer: A

Explanation:

CDP is a proprietary protocol designed by Cisco to help administrators collect information about both locally attached and remote devices. By using CDP, you can gather hardware and protocol information about neighbor devices majorly useful info for troubleshooting and documenting the network. The show cdp entry command shows neighbor information for specific neighbors only, while show cdp neighbor detail lists each neighbor with detailed output on each.

QUESTION 203:

What two commands can be used to view the amount of memory that is used to hold the router IOS? (Choose two.)

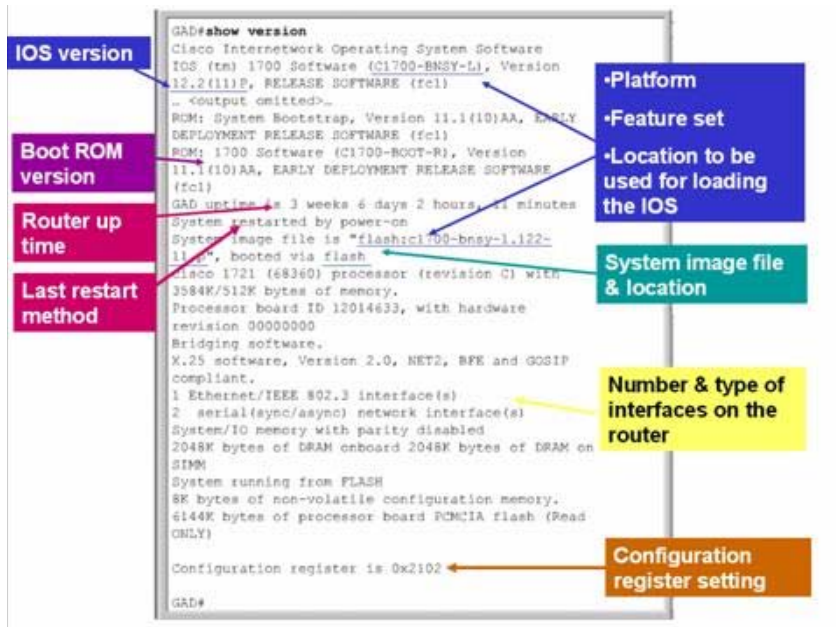
- A. Certkiller 1# show version
- B. Certkiller 1# show running-config
- C. Certkiller 1# show flash memory
- D. Certkiller 1# show flash
- E. Certkiller 1# show memory

Answer: A,D

Explanation: Different Cisco IOS versions and feature sets will ultimately dictate the size of the IOS file and the amount of Flash and DRAM memory required to run

the IOS. If you are planning to upgrade to a new IOS, you must make sure that you have enough memory (the more, the better) in your device. To see the amount of Flash you have and the current IOS file stored in Flash memory, utilize the show flash command as follows:

```
Router>show flash
System flash directory:File Length Name/status 1 5510192
c2600-is-mz.120-3.T3.bin[5510256 bytes used, 2878352 available, 8388608 total]8192K
bytes of processor board System flash (Read/Write)Typically, the filename of the IOS
file in Flash correctly reflects the actual IOS version running currently on the device.
However, an administrator can easily change the filename to his or her own purposes, or
there could be multiple IOS files stored on the Flash and you are not sure which one is
running currently. To ensure the correct version of IOS, use the widely practical show
version command.
```



QUESTION 204:

Refer to the graphic. What is the purpose of the two numbers shown following the exec-timeout command?

```
CertKiller1 #show running-config
<<output omitted>>
line console 0
exec-timeout 1 55
password 7094F60C0B4C1
login
transport input
<<output omitted>>
```

- If connected to the router by Telnet, input must be detected within one hour and 55 seconds or the connection will be closed.
- If no router activity has been detected in one hour and 55 minutes, the console will be locked out.
- If no commands have been typed in 55 seconds, the console connection will be closed.
- If connected to the router by Telnet, input must be detected within one minute and 55 seconds or the connection will be closed.

seconds or the connection will be closed.

E. If no commands have been typed in one minute and 55 seconds, the console connection will be closed.

Answer: E

Explanation: First, the exec-timeout 0 0 command sets the timeout for the console EXEC session to zero, which basically means it is set so that it never times out. The default timeout is 10 minutes. (If you're feeling mischievous or vengeful, try this on people at work: Set it to 0 1. That will make the console time out in 1 second! To fix it, you have to continually press the Down arrow key while changing the timeout time with your free hand.)

QUESTION 205:

Refer to the exhibit. Why did the device return this message?



```
CertKiller1#show ru
% Ambiguous command: "show ru"
CertKiller1#_
```

- A. The command is being executed from the wrong router mode.
- B. There is no show command that starts with ru.
- C. The command requires additional options or parameters.
- D. There is more than one show command that starts with the letters ru.

Answer: D

Explanation: Answer D is correct because when you type the incomplete command having more same more command same upto types characters it shows display the ambiguous command error.

QUESTION 206:

Refer to the graphic. Although the console password was set to " Certkiller ", it displays in the router configuration as shown. What command caused the password to be stored like this?



```
CertKiller1 #show running-config
<<output omitted>>
line console 0
  exec-timeout 1 55
  password 7 094F40C0B1C1B
  login
  transport input file
<<output omitted>>
```

- A. Certkiller 1(config)# encrypt password
- B. Certkiller 1(config)# password-encryption md 7

- C. Certkiller 1(config-line)# exec-timeout 1 55
- D. Certkiller 1(config)# service password-encryption

Answer: D

Explanation: When you add the password of telnet of console, it stores in plain text format so every person can easily read the password using show running-configuration command. The output is encrypted password, to store the password in encrypted format it needs to enable the password-encryption using service password-encryption command.

QUESTION 207:

DRAG DROP

As a network administrator at Certkiller .com you are required to use a Cisco router named Certkiller 1. You must match the commands with the appropriate use. You do not use all commands.

Command, select from these

CertKiller1#copy running-config startup config	CertKiller1#copy flash running-config
CertKiller1#copy tftp running-ccnfig	CertKiller1#copy flash tftp
CertKiller1#copy running-config tftp	CertKiller1#copy tftp flash

Definitions

Merge a backup configuration with the configuration in RAM
Make the configuration in RAM the configuration the router will use at status
Replace the IOS image
Make a backup copy of the configuration in RAM
Backup the current IOS image

Options place here

Place here
Place here
Place here
Place here
Place here

Answer:

Command, select from these

CertKiller1#copy flash running-config

Definitions

Merge a backup configuration with the configuration in RAM

Make the configuration in RAM the configuration the router will use at status

Replace the IOS image

Make a backup copy of the configuration in RAM

Backup the current IOS image

Options place here

CertKiller1#copy tftp running-ccnfig

CertKiller1#copy running-config startup config

CertKiller1#copy tftp flash

CertKiller1#copy running-config tftp

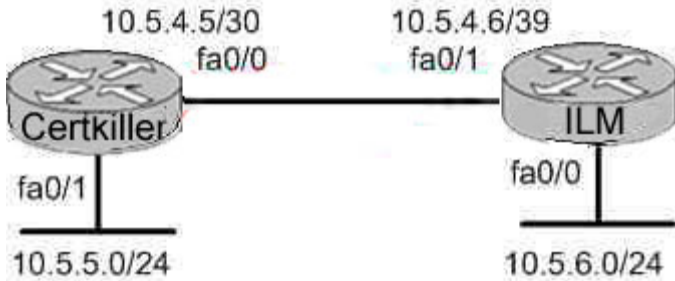
CertKiller1#copy flash tftp

Explanation:

- i. copy tftp running-config : Which copies the running configuration into the RAM from tftp server.
- ii. copy running-config startup-config : Which copies the running configuration into the startup configuration. When router boots up router checks for the valid configuration on NVRAM which is called startup-configuration.
- iii. copy tftp flash : Which copies the IOS from tftp server to flash memory.
- iv. copy running-config tftp : Which copy the running configuration into tftp server. Running configuration is resides on RAM.
- v. copy flash tftp : Which copies the IOS image from flash into the tftp server.

QUESTION 208:

You are the network administrator at Certkiller . A portion of the network is shown in the following exhibit:



You configure a static route to the 10.5.6.0/24 network on router Certkiller . You want router Certkiller to treat this static route as the most reliable route.

Which command should you use?

- A. Certkiller (config)# ip route 10.5.6.0 0.0.0.255 fa0/0
- B. Certkiller (config)# ip route 10.5.6.0 0.0.0.255 10.5.4.6
- C. Certkiller (config)# ip route 10.5.6.0 255.255.255.0 fa0/1
- D. Certkiller (config)# ip route 10.5.6.0 255.255.255.0 10.5.4.6
- E. Certkiller (config)# ip route 10.5.4.6 0.0.0.255 10.5.6.0
- F. Certkiller (config)# ip route 10.5.4.6 255.255.255.0 10.5.6.0

Answer: C, D

Explanation:

Here is the command you use to add a static route to a routing table:

Ip route [destination_network] [mask] [next-hop_address or exitinterface] [administrative_distance][permanent]

This list describes each command in the string:

iproute The command used to create the static route.

destinationnetwork The network you're placing in the routing table.

mask The subnet mask being used on the network.

next-hopaddress The address of the next-hop router that will receive the packet and forward it to the remote network. This is a router interface that's on a directory connected network. You must be able to ping the router interface before you add the route. If you type in the wrong next-hop address, or the interface to that router is down, the static route shows up the router's configuration, but not in the routing table.

administrative_distance By default, static routes have an administrative distance of 1. You can change the default value by adding an administrative weight at the end of the command. This is a subject I'll talk a lot more about later in the chapter when I get the section on dynamic routing.

QUESTION 209:

Which of the following EIGRP route entries would be described as a feasible successor?

- A. A primary route, stored in the routing table
- B. A backup route, stored in the routing table
- C. A backup route, stored in the topology table

D. A primary route, stored in the topology table

Answer: C

Explanation:

The following are some terms relating to EIGRP:

1. Feasible Distance: The lowest calculated metric to each destination
2. Feasibility Condition: A condition that is met if a neighbor's advertised distance to a destination is lower than the router's Feasible Distance to that same destination.
3. Successor: The neighbor that has been selected as the next hop for a given destination based on the Feasibility Condition.

Reference: Jeff Doyle, Routing TCP/IP, Volume I, Chapter 8: Enhanced Interior Gateway Routing Protocol (EIGRP), p.336-337, Cisco Press, (ISBN 1-57870-041-8)

Additional info:

The Feasible Condition is met when the receiving router has a Feasible Distance (FD) to a particular network and it receives an update from a neighbor with a lower advertised or Reported Distance (RD) to that network. The neighbor then becomes a Feasible Successor (FS) for that route because it is one hop closer to the destination network.

There may be a number of Feasible Successors in a meshed network environment.

The RD for a neighbor to reach a particular network must always be less than the FD for the local router to reach that same network. In this way EIGRP avoids routing loops. This is why routes that have RD larger than the FD are not entered into the Topology table.

Reference: Ravi Malhotra, IP Routing, Chapter 4: Enhanced Interior Gateway Routing Protocol (EIGRP), O'Reilly Press, January 2002 (ISBN 0-596-00275-0)

QUESTION 210:

You want to form a WAN connection between two routers, one is a Cisco router and the other from another manufacturer, that are directly connected via a serial link. Which of the following commands can you use?

- A. CK1 (config-if)# encapsulation hdlc ansi
- B. CK1 (config-if)# encapsulation ppp
- C. CK1 (config-if)# encapsulation LAPD
- D. CK1 (config-if)# encapsulation frame-relay ietf
- E. CK1 (config)#encapsulation ppp

Answer: B

Explanation:

PPP is the best encapsulation type to use, when connecting routers of different manufacturers, because PPP is non proprietary (unlike HDLC). PPP is an industry standard layer 2 encapsulation type that is supported by every router manufacturer.

Incorrect Answers:

- A. HDLC is a cisco proprietary method of encapsulation for connecting a point to point

connection. Although HDLC has become so popular that many other router vendors also support it, HDLC ANSI is not an option that can be used.

C. LAPD is used as an out of band signaling protocol on connections such as ISDN. It is not a choice that can be made in this case.

D. This would be the correct choice if the connection was a frame relay connection, instead of a leased line connection. The ietf keyword is needed for connecting frame links to routers that are non-cisco.

E. This command needs to be placed in interface configuration mode, not in global configuration mode.

QUESTION 211:

Which type of NAT will map multiple private IP addresses to a singular registered IP address through making use of different ports?

- A. static NAT
- B. port loading
- C. overloading
- D. dynamic NAT

Answer: C

Explanation:

Port address translation, or NAT overloading, uses transport layer port information to dynamically create NAT entries. This is also known as one to many network address translation.

Incorrect Answers:

A. Static NAT is known as one to one NAT, and is used to map a single IP address to a single registered IP address. It is often used for servers that need to be accessed via the Internet.

B, D. This is the incorrect term, and is not used.

QUESTION 212:

What could be the rationale behind using passive-interface command when configuring a router?

- A. Allows interfaces to share common IP addresses.
- B. Allows an interface to remain up without the aid of keepalives.
- C. Allows a router to send routing and not receive updates via that interface.
- D. Allows a routing protocol to forward updates that is missing its IP address.
- E. Allows a router to receive routing updates on an interface but not send updates via that interface.

Answer: E

Explanation:

The passive-interface command is used to control the advertisement of routing information. The command enables the suppression of routing updates over some interfaces while allowing updates to be exchanged normally over other interfaces. With most routing protocols, the passive-interface command restricts outgoing advertisements only. However, when used with Enhanced Interior Gateway Routing Protocol (EIGRP), the effect is slightly different. This document demonstrates that use of the passive-interface command in EIGRP suppresses the exchange of hello packets between two routers, resulting in the loss of their neighbor relationship. This stops not only routing updates from being advertised, but it also suppresses incoming routing updates. This document also discusses the configuration required in order to allow the suppression of outgoing routing updates, while allowing incoming routing updates to be learnt normally from the neighbor.

Reference:

http://www.cisco.com/en/US/tech/CK365/CK207/technologies_tech_note09186a0080093f0a.shtml

QUESTION 213:

Which layer of the OSI reference model is responsible for ensuring reliable end-to-end delivery of data?

- A. Application
- B. Presentation
- C. Session
- D. Transport
- E. Network
- F. Data-Link

Answer: D

Explanation:

A key function of the transport layer is to provide connection services for the protocols and applications that run at the levels above it. These can be categorized as either connection-oriented services or connectionless services. Some protocol suites, such as TCP/IP, provide both a connection-oriented and a connectionless transport layer protocol, to suit the needs of different applications.

The transport layer is also the place in the layer stack where functions are normally included to add features to end-to-end data transport. Where network layer protocols are normally concerned with just "best effort" communications, where delivery is not guaranteed. Transport layer protocols are given intelligence in the form of algorithms that ensure that reliable and efficient communication between devices takes place. This encompasses several related jobs, including lost transmission detection and handling, and managing the rate at which data is sent to ensure that the receiving device is not overwhelmed.

Transmission quality, meaning ensuring that transmissions are received as sent, is so

important that some networking references define the transport layer on the basis of reliability and flow-control functions. However, not all transport layer protocols provide these services. Just as a protocol suite may have a connection-oriented and a connectionless transport layer protocol, it may also have one that provides reliability and data management services, and one that does not. Again, this is the case with TCP/IP: there is one main transport layer protocol; TCP, that includes reliability and flow control features, and a second, UDP, that doesn't.

QUESTION 214:

When you power up a Cisco router; in what memory is the start-up configuration normally stored in?

- A. RAM
- B. ROM
- C. FLASH
- D. NVRAM

Answer: D

Explanation:

The startup configuration is stored in the Non-Volatile RAM.

Incorrect Answers:

- A, B. No configuration information is stored in RAM or ROM.
- C. The IOS is normally stored in the flash memory, not the saved configuration.

QUESTION 215:

The "show version" command was issued on a Certkiller router as shown below:

System Image file is "Flash: C2600-ik8035-m2.122-8.T5.bin"

Cisco 2620(MPC860)processor(revision 0x200) with 16384/2048K bytes of memory

```
Processor board ID JAD050761 F6
M860 processor printnumber 0, mark 49
Bringing Software
X.25 Software, Version 3.0.0
2 FastEthernet/IEEE 802.3 interface(s)
2 Serial(sync/async)network interface(s)
2 Low speed serial(sync/async)network interface(s)

32K bytes of non-volatile confuration memory
16384 bytes of processor board system flash (Read/Write)

Configuration register is 0x2102
```

The Network administrator at Certkiller .com wants to upgrade the IOS of this router. The new Image requires 64 MB of RAM & 16 MB for Storage of the File. Given the Output Shown in the Graphic, which of the following is true?

- A. This router meets the requirements for the new image.
- B. This router will require a DRAM upgrade to meet the requirements for the Image.
- C. This router will require a FLASH upgrade to meet the requirements for the Image.
- D. This router will require a NVRAM upgrade to meet the requirements for the Image.

Answer: B

Explanation:

Based on the output above, the router above will not require a Flash memory upgrade, as only 16 MB is required and the Certkiller router does indeed have 16 MB of flash (16384 bytes). However, a DRAM upgrade is required, as 64 MB of RAM is needed but this router has only slightly more than 16 MB as shown by the 16384/2048 value.

QUESTION 216:

The relevant system information regarding a Certkiller router is shown in the following display:

```
System image file is "flash: c2600-das35-m2.120-5.T1"
```

```
Cisco2621(MPC860)processor(revision 0x600) with 53248K/12288K bytes of memory
```

```
Processor board ID JAD05280307(3536592999)
```

```
Processor board III JAD050761 F6
```

```
M860 processor printnumber 0, mark 49
```

```
Bridging Software
```

```
2 FastEthernet/IEEE 802.3 interface(s)
```

```
2 Serial(sync/async)network interface(s)
```

```
2 Low speed serial(sync/async)network interface(s)
```

```
16 terminal line(s)
```

```
32K bytes of non-volatile configuration memory
```

```
16384 bytes of processor board system flash (Read/Write)
```

Refer to the partial Command output shown. Which two statements are correct regarding the router hardware? (Choose Two)

- A. Total RAM Size is 32 KB.
- B. Total RAM Size is 16384 KB.(16 MB)
- C. Total RAM Size is 65536 KB.(64 MB)
- D. FLASH Size is 32 KB.
- E. FLASH Size is 16384 KB.(16 MB)
- F. FLASH Size is 65536 KB.(64 MB)

Answer: C, E

Explanation:

The RAM is found by adding up the memory, so in this case it is 53248K+12288K = 65536K. The Flash is found at the very bottom of the output, which is shown as 16384K
How Do I Know What Platform I Have?

Type the show version command at the enable command prompt of the router to see the

640-821

platform, RAM, flash memory, and current version of code you are running.

This example shows a Cisco 2600 router with 48 MB of RAM (43617 K + 5534 K), 16 MB of flash memory (16384 K), and a code image called flash:c2600-jk8s-mz.122-6.bin.

```
wilson#show version
Cisco Internetwork Operating System Software
IOS (tm) C2600 Software (C2600-JK8S-M), Version 12.2(6), RELEASE SOFTWARE (fc2)
Copyright (c) 1986-2001 by Cisco Systems, Inc.
Compiled Wed 07-Nov-01 21:07 by pwade
Image text-base: 0x80008088, data-base: 0x814FF2C4

ROM: System Bootstrap, Version 11.3(2)XA3, PLATFORM SPECIFIC RELEASE SOFTWARE (fc1)

wilson uptime is 1 week, 2 days, 7 hours, 41 minutes
System returned to ROM by power-on
System image file is "flash:c2600-jk8s-mz.122-6.bin"

cisco 2611 (MPC860) processor (revision 0x202) with 43617K/5534K bytes of memory.
Processor board ID JAB0305069Z (209339592)
M860 processor: part number 0, mask 49
Bridging software.
X.25 software, Version 3.0.0.
SuperLAT software (copyright 1990 by Meridian Technology Corp).
TNS3270 Emulation software.
2 Ethernet/IEEE 802.3 interface(s)
32K bytes of non-volatile configuration memory.
16384K bytes of processor board System flash (Read/Write)

Configuration register is 0x2102

wilson#
```

Reference

:http://www.cisco.com/en/US/products/sw/secursw/ps1018/products_tech_note09186a00800949e4.shtml

QUESTION 217:

Which is the correct fallback sequence for loading the Cisco IOS?

- A. ROM, Flash, NVRAM
- B. ROM, TFTP server, Flash
- C. Flash, TFTP server, ROM
- D. Flash, NVRAM, RAM

Answer: C

Explanation:

By default, a Cisco IOS router will normally boot up from flash where the IOS is stored. If the IOS is not found or has become corrupted, the router will then send an all hosts broadcast (255.255.255.255) to find a TFTP server to download the IOS from. Should that fail, the router will boot up in ROM Monitor mode as a last resort.

QUESTION 218:

On three different occasions an administrator configured a router, and after testing the configuration saved it to NVRAM by issuing the copy running-config

startup-config command. After each successful save the administrator issued the reload command. However, each time when the router restarted, it appeared to have the default blank configuration.

What could be the cause of such results?

- A. The NVRAM is corrupted.
- B. The boot system commands were omitted in the configuration.
- C. The configuration register setting is incorrect.
- D. The upgraded configuration incompatible with the hardware platform.
- E. The upgraded IOS incompatible with the hardware.

Answer: C

Explanation:

When you enter the command, "copy running-config startup-config" you save your current settings to NVRAM. The problem described in this question is that it appears the router is set to bypass the NVRAM, making it come up in the initial configuration dialog. The most likely cause of a router with the configuration register settings set incorrectly is that the router recently went through the password recovery procedure. The right working configuration setting for a router is 0x2102.

QUESTION 219:

You are a network administrator at Certkiller . You need to configure five new routes urgently for testing purposes. While connected to a router by console, you copy and past a configuration from a text file into the HyperTerminal window. Part of the text file is shown in the following exhibit:

```
hostname CertKillerA
!
!
interface Ethernet0
 ip address 192.168.10.9 255.255.255.248
!
interface Serial0
 ip address 172.16.25.1 255.255.255.0
 clockrate 56000
!
interface Serial1
 ip address 10.1.1.1 255.255.255.0
!
router rip
 network 192.168.10.0
!
line con 0
 password CertKiller
 login
line aux 0
line vty 0 4
 password CertKiller
 login
end
```

As a result of this procedure, host 192.168.10.10/29 would not be able to ping the Ethernet interface of the router. Why?

- A. The new configuration must be saved to the NVRAM before the changes can be effected.
- B. The subnet mask on the router results in miscommunication.
- C. The Ethernet network does not feature in the routing table due to incomplete RIP configuration.
- D. The copied configuration did not overwrite the shutdown command on the Ethernet interface.
- E. The router needs to be rebooted before the changes are effected.

Answer: D

Explanation:

Default configuration of any interface is always shutdown and always needs the command "no shutdown" in the interface command mode in order to enable the interface.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) Page 379

QUESTION 220:

Which is the correct fallback sequence for loading the Cisco IOS?

- A. ROM, Flash, NVRAM
- B. ROM, TFTP server, Flash
- C. Flash, TFTP server, ROM
- D. Flash, NVRAM, RAM

Answer: C

Explanation:

By default, a Cisco IOS router will normally boot up from flash where the IOS is stored. If the IOS is not found or has become corrupted, the router will then send an all hosts broadcast (255.255.255.255) to find a TFTP server to download the IOS from. Should that fail, the router will boot up in ROM Monitor mode as a last resort.

QUESTION 221:

Which is the correct fallback sequence for loading the Cisco IOS?

- A. ROM, Flash, NVRAM
- B. ROM, TFTP server, Flash
- C. Flash, TFTP server, ROM
- D. Flash, NVRAM, RAM

Answer: C

Explanation:

By default, a Cisco IOS router will normally boot up from flash where the IOS is stored. If the IOS is not found or has become corrupted, the router will then send an all hosts broadcast (255.255.255.255) to find a TFTP server to download the IOS from. Should that fail, the router will boot up in ROM Monitor mode as a last resort.

QUESTION 222:

DRAG DROP

As a Certkiller .com instructor you are required to move the following items to the correct order they are used when Cisco IOS based hardware is booted.

As a Certkiller.com instructor you are required to the following items to the correct order they are used when Cisco IOS based hardware is booted.

Item	Items, place here in order
<input type="text" value="TFTP"/>	<input type="text" value="1st"/>
<input type="text" value="ROM"/>	<input type="text" value="2nd"/>
<input type="text" value="NVRAM"/>	<input type="text" value="3rd"/>
<input type="text" value="FLASH"/>	<input type="text" value="4th"/>

Answer:

As a Certkiller.com instructor you are required to the following items to the correct order they are used when Cisco IOS based hardware is booted.

Item	Items, place here in order
	<input type="text" value="NVRAM"/>
	<input type="text" value="FLASH"/>
	<input type="text" value="TFTP"/>
	<input type="text" value="ROM"/>

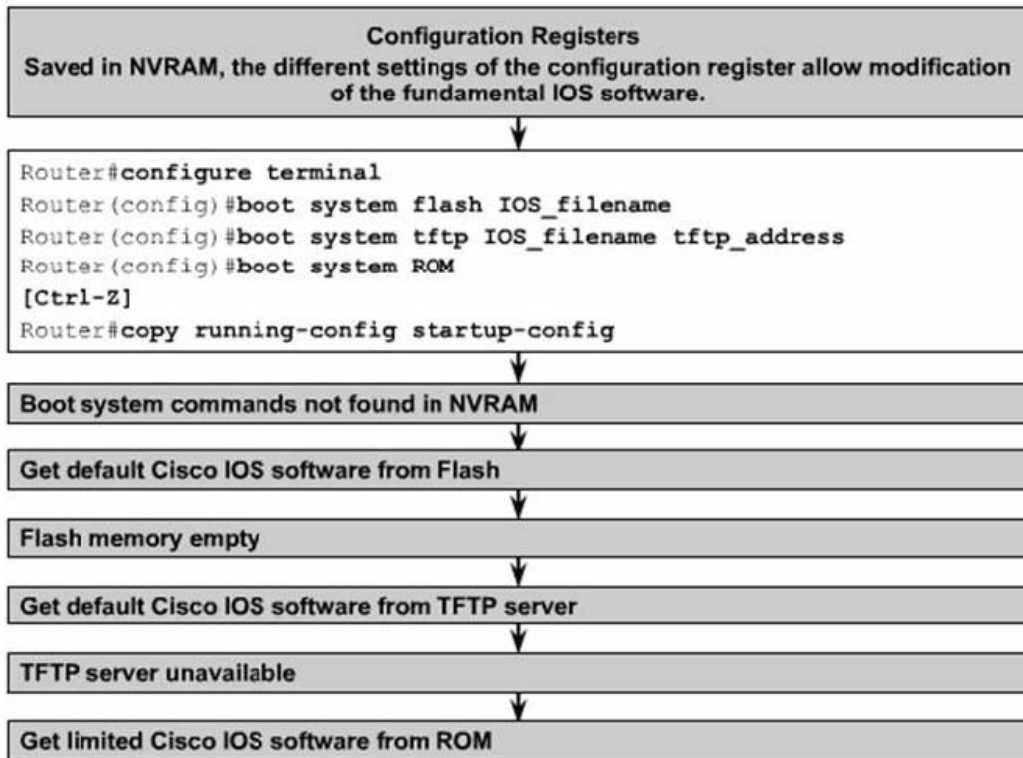
QUESTION 223:

During the boot sequence, a 2600 series router needs to locate and load an operating system. What is the default order the router uses to find an operating system?

- A. ROM, TFTP server, Flash
- B. Flash, TFTP server, ROM
- C. Flash, NVRAM, TFTP server
- D. Flash, ROM, TFTP server
- E. Flash, TFTP server, RAM

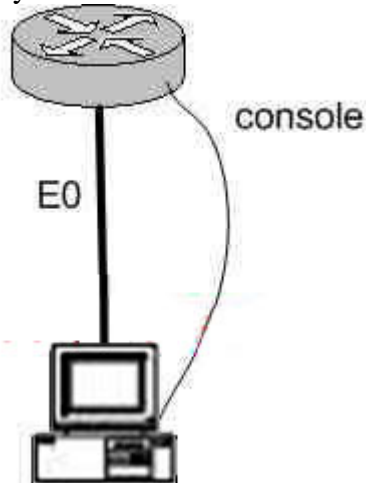
Answer: B

Explanation:



QUESTION 224:

Study the Exhibit below carefully:



You are the network administrator in this scenario. The exhibit illustrates a console session running on a router and you have connected your Windows workstation directly to the router E0 port as well.

Which of the following are among the requirements for the copy flash tftp command to be successful? (Select three options.)

- A. TFTP server software must be activated.
- B. TFTP server software must be running on the administrator's workstation.
- C. There must be space in the flash memory of the router to accommodate the file to be copied.
- D. The copy flash tftp command must be supplied the IP address of the administrator's workstation.
- E. The administrator's workstation must be on the same subnet as the router E0 interface.
- F. The Ethernet connection between the router and the administrator's workstation must be via straight-through cable.

Answer: B, D, E

Explanation:

The sole purpose of the 'copy flash tftp' command is to copy the routers configuration file to the TFTP server to save it. The first logical variable for this operation is that the TFTP software is actually running. So B is correct. D is correct because the IOS won't be able to send off if it doesn't even know where the TFTP server is. Finally, TFTP server must be on the same subnet as the connectivity must be direct and the TFTP and router will need to know how to reach each other.

Incorrect Answers:

- A. The TFTP can't just be activated, it has to be running in the right place.
- C. This is not valid because you aren't downloading into the flash, you're uploading out of the flash, so space isn't a concern.
- F. A cross over cable must be used when connecting from a PC directly into the router's Ethernet interface.

QUESTION 225:

Exhibit

system image file is "flash;c2600-ik8033-mz.122-8.Ts.bin

```
cisco 2620 (MPC860 processor (revision Ox200) with 16384/2048k
bytes of
memory
processor board ID JAD05076EE6
M860 processor:part number 0, mask 49.
Bridging software
x.25 software version 3.0.0
1 Fast Ethernet ( IEEE 802.3 interface (s)
2 Low speed serial (synch/asynch) network interface (s)
32k bytes of non-volatile configuration memory.
16384k bytes of processor board System Flash (Read/Write)
configuration register is 0x2142
```

A router consistently loses its configuration each time it reboots. Given the output shown in the graphic, what is the cause of this problem?

- A. The processor is overheating.
- B. Configuration register is misconfigured.

- C. There is no problem.
- D. Cisco products are inferior compared to Nortel products. Migrate to Nortel instead.

Answer: B

Explanation:

The value of the register 0x2142 means that the router should omit the startup configuration when it loads. To solve this problem change the value of the register to 0x2102

QUESTION 226:

Exhibit:

```
Processor board ID JAUJ5U/bEfb
M860 processor partner beng mark 19
Bringing software
X.25 software, Version 02J.0
1 FastEthernet/IEEE 802.3 interface(s)
2 Low-speed serial(synch/asynch) network interface(s)
32K bytes of non-volatile configuration memory.
16384K bytes of processor board System flash(Read/Write)

Configuration register is 0x2142
```

You need to troubleshoot a Cisco router at the Toronto office of Certkiller .com. The router loses its configuration each time it is rebooted. You study the output displayed in the exhibit.

What is the cause of the problem?

- A. The configuration register is misconfigured
- B. NVRAM failed POST
- C. There is insufficient flash memory
- D. There is insufficient RAM for the IOSD image
- E. There is insufficient NVRAM

Answer: A

Explanation:

The configuration register value of 0x2142 is used to bypass the saved NVRAM router configuration and is normally only used for password recovery procedures. The correct configuration register value is typically 0x2102. The following table displays some of the common values and their meanings:

Configuration Register Setting	Router Behavior
0x102	1. Ignores break 2. 9600 console baud
0x1202	1. 1200 baud rate
0x2101	1. Boots into bootstrap 2. Ignores break 3. Boots into ROM if initial boot fails 4. 9600 console baud rate

[640-821](#)

0x2102	<ol style="list-style-type: none">1. Ignores break2. Boots into ROM if initial boot fails3. 9600 console baud rate default value for most platforms
0x2120	<ol style="list-style-type: none">1. Boots into ROMmon2. 19200 console speed
0x2122	<ol style="list-style-type: none">1. Ignores break2. Boots into ROM if initial boot fails3. 19200 console baud rate
0x2124	<ol style="list-style-type: none">1. NetBoot2. Ignores break3. Boots into ROM if initial boot fails4. 19200 console speed
0x2142	<ol style="list-style-type: none">1. Ignores break2. Boots into ROM if initial boot fails3. 9600 console baud rate4. Ignores the contents of Non-Volatile RAM (NVRAM) (ignores configuration)
0x2902	<ol style="list-style-type: none">1. Ignores break2. Boots into ROM if initial boot fails3. 4800 console baud rate
0x2922	<ol style="list-style-type: none">1. Ignores break2. Boots into ROM if initial boot fails3. 38400 console baud rate
0x3122	<ol style="list-style-type: none">1. Ignores break2. Boots into ROM if initial boot fails3. 57600 console baud rate
0x3902	<ol style="list-style-type: none">1. Ignores break2. Boots into ROM if initial boot fails3. 2400 console baud rate
0x3922	<ol style="list-style-type: none">1. Ignores break2. Boots into ROM if initial boot fails3. 115200 console baud rate

QUESTION 227:

After working all night and successfully configuring a Cisco router for the Certkiller network you save your changes on the startup config, reboot the router, and go out for a cigarette. When you return, none of your changes are active and the router

boots to the initial configuration mode! Which of the choices below indicates the source of your problem?

- A. Hardware failure in NVRAM prevents the router from loading the config
- B. Startup-config in flash is corrupt and cannot be analyzed
- C. Router configuration-register set to bypass startup configuration
- D. Startup-config in NVRAM is corrupt and cannot be analyzed
- E. None of the above

Answer: C

Explanation:

The default configuration-register setting of 0x2102 loads the IOS from flash and the configuration from NVRAM.

However, for password recovery, you can set the register to 0x2142 and the startup-config file in NVRAM will be bypassed. The problem described here is that the config register was not changed back to 0x2102 before the router was rebooted, so the active configuration is bypassed. Simply setting the config register back to 0x2102 will fix this problem.

Incorrect Answers:

A, B, D. All of these describe hardware or software errors. In the event that this is the problem, errors will be generated and the router will fail to boot properly. In these cases, the router will not return to the initial startup configuration.

QUESTION 228:

You are a senior network administrator at Certkiller , and while performing the password recovery procedure on your 2500 series Cisco router, you type in the following command:

```
o/r 0x2142
```

What is the purpose of this command?

- A. It is used to restart the router.
- B. It is used to bypass the configuration in NVRAM.
- C. It is used to enter ROM Monitor mode.
- D. It is used to view the lost password.
- E. It is used to save the changes to the configuration.

Answer: B

Explanation:

The o/r 0x2142 command changes the value of config-register to 2142 in a Cisco 2500 series router, so that the Router ignores the NVRAM contents and reverts to the initial setup configuration mode when it boots.

QUESTION 229:

A Cisco router has been configured, and the copy running-config startup-config command has been issued. When the router is power cycled, the router prompts with: "Would you like to enter the initial configuration dialog? [yes/no]"
Why has this occurred?

- A. There is an error in the router DRAM.
- B. The IOS image is corrupt.
- C. The configuration register is set to 0x2142.
- D. The TFTP server that contains the router configuration file is unreachable.
- E. A boot system configuration command has placed the router into setup mode.

Answer: C

Explanation:

When the configuration register is set to 0x2142, the router will ignore the contents of the NVRAM information. More specifically, this setting will:

1. Ignores break
 2. Boots into ROM if initial boot fails
 3. 9600 console baud rate
 4. Ignores the contents of Non-Volatile RAM (NVRAM) (ignores configuration)
-

QUESTION 230:

What is the default configuration register setting on most Cisco routers?

- A. 0x2104
- B. 0x2012
- C. 0x2210
- D. 0x2102
- E. 0x2142

Answer: D

Explanation:

The order in which the router looks for system bootstrap information depends on the boot field

Setting is in the configuration register. The config register number is in NVRAM

Default is usually 0x2102 or 0x102 for routers with built-in flash

Router command "show version" will tell you what the Hex number is

Router(config)#config-register 0x101 (to boot from ROM)

Router(config)#config-register 0x102 (or 0x2102 to boot from NVRAM)

QUESTION 231:

According to the information provided in the exhibit, from where was the currently running version of IOS loaded?

```
CertKiller1 (boot)#show startup-config
Using 877 out of 32762 bytes
!
version 11.0
!
hostname CertKiller1
!
boot system flash
--- output omitted ---

CertKiller1 (boot)#show version
Cisco IOS (tm) System Bootstrap, Version 11.0(10c), ara
IOS (tm) System Bootstrap, Version 11, System Bootstrap, Version 11.0(10c), S:SOFTWARE (fc1)
--- output omitted ---

ROM: System Bootstrap, Version 11.0(10c), S:SOFTWARE

CertKiller1 uptime is 2 minutes
System restarted by reload
Running default software

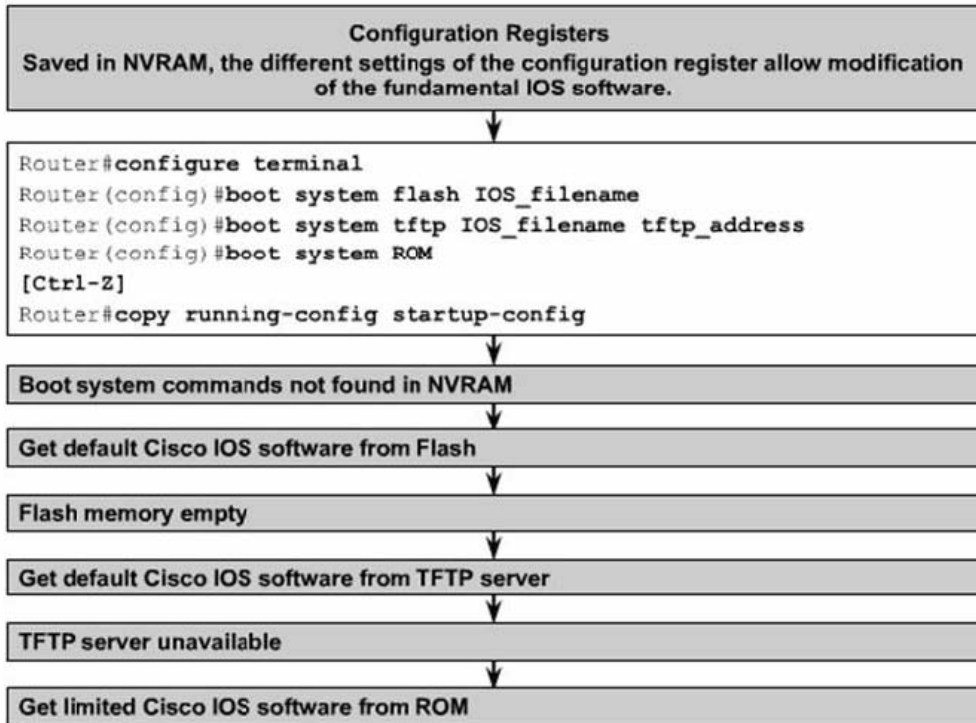
Configuration register is 0x2101

CertKiller1 (boot)#show flash
System flash directory:
File Length Name/status
 1 14051696 /c2500-ic4-122-11.T11.bin
[14051740 bytes used, 2725456 available, 16777216 total]
16384K bytes of processor board System flash (Read/Write)
```

- A. ROM
- B. NVRAM
- C. TFTP server
- D. flash

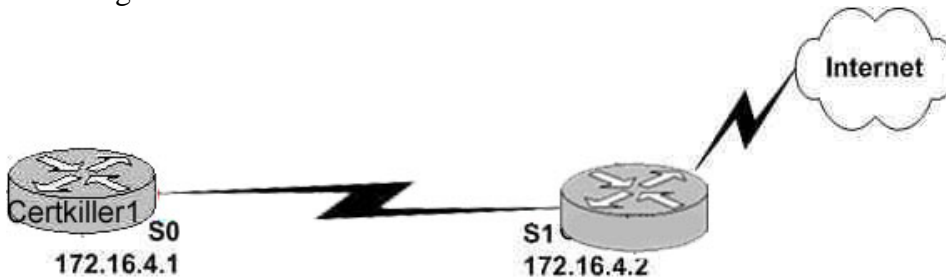
Answer: A

Explanation:



QUESTION 232:

You are the network administrator at Certkiller .com. The Certkiller network uses RIP as its routing protocol. A portion of the Certkiller network is shown in the following exhibit:



You want to create a gateway of last resort.
What command should you issue?

- A. Certkiller 1(config)# ip route 172.16.4.2 0.0.0.0 0.0.0.0
- B. Certkiller 1(config)# ip route 0.0.0.0 0.0.0.0 S1
- C. Certkiller 1(config)# ip route 172.16.4.1 0.0.0.0 0.0.0.0
- D. Certkiller 1(config)# ip route S0 0.0.0.0 0.0.0.0
- E. Certkiller 1(config)# ip route 0.0.0.0 0.0.0.0 172.16.4.2

Answer: E

Explanation:

Setting the default gateway is done by issuing either the "ip route 0.0.0.0 0.0.0.0 serial 0" or the "ip route 0.0.0.0 0.0.0.0 172.16.4.2" command. The following excerpt provides some additional information:

The ip default-network command and the ip route 0.0.0.0 0.0.0.0 commands accomplish the goal of having the router use a known route as the default for packets that are not matched in the routing table. The ip route 0.0.0.0 0.0.0.0 command uses the fact that network 0.0.0.0 is used by Cisco IOS software to represent the default network.

Incorrect Answers:

- A, C. The IP address of the next hop needs to go after the route, not before.
- B. This would have been acceptable if the interface specified was S0, not S1.
- C. The interface used to forward packets for the route should be placed after the route, not before.

QUESTION 233:

You are the network administrator at Certkiller . You want to configure a default route to any destination not found in the routing table. What command should you use?

- A. Router(config)# ip default-route 0.0.0.0 255.255.255.255 s0
- B. Router(config)# ip route 0.0.0.0 255.255.255.255 s0
- C. Router(config)# ip default-route 0.0.0.0 0.0.0.0 s0
- D. Router(config)# ip route 0.0.0.0 0.0.0.0 s0
- E. Router(config)# ip route any any e0

Answer: D

Explanation:

Choice D is the correct syntax for configuring a gateway of last resort. Note that an alternative way is to specify the IP address of the next hop router, for example, "ip route 0.0.0.0 0.0.0.0 10.1.1.1."

QUESTION 234:

You are the network administrator at Certkiller . You are troubleshooting an EIGRP problem on Router CK1 . You want to check the IP addresses as well as the retransmit interval and the queue counts for the devices which have established an adjacency with Router CK1 .

What command should you issue?

- A. CK1 #show ip eigrp adjacency
- B. CK1 #show ip eigrp topology
- C. CK1 #show ip eigrp interfaces
- D. CK1 #show ip eigrp neighbors

Answer: D

Explanation:

Use the show ip eigrp neighbors command to determine when neighbors become active and inactive. It is also useful for debugging certain types of transport problems.

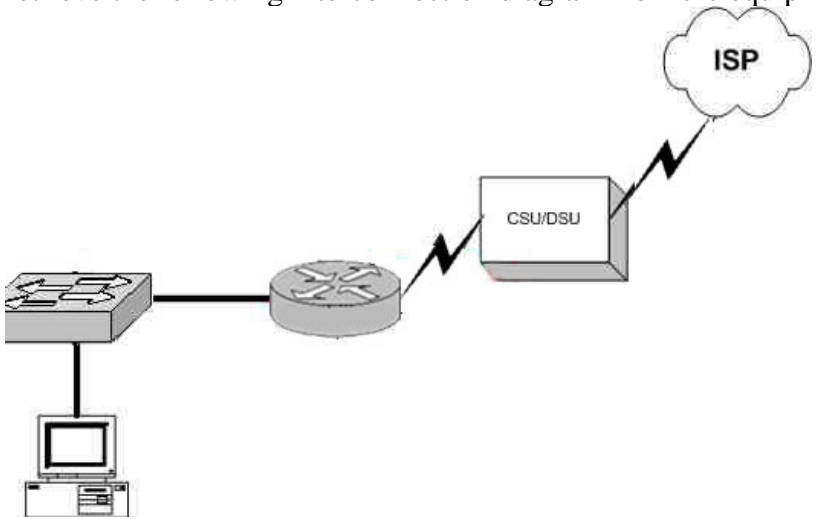
The following is sample output from the show ip eigrp neighbors command:

```
Router# show ip eigrp neighbors
IP-EIGRP Neighbors for process 77
Address Interface Holdtime Uptime Q Seq
SRTT RTO (secs) (h:m:s) Count Num (ms) (ms)
172.16.81.28 Ethernet1 13 0:00:41 0 11 4 20
172.16.80.28 Ethernet0
14 0:02:01 0 10 12 24
172.16.80.31 Ethernet0 12 0:02:02 0 4 5 20
```

Table 45 show ip eigrp neighbors Field Descriptions	
Field	Description
process 77	Autonomous system number specified in the router configuration command.
Address	IP address of the EIGRP peer.
Interface	Interface on which the router is receiving hello packets from the peer.
Holdtime	Length of time (in seconds) that the Cisco IOS software will wait to hear from the peer before declaring it down. If the peer is using the default hold time, this number will be less than 15. If the peer configures a <i>nondefault</i> hold time, the <i>nondefault</i> hold time will be displayed.
Uptime	Elapsed time (in <i>hours:minutes:seconds</i>) since the local router first heard from this neighbor.
Q Count	Number of EIGRP packets (update, query, and reply) that the software is waiting to send.
Seq Num	Sequence number of the last update, query, or reply packet that was received from this neighbor.
SRTT	Smooth round-trip time. This is the number of milliseconds required for an EIGRP packet to be sent to this neighbor and for the local router to receive an acknowledgment of that packet.
RTO	Retransmission timeout (in milliseconds). This is the amount of time the software waits before resending a packet from the retransmission queue to a neighbor.

QUESTION 235:

You are the CEO at Certkiller .com. The network administrator has left the company unexpectedly. Certkiller is experiencing problems with its Internet connection. You retrieve the following interconnection diagram from the equipment room.



Based on the diagram, what type of Internet connection could Certkiller have?

(Choose two)

- A. They are using DSL
- B. They are using frame relay
- C. ISDN is being used
- D. A dedicated T1 circuit is being used
- E. They are using a wireless ISP
- F. They are using a POTS dial up connection

Answer: B, D

The correct answer should be "Frame Relay" & "Dedicated T1". Both WAN technologies use CSU/DSU. These are the only two choices that could be correct based on the fact that a CSU/DSU is being used.

Note: CSU/DSU can be used for Frame Relay, ISDN, and Dedicated T1.

Incorrect Answers:

- A. DSL uses a modem instead of a CSU/DSU
- C. ISDN uses a terminal adapter/NT
- E, F. CSU/DSU's are not used in wireless and dial up connections.

QUESTION 236:

You are the network administrator at Certkiller . You want to configure a default route to any destination network not found in the routing table on router CK1 . Which of the following commands can you issue?

- A. CK1 (config)# ip default-route 0.0.0.0 255.255.255.255 s0
- B. CK1 (config)# ip route 0.0.0.0 255.255.255.255 s0
- C. CK1 (config)# ip default-route 0.0.0.0 s0
- D. CK1 (config)# ip route 0.0.0.0 0.0.0.0 s0
- E. CK1 (config)# ip route any any e0

Answer: D

Explanation:

The ip default-network command and the ip route 0.0.0.0 0.0.0.0 commands accomplish the goal of having the router use a known route as the default for packets that are not matched in the routing table. The ip route 0.0.0.0 0.0.0.0 command uses the fact that network 0.0.0.0 is used by Cisco IOS software to represent the default network.

QUESTION 237:

You are the network administrator at Certkiller . You need to configure a default route on the Certkiller network.

Which the following IOS commands could you use? (Choose two.)

- A. CK1 (config)# ip route 0.0.0.0 0.0.0.0 E0
- B. CK1 (config)# ip route 0.0.0.0 255.255.255.255 S0
- C. CK1 (config-router)# ip route 255.255.255.255 0.0.0.0 192.168.1.21
- D. CK1 (config)# ip route 0.0.0.0 0.0.0.0 192.168.1.21
- E. CK1 (config)# ip route 0.0.0.0 192.168.1.21 255.255.255.255
- F. CK1 # ip default-network 0.0.0.0 192.168.1.21 255.255.255.255

Answer: A, D

Explanation:

The ip default-network command and the ip route 0.0.0.0 0.0.0.0 commands accomplish the goal of having the router use a known route as the default for packets that are not matched in the routing table. The ip route 0.0.0.0 0.0.0.0 command uses the fact that network 0.0.0.0 is used by Cisco IOS software to represent the default network.

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QUESTION 238:

You are the network administrator at Certkiller . Your newly appointed Certkiller trainee wants to know what the default administrative distance of OSPF routing protocol is.

What will your reply be?

- A. 90
- B. 100
- C. 110
- D. 120
- E. 170

Answer: C

Explanation:

The administrative distance values are configured on a single router and are not exchanged with other routers. Table lists the various sources of routing information, along with the default administrative distance.

Default Administrative Distances

Route Type Administrative Distance

Connected 0

Static 1

EIGRP summary route 5

EBGP 20

EIGRP (internal 90

IGRP 100

OSPF 110

IS-IS 115

RIP 120

EIGRP (external) 170
iBGP (external) 200

QUESTION 239:

With regard to classless routing protocols, which of the following statements are true? (Choose two.)

- A. Discontiguous subnets are not allowed.
- B. Variable length subnet masks are allowed.
- C. RIP v1 is a classless routing protocol.
- D. IGRP supports classless routing within the same autonomous system.
- E. RIP v2 supports classless routing.

Answer: B, E

Explanation:

Classless and Classful Routing Protocols

Some routing protocols must consider the Class A, B, or C network number that a subnet resides in when performing some of its tasks. Other routing protocols can ignore Class A, B, and C rules altogether. Routing protocols that must consider class rules are called classful routing protocols; those that do not need to consider class rules are called classless routing protocols.

You can easily remember which routing protocols fall into each category because of one fact:

Classful routing protocols do not transmit the mask information along with the subnet number, whereas classless routing protocols do transmit mask information.

You might recall that routing protocols that support VLSM do so because they send mask information along with the routing information. Table 7-3 lists the routing protocols and whether they transmit mask information, support VLSM, and are classless or classful.

Table 7-3 Interior IP Routing Protocol: Classless or Classful?

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Reference: Pg.233

Routing Protocol	Classless	Sends Mask/Prefix in Routing Updates	VLSM Support	Route Summarization Support
RIP-1	No	Yes	No	No
IGRP	No	No	No	No
RIP-2	Yes	Yes	Yes	Yes
EIRGP	Yes	Yes	Yes	Yes
OSPF	Yes	Yes	Yes	Yes

QUESTION 240:

You are the network administrator at Certkiller . You must configure a router for load balancing across 4 unequal cost paths on the Certkiller network.

Which of the following routing protocols can you use? (Choose two.)

- A. RIP v1
- B. RIP v2
- C. IGRP
- D. EIGRP
- E. OSPF
- F. VLSM

Answer: C, D

Explanation:

In general, load balancing is the capability of a router to distribute traffic over all its network ports that are the same distance from the destination address. Load balancing increases the utilization of network segments, thus increasing effective network bandwidth. There are two types of load balancing: equal cost path and unequal cost path. Every routing protocol supports equal cost path load balancing. In addition to that, IGRP and EIGRP also support unequal cost path load balancing, which is known as variance. The variance command instructs the router to include routes with a metric less than n times the minimum metric route for that destination, where n is the number specified by the variance command. The variable n can take a value between 1 and 128, with the default being 1, which means equal cost load balancing (variance<n> for example, Traffic is also distributed among the links with unequal costs, proportionately, with respect to the metric.

http://www.cisco.com/en/US/tech/CK365/CK207/technologies_tech_note09186a008009437d.shtml

QUESTION 241:

You are the network administrator at Certkiller . The RIP routing protocol is being used on the Certkiller network. RIP is configured with default settings and equal cost load balancing. The Certkiller network has six paths with the same metric and administrative distance for a single destination.

Which of the six paths will RIP use to reach the destination?

- A. Only the first two paths that are learned.
- B. Four of the paths.
- C. All six routes in a routed robin fashion.
- D. The oldest two paths in the routing table.
- E. The first path learned to the destination network.

Answer: E

Explanation:

To set the maximum number of routes that RIP can insert into the routing table., use the rip equal-cost command Enter a number from 1 to 15. The default is 1. For example:
(config)#ripequal-cost4

To reset the number of routes to the default value of 1, enter:
(config)#no ip equal-cost

QUESTION 242:

You are a technician at Certkiller . After configuring your router, you find that you cannot ping the directly connected serial port of the neighboring router. The show running-config output displays the word "shutdown" for the serial interface. Which of the following lines will be displayed in the show interface s0 output?

- A. Serial 0 is down, line protocol is down
- B. Serial 0 is up, line protocol is down
- C. Serial 0 is down, line protocol is up
- D. Serial 0 is administratively down, line protocol is down
- E. Serial 0 is administratively up, line protocol is down
- F. Serial 0 is administratively down, line protocol is up

Answer: D

Explanation:

To bring down an interface for administrative reasons and, as a side effect, remove the connected router from the routing table, you can use the shutdown interface subcommand.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) Page 379

QUESTION 243:

Which of the following are the routing protocols that are capable of supporting a network that uses VLSM and route summarization? (Select three options.)

- A. IGRP
- B. EIGRP
- C. RIP v1
- D. RIP v2
- E. OSPF
- F. VTP
- G. LSA

Answer: B, D, E

Explanation:

EIGRP and OSPF support Variable Length Subnet Masks (VLSM) and provide for both automatic and manual route summarization configurations. RIPv2 is an enhanced version of RIP, and overcame some of the limitations of RIP by introducing support for VLSM.

Incorrect Answers:

- A, C. IGRP and RIP are relatively old and simplistic routing protocols that were developed before the concepts of VLSM and route summarization.
- F. VTP is the VLAN Trunking Protocol, used in switched LAN environments to carry VLAN information. It is not a routing protocol.
- G. CDP is the Cisco Discovery Protocol, used between neighboring Cisco devices to automatically discover information. It is not a routing protocol.

QUESTION 244:

One of your trainees wants to know which of the following statements regarding the command `ip route 172.16.3.0 255.255.255.0 192.168.2.4` are true. What can you tell her? (Select two options.)

- A. The default administrative distance is used.
- B. The command is used to establish a static route.
- C. The command is used to configure the routers.
- D. The command is used to establish a stub network.
- E. The subnet mask for the source address is 255.255.255.0

Answer: A, B

Explanation:

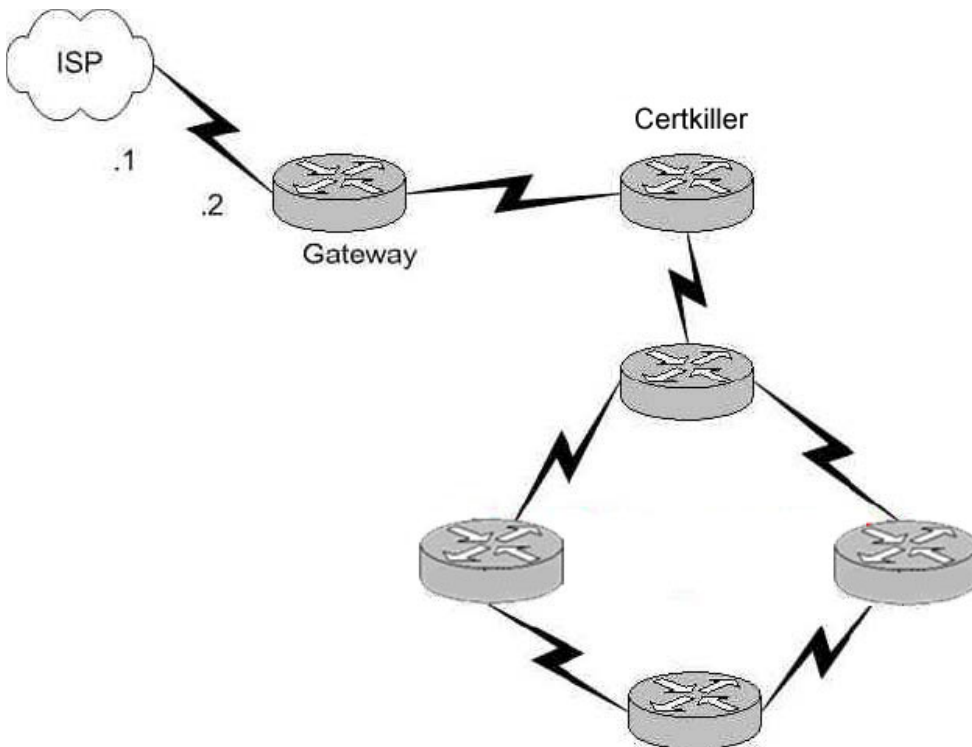
This command specifies a static route, and tells the router that it should forward all traffic destined for the 172.16.3.0/24 subnet to the next hop router located at 192.168.2.4. The default Administrative Distance for a static route is one, and since there is no AD value specified at the end of this configuration change, the default is used.

Incorrect Answers:

- C. This command is done in global configuration mode, not in interface mode.
- D. Stub networks are used in OSPF topologies. The example in this question is simply applying a single static route.
- E. There is not source network or subnet specified in a static route. All traffic destined to the target of 172.16.3.0/24 is to be forwarded, regardless of the source.

QUESTION 245:

Study the Exhibit below carefully:



The ISP assigned Network 207.134.6.0 to Certkiller . You are the network administrator at Certkiller and would like to configure one router with the commands to access the Internet.

Which of the following commands will you use to configure the Gateway Router to allow Internet access to the entire network? (Select two options.)

- A. Gateway(config)# ip route 0.0.0.0 0.0.0.0 207.134.6.1.
- B. Gateway(config)# router rip
Gateway(config-router)# network 207.134.6.0 default
- C. Gateway(config)# ip route 207.134.6.0 255.255.255.0 Serial0/0
- D. Gateway(config)# router rip
Gateway(config-router)# network 207.134.6.0
- E. Gateway(config)# ip default-network 207.134.6.0

Answer: A, E

Explanation: This question only involves the configuration of the gateway router to the ISP, nothing else. You have two choices to accomplish this: the command "ip route" or the command "ip default-network". Both of these methods will configure a default route to the ISP as desired.

Incorrect Answers:

B, D. RIP and OSPF are interior routing protocols. The T1 Internet connection that is being set up here is between two different Autonomous Systems. The only routing protocol that could be potentially used is BGP, but that is not an option.

C. This command will only set up a static route to the 207.134.6.0/24 network. We wish to set up a static default route.

QUESTION 246:

What are the characteristic of link state routing protocols? (Choose all that apply.)

- A. The exchange of advertisement is triggered by a change in the network.
- B. All routers exchange routing tables with each other in a multipoint network.
- C. Packets are routed based upon the shortest path to the destination.
- D. Paths are chosen depending on the cost efficiency factor.
- E. Every router in an OSPF area is capable of representing the entire network topology.
- F. Only the designated router in an OSPF area can represent the entire network topology.

Answer: A C E

Explanation:

Open Shortest Path First

- * Each router discovers its neighbors on each interface. The list of neighbors is kept in a neighbor table.
- * Each router uses a reliable protocol to exchange topology information with its neighbors.
- * Each router places the learned topology information into its topology database.
- * Each router runs the SPF algorithm against its own topology database.
- * Each router runs the SPF algorithm against its own topology database to calculate the best routes to each subnet in the database.
- * Each router places the best route to each subnet into the IP routing table.

The following list points out some of the key features of OSPF:

- * Converges very quickly - from the point of recognizing a failure, it often can converge in less than 10 seconds.
- * Supports VLSM.
- * Uses short Hello messages on a short regular interval, with the absence of hello messages indicating that a neighbor is no longer reachable.
- * Sends partial updates when link status changes, and floods full updates every 30 minutes. The flooding, however, does not happen all at once, so the overhead is minimal.
- * Uses cost for the metric.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) Page 417

QUESTION 247:

Which of the following will allow a router to respond to an ARP request that is meant for a remote host?

- A. Gateway DP
- B. Reverse ARP

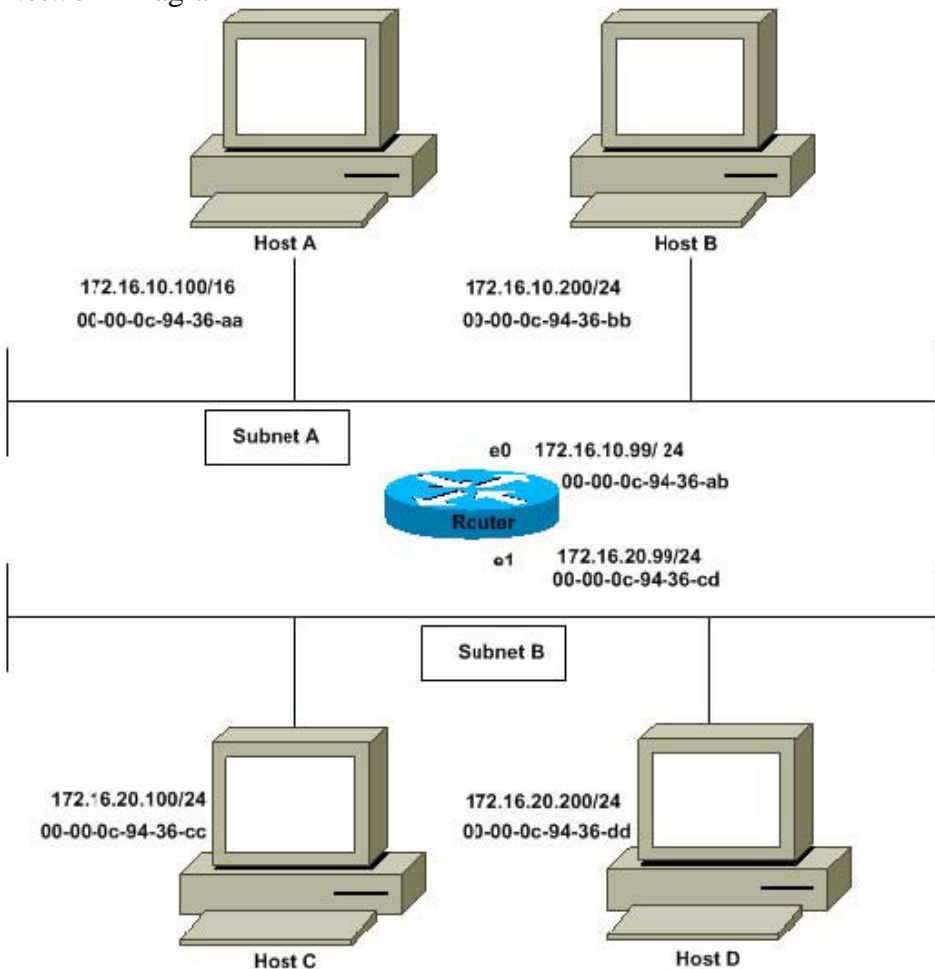
- C. proxy ARP
- D. Inverse ARP
- E. indirect ARP

Answer: C

Explanation:

Below is an example taken from Cisco describing how proxy ARP operates:

Network Diagram



The Host A (172.16.10.100) on Subnet A needs to send packets to Host D (172.16.20.200) on Subnet B. As shown in the diagram above, Host A has a /16 subnet mask. What this means is that Host A believes that it is directly connected to all of network 172.16.0.0. When Host A needs to communicate with any devices it believes are directly connected, it will send an ARP request to the destination. Therefore, when Host A needs to send a packet to Host D, Host A believes that Host D is directly connected, so it sends an ARP request to Host D.

To reach Host D (172.16.20.200), Host A needs the MAC address of Host D. Therefore, Host A broadcasts an ARP request on Subnet A, as below:

Sender's MAC Address	Sender's IP Address	Target MAC Address	Target IP Address
00-00-0c-94-36-aa	172.16.10.100	00-00-00-00-00-00	172.16.20.200

In above ARP request, Host A (172.16.10.100) is requesting that Host D (172.16.20.200) send its MAC address. The above ARP request packet is then encapsulated in an Ethernet frame with Host A's MAC address as the source address and a broadcast (FFFF.FFFF.FFFF) as the destination address. Since the ARP request is a broadcast, it reaches all the nodes in the Subnet A, including the router's e0 interface, but does not reach Host D. The broadcast will not reach Host D because routers, by default, do not forward broadcasts.

Since the router knows that the target address (172.16.20.200) is on another subnet and can reach Host D, it will reply with its own MAC address to Host A.

Sender's MAC Address	Sender's IP Address	Target MAC Address	Target IP Address
00-00-0c-94-36-ab	172.16.20.200	00-00-0c-94-36-aa	172.16.10.100

Above is the Proxy ARP reply that the router sends to Host A. The proxy ARP reply packet is encapsulated in an Ethernet frame with router's MAC address as the source address and Host A's MAC address as the destination address. The ARP replies are always unicast to the original requester.

On receiving this ARP reply, Host A updates its ARP table as below:

IP Address	MAC Address
172.16.20.200	00-00-0c-94-36-ab

From now on Host A will forward all the packets that it wants to reach 172.16.20.200 (Host D) to the MAC address 00-00-0c-94-36-ab (router). Since the router knows how to reach Host D, the router forwards the packet to Host D. The ARP cache on the hosts in Subnet A is populated with the MAC address of the router for all the hosts on Subnet B. Hence, all packets destined to Subnet B are sent to the router. The router forwards those packets to the hosts in Subnet B.

Reference: <http://www.cisco.com/warp/public/105/5.html>

QUESTION 248:

You have been asked to configure a default route.

Which of the IOS commands mentioned below will accomplish this task? (Select two options.)

- A. LTD(config)# ip route 0.0.0.0 0.0.0.0 192.168.15.36
- B. LTD(config)# ip route 0.0.0.0 192.168.15.36 255.255.255.255
- C. LTD# ip default-network 0.0.0.0 192.168.15.36 255.255.255.255
- D. LTD(config)# ip route 0.0.0.0 0.0.0.0 E0
- E. LTD(config)# ip route 0.0.0.0 255.255.255.255 S0
- F. LTD(config-router)# ip route 255.255.255.255 0.0.0.0 192.168.15.36

Answer: A, D

Explanation: The default route is the IP address of the next hop when no other routes are known. To configure the default route you type in 'ip route' and then two address sets of 0 followed by the address (as is the case in A) or the interface (as is the case in D).

QUESTION 249:

You are a network administrator and you need to implement a routing protocol on your network that provides:

- * Scalability
 - * VLSM support
 - * Minimal overhead
 - * Support for connecting networks using routers of multiple vendors
- Which of the following routing protocol would best serve your needs?

- A. VTP
- B. RIP version 1
- C. EIGRP
- D. OSPF
- E. IGRP
- F. CDP

Answer: D

Explanation:

Since one of the requirements is that the routing protocol must support other vendors, our only choices are RIP and OSPF. Since RIP version 1 does not support VLSM, OSPF is the only choice.

Incorrect Answers:

- A. VTP is the VLAN Trunking Protocol. This is not a routing protocol.
- B. RIP version one does not support VLSM. Note that RIPv2 does support VLSM, and would be a valid choice.
- C, E. EIGRP and IGRP are Cisco proprietary routing protocols, and are not supported by other vendors.
- F. CDP is the Cisco Discovery Protocol, which is used to exchange information between

Cisco devices. It can only be used between Cisco routers and switches, and it is not a routing protocol.

QUESTION 250:

You are the network administrator. Your aim is to support a multi-protocol network that includes IP, AppleTalk and IPX. Which routing protocol can you use that will achieve this aim?

- A. OSPF
- B. EIGRP
- C. RIP v2
- D. IGRP
- E. RIP v1

Answer: B

Explanation:

Only EIGRP provides routing protocol support for IP, IPX, and Appletalk networks.

QUESTION 251:

What does the concept route aggregate mean when one talks about using variable subnet masking?

- A. Deleting unusable addresses through the creation of many subnets.
- B. Combining routes to multiple networks into one supernet.
- C. Reclaiming unused space by means of changing the subnet size.
- D. Calculating the available host addresses in the AS.

Answer: B

Explanation:

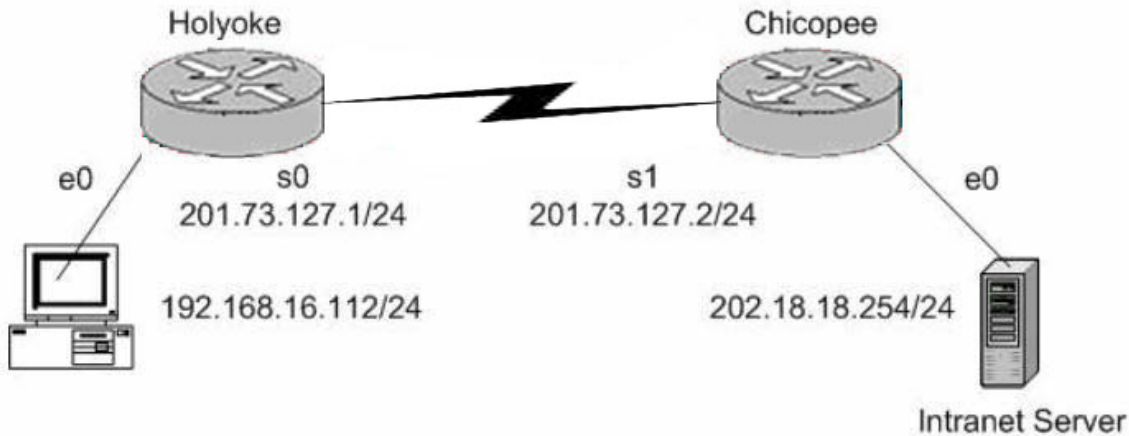
In the networking world route aggregate means combining routes to multiple networks into one. This is also known as route summarization or supernetting. It is normally used to reduce the number of route entries in the routing table by advertising numerous routes into one larger route.

Reference: CCNA Self-Study CCNA ICND exam certification Guide (Cisco Press, ISBN 1-58720-083-X) Page 236.

QUESTION 252:

Study the Exhibit below carefully:

640-821



Users on the Holyoke router cannot get access to the intranet server attached to interface E0 of the Chicopee router. After investigating you discover that the routing table of the Holyoke router shows that an entry for the Chicopee E0 network is missing.

Which command, according to the above exhibit, will configure the Holyoke router with a path to the intranet server network?

- A. Holyoke(config)# ip host Chicopee 201.73.127.2
- B. Holyoke(config)# ip network 202.18.38.0
- C. Holyoke(config)# ip network 202.18.18.0 255.255.255.0
- D. Holyoke(config)# ip host Chicopee 201.73.127.0 255.255.255.0
- E. Holyoke(config)# ip route 202.18.18.0 255.255.255.0 201.73.127.2
- F. Holyoke(config)# ip route 201.73.127.2 266.255.255.0 202.18.18.0

Answer: E

Explanation:

We need to add a route for the 202.18.18.0/24 network. We can do this with the ip route command. The syntax is: ip route <network> <mask> <gateway>.

QUESTION 253:

Study the Exhibit below carefully:

```
RtrA#debug ip rip
RIP protocol debugging is on
RtrA#
1d05h: R.I.P.: sending v1 update to 255.255.255.255 via FastEthernet0/0 (172.16.1.1)
1d05h: R.I.P.: build update entries
1d05h: network 10.0.0.0 metric 1
1d05h: network 192.168.1.0 metric 2
1d05h: R.I.P.: sending v1 update to 255.255.255.255 via Serial0/0 (10.0.8.1)
1d05h: R.I.P.: build update entries
1d05h: network 172.16.0.0 metric 1
RtrA#
1d05h: R.I.P.: received v1 update from 10.0.15.2 on Serial0/0
1d05h: 192.168.1.0 in 1 hops
1d05h: 192.168.168.0 in 16 hops (inaccessible)
```

A. This router was configured with the commands:
RtrA(config)#router rip

RtrA(config-router)# network 172.16.0.0

RtrA(config-router)# network 10.0.0.0

B. This router was configured with the commands:

RtrA(config)# router rip

RtrA(config-router)# network 192.168.1.0

RtrA(config-router)# network 10.0.0.0

RtrA(config-router)# network 192.168.168.0

C. This router was configured with the commands:

RtrA(config)# router rip

RtrA(config-router)# version 2

RtrA(config-router)# network 172.16.0.0

RtrA(config-router)# network 10.0.0.0

D. Split horizon was disabled on this router.

E. Network 192.168.168.0 will be displayed in the routing table.

F. Network 10.0.0.0 will be displayed in the routing table.

Answer: A, F

Explanation:

Based on the information provided, this RIP network is routing the 192.168.1.0, 172.16.0.0, and 10.0.0.0 networks. However, the 10.0.0.0 and 172.16.0.0 networks show that they are being advertised to the other router with a metric of 1, meaning that it is directly connected. Therefore, choice A is correct. Also, the 192.168.1.0 network was received on the serial 0/0 interface with a valid metric of 1 so this route will indeed be installed into the routing table.

Incorrect Answers:

B. The 192.168.0.0 networks are being received from other routers, so this particular one will not have this locally configured.

C. The output shows that RIP version 1 is being used, not RIP version 2.

D. There is no information to support this.

E. This network shows a metric of 16, which is the maximum number of hops for RIP so it is deemed inaccessible.

QUESTION 254:

One of your trainees wants to know at what stage are packets processed by an inbound access list. What can you tell her?

A. Before they are routed to an outbound interface.

B. After they are routed for outbound traffic.

C. After they are routed to an outbound interface while queuing.

D. Before and after they are routed to an outbound interface.

E. Depends on the configuration of the interface

F. None of the above

Answer: A

Explanation:

When a packet is received on an interface with an inbound access list configured, the packets are matched against the access list to determine if they should be permitted or denied. After this check, the packets are processed by the routing function. The access list check is always done first.

Incorrect Answers:

B, C. The packets are always processed by the inbound access list prior to being routed.
D. All packets are always checked against a specific access list only once. While packets traversing through a router may be checked against different access lists for each interface and in each direction (inbound and outbound), each access list is always only consulted once.

QUESTION 255:

Which of the following commands should you use if you were asked to apply an access list on a virtual terminal line of a router?

- A. RouterCK(config-line)# access-class 10 in
- B. RouterCK(config-if)# ip access-class 23 out
- C. RouterCK(config-line)# access-list 150 in
- D. RouterCK(config-if)# ip access-list 128 out
- E. RouterCK(config-line)# access-group 15 out
- F. RouterCK(config-if)# ip access-group 110 in

Answer: A

Explanation:

To configure VTY you must be in the config-line mode. Virtual terminal sessions use VTY lines 0-4, and VTY access lists use the access-class command.

Incorrect Answers:

B. This is placed in the wrong configuration mode
C, D, E, F. The correct syntax for VTY lines is the access-class command, not the access-group or access-list commands.

QUESTION 256:

You are a network administrator at Certkiller . The Certkiller network has three remote networks are accessed through serial 0/0 interface on the Certkiller 1 router. The remote networks are: 172.16.10.0, 172.16.20.0, and 172.16.30.0. However, users cannot access 172.16.20.0. You are troubleshooting the problem. You issue the debug ip rip and show ip route commands. The output form the command is shown in the following exhibit:

<some output text is omitted>

Certkiller 1# debug ip rip

ld00h: RIP:received v1 update from 172.16.100.2 on Serial0/0

ld00h: 172.16.10.0 in 1 hops
ld00h: 172.16.20.0 in 1 hops
ld00h: 172.16.30.0 in 1 hops
Certkiller 1# show ip route
Gateway of last resort is not set
172.16.0.0/24 is subnetted, 8 subnets
C 172.16.150.0 is directly connected, FastEthernet0/0
C 172.16.220.0 is directly connected, Loopback2
C 172.16.210.0 is directly connected, Loopback1
C 172.16.200.0 is directly connected, Loopback0
R 172.16.30.0 [120/1] via 172.16.100.2, 00:00:07, Serial0/0
S 172.16.20.0 [1/0] via 172.16.150.15
R 172.16.10.0 [120/1] via 172.16.100.2, 00:00:07, Serial0/0
C 172.16.100.0 is directly connected, Serial0/0
What is the most likely cause of the problem?

- A. 172.16.20.0 is not located in Certkiller 1's routing table.
- B. There is no gateway of last resort on Certkiller 1.
- C. The static route for 172.16.20.0 is incorrect.
- D. The Certkiller 1 router is not receiving 172.16.20.0 updates.

Answer: C

Explanation

The static route of 172.16.20.0 is incorrect. The show ip route shows that the network is connected via 172.16.150.15 instead of 172.16.100.2.

QUESTION 257:

You are a network technician at Certkiller . A newly appointed trainee wants to know what the basics of distance vector and link state routing protocols are. What would your reply be? (Choose all that apply.)

- A. Distance vector protocols send the entire routing table to directly connected neighbors.
- B. Distance vector protocols are responsible for sending updates to all networks listed in the routing table.
- C. Link state protocols are responsible for sending the entire routing table to the whole network.
- D. Link state protocols send updates regarding their own links status to all other routers on the network.

Answer: A D

Explanation:

Distance Vector Protocols:

Distance Vector Protocols advertise routing information by sending messages, called

routing updates, out the interfaces on a router. These updates contain a series of entries, with each entry representing a subnet and a metric.

Link-State Protocols:

Sends partial updates when link status changes and floods full updates every 30 minutes.

The flooding, however, does not happen all at once, so the overhead is minimal.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) Page 413 + 419

QUESTION 258:

Which of the following statements is true regarding the split horizon rule?

- A. Distance vector protocols need fall back routes that are responsible for momentary loops.
- B. Networks can only remain fully operational provided all information is sent out all active interfaces.
- C. Each AS must keep routing tables converged to avoid dead routes from being advertised.
- D. Information about a route should not be sent back in the direction from which the original update came.
- E. Only routers can split boundaries (horizons) between concentric networks.

Answer: D

Explanation:

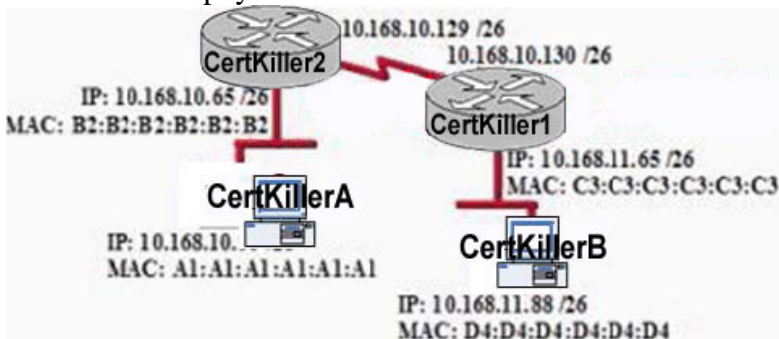
Split horizon blocks information about routes from being advertised by a router out of any interface from which that information originated.

Reference:

http://www.cisco.com/en/US/products/sw/iosswrel/ps1826/products_configuration_guide_chapter09186a008008

QUESTION 259:

Refer to the exhibit. If host Certkiller A sends an IP packet to host Certkiller B, what will the source physical address be in the frame when it reaches host Certkiller B?



- A. A1:A1:A1:A1:A1:A1
- B. D4:D4:D4:D4:D4:D4
- C. B2:B2:B2:B2:B2:B2
- D. 10.168.11.88
- E. 10.168.10.99
- F. C3:C3:C3:C3:C3:C3

Answer: F

Explanation: When packets transfer from one host to another, source address is source address, physical address is existing router's interface address. Similarly destination ip address is destination host address as well as physical address is destination router's interface address. So Answer F is correct.

QUESTION 260:

Which statements accurately describe CDP? (Choose three.)

- A. CDP is a datalink layer protocol.
- B. CDP can discover Cisco devices that are not directly connected.
- C. CDP is an IEEE standard protocol.
- D. CDP is a network layer protocol.
- E. CDP is a Cisco proprietary protocol.
- F. CDP can discover directly connected neighboring Cisco devices.

Answer: A,E,F

Explanation:

CDP is a proprietary protocol designed by Cisco to help administrators collect information about both locally attached and remote devices. By using CDP, you can gather hardware and protocol information about neighbor devices majorly useful info for troubleshooting and documenting the network.

QUESTION 261:

Which command displays the status of the network layer protocols active on a router?

- A. show protocols
- B. show version
- C. show stacks
- D. show network protocols
- E. show flash

Answer: A

Explanation: show protocols command displays the network layer routing protocol configuration. To display What routing protocol is configured use the show protocols command.

QUESTION 262:

What is the maximum number of IP addresses that can be assigned to hosts on a local subnet that use the 255.255.255.224 subnet mask?

- A. 14
- B. 15
- C. 16
- D. 30
- E. 31
- F. 32

Answer: D

Explanation:

The subnet mask 255.255.255.224 means that there are 27 network bits. The remaining 5 bits are the host bits. The maximum possible combinations with 5 bits are $2^5 = 32$. As all zero's and all one's hosts are not allowed so, maximum number of valid hosts with the mask 255.255.255.224 are $2^5 - 2 = 32 - 2 = 30$ Hosts

QUESTION 263:

Which command will assign the last usable IP address from the 192.168.32.128/28 subnetwork to a router interface?

- A. Certkiller A(config-if)# ip address 192.168.32.142 255.255.255.240
- B. Certkiller A(config-if)# ip address 192.168.32.143 255.255.255.240
- C. Certkiller A(config-if)# ip address 192.168.32.158 255.255.255.240
- D. Certkiller A(config-if)# ip address 192.168.32.145 255.255.255.240
- E. Certkiller A(config-if)# ip address 192.168.32.144 255.255.255.240
- F. Certkiller A(config-if)# ip address 192.168.32.158 255.255.255.240

Answer: A

Explanation:

The last usable IP address would be $128 + (16 - 2) = 142$. Because only last 4 bits of the last octet are used for host addressing.

QUESTION 264:

A router receives a packet on interface 172.16.45.66/26. The source IP of the packet

is 172.16.45.127/26 and the destination is 172.16.46.191/26.
How will the router handle the packet?

- A. The destination is a host on another subnet, so the router will not forward the packet.
- B. The destination is a host on the same subnet, so the router will forward the packet.
- C. The destination is a broadcast address, so the router will not forward the packet.
- D. The destination is a network address, so the router will forward the packet.

Answer: C

Explanation:

/26 means 2-bits of subnetting. There will be 4 subnets having 64 hosts in each subnet.

Subnets will be

172.16.46.0 ----- 172.16.46.63 (0-63)

172.16.46.64 ----- 172.16.46.127 (64-127)

172.16.46.128 ----- 172.16.46.191 (128-191)

172.16.46.192 ----- 172.16.46.255 (192-255)

The destination address is 172.16.46.191 which indicates a BROADCAST address so, router will not process this broadcast.

QUESTION 265:

Your newly appointed Certkiller trainee wants to know at what layers of the OSI reference model a WANs operates.
What will your reply be? (Choose two.)

- A. Application layer
- B. Presentation layer
- C. Session layer
- D. Transport layer
- E. Network layer
- F. Data link layer
- G. Physical layer

Answer: E, F

Explanation:

Data-Link Protocols for Point-to-Point Leased Lines

The more interesting part of point-to-point WANs relates to the choices of different data link layer protocols and how each protocol behaves differently. WAN data-link protocols used on point-to-point serial links provide the basic function of data delivery across that one link. The two most popular WAN data-link protocols are High-Level Data Link Control (HDLC) and PPP. Each of these WAN protocols has the following functions in common:

- HDLC and PPP provide for the delivery of data across a single point-to-point serial link.
- HDLC and PPP deliver data on synchronous serial links; PPP also supports asynchronous serial links.

Each synchronous serial data-link protocol uses the concept of *framing*. Each data-link protocol defines the beginning and end of the frame, the information and format of a header and trailer, and the location of the packet between the header and trailer. In other words, synchronous WAN data-link protocols are frame-oriented, just like LAN data-link protocols.

QUESTION 266:

A Certkiller .com technician is troubleshooting connectivity problems between two routers that are directly connected through the serial line. The technician notices that the serial line is up but cannot see any neighbors displayed in the output of the show cdp neighbors command.

In which OSI layer is the problem most likely occurring?

- A. Physical
- B. Data link
- C. Network layer
- D. Transport layer
- E. Application layer

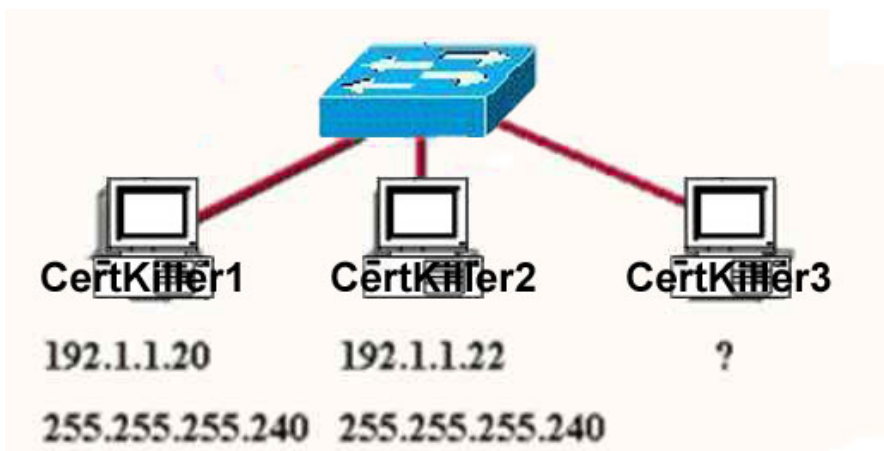
Answer: B

Explanation:

As the question states that serial line is up, it means the problem is not on the Network layer. The administrator cannot see any output by issuing the show cdp neighbors command. It means that CDP is disabled and CDP is a protocol that runs over Layer2 (the data link layer) on all Cisco routers, bridges, access servers, and switches.

QUESTION 267:

Network topology exhibit



A Certkiller .com network administrator is adding host Certkiller 3 to the network shown in the exhibit.

Which IP address can be assigned this host on this network?

- A. 192.1.1.14
- B. 192.1.1.18
- C. 192.1.1.20
- D. 192.1.1.30
- E. 192.1.1.31
- F. 192.1.1.36

Answer: B, D

Explanation:

Subnet Mask of 255.255.255.240 means 4-bits of subnetting. When we do 4-bits of subnetting, we have a total of 16 subnets having 16 hosts each. Subnets will be

192.1.1.0 ----- 191.1.1.15 (0-15)

192.1.1.16 ---- 191.1.1.31 (16-31)

192.1.1.32 ---- 191.1.1.47 (32-47)

|||

|||

|||

192.1.1.240---- 192.1.1.255 (240-255)

Only choices B and D are in the valid range 192.1.1.16 ---- 191.1.1.31 (16-31)

QUESTION 268:

Which of the following are true regarding a network with a subnet mask of 255.255.248.0. Choose three

- A. It corresponds to a Class A address with 13 bits borrowed.
- B. It corresponds to a Class B address with 4 bits borrowed.
- C. The network address of the last subnet will have 248 in the 3rd octet.
- D. The first 21 bits make the host portion of the address.

- E. This subnet mask allows for 16 total subnets to be created.
- F. The subnetwork numbers will be in multiples of 8.

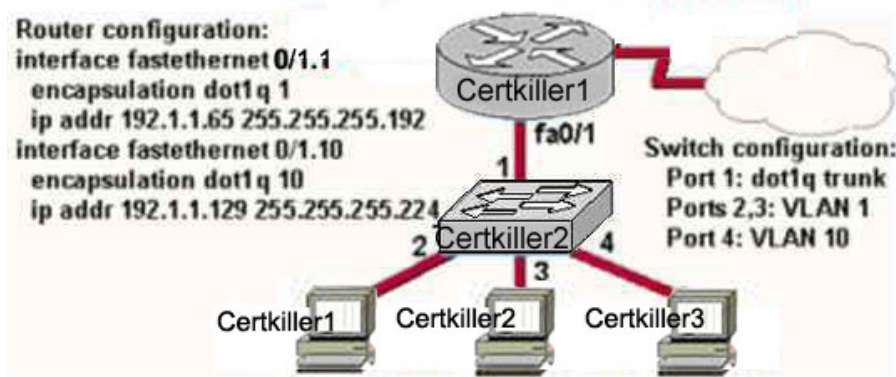
Answer: A, C, F

Explanation:

This subnet mask includes the first 5 bits within the third octet, so for a class A address 13 bits will be used for the mask (8 bits in the second octet plus 5 in the third). Since the first 5 bits are used in this octet, that means that remaining 3 bits in this octet will be available for hosts, so each network will be a factor of 8, making the last available subnet with a .248 in the third octet.

QUESTION 269:

Network topology Exhibit



You work as a network engineer at Certkiller .com. The topology of the Certkiller .com network is displayed in the exhibit. Which of the following are valid configuration values for the hosts? Select three

- A. Host Certkiller 1 IP address: 192.1.1.85
- B. Host Certkiller 1 subnet mask: 255.255.255.224
- C. Host Certkiller 2 IP address: 192.1.1.125
- D. Host Certkiller 2 default gateway: 192.1.1.85
- E. Host Certkiller 3 IP address: 192.1.1.166
- F. Host Certkiller 3 subnet mask: 255.255.255.224

Answer: A, C, F

Explanation:

The answers A and C are right, because the ip address 192.1.1.85 and 192.1.1.125 are in the same subnet 192.1.1.64 as the ip address of the subinterface 0/1.1.

The answer e is wrong, because the network address of the ip address 192.1.1.166 is 192.1.1.160.

QUESTION 270:

You are the network administrator at Certkiller . Your need to design an IP addressing scheme to support a nationwide network. Certkiller needs a minimum of 300 sub-networks, each of which must support a maximum of 50 host addresses. Certkiller has been assigned a Class B address by its ISP. Which of the following subnet masks will support the appropriate addressing scheme? (Choose two.)

- A. 255.255.255.0
- B. 255.255.255.128
- C. 255.255.252.0
- D. 255.255.255.224
- E. 255.255.255.192
- F. 255.255.248.0

Answer: B, E

Explanation:

Requirement in the question is that the company needs 300 subnets and 50 hosts per subnet.

Number of Bits in the Host or Subnet Field	Maximum number of Hosts or Subnets (2x -2)
1	0
2	2
3	6
4	14
5	30
6	62
7	126
8	254
9	510
10	1022
11	2046
12	4094
13	8190
14	16,382

With 9-bits of subnetting, we get 510 subnets and 7-bits of hosts getting 128 hosts/subnet. Subnet mask will be 255.255.255.128

With 10-bits of subnetting, we get 1022 subnets and 6-bits of hosts getting 64 hosts/subnet. Subnet mask will be 255.255.255.192 which fulfils the requirement.

QUESTION 271:

If a host on a network has the address 172.16.45.14/30, what is the address of the subnetwork to which this host belongs?

- A. 172.16.45.0
- B. 172.16.45.4

- C. 172.16.45.8
- D. 172.16.45.12
- E. 172.16.45.18

Answer: D

Explanation:

The last octet in binary form is 00001110. Only 6 bits of this octet belong to the subnet mask. Hence, the subnetwork is 172.16.45.12.

QUESTION 272:

Your ISP has assigned you the following IP address and subnet mask:

IP address: 199.141.27.0

Subnet mask: 255.255.255.240

Which of the following addresses can be allocated to hosts on the resulting subnet?
(Select all that apply)

- A. 199.141.27.2
- B. 199.141.27.175
- C. 199.141.27.13
- D. 199.141.27.11
- E. 199.141.27.208
- F. 199.141.27.112

Answer: A, C, D

Explanation:

IP address = 11001000.10001101.00011011.00000000 = 199.141.27.0

Subnet mask = 11111111.11111111.11111111.11110000 = 255.255.255.240

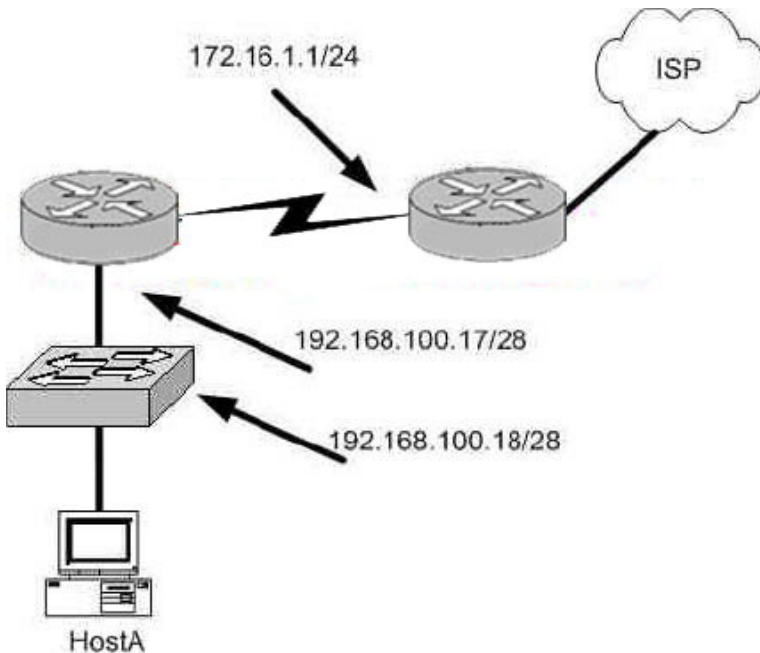
Subnet # = 11001000.10001101.00011011.00000000 = 199.141.27.0

Broadcast = 11001000.10001101.00011011.00001111 = 199.141.27.15

The valid IP address range = 199.141.27.1 - 199.141.27.14

QUESTION 273:

Study the Exhibit below carefully:



Which of the following is the correct IP address configuration for HostA?

- A. IP 192.168.100.31 255.255.255.240 default-gateway 192.168.100.18
- B. IP 192.168.100.30 255.255.255.240 default-gateway 172.16.1.1
- C. IP 192.168.100.20 255.255.255.240 default-gateway 192.168.100.17
- D. IP 192.168.100.21 255.255.255.248 default-gateway 192.168.100.17
- E. IP 192.168.100.19 255.255.255.248 default-gateway 172.16.1.1

Answer: C

Explanation:

Subnet Mask Subnet Size Host Range Broadcast

192.168.100.16 255.255.255.240 14 192.168.100.17 -30 192.168.100.31

Incorrect Answers:

A: The IP address 192.168.100.31 is the broadcast address. It cannot be used for the host.

B: The default gateway should be the first exit point for the network that the host is on. In this case it should be the router interface address 192.168.100.17.

D: The network uses a 28 bit subnet mask (11111111.11111111.11111111.11110000). This equates to 255.255.255.240, not 255.255.255.248.

E: The network uses a 28 bit subnet mask (11111111.11111111.11111111.11110000). This equates to 255.255.255.240, not 255.255.255.248. Also, the default gateway should be the first exit point for the network that the host is on. In this case it should be the router interface address 192.168.100.17.

QUESTION 274:

You work as a network administrator for Certkiller .com. You must design an IP addressing scheme to support the company's network that will provide for a minimum of 300 sub-networks and a maximum of 50 host addresses per subnet.

Which of the following subnet masks will enable you to support an appropriate addressing scheme given the fact that you work with only one Class B address. (Select two options.)

- A. 255.255.255.0
- B. 255.255.255.192
- C. 255.255.248.0
- D. 255.255.252.0
- E. 255.255.255.128
- F. 255.255.255.224

Answer: B, E

Explanation:

Requirement in the question is that the company needs 300 subnets and 50 hosts per subnet.

Number of Bits in the Host or Subnet Field	Maximum number of Hosts or Subnets ($2^n - 2$)
1	0
2	2
3	6
4	14
5	30
6	62
7	126
8	254
9	510
10	1022
11	2046
12	4094
13	8190
14	16,382

With 9 bits used for the subnet portion, we get 510 subnets and using the remaining 7 bits for the hosts gives us 126 hosts per subnet. The subnet mask will be 255.255.255.128

With 10 bits used for the subnet portion, we get 1022 subnets and then using the remaining 6 bits for hosts provides 62 hosts per subnet. The subnet mask will be 255.255.255.192 in this case which will also fulfill the requirement.

QUESTION 275:

Which of the following network masks would you use to reduce any wastage of IP addresses in point-to-point WAN links on a network that supports VLSM?

- A. /38
- B. /30
- C. /27
- D. /23
- E. /18

Answer: B

Explanation:

For a single point to point link, only 2 IP addresses are required, one for the serial interface of the router at each end. Therefore, the 255.255.255.252 subnet mask is often used for these types of links because no IP addresses are wasted. The subnet mask 255.255.255.252 is a /30, so answer B is correct.

Incorrect Answers:

- A. The largest mask that can be used is the single IP host mask, which is /32. It is not possible to use a /38 mask, unless of course IPv6 is being used.
C, D, E. These masks will provide for a larger number of host addresses, and since only 2 IP addresses are needed for a point to point link, these extra addresses are wasted.

QUESTION 276:

Consider the address 192.168.15.19/28, which of the following addresses are valid host addresses on this subnet? (Select two options.)

- A. 192.168.15.17
- B. 192.168.15.0
- C. 192.168.15.29
- D. 192.168.15.16
- E. 192.168.15.31

Answer: A, C

Explanation

The network uses a 28bit subnet (255.255.255.240). This means that 4 bits are used for the networks and 4 bits for the hosts. This allows for 14 networks and 14 hosts ($2^n - 2$). The last bit used to make 240 is the 4th bit (16) therefore the first network will be 192.168.15.16. The network will have 16 addresses (but remember that the first address is the network address and the last address is the broadcast address). In other words, the networks will be in increments of 16 beginning at 192.168.15.16/28. The IP address we are given is 192.168.15.19. Therefore the other host addresses must also be on this network. Valid IP addresses for hosts on this network are: 192.168.15.17-192.168.15.30.

Incorrect Answers:

- B: This is not a valid address for a 28 bit subnet mask. The first network address should be 192.168.15.16.
D: This is a network address.
E: This is a broadcast address.

QUESTION 277:

Study the Exhibit below carefully:

- A. 01100100.00001010.11101011.00100111

B. 10101100.00010010.10011110.00001111

C. 11000000.10100111.10110010.01000101

Which of the following statements regarding the IP addresses as illustrated in the exhibit above, are true? (Select three options.)

G. Address C is a public Class C address.

H. Address C is an exclusive Class C address.

I. Address B is a public Class B address.

J. Address A is a public Class A address.

K. Address B is a private Class B address.

L. Address A is an exclusive Class A address.

Answer: A, D, E

Explanation:

A. Address C converts to 192.167.178.69 in decimal, which is a public class C address.

D. Address A converts to 100.10.235.39, which is a public class A IP address.

E. Address B converts to 172.18.158.15, which is a private (RFC 1918) IP address.

QUESTION 278:

You are a network technician at Certkiller . Certkiller has a larger 172.12.0.0 network that you want to divide into subnets. You want each subnet to support 459 hosts.

You also want to provide the maximum number of subnets.

Which network mask should you use?

A. 225.225.0.0.

B. 225.225.128.0.

C. 225.225.224.0.

D. 225.225.254.0.

Answer: D

Explanation:

To obtain 459 hosts the number of host bits will be 9. This can support a maximum of 512 hosts. Keep 9 bits for hosts means the last bit in the 3rd octet will be 0. This gives 255.255.254.0 as the subnet mask.

QUESTION 279:

Your new junior Certkiller trainee, Rutger, has a problem with basic binary math.

He must convert the binary number 10011101 into its decimal and hexadecimal equivalent.

Which two numbers must Rutger provide? (Select two options)

A. 158

- B. 0x9D
- C. 156
- D. 157
- E. 0x19
- F. 0x9F

Answer: B D

Explanation:

10011101 = 157

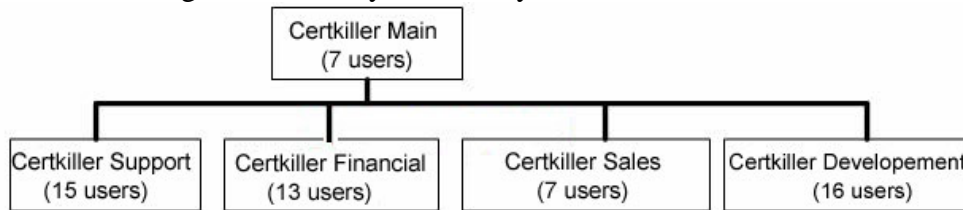
0x9D is ASCII Hexadecimal = 157

Reference:

http://www.cisco.com/en/US/products/sw/iosswrel/ps1818/products_command_reference_chapter09186a008007

QUESTION 280:

You are a network administrator at Certkiller . The Certkiller network is illustrated in the following exhibit. Study it carefully:



Certkiller is acquiring a new Class C IP network.

Which of the following subnet masks will provide one useful subnet for each department while still making allowance for enough usable host addresses per department as specified in the graphic?

- A. 255.255.255.128
- B. 255.255.255.192
- C. 255.255.255.224
- D. 255.255.255.240
- E. 255.255.255.248
- F. 255.255.255.252

Answer: C

Explanation:

The network currently consists of 5 networks and another network will be acquired. That gives us a total of 6 networks. This requires that we use 3 bits for the network address. Using the formula $2^n - 2$ we get 6. This also leaves us with 5 bits for hosts, which gives us 30 hosts.

Incorrect Answers:

A: Only 1 bit is required to give us 128 but 1 bit gives us only 0 subnets.

B: 2 bits are required to give us 192 but 2 bits gives us only 2 subnets. This is too few.

D: 4 bits are required to give us 240. This gives us 14 subnets. However we are left with 4 bits for hosts leaving us with 14 host addresses. Two of the networks require more than 14 hosts so this will not do.

E: 5 bits are required to give us 248. This gives us 30 subnets. However we are left with 3 bits for hosts leaving us with 6 host addresses. All the networks require more than 6 hosts so this will not do.

F: 6 bits are required to give us 252. This gives us 62 subnets. However we are left with 2 bits for hosts leaving us with 6 host addresses. This is too few.

QUESTION 281:

You are a network technician at Certkiller , Inc. Certkiller has a Class B network with a subnet mask of 255.255.255.0.

Which of the following statements is true regarding this network? (Choose all that apply.)

- A. There are 254 usable subnets.
- B. There are 256 usable hosts per subnet.
- C. There are 50 usable subnets.
- D. There are 254 usable hosts per subnet.
- E. There are 24 usable hosts per subnet.
- F. There is one usable network.

Answer: A, D

Explanation

The default subnet mask for Class B is 255.255.0.0. Thus an extra 8 bits have been used for the network portion, leaving 8 for hosts. The $2^n - 2$ formula ($2^8 - 2$ in this case) gives us 254 networks and 254 hosts per network.

QUESTION 282:

You are a network technician at Certkiller , Inc. You have subnetted the 201.105.13.0 network with a /26 mask. How many usable subnetworks and usable host addresses per subnet will be provided?

- A. 4 networks with 64 hosts
- B. 64 networks and 4 hosts
- C. 2 networks and 62 hosts
- D. 62 networks and 2 hosts
- E. 6 network and 30 hosts

Answer: C

Explanation

A subnet with a 26 bit mask requires 2 bits for the network address, leaving 6 bits for host addresses. Using the $2^n - 2$ formula ($2^2 - 2$ for the network and $2^6 - 2$ for hosts) we have 2 network addresses and 62 host addresses.

QUESTION 283:

You have subnetted the 213.105.72.0 network with a /28 mask. How many usable subnetworks and usable host addresses per subnet will be provided?

- A. 2 networks with 62 hosts
- B. 6 networks with 30 hosts
- C. 16 networks and 16 hosts
- D. 62 networks and 2 hosts
- E. 14 networks and 14 hosts

Answer: E

Explanation

A subnet with a 28 bit mask requires 4 bits for the network address, leaving 4 bits for host addresses. Using the $2^n - 2$ formula ($2^4 - 2$ in this case) we have 14 host addresses and 14 network addresses.

QUESTION 284:

You are a network technician at Certkiller . You have subnetted the 209.126.24.0 network with a /24 mask. Your supervisor asks you how many usable subnetworks and usable host addresses per subnet this would make provision for. What would your response be?

- A. 1 network with 254 hosts
- B. 4 networks with 128 hosts
- C. 2 networks with 24 hosts
- D. 6 networks with 64 hosts
- E. 8 networks with 36 hosts

Answer: A

Explanation:

A subnet with 24 bits on would be 255.255.255.0. This subnet has only 1 network and 254 hosts.

QUESTION 285:

You are the network administrator at Certkiller . Certkiller has 14 different departments, each of which requires its own subnet. Certkiller has been assigned the network address 155.69.0.0. Certkiller does not expect any one department to exceed maximum of 1,000 hosts but the company does expect that the number of departments will increase by up to 10 each year for the next four years. You are required to apply a subnet mask that will meet these requirements, and would not need to be changed for at least 4 years.

What subnet mask will you use?

- A. 255.255.0.0
- B. 255.255.240.0
- C. 255.255.252.0
- D. 255.255.255.0
- E. 255.255.255.192

Answer: C

Explanation:

We have one Class B address that we must divide.

Currently there are 14 departments. We must make provision for an increase of 10 departments each year. Thus we need to make provision for $14+(10 \times 4)=54$ departments.

Each department requires a separate subnet so we need 54 network addresses.

No one department will exceed 1,000 hosts so we need to support 1,000 hosts per subnet.

The process of extending the default subnet mask creates a counting range in the octet that the subnet was extended into, which can be used to represent subnetworks. This allows a

single Class A, B, or C network to be subdivided into many smaller groups with each group, or subdivision treated as if it were a network itself. A Class B address has a

default subnet mask of 255.255.0.0. In binary, this is a 16 bit mask

(11111111.11111111.00000000.00000000).

We require 6 host bits from the host id to support 54 subnetworks ($2^6-2=62$). This leaves 10 bits for hosts, which is sufficient as 10 bits supports 1022 hosts ($2^{10}-2=1022$).

We need to add the 6 bits to the default 16 bit mask to give us a 22 bit mask

(11111111.11111111.11111100.00000000). This equates to 255.255.252.0

Reference:

Certkiller 640-821 Study Guide, Section 2, "IP Addressing and Subnetting"

QUESTION 286:

You are the network administrator at Certkiller . The ISP has assigned the network 192.166.69.0/24 for use on the Certkiller network.

Which of the following addresses can assign to hosts? (Choose all that apply.)

- A. 192.166.69.0
- B. 192.166.70.1
- C. 192.166.69.24
- D. 192.166.69.154
- E. 192.166.69.254
- F. 192.166.69.255

Answer: C, D, E

In this cidr address, 192.166.69.0 is the network address. The /24 indicates that the subnet mask is a 24 bit mask. This equates to 11111111.11111111.11111111.00000000 in binary, or 255.255.255.0.

We can calculate the number of hosts on the network by using the $2^n - 2$ formula where n = number of hosts bits (i.e. bits not used for the subnet mask). In this case $n = 8$. $2^8 - 2 = 254$. Thus network 192.166.69.0 supports 254 hosts but remember that 192.166.69.0 is the network address so the 254 hosts will be 192.166.69.1-254.

Incorrect Answers:

A: 192.166.69.0 is the network address. The network address and the broadcast address cannot be assigned to hosts.

B: 192.166.70.1 is on network 192.166.70.0.

F: 192.166.69.255 is the broadcast address. The network address and the broadcast address cannot be assigned to hosts.

Reference:

Certkiller 640-821 Study Guide, Section 2, "IP Addressing and Subnetting"

QUESTION 287:

You are the network administrator at Certkiller . Certkiller has been assigned the Class B IP address 139.66.0.0 by its Internet Service Provider. Your newly appointed Certkiller trainee wants to know how many hosts will be supported on each subnet if you divide the network by using the 255.255.255.248 subnet mask. What would your reply be?

- A. 6
- B. 8
- C. 14
- D. 16
- E. 24
- F. 30

Answer: A

The subnet mask 255.255.255.248 is a 29 bit mask (11111111.11111111.11111111.11111000). It uses 5 bits from the host id for the network ID, leaving 3 bits for host addresses. We can calculate the number of hosts supported by this subnet by using the $2^n - 2$ formula where n represents the number of host bits. In this case it will be 5. $2^3 - 2$ gives us 6.

Reference:

Certkiller 640-821 Study Guide, Section 2, "IP Addressing and Subnetting"

QUESTION 288:

You are a technician at Certkiller . Your newly appointed Certkiller trainee wants to know what a MAC address is.

What would your reply be? (Choose all that apply.)

- A. It is a globally unique IP address.
- B. It is a unique address in a broadcast domain.
- C. It is provided by the manufacturer of the NIC.

- D. It is used as part of the IPX/SPX configuration.
- E. It is a logical address.

Answer: B, C

Explanation:

The IEEE defines the format and assignment of LAN addresses. The IEEE requires globally unique MAC addresses on all network interface cards (NICs). The IEEE calls these addresses MAC addresses because the MAC protocols such as IEEE 802.3 define the addressing details. To ensure a unique MAC address, the Ethernet card manufacturers encode the MAC address onto the card, usually in a ROM chip.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) page 64

QUESTION 289:

The subnet mask on the serial interface of a router is expressed in binary as 11111000 for the last octet. How do you express the binary number 11111000 in decimal?

- A. 210
- B. 224
- C. 240
- D. 248
- E. 252

Answer: D

Explanation:

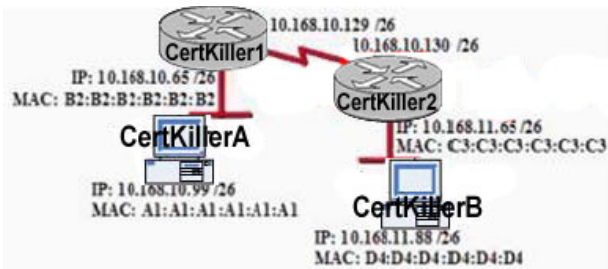
$128 + 64 + 32 + 16 + 8 = 248$. Since this is the last octet of the interface, the subnet mask would be expressed as a /29.

Incorrect Answers:

- A. The number 210 would be 11010010 in binary.
- B. The number 224 would be 11100000 in binary.
- C. The number 240 would be 11110000 in binary
- E. The number 252 would be 11111100 in binary. This is known as a /30 and is used often in point-point links, since there are only 2 available addresses for use in this subnet.

QUESTION 290:

Refer to the exhibit. If host A sends an IP packet to host B, what will the OSI Layer 3 source address be in the packet when it reaches host B?



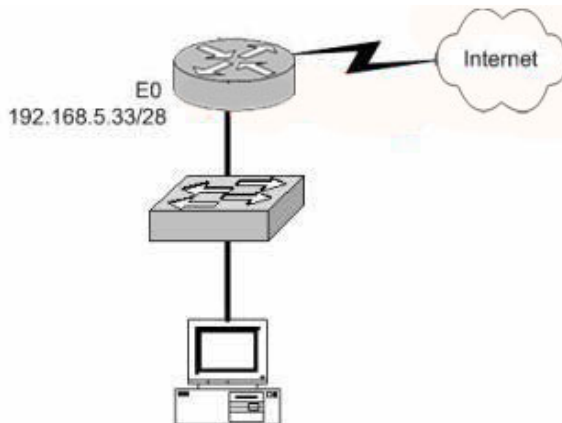
- A. B2:B2:B2:B2:B2:B2
- B. A1:A1:A1:A1:A1:A1
- C. 10.168.10.99
- D. 10.168.11.65
- E. C3:C3:C3:C3:C3:C3
- F. 10.168.11.88

Answer: C

Explanation: When packets transfer from one host to another, source address is source address, physical address is existing router's interface address. Similarly destination ip address is destination host address as well as physical address is destination router's interface address. So answer C is correct.

QUESTION 291:

You are a network technician at Certkiller , Inc. You are installing a new workstation to the Certkiller network. The relevant network segment is shown in the following exhibit:



What should be the IP address of the host?

- A. 192.168.5.55
- B. 192.168.5.47
- C. 192.168.5.40
- D. 192.168.5.32
- E. 192.168.5.14

Answer: C

Explanation

The network uses a 28bit subnet (255.255.255.240). This means that 4 bits are used for the networks and 4 bits for the hosts. This allows for 14 networks and 14 hosts ($2^n - 2$). The last bit used to make 240 is the 4th bit (16) therefore the first network will be 192.168.5.16. The network will have 16 addresses (but remember that the first address is the network address and the last address is the broadcast address). In other words, the networks will be in increments of 16 beginning at 192.168.5.16/28. The router interface E0 has the IP address 192.168.5.33. Therefore it is on the 2nd network (192.168.5.32/28). The host must also be on this network. Valid IP addresses for hosts on this network are: 192.168.5.33-192.168.5.46.

Incorrect Answers:

A: 192.168.5.55 is on network 192.168.5.48. It is not on the same network as the router interface.

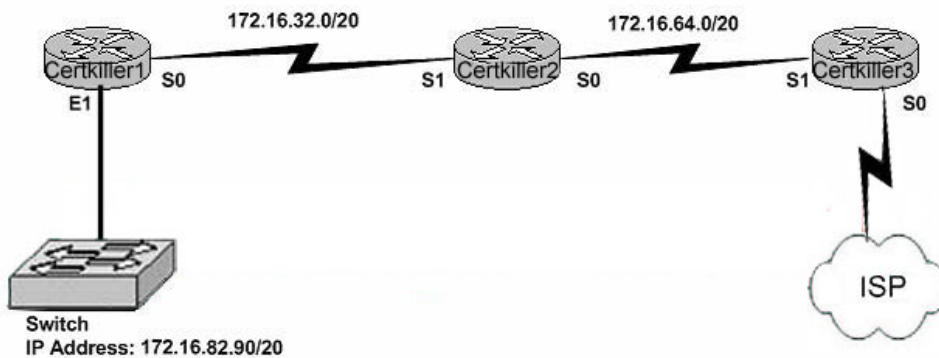
B: This is a broadcast address.

D: This is a network address.

E: This is not a valid address for a 28 bit subnet mask. The first network address should be 192.168.5.16.

QUESTION 292:

You are a newly appointed Certkiller trainee. The Certkiller WAN is shown in the following exhibit:



What are the broadcast addresses of the subnets in the Certkiller WAN? (Select three options.)

- A. 172.16.82.255
- B. 172.16.95.255
- C. 172.16.64.255
- D. 172.16.32.255
- E. 172.16.47.255
- F. 172.16.79.255

Answer: B E F

Explanation:

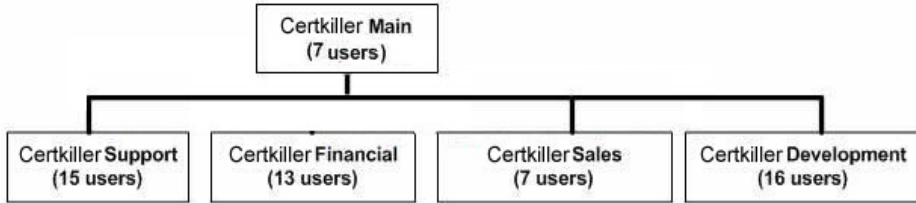
172.16.23.0/20 has 16 increments and the broadcast address will always be 1 before the actual number.

172.16.23.0 next increment will be 172.16.39.0 so then the broadcast address is 1 less than 172.16.39.0 =

172.16.38.255 (Broadcast address).

QUESTION 293:

The Certkiller network consists of 5 different departments as shown below:



You are a systems administrator at Certkiller and you've just acquired a new Class C IP network. Which of one of the subnet masks below is capable of providing one useful subnet for each of the above departments (support, financial, sales & development) while still allowing enough usable host addresses to meet the needs of each department?

- A. 255.255.255.128
- B. 255.255.255.192
- C. 255.255.255.224
- D. 255.255.255.240
- E. 255.255.255.248
- F. 255.255.255.252

Answer: C

Explanation:

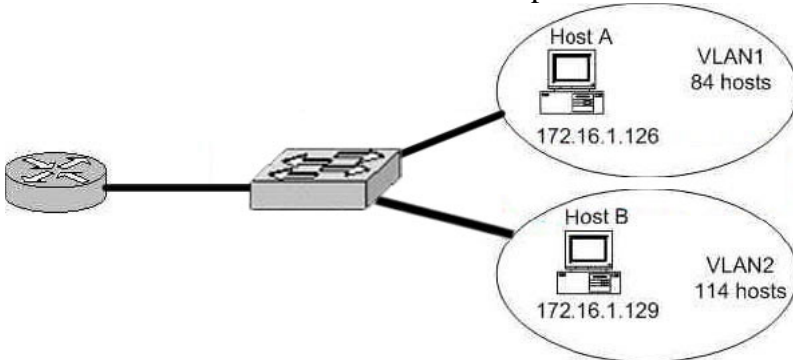
The network currently consists of 5 subnets. We need to subnet the Class C network into at least 5 subnets. This requires that we use 3 bits for the network address. Using the formula $2^n - 2$ we get 6. This also leaves us with 5 bits for hosts, which gives us 30 hosts.

Incorrect Answers:

- A. Only 1 bit is required to give us 128 but 1 bit gives us 0 subnets. 2 bits are required to give us 192 but 2 bits gives us only 2 subnets. This is too few.
- D. 4 bits are required to give us 240. This gives us 14 subnets. However we are left with 4 bits for hosts leaving us with 14 host addresses. Two of the networks require more than 14 hosts so this will not do.
- E. 5 bits are required to give us 248. This gives us 30 subnets. However we are left with 3 bits for hosts leaving us with 6 host addresses. All the networks require more than 6 hosts so this will not do.
- F. 6 bits are required to give us 252. This gives us 62 subnets. However we are left with 2 bits for hosts leaving us with 2 host addresses. This is too few.

QUESTION 294:

A Certkiller remote office branch is set up as shown in the diagram below:



All of the hosts in the above exhibit are connected with each other via the single Catalyst switch. Which of the following statements correctly describe the addressing scheme of this network? (Select three)

- A. The subnet mask in use is 255.255.255.192.
- B. The subnet mask in use is 255.255.255.128.
- C. The IP address 172.16.1.25 can be assigned to hosts in VLAN1.
- D. The IP address 172.16.1.205 can be assigned to hosts in VLAN1
- E. The LAN interface of the router is configured with one IP address.
- F. The LAN interface of the router is configured with multiple IP addresses.

Answer: B, C, F

Explanation:

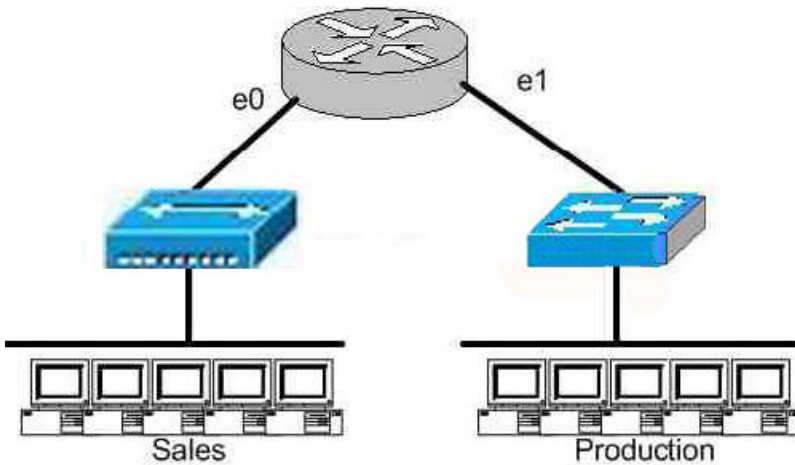
Based on the diagram above, the subnet mask used for each VLAN is 255.255.255.128. This means that hosts in VLAN 1 will be addressed 172.16.1.1-172.16.1.126, with 172.16.1.127 being used as the broadcast address. Hosts in VLAN 2 will be addressed 172.16.1.129-172.16.1.254. Because there is only one LAN interface on the router, sub interfaces will be used, so the router's LAN interface will be configured with 2 IP addresses, one for VLAN 1 and 1 for VLAN 2.

Incorrect Answers:

- A. This subnet mask will only provide 62 host IP addresses, and the diagram shows that as many as 114 host IP addresses are needed.
- D. This IP address can be used in VLAN 2, not VLAN 1.
- E. Since there are 2 subnets in this network, each separate network will require a distinct default gateway IP address, so 2 IP addresses will be required on the LAN interface of the router.

QUESTION 295:

Study the Exhibit below carefully:



Which of the statements mentioned below will describe the network as illustrated in the exhibit? (Select two options.)

- A. There are two broadcast domains in the network.
- B. There are four broadcast domains in the network.
- C. There are six broadcast domains in the network.
- D. There are four collision domains in the network.
- E. There are five collision domains in the network.
- F. There are seven collision domains in the network.

Answer: A, F

Explanation: We have two domains with this router only on E0 and E1 so we have 2 broadcast domains. We have 5 computers and one port for E1 so we have 6 collision domains because we use SW in production department, and one collision domain for sales because we use hub.

QUESTION 296:

What are the benefits of using a router to segment the network at a main office? (Select two options.)

- A. Broadcasts are not forwarded across the router.
- B. Broadcasts are eradicated.
- C. Adding a router to the network decreases latency.
- D. Filtering can occur based on Layer 3 information.
- E. Routers are more efficient than switches.

Answer: A, D

Explanation

Routers do not forward broadcast messages and therefore breaks up a broadcast domain. In addition, routers can be used to filter network information.

QUESTION 297:

You are a network technician at Certkiller . You use a Cisco router to divide the Certkiller network into two separate segments, Certkiller 1 and Certkiller 2. The Certkiller CEO is concerned about the cost, and wants to know what the purpose of your action is.

What should you tell him?

- A. It decreases the number of broadcast domains.
- B. It makes broadcasting domains more efficient between segments.
- C. It increases the number of collisions.
- D. It prevents segment 1's broadcasts from getting to segment 2.
- E. It connects segment 1's broadcasts to segment 2.

Answer: D

Explanation

A router does not forward broadcast traffic. It therefore breaks up a broadcast domain, reducing unnecessary network traffic.

QUESTION 298:

You are a technician at Certkiller . You tell your newly appointed Certkiller trainee that Ethernet networks are broadcast domains and collision domains. Your trainee wants to know how the hosts on an Ethernet network will know when to resume transmissions after a collision has occurred.

What would your reply be? (Choose all that apply.)

- A. The destination host sends a request to the source for retransmission.
- B. The jam signal indicates that the collision has been cleared.
- C. The hosts will attempt to resume transmission after a time delay has expired.
- D. An electrical pulse indicates that the collision has cleared.
- E. The router on the segment will signal that the collision has cleared.

Answer: C

Explanation:

1. A device with a frame to send listens until Ethernet is not busy.
2. When the Ethernet is not busy, the sender begins sending the frame.
3. The sender listens to make sure that no collision occurred.
4. Once the senders hear the collision, they each send a jamming signal, to ensure that all stations recognize the collision.
5. After the jamming is complete, each sender randomizes a timer and waits that long.
6. When each timer expires, the process starts over with step 1.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) page 55

QUESTION 299:

Your newly appointed Certkiller trainee wants to know what requirements must be met before you can configure the VLAN trunking protocol to communicate VLAN information between two switches.

What will your reply be?

- A. You must set each end of the trunk line to IEEE 802.1e encapsulation.
- B. You must set the same VTP management domain name on both switches.
- C. You must set all ports on the two switches as access ports.
- D. You must configure one of the switches as a VTP server.
- E. You must use a rollover cable to connect the two switches.
- F. You must use a router to forward VTP traffic between VLANs.

Answer: B, D

Explanation:

VTP operates in one of three modes:

- Server mode
- Client mode
- Transparent mode

For VTP to exchange information, some switches act as servers, and some act as clients. VTP servers can create, modify, and delete VLANs and other configuration parameters for the entire VTP domain; this information, in turn, is propagated to the VTP clients and servers in that same domain. VTP servers save VLAN configurations in the Catalyst NVRAM, whereas in clients, the VLAN configuration is not stored at all. A VTP client cannot create, change, or delete VLANs, nor can it save VLAN configurations in nonvolatile memory.

QUESTION 300:

Your Certkiller trainee wants to know which VLANs are allowed over a new trunk link that is configured on an IOS based switch.

What will your reply be?

- A. All defined VLANs are allowed on the trunk by default.
- B. Each VLAN, or VLAN range, that is specified with the switchport mode command.
- C. Each VLAN, or VLAN range, that is specified with the vtp domain command.
- D. Each VLAN, or VLAN range, that is specified with the vlan database command.

Answer: A

Explanation:

The question does not state that there are multiple VTP Domains meaning that all defined VLANs are allowed on the trunk until a vtp domain command is issued.

QUESTION 301:

You are the network administrator at Certkiller . You want to configure a switch port to use the IEEE standard method of inserting information about VLAN membership into Ethernet frames.

Which command should you use?

- A. Switch(config)# switchport trunk encapsulation isl
- B. Switch(config)# switchport trunk encapsulation ietf
- C. Switch(config-if)# switchport trunk encapsulation isl
- D. Switch(config-if)# switchport trunk encapsulation ietf
- E. Switch(config-if)# switchport trunk encapsulation dot1q

Answer: E

Explanation: The only real choices for setting up switching trunks are ISL and 802.1Q. ISL is Cisco proprietary, while 802.1Q uses the IEEE defined standard for trunking between switches. To configure the 802.1Q standard, the keyword "dot1q" is used in Cisco switches.

Incorrect Answers:

A, B, D. These are not valid options in a Cisco switch.

C. ISL is a Cisco proprietary method for setting up trunks, and will only work between Cisco switches.

QUESTION 302:

Your newly appointed Certkiller trainee wants to know which of the following are spanning tree switch port states.

What will your reply be? (Choose three)

- A. learning
- B. spanning
- C. listening
- D. forwarding
- E. initializing
- F. filtering

Answer: A, C, D

Explanation:

Spanning-Tree Intermediate States

State	Forwards Data Frames?	Learns MACs Based on Received Frames?	Transitory or Stable State?
Blocking	No	No	Stable
Listening	No	No	Transitory
Learning	No	Yes	Transitory
Forwarding	Yes	Yes	Stable

QUESTION 303:

You are the network administrator at Certkiller . Your newly appointed Certkiller trainee wants to know what router functions are. What will your reply be? (Choose three.)

- A. Packet switching
- B. Collision prevention on a LAN segment.
- C. Packet filtering
- D. Broadcast domain enlargement
- E. Broadcast forwarding
- F. Internetwork communication

Answer: A, C, F

Explanation:

The first suggestion states that you should create the ACLs outside the router using an editor. That way, if you make mistakes when typing, you can fix them in the editor. Why the big deal for ACLs? Well, with numbered ACLs, to delete a single line, you have to delete the whole ACL and reenter all the commands-in order. Also, even if you create the ACL correctly, you might later want to add a line to it---in the middle of the list! If you do, with numbered ACLs, you have to delete the whole list and then reenter all the lines in order. Having the ACLs stored somewhere outside the routers makes your life easier. The second and third points deal with the concept of where to locate your ACLs. If you are going to filter a packet, filtering closer to the packets source means that the packet takes up less bandwidth in the network, which seems to be more efficient-and it is. Therefore, Cisco suggest locating extended ACLs as close to the source as possible.

QUESTION 304:

You are the network administrator at Certkiller . Your newly appointed Certkiller trainee wants to know what functions a router performs in the Certkiller network. What will your reply be? (Choose two)

- A. packet switching
- B. access layer security

- C. path selection
- D. VLAN membership assignment
- E. Bridging between LAN segments
- F. Microsegmentation of broadcast domains

Answer: A, C

Explanation:

Routers work at the Internet, data link, and physical layers of the TCP/IP structure. A router resembles an octopus whose tentacles represent all of your cabling types. Routers are aware of the multiple paths that your data packets can take across the network to their final destination. The router knows about other routers on the network and can choose the most efficient path for the data to follow. This efficient path may change as network devices change and as traffic comes and goes.

The switching in packet switching networks is performed by computers called routers sitting at the intersection wherever several networks come together. Routers use a number of standard routing protocols to switch the incoming packets from one network to another as required.

Since routing software can reconfigure instantly, packet switching networks can adapt to downed links and maintain communications by roundabout paths even under very adverse conditions. Since the systems are operating at electronic speed, this means messages can be sent through even large, damaged networks very quickly.

http://livinginternet.com/i/iw_packet_switch.htm

<http://www.dummies.com/WileyCDA/DummiesArticle/id-1674.html>

QUESTION 305:

You are the network administrator at Certkiller . You want to configure the VLAN trunking protocol to communicate VLAN information between two switches. What must you do? (Choose two.)

- A. Set each end of the trunk line to IEEE 802.1E encapsulation.
- B. Set the same VTP management domain name on both switches.
- C. Set all ports on the two switched as access ports.
- D. Configure one of the two switches as a VTP server.
- E. Connect the two switches using a rollover cable.
- F. Use a router to forward VTP traffic between the VLANs.

Answer: B, D

Explanation:

Here's a list of some of the benefits VTP has to offer:

- * Consistent VLAN configuration across all switches in the network.
- * VLAN trunking over mixed networks, like Ethernet to ATM LANE or even FDDI.
- * Accurate tracking and monitoring of VLANs.
- * Dynamic reporting of added VLANs to all switches.

* Plug-and-play VLAN adding

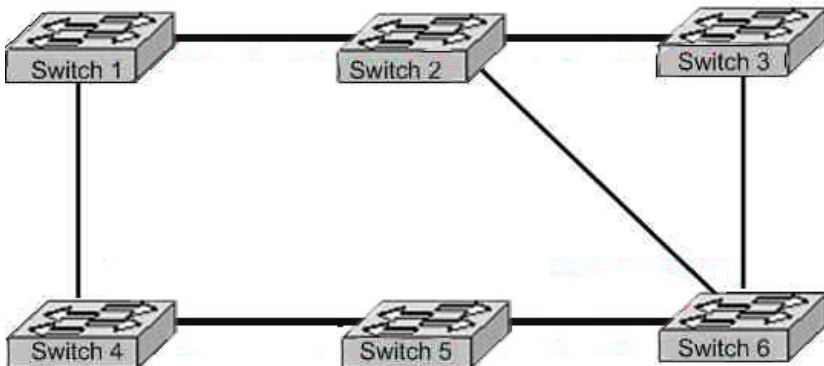
Very cool-yes, but before you can get VTP to manage your VLANs across the network, you have to create a VTP server. All servers that need to share VLAN information must use the same domain name, and a switch can only be in one domain at a time. This means that a switch can only share VTP domain information with other switches if they're configured into the same VTP domain. You can use a VTP domain if you have more than one switch connected in a network, but if you've got all your switches in only one VLAN, you don't need to use VTP. VTP information is sent between switches via a trunk port.

Switches advertise VTP management domain information, as well as a configuration revision number and all known VLANs with any specific parameters. There's also something called VTP transparent mode, in it, you can configure switches to forward VTP information through trunk ports, but not to accept information updates or update their VTP databases.

If you find yourself having problems with users adding switches to your VTP domain, you can include passwords, but don't forget that every switch must be set up with the same password-this can get ugly.

QUESTION 306:

A series of Switches are connected as shown in the following exhibit:



Which portion contains both the potential networking problem and the protocol or setting that would be used to prevent this problem?

- A. routing loops, hold down timers
- B. switching loops, split horizon
- C. routing loops, split horizon
- D. switching loops, VTP
- E. routing loops, STP
- F. switching loops, STP

Answer: F

Explanation:

Spanning-Tree Protocol (STP) prevents loops from being formed when switches or

bridges are interconnected via multiple paths. Spanning-Tree Protocol implements the 802.1D IEEE algorithm by exchanging BPDU messages with other switches to detect loops, and then removes the loop by shutting down selected bridge interfaces. This algorithm guarantees that there is one and only one active path between two network devices.

http://www.cisco.com/en/US/tech/ CK3 89/ CK6 21/ CK5 /tech_protocol_home.html

QUESTION 307:

You are the network administrator at Certkiller . Your assistant was unsuccessful in adding VLAN 50 to a switch. In troubleshooting the problem, you issue the the show vtp status command. The output of the show vtp status command is displayed in the following exhibit.

```
CK2 # show vtp status
```

```
VTP Version :2
```

```
Configuration Revision :7
```

```
Maximum VLANs supported local :68
```

```
Number of existing VLANs :8
```

```
VTP Operating Mode :Client
```

```
VTP Domain Name :corp
```

```
VTP Pruning Mode :Disabled
```

```
VTP V2 Mode :Disabled
```

```
VTP Traps Generation :Disabled
```

```
MD5 digest :0x22 0xF3 0x1A
```

```
Configuration last modified by 172.18.22.15 at 5-28-03 1t:53:20
```

What commands must be issued on this switch to add VLAN 50 to the database?

(Choose two.)

- A. CK2 (config-if)# switchport access vlan 50
- B. CK2 (vlan)# vtp server
- C. CK2 (config)# config-revision 20
- D. CK2 (config)# vlan 50 name Tech
- E. CK2 (vlan)# vlan 50
- F. CK2 (vlan)# switchport trunk vlan 50

Answer: A, B

Explanation:

VTP operates in one of three modes:

- * Server mode

- * Client mode

- * Transparent mode

For VTP to exchange information, some switches act as servers, and some act as clients.

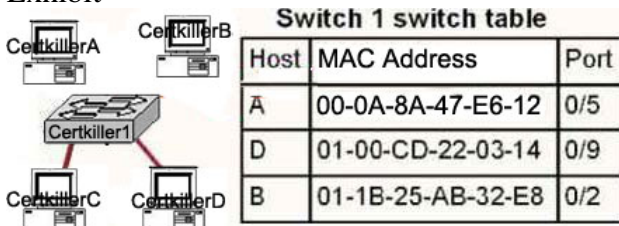
VTP servers can create, modify, and delete VLANs and other configuration parameters for the entire VTP domain; this information, in turn, is propagated to the VTP clients and servers in that same domain. VTP servers save VLAN configurations in the Catalyst

NVRAM, whereas in clients, the VLAN configuration is not stored at all. A VTP client cannot create, change or delete VLANs, nor can it save VLAN configurations in non-volatile memory.

switchport mode {access dynamic	Interface subcommand that configured
{auto	the
desirable} trunk}	Interface for trunking.

QUESTION 308:

Exhibit



Host Certkiller B sends a frame to host Certkiller C. What will the switch do with the frame?

- A. Drop the frame
- B. Send the frame out all ports except port 0/2
- C. Return the frame to host Certkiller B
- D. Send an ARP request for host Certkiller C
- E. Send an ICMP Host Unreachable message to Host Certkiller B
- F. Record the destination MAC address in the switching table and send the frame directly to Host Certkiller C

Answer: B

An Ethernet switch appears to use the same logic as a transparent bridge. However, the internal logic of the switch is optimized for performing the basic function of choosing when to forward and when to filter a frame. Just as with a transparent bridge, the basic logic of a LAN switch is as follows:

- Step 1** A frame is received.
- Step 2** If the destination is a broadcast or multicast, forward on all ports.
- Step 3** If the destination is a unicast and the address is not in the address table, forward on all ports.

Step 4 If the destination is a unicast and the address is in the address table, forward the frame out the associated port, unless the MAC address is associated with the incoming port.

QUESTION 309:

You are the network administrator at Certkiller . Your newly appointed Certkiller trainee wants to know what VLAN frame encapsulation types may be configured on a Catalyst switch.

What will your reply be? (Choose two.)

- A. VTP
- B. ISL
- C. CDP
- D. 802.1Q
- E. 802.1p
- F. LLC

Answer: B, D

Explanation:

Trunks are used to carry traffic belonging to multiple VLANs between devices over the same link. A device can determine which VLAN the traffic belongs to by its VLAN identifier. The VLAN identifier is a tag that is encapsulated with the data. ISL and 802.1q are two types of encapsulations used to carry data from multiple VLANs over trunk links.

ISL is a Cisco proprietary protocol for interconnecting multiple switches and maintaining VLAN information as traffic goes between switches. ISL provides VLAN trunking capabilities while maintaining full wire speed performance on Ethernet links in full-duplex or half-duplex mode. ISL operates in a point-to-point environment and will support up to 1000 VLANs. In ISL, the original frame is encapsulated and an additional header is added before the frame is carried over a trunk link. At the receiving end, the header is removed and the frame is forwarded to the assigned VLAN. ISL uses Per VLAN Spanning Tree(PVST) which runs one instance of Spanning Tree Protocol (STP) per VLAN. PVST allows to optimize root switch placement for each VLAN and supports load balancing of VLANs over multiple trunk links.

802.1Q is the IEEE standard for tagging frames on a trunk and supports upto 4096 VLANs. In 802.1Q, the trunking device inserts a four-byte tag into the original frame and recomputes the Frame Check Sequence (FCS) before sending the frame over the trunk link. At the receiving end, the tag is removed and the frame is forwarded to the assigned VLAN. 802.1Q does not tag frames on the native VLAN. It tags all other frames transmitted and received on the trunk. While configuring 802.1 trunk, you must make sure that the same native VLAN is configured on both sides of the trunk. IEEE 802.1Q defines a single instance of spanning tree running on the native VLAN for all the VLANs in the network which is called Mono Spanning Tree (MST). This lacks the flexibility and load balancing capability of PVST available with ISL. However, PVST+ offers the capability to retain multiple Spanning Tree topologies with 802.1Q trunking.

[http://www.cisco.com/en/US/tech/ CK3 89/ CK3 90/technologies_tech_note09186a0080094665.shtml](http://www.cisco.com/en/US/tech/CK389/CK390/technologies_tech_note09186a0080094665.shtml)

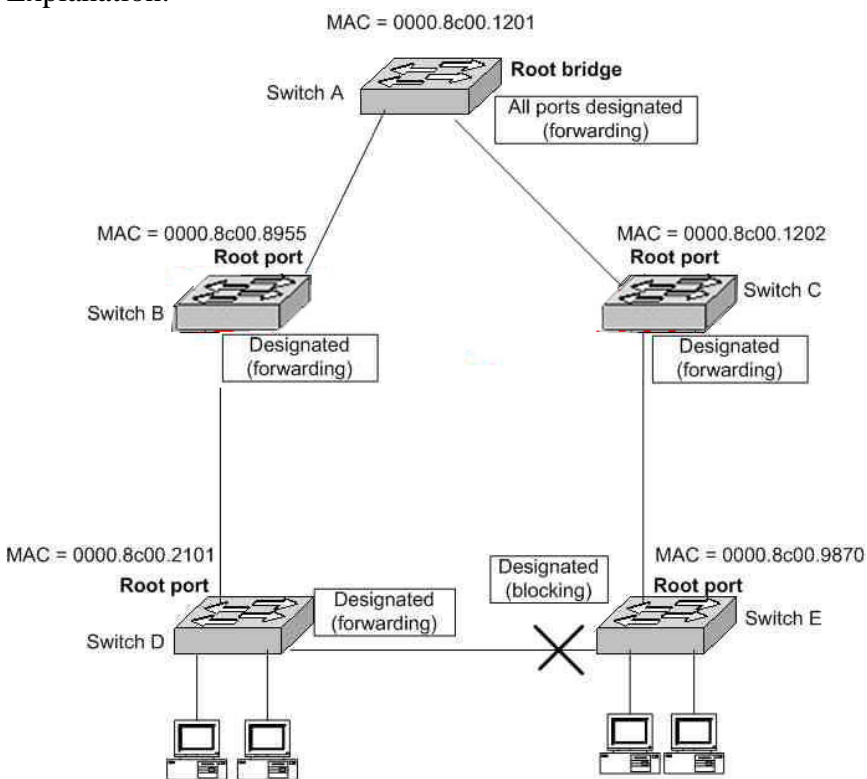
QUESTION 310:

Which of the following statements describes a converged spanning-tree network?

- A. All switch and bridge ports are in the forwarding state.
- B. All switch and bridge ports are in the stand-by state.
- C. All switch and bridge ports are assigned as either root or designated ports.
- D. All switch and bridge ports are in either the forwarding or blocking state.
- E. All switch and bridge are either blocking or looping.

Answer: D

Explanation:



In the above figure, after the network has converged, spanning tree protocol puts each port either in designated (Forwarding) or Non-designated (Blocking) state. So, Choice C is correct.

QUESTION 311:

DRAG DROP

The terms on the left can be associated with the descriptions on the right. Can you make the correct associations? (Please note: Not all options are used)

640-821

Three-way handshake	Place here	Provides reliability by requiring that the recipient acknowledges receipt of a group of segments before a timer expires.
PAR	Place here	Initiates communication by establishing an initial sequence number and window size.
Window	Place here	The amount of data that can be sent before an acknowledgement is required.
Sequencing	Place here	Allows multiple communications to the same host.
Ports		

Answer:

Three-way handshake	Provides reliability by requiring that the recipient acknowledges receipt of a group of segments before a timer expires.
Window	Initiates communication by establishing an initial sequence number and window size.
Sequencing	The amount of data that can be sent before an acknowledgement is required.
Ports	Allows multiple communications to the same host.

QUESTION 312:

One of your trainees wants to know what values are used to elect the root bridge in a spanning tree-topology. What can you tell her? (Select two options.)

- A. The BPDU version number
- B. The access layer bridge setting
- C. The Bridge ID
- D. The spanning-tree update number
- E. The bridge priority
- F. The VLAN number

Answer: C, E

Explanation:

The bridges elect a root bridge based on the bridge IDs in the BPDUs. The root bridge is

the bridge with the lowest numeric value for the bridge ID. Because the two part bridge ID starts with the priority value, essentially the bridge with the lowest priority becomes the root. For instance, if one bridge has priority 100, and another bridge has priority 200, the bridge with priority 100 wins, regardless of what MAC address was used to create the bridge ID or each bridge/switch.

Reference: CCNA Self-Study CCNA ICND Exam Certification Guide (Cisco Press, ISBN 1-58720-083-X) Page 39

QUESTION 313:

You have been assigned a trainee who wants to know which of the following modes are valid when a switch port is used as a VLAN trunk. What can you tell him?
(Select three options.)

- A. blocking
- B. auto
- C. desirable
- D. on
- E. transparent
- F. learning

Answer: B, C, D

Explanation:

A trunk port can be configured as one of the following 5 different modes: on, off, desirable, auto, or nonegotiate.

The table below is a summary of the configuration modes.

Mode	Function	DTP Frames Transmitted	Final State (Local Port)
auto(default)	Makes the port willing to convert the link to a trunk. The port becomes a trunk port if the neighboring port is set to on or desirable mode.	Yes, periodic.	Trunking
On	Puts the port into permanent trunking mode and negotiates to convert the link into a trunk. The port becomes a trunk port even if the neighboring port does not agree to the change.	Yes, periodic.	Trunking, unconditionally.
<u>Nonegotiate</u>	Puts the port into permanent trunking mode but prevents the port from generating DTP frames. You must configure the neighboring	No	Trunking, unconditionally

Desirable	Makes the port actively attempt to convert the link to a trunk link. The port becomes a trunk port if the neighboring port is set to on, desirable, or auto mode.	Yes, periodic.	It will end up in trunking state only if the remote mode is on, auto, or desirable.
Off	Puts the port into permanent non-trunking mode and negotiates to convert the link into a non-trunk link. The port becomes a non-trunk port even if the neighboring port does not agree to the change.	No in steady state, but will transmit informs to speed up remote end detection after the change from on.	Non-trunking

QUESTION 314:

What can you tell the CEO of the company that you work for, are the advantages of using VLANs? (Select three options.)

- A. VLANs allow access to network services based on department, not physical location.
- B. VLANs utilize packet filtering to enhance network security.
- C. VLANs provide a low-latency, high bandwidth internetworking alternative.
- D. VLANs provide a method of communication between IP addresses in large networks.
- E. VLANs establish broadcast domains in switched networks.
- F. VLANs can greatly simplify adding, moving, or changing hosts on the network.

Answer: A, E, F

Explanation:

VLANs establish broadcast domains in switched networks, so by virtue of having the option to create many efficient broadcast domains, congestion is reduced and network throughput is greatly enhanced. VLANs allow networks to be divided by department or resource needs, rather than by physical location. When people move departments, leave a department, or join a department, administration is easy and convenient with a few

keystrokes.

Incorrect Answers:

B, D. These would be router functions at layer 3. Switches and VLANs operate at layer 2 of the OSI model.

C. The use of VLANs may actually increase the latency in some cases, as traffic from one VLAN to the other will need to be routed.

QUESTION 315:

Which of the following commands are required to create an 802.1Q link on an IOS based switch when you want to establish a trunk link between two switches? (Select two options.)

- A. Switch(vlan)# mode trunk
- B. Switch(config)# switchport access mode trunk
- C. Switch(config-if)# switchport mode trunk
- D. Switch(config-if)# switchport trunk encapsulation dot1q
- E. Switch(config)# switchport access mode 1
- F. Switch(vlan)# trunk encapsulation dot1q

Answer: C, D

Explanation:

Creating this trunk link is a two step process. First you have to set the switchport mode to trunk, and then you configure the encapsulation. The giveaway on this question is the fact that to create a trunk on an interface, you have to be in interface configuration mode. So C sets the trunk, and D sets the encapsulation.

QUESTION 316:

In which VTP mode should a catalyst switch be to be able to delete and add VLANs to a management domain?

- A. Transparent
- B. Server
- C. Domains
- D. Client
- E. Users.

Answer: B

Explanation:

VTP Modes

If you intend to make a switch part of a VTP management domain, each switch must be configured in one of three possible VTP modes. The VTP mode assigned to a switch will determine how the switch interacts with other VTP switches in the management domain.

The three VTP modes that can be assigned to a Cisco switch include server mode, client mode, and transparent mode. Each of these roles is outlined below:

Server Mode Once VTP is configured on a Cisco switch, the default mode used is Server Mode. In any given VTP management domain, at least one switch must be in Server Mode. When in Server Mode, a switch can be used to add, delete, and modify VLANs, and this information will be passed to all other switches in the VTP management domain.

Client Mode When a switch is configured to use VTP Client Mode, it is simply the recipient of any VLANs added, deleted, or modified by a switch in Server Mode within the same management domain. A switch in VTP client mode cannot make any changes to VLAN information.

Transparent Mode A switch in VTP Transparent Mode will pass VTP updates received by switches in Server Mode to other switches in the VTP management domain, but will not actually process the contents of these messages. When individual VLANs are added, deleted, or modified on a switch running in transparent mode, the changes are local to that particular switch only, and are not passed to other switches in the VTP management domain.

Based on the roles of each VTP mode, the use of each should be more or less obvious. For example, if you had 15 Cisco switches on your network, you could configure each of them to be in the same VTP management domain. Although each could theoretically be left in the default Server Mode, it would probably be easier to leave only one switch in this configuration, and then configure all remaining switches for VTP Client Mode. Then, when you need to add, delete, or modify a VLAN, that change can be carried out on the VTP Server Mode switch and passed to all Client Mode switches automatically. In cases where you need a switch to act in a relatively standalone manner, or do not want it to propagate information about its configured VLANs, use Transparent Mode.

Incorrect Answers:

D: CLIENT mode merely accepts changes made by the switch that is connected and in SERVER mode.

QUESTION 317:

Study the Exhibit below carefully:

London# show vtp status		Madrid# show vtp status	
VTP Version	: 2	VTP Version	: 2
Configuration Revision	: 0	Configuration Revision	: 0
Maximum VLANs supported locally	: 64	Maximum VLANs supported locally	: 64
Number of existing VLANs	: 5	Number of existing VLANs	: 5
VTP Operating Mode	: Server	VTP Operating Mode	: Server
VTP Domain Name	: London	VTP Domain Name	: Madrid
VTP Pruning Mode	: Disabled	VTP Pruning Mode	: Disable
VTP V2 Mode	: Disabled	VTP V2 Mode	: Disable
VTP Traps Generation	: Disabled	VTP Traps Generation	: Disable

Two switches named London and Madrid has been configured to use VTP. But they are not sharing VTP messages. Referring to the command output in the exhibit above, why is this so?

- A. VTP V2 mode is not in operation.
- B. VTP pruning mode is disabled.

- C. The VTP domain name is configured incorrectly.
- D. The VTP operating mode is not configured.
- E. The VTP version is configured incorrectly.

Answer: C

Explanation:

In order for VTP information to be shared between switches, they must be in the same VTP domain. Based on the output above, the switches appear to belong in completely separate domains, as their VTP domains are different, and they are both VTP servers.

QUESTION 318:

One of your trainees wants to know which of the following is types of flow control one can expect while working in a Cisco network environment. What can you tell him? (Select three options.)

- A. Source Quench.
- B. Learning.
- C. Buffering.
- D. Windowing.
- E. Cut-Through.

Answer: A, C, D

Explanation:

There are three commonly used methods for handling network congestion as described below:

Source Quench Messages

Source quench messages are used by receiving devices to help prevent their buffers from overflowing. The receiving device sends a source quench message to request that the source reduce its current rate of data transmission.

Buffering

Buffering is used by network devices to temporarily store bursts of excess data in memory until they can be processed. Occasional data bursts are easily handled by buffering. However, buffers can overflow if data continues at high speeds

Windowing

Windowing is a flow-control method in which the source device requires an acknowledgement from the destination after a certain number of packets have been transmitted.

1. The source device sends a few packets to the destination device.
2. After receiving the packets, the destination device sends an acknowledgment to the source.
3. The source receives the acknowledgment and sends the same amount of packets.
4. If the destination does not receive one or more of the packets for some reason (such as overflowing buffers), it does not send an acknowledgment. The source will then

retransmit the packets at a reduced transmission rate.

Incorrect Answers:

B. Learning is a step that a bridge port takes when booting up. It is one of the four states that a bridge port can be in (listening, learning, forwarding, blocking).

E. This is one of switching type used to determine how a switch should process the incoming frames. It is not related to flow control.

QUESTION 319:

Which of the following addresses is representative of a unicast address?

- A. 172.31.128.255./18
- B. 255.255.255.255
- C. 192.168.24.59/30
- D. FFFF.FFFF.FFFF
- E. 224.1.5.2

Answer: A

Explanation

172.32.128.255 /18

10101100.00100000.10|000000.11111111 valid ip

Not C:

192.168.24.59 /30

11000000.10101000.00011000.001110|11 Broadcast address, all bit in host portion is 1.

QUESTION 320:

Which of the following commands will configure an interface on a Catalyst 2900 series switch to carry traffic from all VLANs to another directly connected switch? (What would your response be?)

- A. Switch(config-if)# vlan all
- B. Switch(config-if)# switchport trunk encapsulation dot1q
- C. Switch(config-if)# switchport access vlan all
- D. Switch(config-if)# switchport mode trunk
- E. Switch(config-if)# switchport access clan 30

Answer: C, D

The trunk encapsulation for the catalyst 2900 by default is dot1q

QUESTION 321:

How would you respond when asked which of the following are VLAN frame encapsulation types that may be configured on a catalyst switch? (What would your response be?)

- A. VTP
- B. 802.1Q
- C. LLC
- D. ISL
- E. CDP
- F. CHAP

Answer: B, D

ISL and 802.1Q are the two trunking encapsulations.

QUESTION 322:

Which protocol allows the configuring of a new VLAN to be distributed to all the switches in a domain in a switch network?

- A. STP
- B. VTP
- C. EGRP
- D. SNMP
- E. DHCP

Answer: B

Explanation:

Sybex CCNA Study Guide 4th Edition (Page 359)

" The basic goals of VLAN Trunking Protocol (VTP) are to manage all configured VLANs across a switched internetwork and to maintain consistency throughout that network. VTP allows an administrator to add, delete, and rename VLANs-information that is then propagated to all other switches in the VTP domain."

QUESTION 323:

You are a network technician at Certkiller , Inc. A newly pointed trainee wants to know which of the following are types of crosstalk.

What would your response be?(Choose all that apply.)

- A. near-end crosstalk(NEXT)
- B. middle open-end crosstalk(MOEXT)
- C. power sum near-end crosstalk(PSNEXT)
- D. jittery crosstalk(JEXT)
- E. far end crosstalk(FEXT)

Answer: A, C, E

Explanation: Near End Crosstalk (NEXT) is crosstalk measured at the transmitting end of the cable. Far

End Crosstalk (FEXT) is measured at the far end from where the signal was injected into the cable.

Power Sum NEXT (PSNEXT) is basically a mathematical calculation that simulates all four pairs being energized at the same time. PSNEXT calculations are used to ensure that a cable

will not exceed crosstalk noise performance requirements when all pairs are operating simultaneously.

PSNEXT is typically used in Gigabit Ethernet, rather than 10BaseT or 100BaseT.

Reference: Sybex CCNA 4.0 - P. 30

QUESTION 324:

You work as a technician at Certkiller . You are asked to add a new VLAN, named ACCOUNTS, to your switched network.

Which of the following are true regarding configuration of this VLAN? (Select three options.)

- A. The VLAN must be created.
- B. The desired ports must be added to the new VLAN.
- C. The VLAN must be added to the all of the domains.
- D. The VLAN must be named.
- E. An IP address must be configured for all the ACCOUNTS VLAN.

Answer: A, B, D

Explanation:

The best answers are A, B, D. In order to create a simple VLAN, you must create the VLAN, name it, and then assign ports to it. These are the minimum requirements for a functioning VLAN.

Incorrect Answers:

C. Although an IP address is often configured, it is not required in order to create a functioning VLAN.

E. By default, the VLAN will already be added to the VTP domain. Even if the new VLAN was not part of the VTP domain, it would still work as a new VLAN on the switch.

QUESTION 325:

Which of the following statements are characteristic of a typical VLAN arrangement? (Choose all that apply.)

- A. VLANs logically divide a switch into multiple, independent switches at Layer 2.
- B. Trunk links can carry traffic for multiple VLANs.
- C. VLAN implementation significantly increases traffic due to adding trunking information.

- D. A VLAN can span multiple switches.
- E. VLANs extend the collision domain to include multiple switches.
- F. VLANs typically decrease the number of multiple switches.

Answer: A, B, D

Explanation:

VLANs give you the power of making virtual LAN networks to subdivide collision domains into smaller units of functionality, without being limited by physical location. A is correct because that is the exact function of a VLAN. B is correct because trunk links are used to carry traffic for multiple VLANs. D is correct because a VLAN can and often does span across multiple switches. VTP makes this possible.

Incorrect Answers:

- C. Although trunking information does indeed add some level of overhead, the overall traffic overhead is greatly reduced through the use of VLANs.
- E, F. The number of total switches needed in a network is the result of the number of devices on the entire LAN that need to be connected. Whether VLANs are used or not will have little, if any, impact on the total number of switches needed in a LAN.

QUESTION 326:

To upgrade a network, emphasis must be placed on efficiency and error-free transport rather than fast transport. For this purpose, new switches had been purchased. Which switching mode should be configured on these new switches to have the desired effect?

- A. 802.1q forwarding
- B. VTP transparent mode
- C. cut-through
- D. store-and-forward
- E. fragment-free
- F. frame-filtering

Answer: D

Explanation:

The Switch receives and stores all bits in the frame before forwarding the frame. This allows switch to check the FCS before forwarding the frame. FCS is Ethernet Trailer.

Incorrect answers:

E. The Switch performs the address table lookup as soon as the destination address field in the header is received. The first bits in the frame can be sent out to out port before the final bits in the incoming frame are received. This does not allow the switch to discard frames that fail the FCS check.

This is also same as C. But Switch waits 64 bytes to be received before forwarding the first bytes of the outgoing frame. Collisions may occur during first 64 bytes of the frame.

Frames in error due to collision will not be forwarded. The FCS still cannot be checked.
B, D, F: They are not related to Switch mode transport.

QUESTION 327:

Which of the following statements regarding the store and forward switching method are true? (Select two options.)

- A. Latency fluctuates regardless of frame size.
- B. The switch receives the complete frame before beginning to forward it.
- C. Latency through the switch varies with frame length.
- D. The switch checks the destination address upon receipt of headers.

Answer: B C

Explanation:

With store-and-forward, the entire frame is received by the switch before the first bit of the frame is forwarded.

As soon as the incoming switch port receives enough of the frame to see the destination MAC address, the forwarding decision is made and the frame is transmitted out the appropriate outgoing port to the destination device. So, each frame might experience slightly less latency.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) Page 243

QUESTION 328:

You are a network technician at Certkiller , Inc. Your Certkiller trainee is studying the spanning tree algorithm and wants to know what the default mechanism for determining the spanning-tree path cost is.
What would your reply be?

- A. Statically determined by the administrator.
- B. Sum of the costs based on bandwidth.
- C. Total hop count.
- D. Sum of the cost based on latency.

Answer: B

Explanation

The metrics of STP is determined by bandwidth.

QUESTION 329:

DRAG DROP

You are a trainee technician at Certkiller , Inc. You need to display your knowledge

of the Spanning-Tree algorithm.

Connect the Spanning-Tree Protocol states with the correct functions.
(Not all options are used.)

Place here

Place here	populating the MAC address table but not forwarding data frames
Place here	sending and receiving data frames
Place here	preparing to forward data frames without populating the MAC address table
Place here	preventing the use of looped paths

Select from these

root	listening
learning	active
forwarding	blocking

Answer:

Place here

learning	populating the MAC address table but not forwarding data frames
forwarding	sending and receiving data frames
listening	preparing to forward data frames without populating the MAC address table
blocking	preventing the use of looped paths

Select from these

root
active

Explanation:

- * Listening - Listens to incoming Hello messages to ensure that there are no loops, but does not forward traffic or learn MAC addresses on the interface.
- * Learning -learns MAC addresses and builds a filter table but does not forward frames.
- * Forwarding - Sends and receives all data on the bridged port.
- * Blocking - are used to prevent network loops.

Reference:

CCNA Study guide Second Edition (Sybex, Todd Lammle) page 82

QUESTION 330:

You are a network technician at Certkiller . A newly appointed trainee wants to know what the differences and similarities between bridges and switches are. What would your reply be?(Choose all that apply.)

- A. Bridges are faster than switches because they have fewer ports.

- B. A switch is a multiport bridge,
- C. Bridges and switches learn MAC addresses by examining the source MAC address of each frame received.
- D. A bridge will forward a broadcast but a switch will not.
- E. Bridges and switches increase the size of a collision domain.

Answer: B C

Explanation:

Bridges build the bridge table by listening to incoming frames and examining the source MAC address in the frame.

Switches are multiport bridges that allow you to create multiple broadcast domains. Each broadcast domain is like a distinct virtual bridge within a switch.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) Page 239

http://www.cisco.com/en/US/products/hw/switches/ps4324/products_configuration_guide_chapter09186a008018

QUESTION 331:

Which of the following is a basic characteristic of switches and hubs?

- A. Hubs cannot filter frames.
- B. Using hubs is costly with regard to bandwidth availability.
- C. Switches do and can not forward broadcasts.
- D. Switches are more efficient than hubs in processing frames.
- E. Switches increase the number of collision domains in the network.

Answer: E

Explanation: Switches increases the number of collisions domains in the network.

Note:

Switches use a couple of different types of internal processing variations. Almost of the more recently released switches use store-and-forward processing, but all three types of switching are supported in at least one type of currently available Cisco Switch.

* Store-and-forward -The switch fully receives all bits in the frame (store) before forwarding the frame (forward).

* Cut-through - The switch performs the address table lookup as soon as the destination address field in the header is received.

* Fragment-free - This performs like cut-through switching, but the switch waits for 64 bytes to be received before forwarding the first bytes of the outgoing frame.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) Page 243

QUESTION 332:

You are a technician at Certkiller . Your newly appointed Certkiller trainee wants to know what address a router uses to make a routing decision when it sends an IP packet out to an Ethernet interface to a remote host.
What would your reply be?

- A. A Hexadecimal address
- B. The IP address of the destination host.
- C. The MAC address of the interface.
- D. The MAC address of the source host.

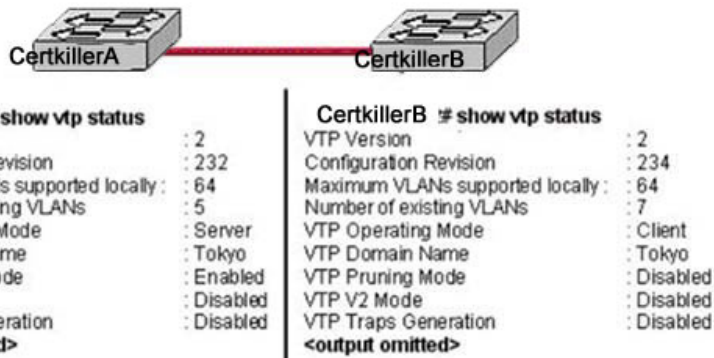
Answer: B

Explanation:

Ethernet networks use IP addresses.

QUESTION 333:

Exhibit:



Study the Exhibit carefully. Switch Certkiller A sends a VTP advertisement and Switch Certkiller B receives it.

Which statement accurately describes how Switch Certkiller B will respond?

- A. Switch Certkiller B will add 2 VLANs to its VLAN database and change the configuration revision number to 232
- B. Switch Certkiller B will remove 2 VLANs from its VLAN database and change the configuration revision number to 232
- C. Switch Certkiller B will enable VTP pruning, add two VLANs, and increment the configuration revision number to 233
- D. Switch Certkiller B will ignore the VTP advertisement

Answer: B

Explanation:

Switches advertise VTP management domain information, as well as a configuration revision number and all known VLANs with any specific parameters. There's also something called VTP transparent mode; in it, you can configure switches to forward VTP information through trunk ports, but not to accept information updates or update their VTP databases. If you find yourself having problems with users adding switches to your VTP domain, you can include passwords, but don't forget that every switch must be set up with the same password-this can get ugly.

Switches detect the additional VLANs within a VTP advertisement and then prepare to receive information on their trunk ports with the newly defined VLAN in tow. This information would be VLAN ID, 802.1Q SAID fields, or LANE information. Updates are sent out as revision numbers that are the notification plus 1. Any time a switch sees a higher revision number, it knows the information that it's receiving is more current, and it will overwrite the current database with that new information.

Client synchronizes with the vtp server on every 5 minutes, if revision number is updated then client copy the configuration.

QUESTION 334:

When is a switched network that is running the Spanning Tree Protocol considered to be fully converged?

- A. when all switches have the same BID as the root switch
- B. when all switches have received the MAC address of each neighboring switch
- C. when every enabled switch port has been assigned a unique identifier
- D. when every operating switch port is in either the blocking or forwarding state
- E. when all switches are in either client, server, or transparent mode

Answer: D

Explanation:

States of Spanning Tree Protocol.

Blocking A blocked port won't forward frames; it just listens to BPDUs. All ports are in blocking state by default when the switch is powered up. The purpose of the blocking state is to prevent the use of looped paths.

Listening The port listens to BPDUs to make sure no loops occur on the network before passing data frames. A port in listening state prepares to forward data frames without populating the MAC address table.

Learning The switch port listens to BPDUs and learns all the paths in the switched network. A port in learning state populates the MAC address table but doesn't forward data frames.

Forwarding The port sends and receives all data frames on the bridged port.

Disabled A port in the disabled state does not participate in the frame forwarding or STP. A port in the disabled state is virtually nonoperational.

In Blocking States, all ports are in blocking state. The purpose of the blocking state is to prevent the use of looped paths. Forward state sends and receive the all data frames without the loop in Network So these two states are considered the fully converged.

QUESTION 335:

What value is primarily used to determine which port becomes the root port on each non root switch in a spanning-tree topology?

- A. path cost
- B. lowest port MAC address
- C. VTP revision number
- D. highest port priority number
- E. port priority number and MAC address

Answer: A

Explanation:

Root port Always the link directly connected to the root bridge, or the shortest path to the root bridge. If more than one link connects to the root bridge, then a port cost is determined by checking the bandwidth of each link. The lowest cost port becomes the root port.

QUESTION 336:

Refer to the exhibit. Certkiller 1 receives the frame with the addressing shown. According to the command output also shown in the exhibit, how will Certkiller 1 handle this frame?

```
CertKiller1 # show mac-address-table
< non-essential output omitted >
Destination Address  Address Type  VLAN  Destination Port
-----
00b0.d056.fe4d      Dynamic      1     FastEthernet0/3
00b0.d043.ac2e      Dynamic      1     FastEthernet0/4
00b0.d0fe.ac32      Dynamic      1     FastEthernet0/5
00b0.d0da.cb56      Dynamic      1     FastEthernet0/6
```

Frame received by Switch A:

Source MAC	Destination MAC	Source IP	Destination IP
00b0.d056.fe4d	00b0.d0da.895a	192.168.10.5	192.168.10.6

- A. It will forward the frame out port Fa0/3 only.
- B. It will drop the frame.
- C. It will flood the frame out all ports except Fa0/3.
- D. It will flood the frame out all ports.

Answer: C

Explanation:

Switches learn the MAC addresses of PCs or workstations that are connected to their

switch ports by examining the source address of frames that are received on that port. Machines may have been removed from a port, turned off, or moved to another port on the same switch or a different switch.

This could cause confusion in frame forwarding.

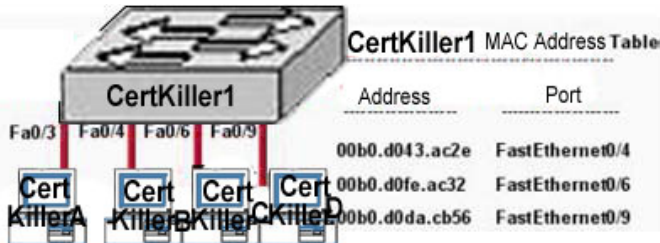
The MAC address entry is automatically discarded or aged out after 300 seconds

If there is not MAC address of destination host in MAC table, switch sends broadcast to all ports except the source to find out the destination host.

In output there is no MAC address of give host so switch floods to all ports except source port. Here source port is fa0/3 so switch floods to all ports excepts fa0/3.

QUESTION 337:

Refer to the topology and MAC address table shown in the exhibit. Host Certkiller A sends a data frame to host Certkiller D. What will the Certkiller 1 switch do when it receives the frame from host A?



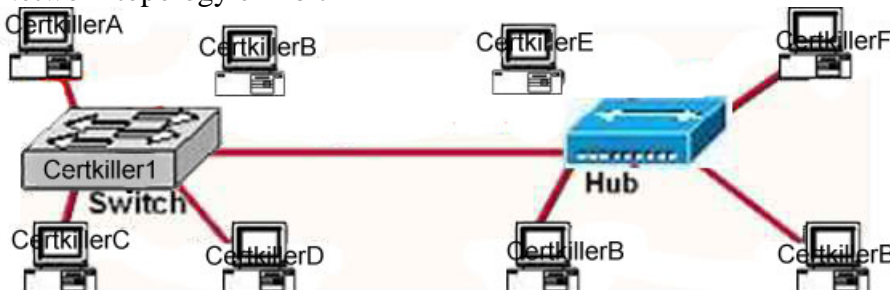
- A. The Certkiller 1 switch will flood the frame out of all ports except for port Fa0/3.
- B. The Certkiller 1 switch will discard the frame and send an error message back to host Certkiller A.
- C. The Certkiller 1 switch will add the destination address of the frame to the MAC address table and forward the frame to host D.
- D. The Certkiller 1 switch will add the source address and port to the MAC address table and forward the frame to host Certkiller D.

Answer: D

Explanation: When switch receives the data frame from the host not having the MAC address on MAC table, it will add the MAC address to source port on MAC address table and sends the data frame.

QUESTION 338:

Network topology exhibit



Which statements describe the interconnections displayed in the exhibit? Select two

- A. Traffic from host Certkiller A to host Certkiller D will be collision free.
- B. Traffic from host Certkiller C to host Certkiller G will be collision free.
- C. Traffic from host Certkiller E to host Certkiller G will be collision free.
- D. Host Certkiller B can be connected at full duplex.
- E. Host Certkiller F can be connected at full duplex.

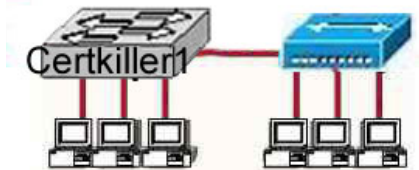
Answer: A, D

Explanation:

Switch connections have many benefits over the use of simple hubs, including full duplex operation and the segmentation of collision domains. When using a switch, each PC can reside within its own collision domain, so communications between two devices attached to a switch will be collision free. However, any station attached to a switch can still experience collisions when communicating with a device attached to a hub. Hubs are shared devices, meaning all devices attached to it reside within the same collision domain.

QUESTION 339:

Network topology exhibit



In the exhibit a part of the Certkiller .com is displayed. Notice the Certkiller 1 Switch and the Certkiller 2 hub.

Which of the devices shown can transmit simultaneously without causing collisions?

- A. All hosts
- B. Only hosts attached to the switch
- C. All hosts attached to the hub and one host attached to the switch
- D. All hosts attached to the switch and one host attached to the hub

Answer: B

Explanation:

As we know switch is the device which avoids collisions. When two computers communicate through a switch they make their own collision domain. So, there is no chance of collisions. Whenever a hub is included, it supports on half duplex communication and works on the phenomena of CSMA/CD so, there is always a chance of collision.

QUESTION 340:

Which of the following fields are contained within an IEEE Ethernet frame header?

- A. source and destination MAC address
- B. source MAC address and destination network address only
- C. source and destination network address only
- D. source network address and destination MAC address
- E. source and destination MAC address and source and destination network address

Answer: A

Explanation:

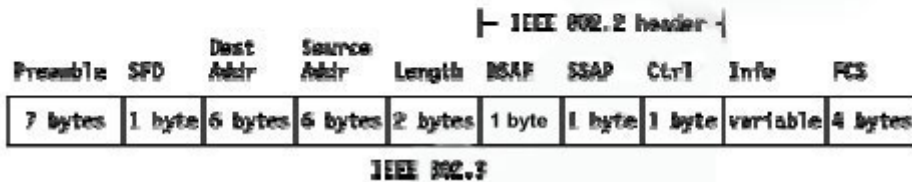
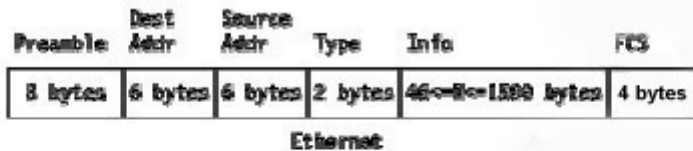
Ethernet versus IEEE 802.3

Two frame formats can be used on Ethernet:

1. The standard issued in 1978 by Xerox Corporation, Intel Corporation and Digital Equipment Corporation, usually called Ethernet (or DIX Ethernet).

2. The international IEEE 802.3 standard, a more recently defined standard.

The difference between the two standards is in the use of one of the header fields, which contains a protocol-type number for Ethernet and the length of the data in the frame for IEEE 802.3.



As shown in the diagram above, the only address that IEEE Ethernet frame headers contain are the source and destination MAC addresses.

Reference: <http://www.auggy.mlnet.com/ibm/3376c28.html>

QUESTION 341:

With consideration to half-duplex and full-duplex Ethernet, what are unique for half-duplex Ethernet? (Select two options.)

- A. Half-duplex Ethernet operates in a shared collision domain.
- B. Half-duplex Ethernet operates in an exclusive broadcast domain.
- C. Half-duplex Ethernet has efficient throughput.
- D. Half-duplex Ethernet has lower effective throughput.
- E. Half-duplex Ethernet operates in an exclusive collision domain.

Answer: A D

Explanation:

A single device could not be sending a frame and receiving a frame at the same time because it would mean that a collision was occurring. So, devices simply chose not to send a frame while receiving a frame. That logic is called half-duplex logic.

Ethernet switches allow multiple frames to be sent over different ports at the same time. Additionally, if only one device is connected to a switch port, there is never a possibility that a collision could occur. So, LAN switches with only one device cabled to each port of the switch allow the use of full-duplex operation. Full duplex means that an Ethernet card can send and receive concurrently.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) Page 62-63

QUESTION 342:

What advantages does full-duplex Ethernet have over single-duplex? (Select two options.)

- A. Uses inexpensive hubs
- B. Operates without collisions
- C. Operates on switches
- D. Provides faster data transfer
- E. Utilizes fewer wiring pairs

Answer: B, D

Explanation:

Full duplex Ethernet allows concurrent sending and receiving, which allows the full bandwidth to be used for both sending and receiving. The result is a collision free network with increased throughput.

Incorrect Answers:

A, C. These are incorrect because full duplex doesn't require hubs or switches. Full duplex operation can be used on switch and router ports, as well as PC hosts.
E. This is incorrect because full duplex actually uses more wiring pairs. In full duplex, both wire pairs are used. Half duplex uses only a single pair.

QUESTION 343:

You are a trainee technician at Certkiller . You are instructed to enlarge the area covered by a single LAN segment on the Certkiller network.
Which Layer 1 devices can you use? (Choose all that apply.)

- A. A switch.
- B. A router.
- C. A network adapter card.

- D. A hub.
- E. A repeater.

Answer: D E

Explanation:

1. A hub simply repeats the electrical signal and makes no attempt to interpret the electrical signal (layer 1) as a LAN frame (Layer 2). So, a hub actually performs OSI layer 1 functions, repeating an electrical signal, whereas a switch performs OSI layer 2 functions, actually interpreting Ethernet header information, particularly addresses, to make forwarding decisions.

2. Because the repeater does not interpret what the bits mean, but does examine and generate electrical signals, a repeater is considered to operate at Layer 1.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) page 55+62

QUESTION 344:

Certkiller has been assigned the CIDR block of 115.64.4.0/22 for its public network. Which of the following IP addresses can Certkiller use on its public network?

- A. 115.64.8.32
- B. 115.64.7.64
- C. 115.64.6.255
- D. 115.64.3.255
- E. 115.64.5.128
- F. 115.64.12.128

Answer: B, C, E

Explanation:

115.64.4.0 = 01110011.01000000.00000100.00000000

Subnet mask = 11111111.11111111.11111100.00000000 = 255.255.252.0

Subnet number = 01110011.01000000.00000100.00000000 = 115.64.4.0

Broadcast = 01110011.01000000.00000111.11111111 = 115.64.7.255

Valid address range = 115.64.4.1 - 115.64.7.254

QUESTION 345:

You are the network technician at Certkiller . Two routers on the Certkiller network, Router CK1 and Router CK2 are configured with RIP only. Router CK1 receives a routing update with a higher cost path to a remote network that is already in its routing table.

What will Router CK1 do?

- A. It will ignore the update and take no further action.
- B. It will add the update information to its routing table.
- C. It will replace the existing routing table entry with the update information.
- D. It will delete the existing routing table and will send out hello packets to rebuild the routing table.

Answer: A

Explanation:

If a router learns multiple routes to the same subnet, it chooses the best route based on the metric. This is assuming that the router learned the route from the same routing protocol. If learned from a different routing protocol, then the route with the lowest AD will be installed into the routing table.

Reference: CCNA Self-Study CCNA ICND Exam Certification Guide (Cisco Press, ISBN 1-58720-083-X) Page 150.

Incorrect Answers:

- B, C. Only one route to a given destination is placed into the routing table, and the route with the lowest metric is always chosen.
- D. This would prove to be a very inefficient method. If this were true, then the entire routing table would be rebuilt for each router nearly every time an update was received.

QUESTION 346:

The Certkiller network has a conferencing system that uses Voice over IP. The system uses UDP datagrams to send the voice data between communicating hosts. Your newly appointed Certkiller trainee wants to know what will happen if the datagrams out of sequence arrive at their destination when the network becomes busy.

What will your reply be?

- A. UDP will send an ICMP Information Request to the source host.
- B. UDP will pass the information in the datagrams up to the next OSI layer in the order that they arrive.
- C. UDP will drop the datagrams.
- D. UDP will use the sequence numbers in the datagram headers to reassemble the data in the correct order.
- E. UDP will not acknowledge the datagrams and wait for a retransmission of the datagrams.

Answer: C

Explanation:

VOIP systems utilize UDP because it is faster and uses less overhead. In addition, the reliable transport mechanism used in TCP is useless to VOIP because if a packet gets dropped and needs to be resent, it will be already too late.

UDP provides a service for applications to exchange messages. Unlike TCP, UDP is

connectionless and provides no reliability, no windowing, and no reordering of the received data. However, UDP provides some functions of TCP , such as data transfer, segmentation, and multiplexing using port numbers, and it does so with fewer bytes of overhead and with less processing required. UDP data transfer differs from TCP data transfer in that no reordering or recovery is accomplished. Applications that use UDP are tolerant of lost data, or they have some application mechanism to recover data loss. Reference: CCNA Self-Study CCNA INTRO exam certification Guide (Ciscopress, ISBN 1-58720-094-5) Page 161.

QUESTION 347:

Which of the following layers are part of the TCP/IP model? (Choose three.)

- A. application layer
- B. session layer
- C. transport layer
- D. internet layer
- E. network layer
- F. data link layer
- G. physical layer

Answer: A, C, D

Explanation:

OSI Model	TCP/IP Architecture	TCP/IP Protocols
Application	SNMP, Telnet FTP, TFTP, NTP, NFS, SMTP	SNMP, TELNET, FTP, TFTP, NTP, NFS, SMT0
Presentation		Transport
Session	Internet	IP OSPF, RIP, ICMP
Transport	Network interface	Use of lower layer protocol standards
Network		
Data Link		
Physical		

TCP/IP's architecture does not use the presentation and session layers. The application layer protocols use the transport layer services directly. The OSI transport layer provides connection-oriented service; in TCP/IP, this service is provided by TCP. TCP/IP also provides connectionless service in the transport layer with UDP.

The Internet layer of TCP/IP corresponds to the network layer of the OSI model. Although OSI network-layer protocols provide connection-oriented (Connection-Model Network Service (CMNS), X.25) or Connectionless Network Service (CLNS), IP provides only connectionless network service. The routing protocols are network layer protocols with an IP protocol number.

Reference: CCNA ICND Exam Certification Guide by Wendell Odem

Pg.268

QUESTION 348:

What is the function of the CSMA/CD algorithm in Ethernet technologies?

- A. defines how the media is accessed
- B. supplies a token to determine which host has access to the media
- C. defines the encoding of electrical signals on the wire
- D. determines the preamble bits

Answer: A

Explanation:

Ethernet networking uses Carrier Sense Multiple Access with Collision Detect (CSMA/CD), a protocol that helps devices share the bandwidth evenly without having two devices transmit at the same time on the network medium. CSMA/CD was created to overcome the problem of those collisions that occur when packets are transmitted simultaneously from different nodes. And trust me, good collision management is crucial, because when a node transmits in a CSMA/CD network, all the other nodes on the network receive and examine that transmission. Only bridges and routers can effectively prevent a transmission from propagating throughout the entire network! So, how does the CSMA/CD protocol work? Like this: when a host wants to transmit over the network, it first checks for the presence of a digital signal on the wire. If all is clear (no other host is transmitting), the host will then proceed with its transmission. But it doesn't stop there. The transmitting host constantly monitors the wire to make sure no other hosts begin transmitting. If the host detects another signal on the wire, it sends out an extended jam signal that causes all nodes on the segment to stop sending data (think, busy signal). The nodes respond to that jam signal by waiting a while before attempting to transmit again. Back off algorithms determine when the colliding stations can retransmit. If collisions keep occurring after 15 tries, the nodes attempting to transmit will then time out. Pretty clean! The effects of having a CSMA/CD network sustaining heavy collisions include the following:

1. Delay
2. Low throughput
3. Congestion

QUESTION 349:

Which two statements describe the operation of the CSMA/CD access method?
(Choose two.)

- A. After a collision, the station that detected the collision has first priority to resend the lost data.
- B. In a CSMA/CD collision domain, stations must wait until the media is not in use before transmitting.
- C. In a CSMA/CD collision domain, multiple stations can successfully transmit data simultaneously.

- D. The use of hubs to enlarge the size of collision domains is one way to improve the operation of the CSMA/CD access method.
- E. After a collision, all stations run a random backoff algorithm. When the backoff delay period has expired, all stations have equal priority to transmit data.
- F. After a collision, all stations involved run an identical backoff algorithm and then synchronize with each other prior to transmitting data.

Answer: B,E

Explanation: Ethernet networking uses Carrier Sense Multiple Access with Collision Detect (CSMA/CD), a protocol that helps devices share the bandwidth evenly without having two devices transmit at the same time on the network medium. CSMA/CD was created to overcome the problem of those collisions that occur when packets are transmitted simultaneously from different nodes. And trust me, good collision management is crucial, because when a node transmits in a CSMA/CD network, all the other nodes on the network receive and examine that transmission. Only bridges and routers can effectively prevent a transmission from propagating throughout the entire network! So, how does the CSMA/CD protocol work? Like this: when a host wants to transmit over the network, it first checks for the presence of a digital signal on the wire. If all is clear (no other host is transmitting), the host will then proceed with its transmission. But it doesn't stop there. The transmitting host constantly monitors the wire to make sure no other hosts begin transmitting. If the host detects another signal on the wire, it sends out an extended jam signal that causes all nodes on the segment to stop sending data (think, busy signal). The nodes respond to that jam signal by waiting a while before attempting to transmit again. Backoff algorithms determine when the colliding stations can retransmit. If collisions keep occurring after 15 tries, the nodes attempting to transmit will then time out. Pretty clean! The effects of having a CSMA/CD network sustaining heavy collisions include the following:

1. Delay
2. Low throughput
3. Congestion

QUESTION 350:

Which of the following statements describes full or half-duplex Ethernet operation correctly? (Select two options.)

- A. Full-duplex Ethernet uses CSMA/CD to prevent collisions.
- B. Half-duplex Ethernet uses a loopback circuit to detect collisions.
- C. A full-duplex Ethernet card allows 20Mbps for data transmission.
- D. Full-duplex Ethernet makes use of two pairs of wires for data.
- E. An Ethernet hub can operate both half and full duplex simultaneously.

Answer: B, D

Explanation:

Half-duplex Ethernet send and receives on the same line, so a loopback needs to be set to detect collisions. Alternatively, full-duplex Ethernet doesn't have to because it uses two pairs of wire, one to send and the other to receive. Collisions are not possible on full duplex Ethernet networks.

Incorrect Answers:

- A. Full duplex uses both pairs of wires, so transmissions are sent on the first pair, and data that is received come in on the other pair. This prevents collisions.
- C. Full duplex allows for data to be sent and received at the same time. It will not double the amount of bandwidth at any given time. The speed of the Ethernet link will remain at 10/100.
- E. Hubs are shared devices and can only support one mode, unlike switches.

QUESTION 351:

With regard to Ethernet media access methods, which of the following are true?
(Choose all that apply.)

- A. A device waits for an electronic signal before transmitting.
- B. A device listens and waits until the media is not busy before transmitting.
- C. All devices on an Ethernet segment see data that passes on the network medium.
- D. Only the sender and the receiver devices see data that passes on the network medium.
- E. Ethernet networks allow you to configured devices with higher transmission priority.

Answer: B, C

Explanation:

Ethernet uses the CSMA/CD access method.

CSMA/CD logic helps prevent collisions and also defines how to act when a collision does occur. The CSMA/CD algorithm works like this:

1. A device with a frame to send listens until the Ethernet is not busy.
2. When the Ethernet is not busy, the sender begins sending the frame.
3. The sender listens to make sure that no collision occurred.
4. Once the senders hear the collision, they each send a jamming signal, to ensure that all stations recognize the collision.
5. After the jamming is complete, each sender randomizes a timer and waits that long.
6. When each timer expires, the process starts over with Step 1.

So, all devices on the Ethernet need to use CSMA/CD to avoid collisions and to recover when inadvertent collisions occur.

Reference: Cisco CCNA intro 640-821 p.55

QUESTION 352:

Congestion on an Ethernet network can be caused by one of the following. Which one?

- A. Increasing the number of collision domains.
- B. Microsegmenting the network.
- C. Adding hubs for connectivity to the network.
- D. Putting additional switches in the network.
- E. Implementing VLANs in the network.

Answer: C

Explanation

All of the answer choices above except for C are all good ways of reducing network congestion. Hubs on the other hand increase congestion, because they allow the addition of more users, therefore more potential traffic, more collisions (if it's a half-duplex) and their use will result in increased overall congestion.

Incorrect Answers:

A, B, D, E. These answers all describe the use of VLANs, which are used to decrease the size of any given collision domain and to decrease the amount of link level multicast and broadcast traffic.

QUESTION 353:

Which three statements are true about the operation of a full-duplex Ethernet network? (Choose three.)

- A. Ethernet hub ports are preconfigured for full-duplex mode.
- B. The host network card and the switch port must be capable of operating in full-duplex mode.
- C. There are no collisions in full-duplex mode.
- D. In a full-duplex environment, the host network card must check for the availability of the network media before transmitting.
- E. A dedicated switch port is required for each full-duplex node.

Answer: B,C,E

Explanation:

Half-duplex Ethernet is defined in the original 802.3 Ethernet and Cisco says you only use one wire pair with a digital signal running in both directions on the wire. It also uses the CSMA/CD protocol to help prevent collisions and to permit retransmitting if a collision does occur. If a hub is attached to a switch, it must operate in half-duplex mode because the end stations must be able to detect collisions. Half-duplex Ethernet-typically 10BaseT-is only about 30 to 40 percent efficient as Cisco sees it, because a large 10BaseT network will usually only give you 3- to 4Mbps-at most.

Full-duplex Ethernet uses two pairs of wires, instead of one wire pair like half duplex.

Also, full duplex uses a point-to-point connection between the transmitter of the transmitting device and the receiver of the receiving device, which means that with full-duplex data transfer, you get a faster data transfer compared to half duplex. And because the transmitted data is sent on a different set of wires than the received data, no collisions occur-sweet! The reason you don't need to worry about collisions is because

now Full-duplex Ethernet is like a freeway with multiple lanes instead of the single-lane road provided by half duplex. Full-duplex Ethernet is supposed to offer 100 percent efficiency in both directions; this means you can get 20Mbps with a 10Mbps Ethernet running full duplex, or 200Mbps for FastEthernet-woohoo! But this rate is something known as an aggregate rate, which translates into "You're supposed to get" 100 percent efficiency. No guarantees in networking, as in life.

Full-duplex Ethernet can be used in three situations:

1. With a connection from a switch to a host
2. With a connection from a switch to a switch
3. With a connection from a host to a host using a crossover cable

QUESTION 354:

When selecting a Network Interface Card (NIC), which of the following factors need to be considered? Select three

- A. The type of application used on the network
- B. The type of system bus used by the computers
- C. The type of memory installed in each computer
- D. The type of media used in the network topology
- E. The type of protocols used in the network
- F. The physical layout of the network hosts

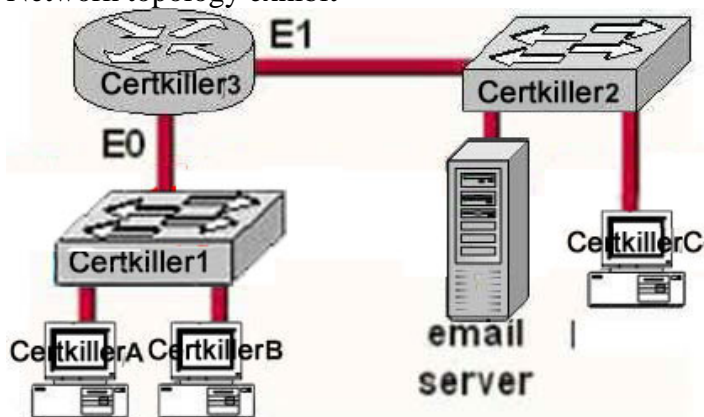
Answer: B, D, F

Explanation:

NICs are used to physically connect a station to a network, so only layer 1 of the OSI model will be used. Only the system bus type, media type (ethernet, token ring, etc) and physical elements need to be considered. Anything residing above layer 1, such as the protocols and applications used on the network, will not be of concern when determining the NIC card to use.

QUESTION 355:

Network topology exhibit



640-821

Host Certkiller A needs to communications with the e-mail server shown in the exhibit.

What address will be placed on the destination address field of the frame when it leaves host Certkiller A?

- A. The MAC address of Certkiller A
- B. The MAC address of switch Certkiller 1
- C. The MAC address of the E0 interface of the Certkiller 3 router.
- D. The MAC address of the E1 interface of the Certkiller 3 router.
- E. The MAC address of switch Certkiller 2
- F. The MAC address of the email server

Answer: C

Explanation:

If the destination host is in the remote segment than the router will change the MAC address of the source to its own. The inverse ARP protocol is by default on. Remember that IP address is not changed after forwarding. The MAC address is changed after crossing each broadcast domain.

QUESTION 356:

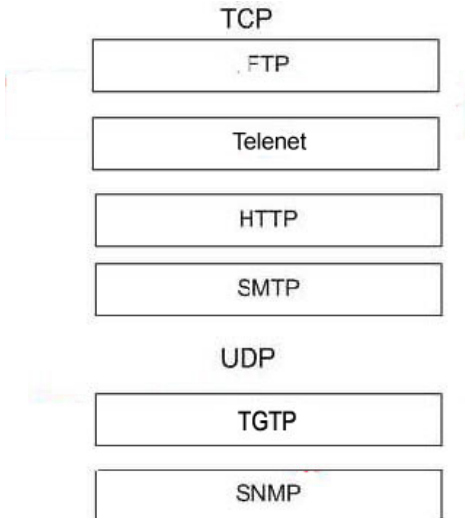
DRAG DROP

Drag and drop.

Your Certkiller.com boss asks you to match the networks services with the corresponding Layer 4 protocols.

Network service	TCP
FTP	Place here
SNMP	Place here
SMTP	Place here
TFTP	Place here
Telnet	UDP
HTTP	Place here
	Place here

Answer:



Explanation:

FTP uses TCP Port Numbers 20 and 21. Port 20 is used for Data. Port 21 is used for Control.

Telnet used TCP Port Number 23.

HTTP uses TCP Port Number 80.

SMTP uses TCP Port Number 25.

SNMP uses UDP Port Number 161.

TFTP uses UDP Port Number 69.

QUESTION 357:

You are the network administrator at Certkiller . Your newly appointed Certkiller trainee wants to know which protocol uses both tcp and udp ports.

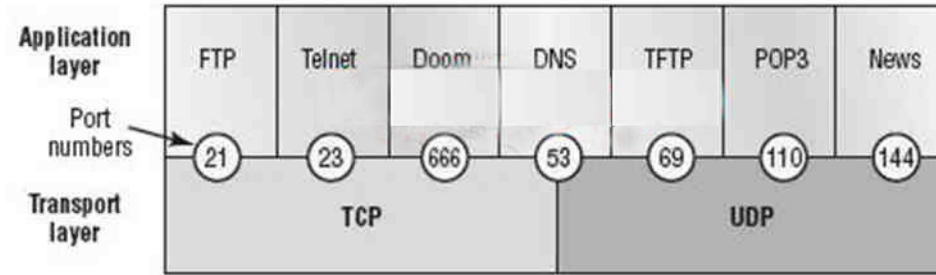
What will your reply be?

- A. FTP
- B. SMTP
- C. Telnet
- D. DNS

Answer: D

Explanation:

TCP and UDP must use port numbers to communicate with the upper layers. Port numbers keep track of different conversations crossing the network simultaneously. Originating-source port numbers are dynamically assigned by the source host, which will be some number starting at 1024. 1023 and below are defined in RFC 1700, which discusses what is called well-known port numbers.



Virtual circuits that do not use an application with a well-known port number are assigned port numbers randomly chosen from within a specific range instead. These port numbers identify the source and destination host in the TCP segment.

Figure 3.5 illustrates how both TCP and UDP use port numbers.

QUESTION 358:

How many simultaneous Telnet sessions does a Cisco router support by default?

- A. 1
- B. 2
- C. 3
- D. 4
- E. 5
- F. 6

Answer: E

Explanation:

Several concurrent Telnet connections to a router are allowed. The `line vty 0 4` command signifies that this configuration applies to vtys (virtual teletypes—terminals) 0 through 4. Only these five vtys are allowed by the IOS unless it is an IOS for a dial access server, such as a Cisco AS5300. All five vtys typically have the same password, which is handy because users connecting to the router via a Telnet cannot choose which vty they get.

QUESTION 359:

You are a technician at Certkiller . Your newly appointed Certkiller trainee wants to know which services use UDP.

What would your reply be? (Choose all that apply.)

- A. TACACS
- B. Telnet
- C. SMTP
- D. SNMP
- E. HTTP
- F. TFTP

Answer: D, F

D: SNMP uses UDP port 161

F: TFTP uses UDP port 69

Incorrect Answers:

A: TACACS uses TCP port 49

B: Telnet uses TCP port 23

C: SMTP uses TCP port 25

E: HTTP uses TCP port 80

QUESTION 360:

You are a technician at Certkiller . Your newly appointed Certkiller trainee wants to know which services use TCP.

What would your reply be? (Choose all that apply.)

A. NTP

B. NNTP

C. SMTP

D. SNMP

E. HTTPS

F. TFTP

Answer: B, C, E

B: NNTP uses TCP port 119

C: SMTP uses TCP port 25

E: HTTPS uses TCP port 443

Incorrect Answers:

A: NTP uses UDP port 123

D: SNMP uses UDP port 161

F: TFTP uses UDP port 69

QUESTION 361:

Study the Exhibit below carefully:

```
RtrB#show interface serial0/0
```

```
Serial0/0 is up, line protocol is up
```

```
Hardware is PowerQUICC Serial
```

```
Internet address is 10.0.15.2/21
```

```
MTU 1500 bytes, BW 128 Kbit, DLY 20000 usec,
```

```
reliability 255/255, txload 1/255, rxload 1/255
```

```
Encapsulation PPP, loopback not set
```

```
Keepalive set (10 sec)
```

```
LCP Open
```

```
Closed: IPXCP
```

```
Listen: CCP
```

```
Open: IPCP, CDPCP
```

```
Last input 00:00:00, output 00:00:00, output hang never
```

Last clearing of "show interface" counters 00:52:02

Input queue: 0/75/0/0 (size/max/drops/flushes): total output drops: 0

Queuing strategy: weighted fair

Output queue: 0/1000/64/0 (size/max total/threshold/drops)

After considering the effects of the command output illustrated in the exhibit above, which of the following are operational on the serial link? (Select two options.)

- A. PPP
- B. IP
- C. Compression
- D. IPX
- E. Multilink
- F. ATX

Answer: A, B

Explanation:

The interface displays show that the line protocol is up, so we can safely assume that everything is working from layers one and two. This interface is configured with PPP encapsulation, which is a layer two protocol that appears to be operational on this interface. The interface is also configured with a valid IP address and subnet mask, so IP is also operational on this interface.

Incorrect Answers:

- C. There is nothing in the output displayed that would suggest any type of compression has been enabled on this interface.
- D. There is only an IP address configured on this interface. If IPX was enabled, there would be a layer 3 IPX address configured on it.
- E. Although multilink works with PPP to provide for the bonding of interfaces into a larger, logical interface, there is nothing that suggests that multilink has been enabled. PPP multilink uses bundle interfaces, and the bundle interface would have the IP address assigned to it, not the physical serial interface.
- F. There is nothing to suggest that this protocol has been enabled on this interface.

QUESTION 362:

One of the trainees assigned to you want to know which services use TCP. What can you tell him? (Select four options.)

- A. TFTP
- B. SMTP
- C. SNMP
- D. FTP
- E. HTTP
- F. HTTPS

Answer: B, D, E, F

Explanation:

SMTP (Simple Mail Transfer Profile for email), FTP (File Transfer Protocol), and HTTP/HTTPS (Hyper Text Transfer Protocol for internet) all use TCP because of the reliable delivery mechanism. SMTP uses TCP port 25, FTP uses TCP ports 20 and 21, HTTP uses TCP port 80, and HTTPS uses TCP port 443.

Incorrect Answers:

A, C. SNMP and TFTP use UDP as the transport mechanism. Generally speaking, protocols that use the keywords "trivial" or "simple" uses UDP, since connectionless, best effort delivery mechanism usually suffice.

Reference: CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) Page 163.

QUESTION 363:

Which of the following types of packets will be allowed entry when a serial interface's inbound access list has been configured to prohibit entry for TCP and UDP ports 21, 23 and 25? (Select three options.)

- A. SMTP
- B. DNS
- C. FTP
- D. Telnet
- E. HTTP
- F. POP3

Answer: B, E, F

Explanation:

Since all traffic that is not using the three ports specified is permitted, the correct answers are B, E and F. (DNS port 53, HTTP port 80, POP3 port 110).

Incorrect Answers:

- A. SMTP uses port 25, which is prohibited.
- C. FTP uses port 21, which is prohibited.
- D. Telnet uses port 23, which is prohibited.

QUESTION 364:

One of your trainees wants to know which fields are common to the TCP and the UDP segments. What can you tell her? (Select two options.)

- A. source address
- B. options
- C. sequence number

- D. sources
- E. destination port
- F. checksum

Answer: E, F

Explanation:

The TCP and UDP packet formats are described below:

TCP Packet Format

Figure 30-10 illustrates the fields and overall format of a TCP packet.

Figure30-10: Twelve fields comprise a TCP packet.

Source port		Destination port	
Sequence number			
Acknowledgment number			
Data offset	Reserved	Flags	Window
Checksum		Urgent pointer	
Options (+ padding)			
Data (variable)			

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TCP Packet Field Descriptions

The following descriptions summarize the TCP packet fields illustrated in Figure 30-10:

1. SourcePort and DestinationPort-Identifies points at which upper-layer source and destination processes receive TCP services.
- 2.
3. Sequence Number-Usually specifies the number assigned to the first byte of data in the current message. In the connection-establishment phase, this field also can be used to identify an initial sequence number to be used in an upcoming transmission.
- 4.
5. Acknowledgment Number-Contains the sequence number of the next byte of data the sender of the packet expects to receive.
- 6.
7. Data Offset-Indicates the number of 32-bit words in the TCP header.
- 8.
9. Reserved-Remains reserved for future use.
- 10.
11. Flags-Carries a variety of control information, including the SYN and ACK bits used for connection establishment, and the FIN bit used for connection termination.
- 12.
13. Window-Specifies the size of the sender's receive window (that is, the buffer space available for incoming data).
- 14.

- 15. Checksum-Indicates whether the header was damaged in transit.
- 16.
- 17. Urgent Pointer-Points to the first urgent data byte in the packet.
- 18.
- 19. Options-Specifies various TCP options.
- 20.
- 21. Data-Contains upper-layer information.

User Datagram Protocol (UDP)

The User Datagram Protocol (UDP) is a connectionless transport-layer protocol (Layer 4) that belongs to the Internet protocol family. UDP is basically an interface between IP and upper-layer processes. UDP protocol ports distinguish multiple applications running on a single device from one another.

Unlike the TCP, UDP adds no reliability, flow-control, or error-recovery functions to IP. Because of UDP's simplicity, UDP headers contain fewer bytes and consume less network overhead than TCP.

UDP is useful in situations where the reliability mechanisms of TCP are not necessary, such as in cases where a higher-layer protocol might provide error and flow control.

UDP is the transport protocol for several well-known application-layer protocols, including Network File System (NFS), Simple Network Management Protocol (SNMP), Domain Name System (DNS), and Trivial File Transfer Protocol (TFTP).

The UDP packet format contains four fields, as shown in Figure 30-11. These include source and destination ports, length, and checksum fields.

Figure: A UDP packet consists of four fields.



Source and destination ports contain the 16-bit UDP protocol port numbers used to demultiplex datagrams for receiving application-layer processes. A length field specifies the length of the UDP header and data. Checksum provides an (optional) integrity check on the UDP header and data.

QUESTION 365:

Exhibit

Source Port	Destination Port	Sequence Number	Acknowledgement Number	...	Window Size	..
21	12409	583974	292735	-	6000	-

The exhibit displays the partial contents of an encapsulation header.

Which of the following are true of the network traffic represented in this diagram?

Select three.

- A. This is a UDP header

- B. This is an OSI layer 4 header.
- C. This is traffic from an FTP server.
- D. This is traffic from an Telnet client.
- E. The last PDU received in this session had a sequence number of 292735.

Answer: B, C, E

Explanation:

As the header contains the sequence number and ACK number fields, it represents a TCP header. Choice B is correct as TCP works on Layer 4 i.e. Transport Layer.

Source Port mentioned in the header is 21 which indicate it is FTP Traffic because FTP uses port 20 and 21 for data and control. So choice C is correct.

QUESTION 366:

Exhibit

```
Certkiller C (config)#enable password Certkiller1
Certkiller C (config)#enable secret Certkiller2
Certkiller C (config)# line vty 0 4
Certkiller C (config)#enable password Certkiller3
Certkiller C (config-line) # Exit
Certkiller C (config)# no enable Certkiller2
```

A Certkiller .com technician is connected to the router console port. After configuring the commands displayed in the exhibit, the technician log out and then logs back in at the console. Which password does the technician need to enter at the router prompt get back into the privileged EXEC mode?

- A. Certkiller 1
- B. Certkiller 2
- C. Certkiller 3
- D. A password would not be required.

Answer: B

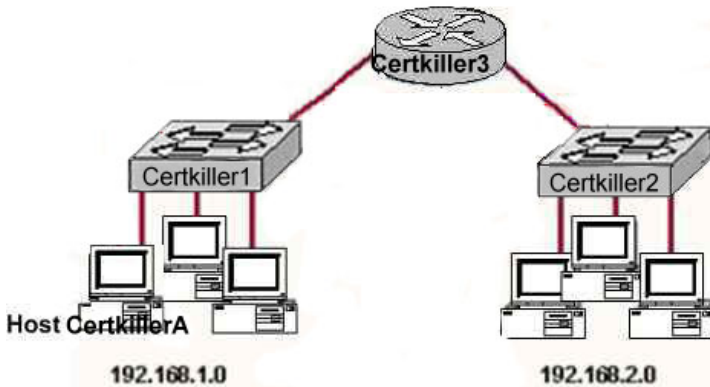
Explanation:

Certkiller 2 is the answer because the enable secret password is used to log back to the router. The enable password is used. The enable secret password always overwrites the enable password.

Answer c is incorrect because its for the vty

QUESTION 367:

Network topology exhibit



Study the network topology exhibit carefully, in particular the two switches Certkiller 1, Certkiller 2, and the router Certkiller 3.

Which statements are true in this scenario? Select two.

- A. All the devices in both networks will receive a broadcast to 255.255.255.255 sent by host Certkiller A.
- B. Only the devices in network 192.168.1.0 will receive a broadcast to 255.255.255.255 sent by host Certkiller A.
- C. All the devices on both networks are members of the same collision domain.
- D. The hosts on the 192.168.1.0 network form one collision domain, and the hosts on the 192.168.2.0 network form a second collision domain.
- E. Each host is in a separate collision domain.

Answer: B, E

Explanation:

B is in fact correct, however D is not. If the diagram used hubs and not switches then yes, there would only be two collision domains, but the diagram has switches. The author may have intended to state broadcast domains which would have been correct as well.

Answer E is correct, since the network is comprised of switches.

QUESTION 368:

You are the network administrator at Certkiller . One of the users on the network complained about being unable to reach a server at a remote site. You are the network administrator and have to investigate. Upon investigation, you discover the following information:

local PC 10.0.3.35/24

default gateway 10.0.3.1

remote server 10.0.5.250/24

You then conduct the following tests from the offending local PC.

ping 127.0.0.1 - unsuccessful

ping 10.0.3.35 - unsuccessful

ping 10.0.3.1 - unsuccessful

ping 10.0.5.250 - unsuccessful

Following the above scenario, which of the following problems would create the test results listed above?

- A. TCP/IP not correctly installed.
- B. Default gateway not operational.
- C. Local physical layer faulty.
- D. Remote physical layer at fault.

Answer: A

Explanation

Ping test connectivity on a TCP/IP network. However, all the ping commands, including the loopback command, fails, therefore there is a TCP/IP configuration error.

QUESTION 369:

You are the network administrator at Certkiller . You verify the configuration of a newly installed host by establishing an FTP connection to a remote server.

What is the highest layer of the protocol stack used in this operation?

- A. application
- B. presentation
- C. session
- D. transport
- E. network
- F. data link
- G. physical

Answer: A

Explanation:

Layer 7 is the application layer, which is the highest layer in the OSI model. This layer describes the use of end user applications, such as opening movie files (avi, mpeg, etc) used Microsoft Office applications, using WWW browsers, using Telnet, and using FTP.

QUESTION 370:

Characteristic such as Acknowledgements, sequencing, and flow control are typical of which OSI layer?

- A. Layer 2
- B. Layer 3
- C. Layer 4
- D. Layer 5
- E. Layer 6
- F. Layer 7

Answer: C

Explanation

The Transport layer (Layer 4) defines several functions, including the choice of protocols. The most important Layer 4 functions are error recovery and flow control. The transport layer may provide for retransmission, i.e., error recovery, and may use flow control to prevent unnecessary congestion by attempting to send data at a rate that the network can accommodate, or it might not, depending on the choice of protocols. Multiplexing of incoming data for different flows to applications on the same host is also performed. Reordering of the incoming data stream when packets arrive out of order is included. Examples include: TCP, UDP, and SPX.

QUESTION 371:

Why is it beneficial for individuals in the data communication industry to use the layered OSI reference model? (Select two options.)

- A. It encourages industry standardization by defining what functions occur at each layer of the model.
- B. It necessitates changes in functionality in one layer to other layers.
- C. It enables equipment efficiency from different vendors to use the same electronic components.
- D. It divides the network communication process into smaller and simpler components, thus aiding component development, design, and troubleshooting.
- E. It supports the evolution of multiple competing standards, and thus enhances business equipment manufacturing opportunities.

Answer: A, D

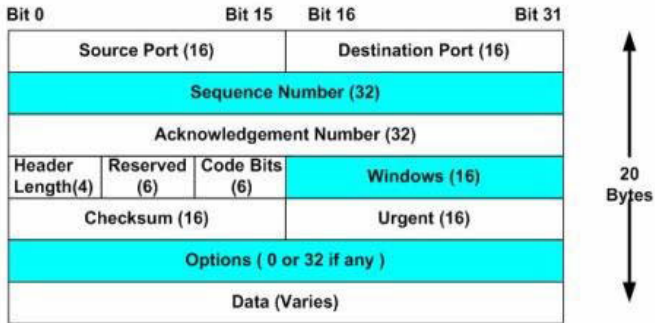
Explanation:

The OSI (Open System Interconnection) reference model was created as a reference point for communications devices. A layered approach is used to segment the entire telecommunications process into a series of smaller steps.

A is correct because it encourages a level of standardization by encouraging that functions be compared to known layers. D is also correct because it allows engineers to focus on the development, refining, and perfection of simpler components.

QUESTION 372:

Study the Exhibit below carefully:



Which data structure is described in the exhibit above?

- A. FDDI frame
- B. Ethernet frame
- C. UDP datagram
- D. Token Ring frame
- E. TCP segment

Answer: E

Explanation:

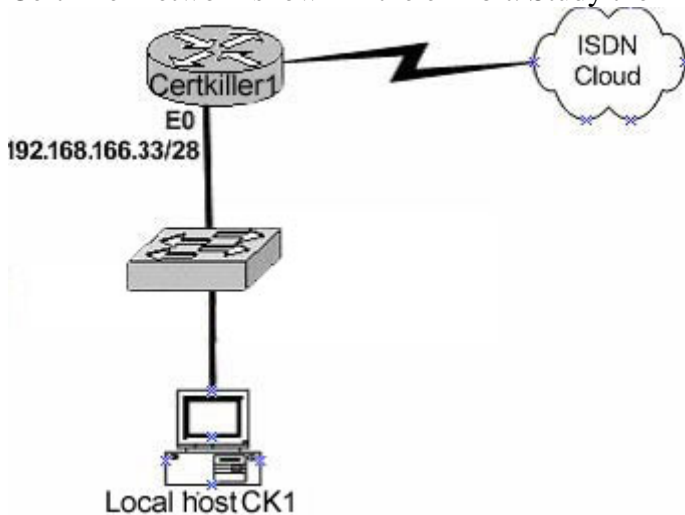
This diagram represents a TCP segment. TCP is a connection oriented protocol, which means it sends the data according to the sliding window algorithm, and uses acknowledgements. The diagram above shows the areas where windows and acknowledgement numbers are used. UDP data structures do not use these fields.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) page 151.

QUESTION 373:

You are a network administrator at Certkiller . You need to troubleshoot the Certkiller network shown in the exhibit. Study the Exhibit carefully:



The host, CK1 , is connected to the Certkiller 1 LAN, but it cannot get access to

resources on any of the other networks. The host's configuration is as follows:

host address:192.168.166.45

subnet mask:255.255.255.240

default gateway: ..192.168.166.32

Then which of the following is the cause of the problem?

- A. The default gateway specified on the client is the network address.
- B. The default gateway is on a different subnet address as the host.
- C. The IP address of the host is on a different subnet.
- D. The host subnet mask is incompatible to the subnet mask of the attached router interface.

Answer: A

Explanation: The client is configured to use wrong default gateway address. The gateway is found on 192.168.166.33.

Incorrect Answers:

B: The default gateway is on the same network.

C: The host address is correct.

D: The subnet mask 255.255.255.240 uses 28 bits and is therefore correct.

QUESTION 374:

You are a network technician at Certkiller . You have told a newly appointed trainee that the OSI model has 7 layers and that the Application layer is the highest layer. The trainee is curious as to which protocols operate at the application layer. What should you tell him? (Choose all that apply.)

- A. TCP
- B. Telnet
- C. FTP
- D. ARP
- E. IP

Answer: B C

Explanation:

Layer Name Examples

Application (layer 7) Telnet, HTTP, FTP, WWW browsers, NFS, SMTP gateways, SNMP

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) Page 34

QUESTION 375:

You are a technician at Certkiller . Your newly appointed Certkiller trainee wants to know which address routers use to forward packets across WAN links that transverse the Internet.

What would your reply be?

- A. The logical address.
- B. The source MAC address.
- C. The destination IP address.
- D. The destination MAC address.

Answer: C

Explanation:

The Internet uses TCP/IP.

QUESTION 376:

Which of the following applications use the UDP protocol? (Choose all that apply.)

- A. FTP
- B. DHCP
- C. HTTP
- D. SNMP
- E. SMTP

Answer: B, D

Explanation:

B: DHCP uses UDP ports 67 and 68

D: SNMP uses UDP port 161

Incorrect Answers:

A: FTP uses TCP port 21

C: HTTP uses TCP port 80

E: SMTP uses TCP port 25

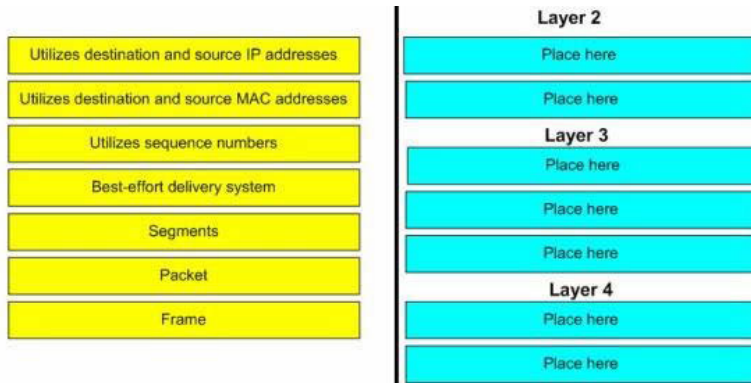
Reference:

Certkiller 640-821 Study Guide, Appendix B, "Common TCP and UDP Ports Assignments"

QUESTION 377:

DRAG DROP

Drag the items on the left to the correct OSI layer on the right.



Answer:

Explanation:

Layer 2

Utilized destination and source MAC addresses

Frame

Layer 3

Utilizes destination and source IP addresses

Best effort delivery system

Packet

Layer 4

Utilizes sequence numbers

Segment

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) page 33

QUESTION 378:

You are the network administrator at Certkiller . You want to implement mechanism that automates the IP configuration, including IP addresses, subnet masks, default gateways, and DNS server information, for hosts on the Certkiller network.

What protocol allows you to accomplish this?

- A. SMTP
- B. SNMP
- C. DHCP
- D. DARP
- E. RRIP

Answer: C

Explanation:

DHCP uses the concept of the client making a request and the server supplying the IP address to the client, plus other information such as the default gateway, subnet mask, DNS IP address, and other information.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) page 132

QUESTION 379:

Which of the following protocols uses TCP port 443?

- A. HTML
- B. HTTPS
- C. TFTP
- D. Telnet
- E. SMTP

Answer: B

Explanation:

HTTPS is an application layer protocol which uses TCP port 443.

Incorrect Answers:

- A: HTML is not a protocol.
- C: TFTP uses UDP port 69.
- D: Telnet uses TCP port 23.
- E: SMTP uses TCP port 25.

Reference:

Certkiller 640-821 Study Guide, Appendix B "Common TCP and UDP Ports Assignments"

QUESTION 380:

DRAG DROP

Match the Layer 4 network service with the corresponding TCP port number by dragging the options on the left to the correct target on the right.

DNS	Place here	21
FTP	Place here	23
Telnet	Place here	25
HTTP	Place here	53
SNMP	Place here	80
SMTP	Place here	161

Answer:

FTP	21
Telnet	23
SMTP	25
DNS	53
HTTP	80
SNMP	161

Explanation:

Reference:

Certkiller 640-821 Study Guide version 1.1, Appendix B, "Common TCP and UDP Ports Assignments".

QUESTION 381:

A receiving host has failed to receive all of the segments that it should acknowledge. What can the host do to improve the reliability of this communication session?

- A. start a new session using UDP
- B. obtain a new IP address from the DHCP server
- C. use a different source port for the session
- D. decrease the sequence number
- E. decrease the window size

Answer: E

Explanation: Window are used to control the amount of outstanding, unacknowledgement data segments. So the size of the window controls how much information is transferred from one host to another.

QUESTION 382:

When files are transferred between a host and an FTP server, the data is divided into smaller pieces for transmission. As these pieces arrive at the destination host, they must be reassembled to reconstruct the original file. What provides for the reassembly of these pieces into the correct order?

- A. the sequence number in the TCP header
- B. the Start Frame Delimiter in the 802.3 Preamble
- C. the TTL in the IP header
- D. the acknowledgement number in the segment header
- E. the frame check sequence in the Ethernet frame trailer

Answer: A

Explanation:

The Transport layer can provide reliable networking via acknowledgments, sequencing, and flow control.

Acknowledgments Delivered segments are acknowledged to the sender. If they are not acknowledged, the sender will retransmit.

* Sequencing Data segments are sequenced into their original order when they arrive at the destination.

* Flow Control Provides buffer controls that prevent packet flooding to the destination host. Buffers store bursts of data for processing when the transmission is complete.

Layer 4 protocols include the following:

* Transmission Control Protocol (TCP)

* User Datagram Protocol (UDP)

* Sequenced Packet Exchange (SPX) A reliable communications protocol created by Novell NetWare

QUESTION 383:

Which of the following commands makes use ICMP to test network connectivity?
(Choose all that apply.)

- A. telnet
- B. ping
- C. SNMP
- D. traceroute
- E. FTP

Answer: B, D

Explanation:

IP needs to have a way to test basic IP connectivity, without relying on any applications to be working. Ping (Packet Internet Groper) uses the Internet Control Message Protocol (ICMP), sending message called an ICMP echo request to another IP address. The computer with that IP address should reply with an ICMP echo reply.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) page 131

QUESTION 384:

Your boss at Certkiller .com is curious about the extended ping command.
Which of the following statements are true? (Choose all that apply.)

- A. The extended ping command is supported from user EXEC mode.
- B. The extended ping command is supported from privileged EXEC mode.
- C. With the extended ping command you can specify the port to be pinged.
- D. With the extended ping command you can specify the timeout.

E. With the extended ping command you can specify the datagram size.

Answer: B D E

Explanation:

The extended ping command works only at the privileged EXEC command line.

Datagram size [100]: Size of the ping packet (in bytes). Default: 100 bytes.

Timeout in seconds [2]: Timeout interval. Default: 2 (seconds). The ping is declared successful only if the ECHO REPLY packet is received before this time interval.

Reference:

<http://www.cisco.com/en/US/tech/CK365/CK5>

[54/technologies_tech_note09186a0080093f22.shtml#extend_ping](http://www.cisco.com/en/US/tech/CK365/CK5/54/technologies_tech_note09186a0080093f22.shtml#extend_ping)

QUESTION 385:

You are a technician at Certkiller . Your newly appointed Certkiller trainee wants to know what the purpose of flow control is the Certkiller network.

What would your reply be?

- A. It ensures that data is retransmitted if an acknowledgment is not received.
- B. It reassembles segments in the correct order on the destination device.
- C. It provides a mechanism for the receiver to control the transmission speed.
- D. It regulates the size of each datagram segment.

Answer: C

Flow control does not regulate the size of each datagram (D); rather it provides a mechanism for the receiver to control the transmission speed. So C is the correct answer.

QUESTION 386:

With regard to Positive Acknowledgment and Retransmission (PAR), which of the following are true? (Choose all that apply.)

- A. The source device will only retransmit lost packets on the request of the destination device.
- B. The source device starts a timer when it sends a segment and retransmits if an acknowledgment is not received before the timer expires.
- C. The destination device acknowledges receipt of a segment by sending a packet with a new sequence number and the ACK bit sent.
- D. The destination device acknowledges receipt of a segment by sending a packet that indicates the next sequence number it expects.
- E. If the destination device does not receive a segment, all segments are retransmitted.
- F. The source device keeps a record of all segments sent and expects and acknowledgment of each.

Answer: B, D, F

Explanation:

Answer B

1. The sender sets a re-transmission timer, awaiting acknowledgement, just in case the acknowledgement is lost, or in call all the transmitted segments are lost.

Answer D

1. The client will reply with an acknowledgement that requests for the next sequence number.

Answer F

1. The only way to know that it has sent the certain sequence number by keeping a record of it.

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) page 156

QUESTION 387:

What statements are true regarding ICMP packets? Choose two

- A. They acknowledge receipt of TCP segments.
- B. They guarantee datagram delivery.
- C. They can provide hosts with information about network problems.
- D. They are encapsulated within IP datagrams.
- E. They are encapsulated within UDP datagrams.

Answer: C, D

Explanation:

ping may be used to find out whether the local machines are connected to the network or whether a remote site is reachable. This tool is a common network tool for determining the network connectivity which uses ICMP protocol instead of TCP/IP and UDP/IP. This protocol is usually associated with the network management tools which provide network information to network administrators, such as ping and traceroute (the later also uses the UDP/IP protocol).

ICMP is quite different from the TCP/IP and UDP/IP protocols. No source and destination ports are included in its packets. Therefore, usual packet-filtering rules for TCP/IP and UDP/IP are not applicable. Fortunately, a special "signature" known as the packet's Message type is included for denoting the purposes of the ICMP packet. Most commonly used message types are namely, 0, 3, 4, 5, 8, 11, and 12 which represent echo reply, destination unreachable, source quench, redirect, echo request, time exceeded, and parameter problem respectively.

In the ping service, after receiving the ICMP "echo request" packet from the source location, the destination

Incorrect Answers

ICMP is an IP protocol so A and E are incorrect.
ICMP doesn't guarantee datagram delivery so B is wrong as well.

QUESTION 388:

While troubleshooting a connectivity problem on the network, you issue the ping command from your PC command prompt, but the output shows "request times out."

At which OSI layer is this problem associated with?

- A. The data link layer
- B. The application layer
- C. The access layer
- D. The session layer
- E. The network layer

Answer: E

Explanation:

TCP/IP includes ICMP, a protocol designed to help manage and control the operation of a TCP/IP network. The ICMP protocol provides a wide variety of information about a network's health and operational status. Control message is the most descriptive part of a name. ICMP helps control and manage IP's work and therefore is considered part of TCP/IP's network layer.

Reference:

CCNA Self-Study CCNA ICND exam certification Guide (Cisco Press, ISBN 1-58720-083-X) page 277.

QUESTION 389:

Routers perform which of the following functions? (Select three)

- A. Packet switching
- B. Collision prevention on a LAN segment.
- C. Packet filtering
- D. Broadcast domain enlargement
- E. Broadcast forwarding
- F. Internetwork communication

Answer: A, C, F

Explanation:

- A. Routers work in Layer 3 of the OSI Model. A major function of the router is to route packets between networks.
- C. Through the use of access lists, routers can permit and deny traffic using layer 3 and

layer 4 packet information.

F. The primary purpose of a router is to route traffic between different networks, allowing for internetworking.

Incorrect Answers:

B. While routers can be used to segment LANs, which will reduce the amount of collisions; it can not prevent all collisions from occurring. As long as there are 2 or more devices on a LAN segment, the possibility of a collision exists, whether a router is used or not.

D. The broadcast domain of a LAN is often segmented through the use of a router. This results in reducing the size of the broadcast domain.

E. Routers do not forward broadcast traffic.

QUESTION 390:

The Certkiller Corporation consists of the head office in New York with its regional offices in: Chicago, Detroit, Philadelphia, Toronto, and Atlanta. These offices need to be connected in a WAN, and Certkiller wishes to do this via a hub and spoke arrangement that will utilize packet-switched technology.

Which one of the WAN technologies below would be the best choice for Certkiller ?

- A. ISDN
- B. Wireless
- C. Frame Relay
- D. T1 leased line
- E. ATM
- F. VPN

Answer: C

Explanation:

To provide efficient IP multicast support in Frame Relay networks, the underlying Frame Relay network architecture should be designed in a "hub and spoke" topology (hierarchical topology). The hub and spoke topology is also named a "star" topology, because the central hub acts as the center of a star and the connections to the remote sites act as light radiating from the star. In the hub and spoke topology, each remote router may also act as a hub and each connection to another remote site may act as a spoke (in a hierarchical fashion). In a multiple hub topology, the load associated with sending broadcast and multicast data can be distributed across multiple central hub sites rather than concentrated at a single central site. Thus, even though data may require extra hops to get to a particular location, data delivery is more efficient in a hub and spoke network than in other network topologies. This design also provides a scalable, hierarchical network that greatly reduces the resource requirements of the central router, allowing the Frame Relay network to utilize the advantages of IP multicast applications.

Incorrect Answers:

A, B, D. These networks are typically not Hub and spoke, and do not operate via packet switching.

- E. ATM is a somewhat viable choice, as they work in a similar fashion to frame relay. However, ATM would be considering a cell switching technology, not a packet switching technology.
- F. VPN's work through the use of encryption, tunnels, or MPLS.

QUESTION 391:

The corporate head office of Certkiller has a teleconferencing system that uses VOIP (voice over IP) technology. This system uses UDP as the transport for the data transmissions. If these UDP datagrams arrive at their destination out of sequence, what will happen?

- A. UDP will send an ICMP Information Request to the source host.
- B. UDP will pass the information in the datagrams up to the next OSI layer in the order that they arrive.
- C. UDP will drop the datagrams.
- D. UDP will use the sequence numbers in the datagram headers to reassemble the data in the correct order.
- E. UDP will not acknowledge the datagrams and wait for a retransmission of the datagrams.

Answer: C

Explanation:

VOIP systems utilize UDP because it is faster and uses less overhead. In addition, the reliable transport mechanism used in TCP is useless to VOIP because if a packet gets dropped and needs to be resent, it will be already too late.

UDP provides a service for applications to exchange messages. Unlike TCP, UDP is connectionless and provides no reliability, no windowing, and no reordering of the received data. However, UDP provides some functions of TCP, such as data transfer, segmentation, and multiplexing using port numbers, and it does so with fewer bytes of overhead and with less processing required. UDP data transfer differs from TCP data transfer in that no reordering or recovery is accomplished. Applications that use UDP are tolerant of lost data, or they have some application mechanism to recover data loss.

Reference: CCNA Self-Study CCNA INTRO exam certification Guide (Ciscopress, ISBN 1-58720-094-5) Page 161.

QUESTION 392:

Which fields are included in the TCP header? (Choose three).

- A. Source Port
- B. Acknowledgement Number
- C. Request Number
- D. Destination Address
- E. Window

F. Data

Answer: A, B, E

Explanation:

TCP header:



SourcePort. 16 bits.

DestinationPort. 16 bits.

Sequence Number. 32 bits.

The sequence number of the first data byte in this segment. If the SYN bit is set, the sequence number is the initial sequence number and the first data byte is initial sequence number + 1.

Acknowledgment Number. 32 bits.

If the ACK bit is set, this field contains the value of the next sequence number the sender of the segment is expecting to receive. Once a connection is established this is always sent.

Data Offset. 4 bits.

The number of 32-bit words in the TCP header. This indicates where the data begins. The length of the TCP header is always a multiple of 32 bits.

reserved. 3 bits.

Must be cleared to zero.

ECN, Explicit Congestion Notification. 3 bits.

Added in RFC 3168.

Control Bits. 6 bits.

Window. 16 bits, unsigned.

The number of data bytes beginning with the one indicated in the acknowledgment field which the sender of this segment is willing to accept.

Checksum. 16 bits.

This is computed as the 16-bit one's complement of the one's complement sum of a pseudo header of information from the IP header, the TCP header, and the data, padded as needed with zero bytes at the end to make a multiple of two bytes.

Urgent Pointer. 16 bits, unsigned.

If the URG bit is set, this field points to the sequence number of the last byte in a sequence of urgent data.

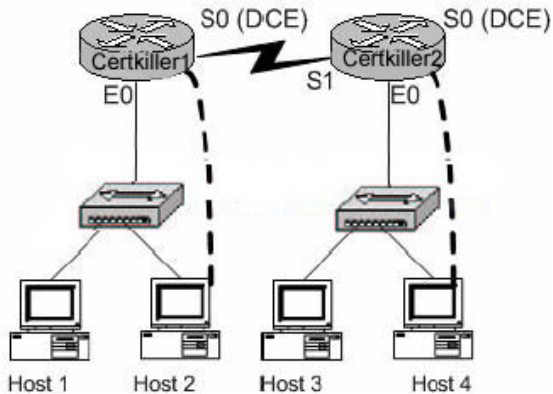
Options. 0 to 44 bytes.

Options occupy space at the end of the TCP header. All options are included in the checksum. An option may begin on any byte boundary. The TCP header must be padded with zeros to make the header length a multiple of 32 bits.

Data. Variable length.

QUESTION 393:**SIMULATION**

Study the Exhibit below carefully:



You are contracted as a network administrator at Certkiller . You are required to configure two routers named Certkiller 1 and Certkiller 2 respectively.

The network topology is shown in the exhibit above.

The enable password is " Certkiller ".

You must configure the following passwords on the Certkiller 2 router:

1. Console password: jack
2. Vty lines 0-4 password: bill

To configure the router click on a host icon that is connected to a router by a serial cable.

Answer:

Click on Host 4:

Router Con0 is now available

Press RETURN to get started !We press enter

Router Certkiller 2:

Certkiller 2> enable !We enter enable mode

Password: Certkiller !We enter " Certkiller "

Certkiller 2 # config terminal !We enter the terminal

Enter configuration commands, one per line. End with CTRL/Z

Certkiller 2 (config) # line console 0 !Configure the terminal connection

Certkiller 2 (config-line)#login

Certkiller 2 (config-line)# password Jack !Specify the terminal connection password

Certkiller 2 (config-line)# exit

Certkiller 2 (config) # line vty 0 4 !Configure the telnet connections. Numbered 0,1,2,3,4.

Certkiller 2 (config-line)# login

Certkiller 2 (config-line)# password bill !specify the password

Certkiller 2 (config-line)# no shutdown

Certkiller 2 (config-line) # exit !Exit from configuration mode.

Certkiller 2 (config) # exit

Certkiller 2 # copy running-configstartup-config !Saves the running config to NVRAM.

Reference:
CCNA Self-Study CCNA INTRO exam certification

QUESTION 394:

SIMULATION

You are a network technician at Certkiller , Inc. Certkiller has recently opened a third office in a foreign country and bought a router to connect this office to the other two already on the network. The names of the routers are Certkiller 1, Certkiller 2, and Certkiller 3. Configure the Certkiller 3's router's IP addresses on the E0 and S1 interfaces so that the E0 interface receives the first usable subnet while the S1 interface receives the second usable subnet from the network 192.168.101.0/28. Both interfaces should receive the first available IP of the subnet. The zero subnet should not be used. The routers have been configured with the following specifications.

- * The routers are named Certkiller 1, Certkiller 2, and Certkiller 3.
- * RIP is the routing protocol.
- * Clocking is provided on the serial 0 interfaces
- * The secret password on the Certkiller 3 router is " Certkiller "
- * The subnet mask of all networks other than 192.168.101.0 is the default mask.
- * The IP addresses are listed in the chart below.

Certkiller 1

E0 192.168.93.1

S0 192.168.95.1

Certkiller 2

E0: 192.168.97.1

S0: 192.168.101.42

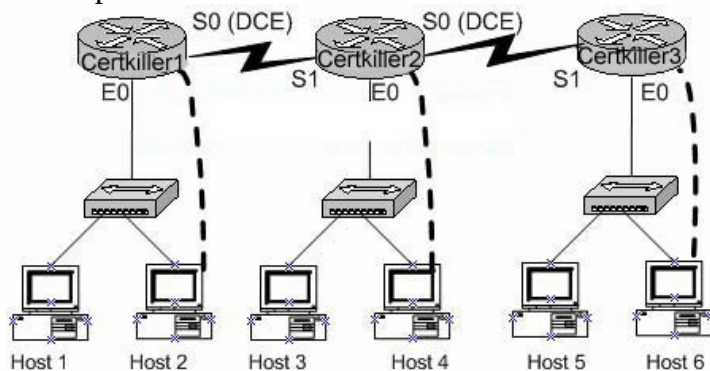
S1: 192.168.95.2

Certkiller 3

E0 to be determined

S1 to be determined

Secret password: Certkiller



Click on the host icon that is connect to a router by a serial console cable to configure the router.

Answer:

```
Certkiller 3> enable
Password: Certkiller
Certkiller 3 # config terminal
Certkiller 3 (config) # interface ethernet 0 (Shorthand: int e 0)
Certkiller 3 (config-if) # ip address 192.168.101.17 255.255.255.240
Certkiller 3 (config-if) # no shutdown
Certkiller 3 (config-if) # exit
Certkiller 3 (config-) # interface serial 1 (Shorthand: int s 1)
Certkiller 3 (config-if) # ip address 192.168.101.33 255.255.255.240
Certkiller 3 (config-if) # no shutdown
Certkiller 3 (config-if) # CTRL+Z
Certkiller 3 # copy running-config startup-config
```

Reference:

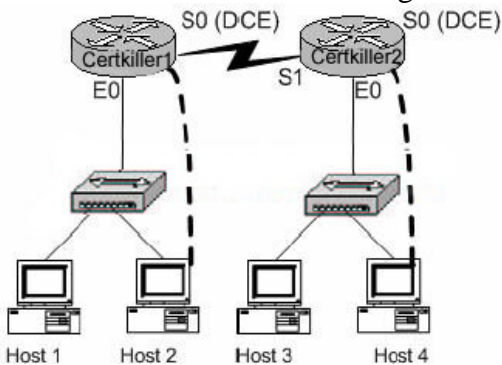
CCNA Self-Study CCNA ICND exam certification Guide (Cisco Press, ISBN 1-58720-083-X) Page 165

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) Page 486

QUESTION 395:

SIMULATION

You work as a network administrator at Certkiller .You are required to configure two routers named Certkiller 1 and Certkiller 2. The topology for the Certkiller network is shown in the following exhibit:



The enable password is " Certkiller ".

You are required to configure the following passwords on the Certkiller 2 router:

1. Console password: jack
2. Vty lines 0-4 password: bill

To configure the router click on a host icon that is connected to a router by a serial cable.

Answer:

Click on Host 4:

Router Certkiller 2:

```
Certkiller 2>enable
```

```
Password: Certkiller
```

```
Certkiller 2#config terminal
```

```
Certkiller 2(config)#line console 0
Certkiller 2(config-line)#login
Certkiller 2(config-line)#password jack
Certkiller 2(config-line)#exit
Certkiller 2(config)#line vty 0 4
Certkiller 2(config-line)#login
Certkiller 2(config-line)#password bill
Certkiller 2(config-line)#exit
Certkiller 2(config)#exit
Certkiller 2#copy running-configstartup-config
```

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) Page 177

QUESTION 396:

SIMULATION

You work as a network administrator at Certkiller . You are required to configure two routers named Certkiller 1 and Certkiller 2. The network topology is shown in the exhibit.

The routers have the following configuration specifications:

1. They are named Certkiller 1 and Certkiller 2
2. The password on both routers is " Certkiller ".
3. They have the following IP addresses

Certkiller 1

E0: 10.0.239.155

Certkiller 2

No IP address specifications.

Your task is to configure the E0 interface on the Certkiller 1 router. You should use the IP address 10.0.239.155 and the default subnet mask.

To configure the router click on a host icon that is connected to a router.

Answer:

Router Certkiller 1:

```
Certkiller 1>enable
```

```
Password: Certkiller
```

```
Certkiller 1#config terminal
```

```
Certkiller 1(config)#int e 0
```

```
Certkiller 1(config-if)#ip address 10.0.239.155 255.0.0.0
```

```
Certkiller 1(config-if)#no shutdown
```

```
Certkiller 1(config-line)#exit
```

```
Certkiller 1(config)#exit
```

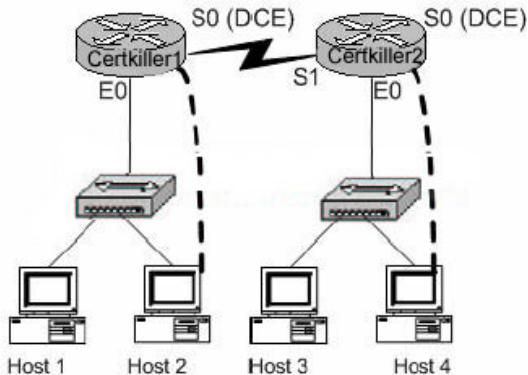
```
Certkiller 1#copy running-configstartup-config
```

Reference:

CCNA Self-Study CCNA INTRO exam certification Guide (Cisco Press, ISBN 1-58720-094-5) Page 177

QUESTION 397:**SIMULATION**

Network topology exhibit:



You work as a network engineer at Certkiller .com. Assign the IP address of 192.168.174.27 and the default subnet mask to the E0 interface of the Certkiller 1 router. The router have been configured with the following specifications.

1. The routers are named Certkiller 1 and Certkiller 2
2. The password on each router is " Certkiller "

To configure the router click on a host icon that is connected to a router by a serial cable.

Answer:

```

Certkiller 1>
Certkiller 1>ena
Certkiller 1#config t
Enter configuration commands, one per line. End with CNTL/Z.
Certkiller 1(config)#interface ethernet 0
Certkiller 1(config-if)#ip address 192.168.174.27 255.255.255.0
Certkiller 1(config-if)#no shutdown
%LINK-3-UPDOWN: Interface Ethernet0, changed state to up
Certkiller 1(config-if)#^Z
%SYS-5-CONFIG_I: Configured from console by console
Certkiller 1#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]

```

Explanation:

The question is asking you to configure the ip address 192.168.174.27 255.255.2 for the ethernet 0

you do this by logging into the router using the following commands:

```

Ena
config terminal
specify interface which is ethernet 0

```

specify ip address
issue no shutdown to bring up the interface up
then exit or ctrl+z
finally save the configuration by using the command copy running-config
startup-config

QUESTION 398:

SIMULATION

Network topology exhibit:

You work as a network administrator at Certkiller .com. Certkiller .com has three locations in New York: Certkiller 1, Certkiller 2, and Certkiller 3. The network connection between two of these location is already functional. Your mission is to configure the Certkiller 1 router IP address on the E0 and S0 interfaces so that E0 receives the seventh usable subnet while S0 receives the second usable subnet from the network 192.168.195.0/28. Both interfaces should receive the first available IP address on the appropriate subnet.

You have been told not to use the zero subnet.

The routers have been named Certkiller 1, Certkiller 2, and Certkiller 3.

Certkiller 1

E0: Seventh subnet

S0: second subnet

Secret password. Certkiller

Certkiller 2

E0: 192.168.81.1

S0: 192.168.47.1

S1: second subnet

Certkiller 3

E0: 192.168.24.1

S1: 192.168.47.2

Answer:

```
Certkiller 1(config)# interface eth0
```

```
Certkiller 1(config-if)# ip address 192.168.195.113 255.255.255.240
```

```
Certkiller 1(config-if)# no shutdown
```

```
Certkiller 1(config-if)# exit
```

```
Certkiller 1(config)# interface ser0
```

```
Certkiller 1(config-if)# ip address 192.168.195.33 255.255.255.240
```

```
Certkiller 1(config-if)# no shutdown
```

```
Certkiller 1(config-if)# exit
```

```
Certkiller 1(config)# router rip
```

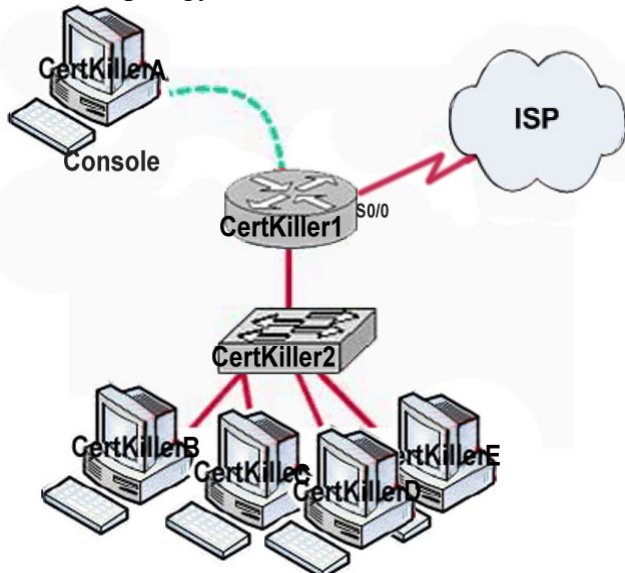
```
Certkiller 1(config-router)# network 192.168.195.0
```

```
Certkiller 1(config-router)# end
```

```
Certkiller 1# copy run start
```

Certkiller .com Boston, Scenario

Network topology exhibit:



You work as a network technician at the local Certkiller .com office in Boston. You are not required to do any configurations from the Certkiller A console. However, in order to get information so that you can answer the questions you would need to use the Certkiller A console to retrieve the required information. You would use different show commands from Command Line Interface of Certkiller 1.

Note: The output of these show commands are missing in this scenario text.

Certkiller .com Boston (5 Questions)

QUESTION 399:

What is the subnet broadcast address of the LAN connected to Certkiller 1?

- A. 192.168.99.15
- B. 192.168.99.31
- C. 192.168.99.63
- D. 192.168.99.127
- E. 255.255.255.255

Answer: A

QUESTION 400:

What is the bandwidth on the WAN interface of Certkiller 1?

- A. 16 Kbit/sec
- B. 32 Kbit/sec
- C. 64 Kbit/sec
- D. 128 Kbit/sec
- E. 512 Kbit/sec

F. 1544 Kbit/sec

Answer: E

QUESTION 401:

What interfaces on Certkiller 1 have not had any configurations applied? Select two.

- A. Ethernet 0
- B. Fast Ethernet 0/0
- C. Fast Ethernet 0/1
- D. Serial 0
- E. Serial 0/0
- F. Serial 0/1

Answer: B, F

QUESTION 402:

Including the address on the Certkiller 1 FastEthernet interface, how many hosts can have IP addresses on the LAN which Certkiller 1 is connected?

- A. 2
- B. 6
- C. 14
- D. 30
- E. 62
- F. 128
- G. 254
- H. 510

Answer: B

QUESTION 403:

The hosts in the LAN are not able to connect to the internet.
Which commands will correct this issue?

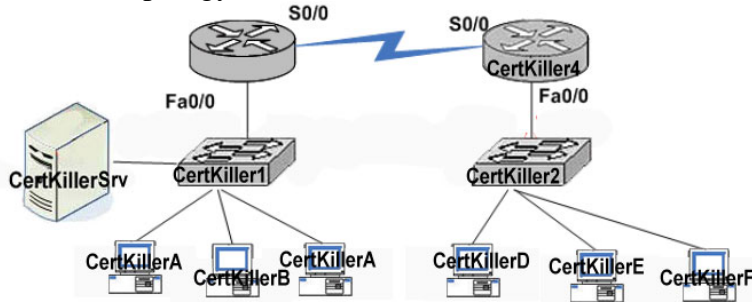
- A. Certkiller 1(conf)#interface fa0/0
Certkiller 1(conf-if)# no shutdown
- B. Certkiller 1(conf)#interface fa0/1
Certkiller 1(conf-if)# no shutdown
- C. Certkiller 1(conf)#interface s0/0
Certkiller 1(conf-if)# no shutdown
- D. Certkiller 1(conf)#interface s0/1
Certkiller 1(conf-if)# no shutdown

E. Certkiller 1(conf)#interface s0/0
Certkiller 1(conf-if)#ip address 10.111.12.13 255.255.255.252
F. Certkiller 1(conf)#interface s0/1
Certkiller 1(conf-if)# ip address 10.111.12.13 255.255.255.252

Answer: B

Certkiller .com Barcelona, Scenario

Network Topology exhibit:

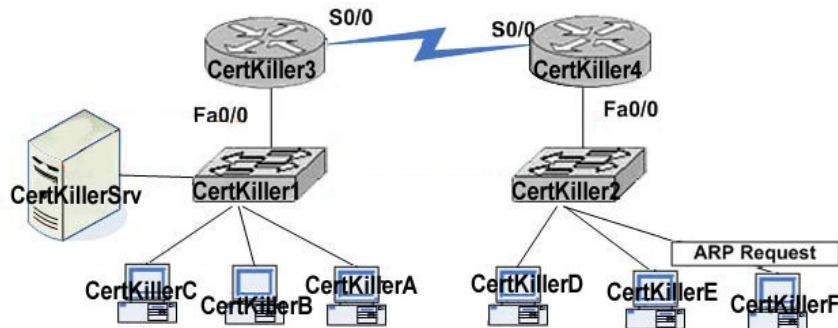


You work as a network administrator at the Barcelona office of Certkiller .com. You are required to troubleshoot communications between the host Certkiller F and the Certkiller Srv server. The topology can be seen in the exhibit.

Certkiller .com Barcelona (4 Questions)

QUESTION 404:

Exhibit:



In order to begin communicating with the server Certkiller Srv, host Certkiller F sends out an ARP request.

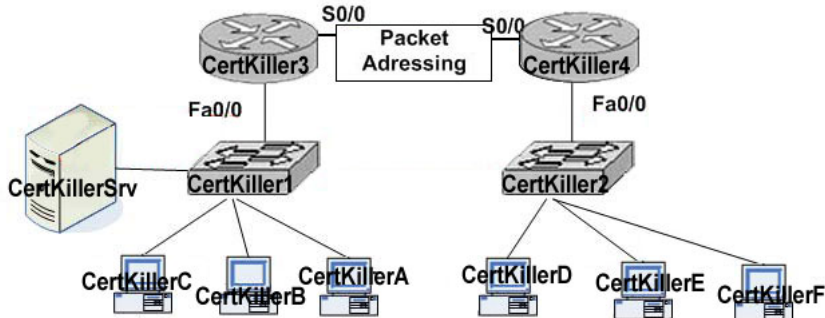
How will the devices on the Certkiller .com network respond to this request?

- A. Switch Certkiller 2 will reply with the MAC address of the server.
- B. Host Certkiller D and Certkiller E will respond that the destination is not on the local LAN.
- C. Router Certkiller 4 will forward the ARP request to the Certkiller 1 router.
- D. Switch Certkiller 2 will block the request since the server is not on the LAN
- E. The Certkiller 3 router will respond with the IP address of the Certkiller Srv server
- F. Router Certkiller 4 will respond with the MAC address of its Fa0/0 interface.

Answer: F

QUESTION 405:

Exhibit:



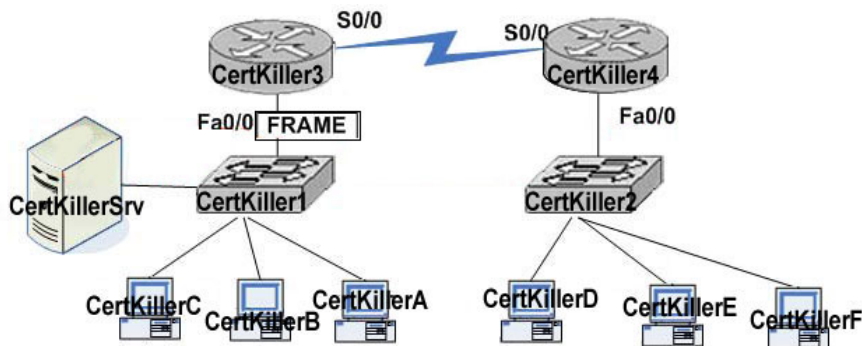
The ARP reply has been received by host Certkiller F, which needs to build the packet. What information will be placed in the header of the packet that leaves Certkiller F if Certkiller F is to communicate with the Certkiller Srv server? Select two.

- A. The destination address will be the IP address of interface Fa0/0 of the Certkiller 3 router.
- B. The destination address will be the IP address of the Certkiller Srv server.
- C. The destination address will be the IP address of interface Fa0/0 of the Certkiller 4 router.
- D. The source address will be the IP address of Certkiller F.
- E. The source address will be the IP address of interface Fa0/0 of Certkiller 4.
- F. The source address will be the IP address of interface Fa0/0 of the Certkiller 4 router.

Answer: B, D

QUESTION 406:

Exhibit:



The frame has been received by the Certkiller 3 router and is to be delivered on the local LAN.

Which two statements describe the addressing of the Ethernet frame that has been

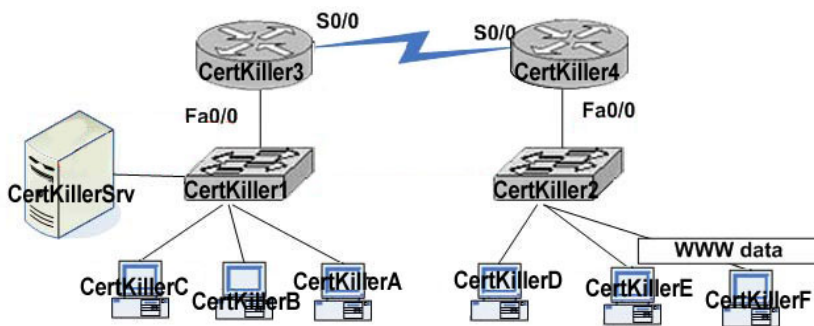
created by the Certkiller 4 router? Select two.

- A. The destination address will be the MAC address of the Certkiller 1 switch port attached to the Fa0/0 interface of the Certkiller 3 router.
- B. The destination address will be the MAC address of the Certkiller Srv server.
- C. The destination address will be the MAC address of the Certkiller 1 switch port attached to the Certkiller Srv server.
- D. The source address will be the MAC address of host Certkiller F.
- E. The source address will be the MAC address of interface Fa0/0 of the Certkiller 4 router.
- F. The source address will be the MAC address of the Certkiller 1 switch port attached to the Certkiller Srv server.

Answer: B, E

QUESTION 407:

Exhibit:



Certkiller F is displaying two World Wide Web documents from the Certkiller Srv server in two browser windows at the same time.

How did the data find its way to the correct browser windows?

- A. The IP source addresses of the packets will be used to direct the data to the correct browser window.
- B. The browsers track the data by the URL.
- C. TCP port numbers are used to direct the data to the correct application window.
- D. The OSI application layer tracks the conversations and directs them to the correct browser.

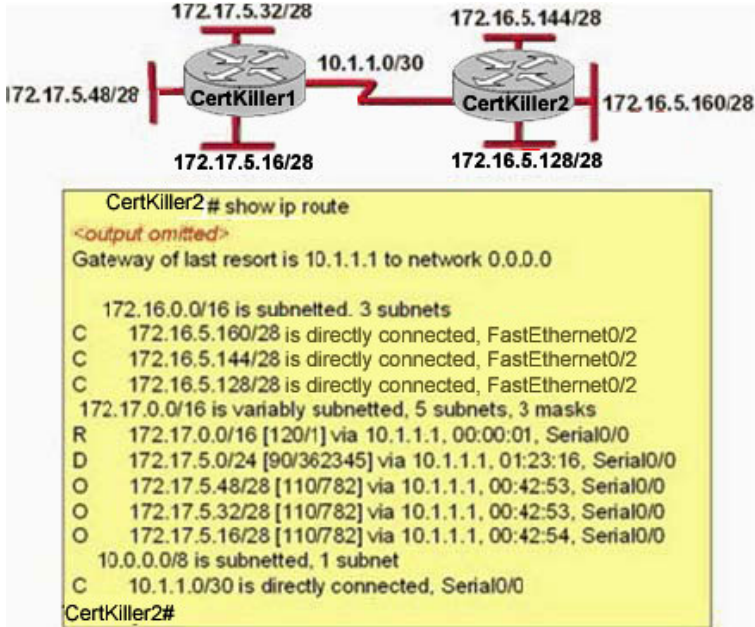
Answer: C

Mixed Questions (19 Questions)

QUESTION 408:

You work as a network technician at Certkiller .com. Study the exhibit carefully. Given the partial output from the show ip route command on Certkiller 2, what is the

source of the route what would be used to route packets from Certkiller 2 to the IP Address 172.16.5.37?



- A. EIGRP
- B. OSPF
- C. RIP
- D. static route

Answer: B

Explanation:

According to exhibit, 172.17.5.37 is belongs to 172.17.5.32/28 network and is sourced from OSPF network because in route output sourced is defined by O symbol that is OSPF.

QUESTION 409:

DRAG DROP

You work as a network technician at Certkiller .com.

You need to configure a router as a host with the address of 192.168.125.34/27 needs to be denied access to all hosts outside its own subnet.

You need to specify the protocol, address and mask of the following command:

access-list100 deny protocol address mask any

Options, select from these

0.0.0.0	192.168.125.0
192.168.125.32	192.168.125.34
255.255.255.255	udp
tcp	ip
Protocol	Place here
Address	Place here
Mask	Place here

Answer:

Options, select from these

	192.168.125.0
192.168.125.32	
255.255.255.255	udp
tcp	
Protocol	ip
Address	192.168.125.32
Mask	0.0.0.0

Explanation:

Extended access lists Extended access lists can evaluate many of the other fields in the Layer 3 and Layer 4 header of an IP packet. They can evaluate source and destination IP addresses, the protocol field in the Network layer header, and the port number at the Transport layer header. This gives extended access lists the ability to make much more granular decisions when they are controlling traffic.

Syntax: access-list <Number> <Permit or Deny> <Protocol> <Source> <Destination> <service name or port>

Example:

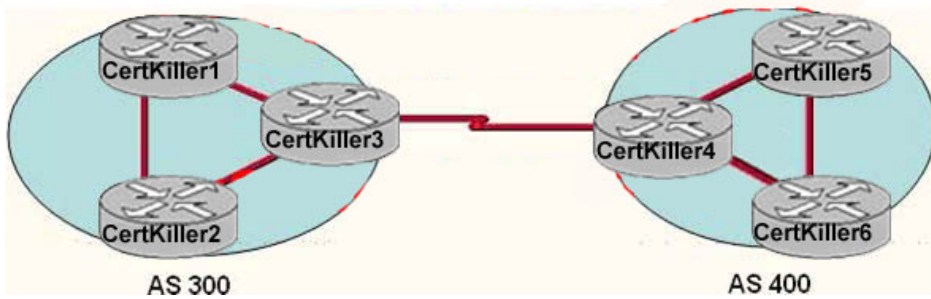
```
#access-list 101 permit tcp 192.168.0.0 0.0.0.255 host 172.16.0.1 eq 25
```

```
#access-list 101 deny any any
```

According to question, host with address 192.168.125.34 needs to deny used 192.168.125.34 0.0.0.0 address.

QUESTION 410:

Network topology exhibit:



You work as a network technician at Certkiller .com. You must choose a routing protocol to connect the two autonomous systems displayed in the network topology exhibit. Which protocol should you choose?

- A. EIGRP
- B. BGP
- C. RIP
- D. OSP

Answer: B

Explanation:

BGP is an extremely complex protocol used throughout the Internet and within multinational organizations. Its main purpose is to connect very large networks or autonomous systems.

In many cases, the routing policy that is implemented in an AS is consistent with the policy for the ISP. In these cases, it is not necessary or even desirable, to use BGP to exchange routing information with the ISP. Instead, connectivity can be achieved through a combination of static routes and default routes.

Do not use BGP within the AS in the following situations:

1. There is only a single connection to the Internet or other AS.
2. Internet routing policy and route selection are not of concern to the AS.
3. The BGP routers have insufficient RAM or processor power to handle constant updates.
4. There is limited understanding of route filtering and the BGP path selection process.
5. Low bandwidth link between autonomous systems

QUESTION 411:

Network Topology Exhibit:

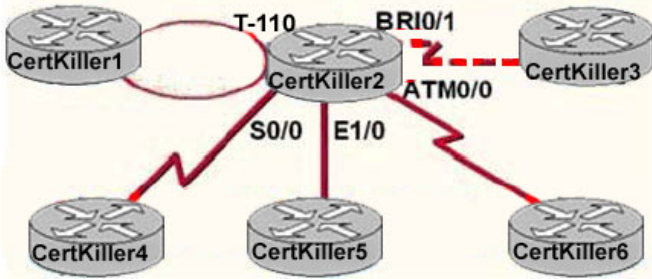


Exhibit:

```

CertKiller2 #show ip route
<output omitted>
192.168.49.0/28 is subnetted, 5 subnets
D   192.168.49.64 [90/120510]   via 192.168.126.2, 11:15:56, TokenRing1/0
D   192.168.49.80 [90/20514560] via 192.168.126.6, 11:15:56, Serial0/0
D   192.168.49.32 [90/30720]   via 192.168.126.10, 11:15:56, Ethernet1/0
D   192.168.49.48 [90/540]     via 192.168.126.14, 11:15:56, ATM0/0
D   192.168.49.0 [90/30721610] via 192.168.126.18, 11:15:56, BRI0/1
192.168.126.0/30 is subnetted, 5 subnets
C   192.168.126.0 is directly connected, TokenRing1/0
C   192.168.126.4 is directly connected, Serial0/0
C   192.168.126.8 is directly connected, Ethernet1/0
C   192.168.126.12 is directly connected, ATM0/0
C   192.168.126.16 is directly connected, BRI0/1

```

You work as a network technician at Certkiller .com. Study the exhibits carefully. A packet addressed to the host with an IP address of 192.168.49.91 arrives at router Certkiller 2. From the information in the diagram, out of which interface will the packet be forwarded?

- A. TokenRing 1/0
- B. Serial 0/0
- C. ATM0/0
- D. BRI0/1
- E. Ethernet0/0

Answer: B

Explanation:

```

D   192.168.49.80 [90/20514560] via 192.168.126.6, 11:15:56, Serial0/0

```

The above line of output of routing table specified the exit point for 192.168.49.91 host.

QUESTION 412:

Exhibit:

CertKiller1 # show version

```
Cisco Internetwork Operating System Software
IOS (tm) C2600 Software (C2600-D-M), Version 12.2(13b), RELEASE SOFTWARE
(fc1)
Copyright (c) 1986-2003 by cisco Systems, Inc.
Compiled Wed 19-Feb-03 16:08 by pwade
Image text-base: 0x8000808C, data-base: 0x80B4599C

ROM: System Bootstrap, Version 12.2(7r) [cmong 7r], RELEASE SOFTWARE (fc1)

Router uptime is 3 days
System required to ROM by cover-on
System image file is "frash.c2608d m2.122 13b.bin"

cisco 2620XM (MPC860P) processor (revision 0x100) with 28672K/4096K bytes of
memory.
Processor board ID JAE07170HVK (4011562896)
M860 processor: part number 5, mask 2
Bridging software.
X.25 software, Version 3.0.0.
1 FastEthernet/IEEE 802.3 interface(s)
2 Low speed serial(signe/async) network interface(s)
32K bytes or no - ontitle configuration mercury
16384K bytes of processor board System flash (Read/Write)
  Low speed serial(signe/async) network interface(s)

Configuration register is 0x2102 (will be 0x2100 at next reload)
```

You work as a network technician at Certkiller .com. You want to update the IOS on Certkiller 1, but you are unsure which version of the Operating System that is in used at the moment.

- A. MPC860P
- B. JAE07170HVK
- C. C2600-d-mz.122-13b.bin
- D. Bridging Softare X.25, Version 3.0.0

Answer: C

Explanation:

Cisco IOS software is developed and maintained by Cisco to support a full array of system functions, applications (including Internet applications), and network hardware in a single software package. IOS software is installed on each Cisco router or switch and can accommodate network growth and provide for secure data transfers. The command-line interface (CLI) for routers and switches defines the commands that are used to communicate with the IOS

Notice that the filename in this example is C2600-d-mz.122-13b.bin.The name of the file is platform-specific and is derived as follows:

1. C2600 is the platform.
2. 122-13b is the revision number.
3. .bin indicates that the Cisco IOS is a binary executable file.

QUESTION 413:

Exhibit:

Gateway of last resort is not set

```
192.168.25.0/30 is subnetted, 4 subnets
D   192.168.25.20 [90/2681856] via 192.168.15.5, 00:00:10, Serial0/1
D   192.168.25.16 [90/1823656] via 192.168.15.5, 00:00:50, Serial0/1
D   192.168.25.24 [90/3837233] via 192.168.15.5, 00:05:23, Serial0/1
D   192.168.25.28 [90/8127323] via 192.168.15.5, 00:06:45, Serial0/1
C   192.168.15.4/30 is directly connected Serial0/1
C   192.168.2.0/24 is directly connected, FastEthernet0/0
```

You work as a network technician at Certkiller .com. Examine the exhibit carefully.

Which address and mask combination represents a summary of the routes learned by EIGRP?

- A. 192.168.25.28 25.255.255.240
- B. 192.168.25.28 25.255.255.252
- C. 192.168.25.16 25.255.255.240
- D. 192.168.25.16 25.255.255.252
- E. 192.168.25.0 25.255.255.240
- F. 192.168.25.0 25.255.255.252

Answer: D

Explanation:

On very large networks, there may be hundreds or even thousands of individual networks and subnetworks being advertised. All these routes can be very taxing on a router's memory and processor. For example, routers on the Internet were starting to be overwhelmed with a couple of hundred thousand routes. After summarizing routes and using CIDR, the number of routes has been dramatically reduced.

Table 2.11: Summary Example

IP Network Address	Binary Equivalent
172.16.100.0	10101100.0001000.01100100.0
172.16.101.0	10101100.0001000.01100101.0
172.16.102.0	10101100.0001000.01100110.0
172.16.103.0	10101100.0001000.01100111.0
172.16.104.0	10101100.0001000.01101000.0
172.16.105.0	10101100.0001000.01101001.0

172.16.106.0	10101100.0001000.01101010.0
--------------	-----------------------------

Examine the table to determine the maximum number of bits (starting from the left) that all of the addresses have in common. (Where they are lined up, we boldfaced them to make them easier for you to see.) The number of common bits is the prefix length for the summarized address (/20).

In this example, we can see from the table that all of the addresses have the first 20 bits in common. The decimal equivalent of these first 20 bits is 172.16.96.0. So, we can write our new summarized address as 172.16.96.0/20. If we were to later add a network 172.16.98.0, it would need to be behind the router summarizing this address space. If we didn't, it could cause problems.

QUESTION 414:

You work as a network technician at Certkiller .com. Examine the exhibit carefully. You have run into some problems. Three times you have reconfigured a Cisco Router Certkiller 2. After each configuration you tested the configuration (was OK), and saved it to NVRAM with the copy running-config startup-config command. Finally you issue the reload command.

However, each time Certkiller 2 is rebooted, Certkiller 2 appears to have the default blank configuration.

What could explain this problem?

- A. The configuration register setting is incorrect
- B. The boot system commands were left out of the configuration
- C. The NVRAM is corrupted.
- D. The upgraded configuration is not compatible with the hardware platform.
- E. The upgraded IOS just loaded is not compatible with the hardware

Answer: A

Explanation:

This is happened due the register setting. Register Setting has set to bypass the start-up configuration which is generally used when needs to crack the password.

You can displays the current register settings using # show version.

When you set the 0x2142 register value it bypass the startup configuration.

To change the register value:

Router(config)#config-register 0x2102

QUESTION 415:

Exhibit:

```
CertKiller1# show Interfaces FastEthernet 0/0
FastEthernet0/0 is up, line protocol is up
Hardware is PQUICC_FEC, address is 000d.bd64.98f1 (bia 000d.bd64.98f1)
MTU 1500 bytes, BW 1000000 kbit, DLY 100 usec, reliability 253/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set, Keepalive set (10 sec)
Half-duplex, speed 1000, 1105 drops, input queue 27/75
ARP type: ARPA, ARP-cache 201 packets
Last input: never (0:00:00), input queue 27/75
Last cleared: never (0:00:00), input queue 27/75
Queueing strategy: fifo
Output queue 0/40, 1105 drops, input queue 27/75, 10274 drops
5 minute input rate 1530000 bits/sec, 201 packets/sec
5 minute output rate 6730000 bits/sec, 173 packets/sec
404737363 packets input, 2387517953 bytes, 11 no buffer
Received: 10274 drops, 10274 drops
0 input errors, 1105 drops, input queue 27/75
0 input errors, 1105 drops, input queue 27/75
40187: input rate 1530000 bits/sec, 201 packets, 0 underruns
0 output errors, 5768297 collisions, 0 interface resets
0 babbles, 0 late collision, 2174742 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
```

You work as a network technician at Certkiller .com. Study the exhibit carefully. What can be said about the operational state of the FastEthernet 0/0 interface?

- A. The interface is operational and currently handling traffic.
- B. The interface has failed because of a media error.
- C. The interface requires a no shutdown command to be issued.
- D. The interface is generating protocol errors.

Answer: A

Explanation:

A common statistic of most of the interface show commands is the actual status of the interface itself. This is identified in the first line of output of the show interfaces commands. The first part of the status identifies the Layer 1 information of the interface, followed by the Layer 2 line protocol status.

If you understand the interface statuses you are ultimately building a solid foundation to accurately troubleshoot any malfunctioning interface. For example, if your interface is in an "up/line protocol up" state, you have eliminated Layer 1 and Layer 2 malfunctions for that interface. From this point, you can determine whether the problem on the interface is perhaps a Layer 3 problem (IP addressing, routing, and so on).

Layer 1	Layer 2 (line protocol)	Possible Symptoms	
Up	Up	None. Interface is functional.	

640-821

Up	Down	Encapsulation mismatch, lack of clocking on serial interfaces, missing keepalives.	
Down	Down	Cable is disconnected or attached to a shut down interface on the far-end device.	
Administratively Down	Down	Local interface was not enabled with the noshutdown command.	
Hardware is AmdFE, address is 0003.e32a.4080		The MAC address of the ethernet interface.	
Internet address		Assigned IP address.	
MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec, reliability 255/255, txload 1/255, rxload 1/255		The Maximum Transmission Unit (frame size) for this interface, logical bandwidth (default or set with bandwidth command), cumulative delay, interface reliability, inbound and outbound load.	
Encapsulation ARPA		Layer 2 frame encapsulation on	
		interface.	
Half-duplex, 100Mb/s, 100BaseTX/FX		Duplex and speed of interface.	
Received 0 broadcasts, 0 runts, 0 giants		The number of broadcasts, runts	
		(below minimum frame size), and	
		giants (above maximum frame size).	

0 collisions	The number of collisions that occurred
	on that segment.
0 late collision	Late collisions occur when your
	interface is set for half-duplex and you
	are connected to a fullduplex interface.

QUESTION 416:

DRAG DROP

You work as a network administrator at Certkiller .com's central office. This office has 3 routers and one switch. You are required to complete the topology. Specifically using the router Certkiller 1 Cisco Terminal simulation window to obtain relevant information and...

Step 1:

- * drag the routers and/or switches to the appropriate Device locations
- * drag the connections (straight-through, Roll over, cross over, and serial) to the appropriate Connection locations
- * drag the IP addresses to the appropriate address locations

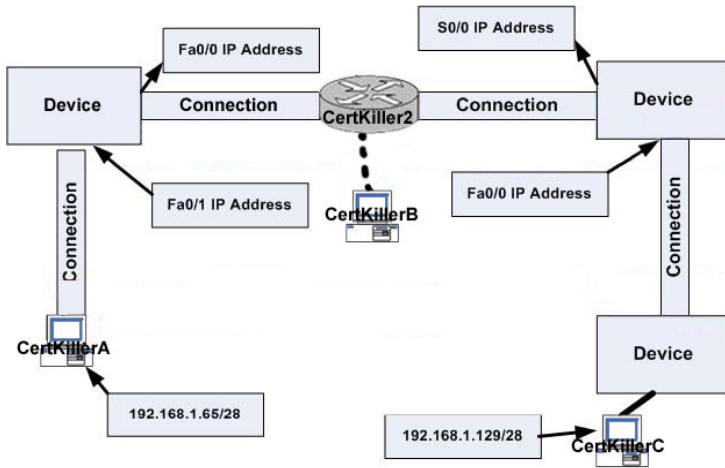
Note #1: router Certkiller 1 Cisco Terminal simulation window information is not available here.

Note #2: all hosts are Personal Computers

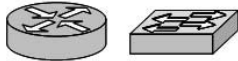
Note #3: autosensing is disabled on all devices

Step 2: configure, if any, the additional Router(s) accordingly:

- * each interface with the appropriate IP address
- * enable each interface
- * set the password to allow access as follows:
 - ** console Certkiller pwd1
 - ** telnet Certkiller pwd2
 - ** privilege mode Certkiller pwd3



Devices, select from these



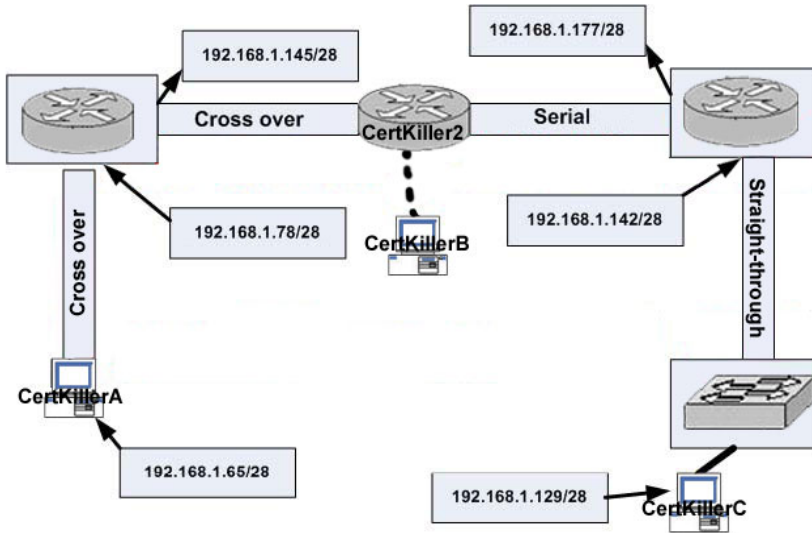
Addresses, select from these

192.168.1.78/28	192.168.1.142/28	192.168.1.145/28
192.168.1.158/28	192.168.1.177/28	192.168.1.190/28

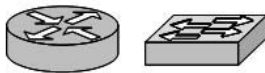
Connections, select from these

Straight-through	Roll over	Cross over	Serial
------------------	-----------	------------	--------

Answer:



Devices, select from these



Addresses, select from these

192.168.1.158/28	192.168.1.190/28
------------------	------------------

Connections, select from these

Straight-through	Roll over	Cross over	Serial
------------------	-----------	------------	--------

Explanation:

Three Routers are provided and One Switch,

First You need to know which types of cable should use to connect these devices,

Crossover Cable

1. Host to Host

2. Switch to Switch
 3. Host to Router's Ethernet port
- Straight Through

1. Host to Switch
 2. Switch to Router
- Console

1. Host to Router's Console port.

Drag the devices in proper location, Cable Type as well as IP Address.

Then configure the Router As information provided:

Example:

```
Certkiller >enable
Certkiller #configure terminal
Certkiller (config)#interface interface_name
Certkiller (config-if)#ip address IP ip_address netmask
Certkiller (config-if)#no shutdown
Certkiller (config-if)#exit
Certkiller (config)# line console 0
Certkiller (config-line)# password Certkiller pwd1
Certkiller (config-line)#login
Certkiller (config-line)#exit
Certkiller (config)#line vty 0 4
Certkiller (config-line)#password Certkiller pwd2
Certkiller (config-line)#login
Certkiller (config-line)#exit
Certkiller (config)#enable password Certkiller pwd3
```

QUESTION 417:

Exhibit:

```
<<output omitted>>
*Mar 1 00:00:23.837: %SYS 6-CONFIG,I:Configured from console32768K bytes of process
board System flash (Read/write)
Configuration register is 0x2102 (will be 0x2100 at next reload)
```

You work as a network technician at Certkiller .com. Study the exhibit carefully. At reboot, from where will the router boot and what will be router prompt? Select two.

- A. Router(boot)>
- B. Router>
- C. Rommon>
- D. NVRAM
- E. ROM
- F. Flash

Answer: C,E

Explanation:

The Cisco router or switch has performed only initial diagnostics. With that being said,

the IOS itself still has not been located or loaded. The bootstrap's programming has a specific search order in which it typically follows to locate and load the IOS. I say "typically" because you can alter the natural order of things with the router or switch's startup process if you manipulate something called the configuration register. Located in NVRAM, the configuration register is a 16-bit (4 hexadecimal characters) value that specifies how the router or switch should operate during initialization. For instance, 0x2102 (0x signifies all characters that follow are hexadecimal) is a common configuration register that specifies that the router or switch should boot in its typical fashion. However, if you manipulate certain characters in the configuration register, you can manually modify the startup process to load the IOS from locations other than the default. Specifically, the last hexadecimal character in the configuration register, known as the boot field, is the value that dictates where the bootstrap code can find the IOS. The possible boot field values are as follows:

* 0x2100 When the boot field is a zero, the configuration register instructs the bootstrap to boot directly into ROM and load ROMmon.

*

0x2101 If the boot field has a value of one, the router or switch boots into a mini IOS located in ROM and commonly referred to as RxBoot. RxBoot looks very similar to the normal IOS; however, it does not provide the majority of the IOS's services. This mini IOS provides just enough functionality to reach a TFTP server and download a working IOS to the Cisco device. You can easily determine you are in RxBoot if the prompt looks like Router(boot)> in a router or Switch(boot)> in a switch.

* 0x2102-0x210F When the last field in the configuration register is 2-F, the router or switch boots normally.

QUESTION 418:

Exhibit:



You work as a network technician at Certkiller .com. Study the exhibit carefully. What is the broadcast address for the subnetwork on which host Certkiller A resides?

- A. 130.10.2.255
- B. 130.10.2.127
- C. 130.10.0.127
- D. 130.10.0.255
- E. 130.10.255.255

Answer: B

Explanation:

Host IP Address is : 130.10.2.72/26

Total Bits For Network is : 11111111.11111111.11111111.11000000

Subnet Mask: 255.255.255.192

Network ID: 265-192=64

Address on First Subnet: 130.10.2.0-63 Where 0 is network address and 63 is

broadcast address. Address on Second Subnet: 130.10.2.64-127 Where 64 is

Network address and 127 is the broadcast address of second subnet.

Host Certkiller A is on Second Subnet so Broadcast Address of this subnet is 130.10.2.127.

QUESTION 419:

You work as a network technician at Certkiller .com. Study the exhibit carefully. What will router Certkiller A do when it starts up next time?

- A. start the limited IOS in ROM
- B. start in ROM monitor mode
- C. retrieve configuration information from the running-config file
- D. look for startup instructions in NVRAM
- E. load IOS from flash

Answer: B

Explanation:

RAM-Sometimes called DRAM for dynamic random-access memory, RAM is used by the router just as it is used by any other computer: for working storage. The running or active configuration file is stored here.

ROM-This type of memory (read-only memory) stores a bootable IOS image, which typically is not used for normal operation. ROM contains the code that is used to boot the router until the router knows where to get the full IOS image or as a backup bootable image, in case there are problems.

Flash memory-Either an EEPROM or a PCMCIA card, Flash memory stores fully functional IOS images and is the default location where the router gets its IOS at boot time. Flash memory also can be used to store any other files, including configuration files.

NVRAM-Nonvolatile RAM stores the initial or startup configuration file.

IOS on a router uses a configuration file for the initial configuration at router startup and the active, running configuration file. The startup configuration file is in NVRAM; the other file, which is in RAM, is the one that the router uses during operation. When the router first comes up, the router copies the stored configuration file from NVRAM into RAM, so the running and startup configuration files are identical at that point. Also, exterior to the router, configuration files can be stored as ASCII text files anywhere using TFTP or FTP.

The boot process follows this basic litany:

1. The router performs a power-on self-test (POST) to discover and verify the hardware.
2. The router loads and runs bootstrap code from ROM.

3. The router finds the IOS or other software and loads it.
4. The router finds the configuration file and loads it into running config.

Two configuration tools tell the router what OS to load:

1. The configuration register
2. The boot system configuration command

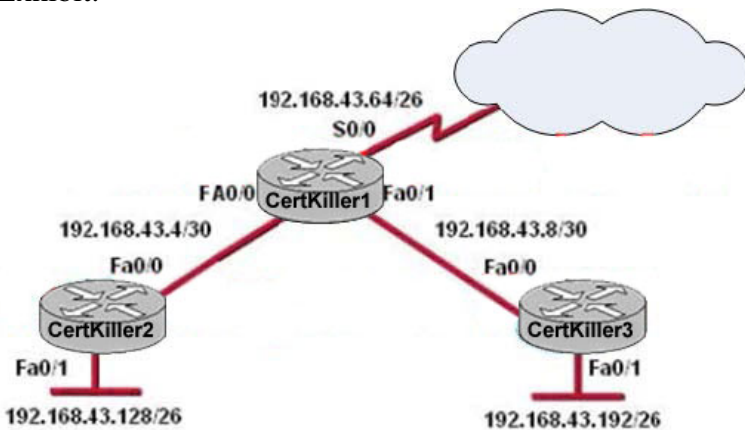
First, the configuration register tells the router whether to use a full-featured IOS, ROMMON, or the limited-feature IOS, which also is called RXBOOT mode. The configuration register is a 16-bit software register in the router, and its value is set using the config-register global configuration command. (Some older routers had a hardware configuration register with jumpers on the processor card, to set bits to a value of 0 or 1.) On most Cisco routers, the default Configuration Register setting is hexadecimal 2102.

Boot System Commands	Result
No boot command	Tries loading the following (in order): first file in flash; broadcasts looking for TFTP server and a default filename; IOS in ROM; or uses ROM Monitor.
boot system ROM	IOS from ROM is loaded.
boot system flash	The first file from Flash memory is loaded.
boot system flash filename	IOS with the name <i>filename</i> is loaded from Flash memory.
boot system tftp filename 10.1.1.1	IOS with the name <i>filename</i> is loaded from the TFTP server.
Multiple boot system commands, any variety	An attempt occurs to load IOS based on the first boot command the in configuration. If that fails, the second boot command is used, and so on, until one is successful.

- 0x2102 : Default, which loads the IOS from Flash Memory
- 0x2100 : Boot the router in ROM Monitor Mode
- 0x2142: Boot the router bypassing the startup configuration

QUESTION 420:

Exhibit:



You work as a network security administrator at Certkiller .com. Study the exhibit carefully.

To comply with the Certkiller written security policy information about Certkiller 1, such as platform and IP addresses should not be accessible from the Internet. This

information should, however, be accessible to devices on the internal networks of Certkiller 1,

Which command sequence should be used to achieve these goals?

- A. Certkiller 1(config)#no cdp run
- B. Certkiller 1(config)#no cdp enable
- C. Certkiller 1(config)#interface s0/0
Certkiller 1(config-if)#no cdp run
- D. Certkiller 1(config)#interface s0/0
Certkiller 1(config-if)#no cdp enable

Answer: D

Explanation:

The Cisco Discovery Protocol (CDP) discovers basic information about neighboring routers and switches, without needing to know the passwords for the neighboring devices. CDP supports any LAN, HDLC, Frame Relay, and ATM interface-in fact, it supports any interface that supports the use of SNAP headers. The router or switch can discover Layer 2 and Layer 3 addressing details of neighboring routers without even configuring that Layer 3 protocol-this is because CDP is not dependent on any particular Layer 3 protocol. When Cisco first developed the proprietary CDP, it was used mainly between routers. Today most Cisco products support CDP, including Cisco switches and Cisco IP Phones. Devices that support CDP advertise their own information and learn information about others by listening for their advertisements. On media that support multicasts at the data link layer, CDP uses multicast; on other media, CDP sends a copy of the CDP update to any known data-link addresses. So, any CDP-supporting device that shares a physical medium with another CDP-supporting device can learn about the other device.

To Globally Disable the CDP protocol:

```
Certkiller 1(config)#no cdp run
```

To Disable CDP on interface:

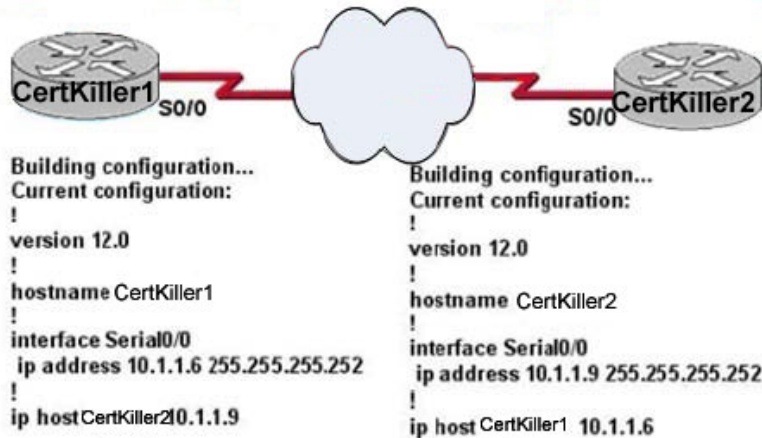
```
Certkiller 1(config-if)#no cdp enable
```

According to question

To comply with the Certkiller written security policy information about Certkiller 1, such as platform and IP addresses should not be accessible from the Internet. So Serial0/0 interface is connected to Internet. So disabling the CDP on this interface, unable to access the information from Internet.

QUESTION 421:

Exhibit:



You work as a network administrator at Certkiller .com. Study the exhibit carefully. You have recently configured the Certkiller 1 and Certkiller 2 routers. You issue the command ping Certkiller 2 from the Certkiller 1 router. The ping does not succeed. What sequence of commands do you need to issue to resolve the problem of this scenario?

- A. Certkiller 2(config)#interface s0/0
Certkiller 2(config-if)#ip address 10.1.1.5 255.255.255.252
Certkiller 1(config)#ip host Certkiller 2 10.1.1.5
- B. Certkiller 2(config)#interface s0/0
Certkiller 2#(config-if)#cdp enable
- C. Certkiller 2(config)#ip host Certkiller 2 10.1.1.0
- D. Certkiller 2(config)#interface s0/0
Certkiller 2#(config-if)#no shut
- E. Certkiller 2(config)#line vty 0 4
Certkiller 2(config)#login
Certkiller 2(config)#password Certkiller 2

Answer: A

Explanation:

In Exhibit Router Certkiller 1 and Certkiller 2 has IP Address from different Subnet.

Total 30 bits is used to Network and 2 bits for Host.

11111111.11111111.11111111.11111100

So Subnet Mask is : 255.255.255.252

Network ID=256-252=4

First Subnet= 10.1.1.0-3 Where 0 is network Address and 3 is broadcast address

Second Subnet=10.1.1.4.-7 Where 4 is Network Address and 7 is broadcast address

IP Address on Certkiller 1 is from Second Subnet so Certkiller 2 also required IP

Address from Second Subnet. As well manually map the hostname into new

corrected IP Address into Certkiller 1 Router.

QUESTION 422:

Exhibit:

```
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# hostname Gateway
Gateway(config)# enable secret class
Gateway(config)# interface FastEthernet 0/0
Gateway(config-if)# ip address 192.168.1.254 255.255.255.0
Gateway(config-if)# no shutdown
Gateway(config-if)# exit
Gateway(config)# interface serial 0/0
Gateway(config-if)# ip address 201.86.5.1 255.255.255.252
Gateway(config-if)# no shutdown
Gateway(config-if)# line vty 0 4
Gateway(config-line)# password certkiller
Gateway(config-line)# login
Gateway(config-line)# ^Z
Gateway# copy startup-config running-config
%% Non-volatile configuration memory invalid or not present
Gateway#
```

You work as a network administrator at Certkiller .com. Study the exhibit carefully. You have entered the command sequence displayed in the exhibit. However, you get an error message when you try to save the configuration. What should you do to rectify the issue at hand?

- A. Enter the command at the correct prompt
- B. Add NVRAM because there is not enough room for the configuration file.
- C. Enter the correct command.
- D. Upgrade the amount of flash memory in the router.
- E. Erase NVRM to make room for the configuration file.

Answer: C

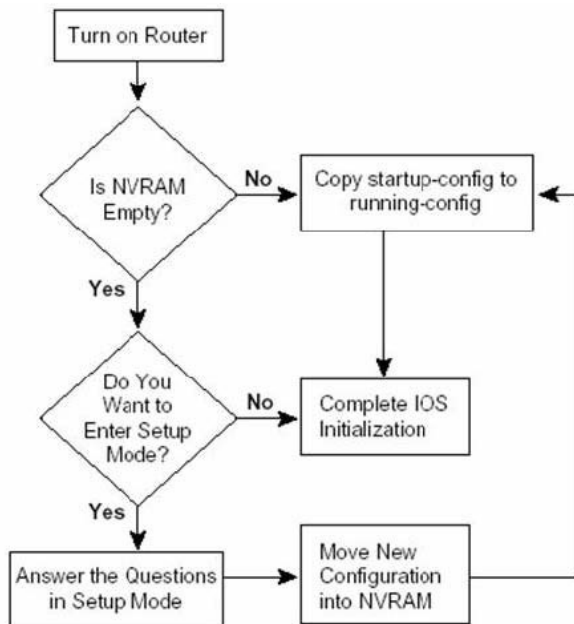
Explanation:

NVRAM

-Nonvolatile RAM stores the initial or startup configuration file. We can boot the Router bypassing the startup-configuration. Like while we forget console or enable password. For that we need to set 0x2142 Register Value. As well as if there is no initial configuration in router it goes to setup mode. When router is booted in setup mode you can't copy the startup-configuration into running-configuration (because startup-configuration does not exist).

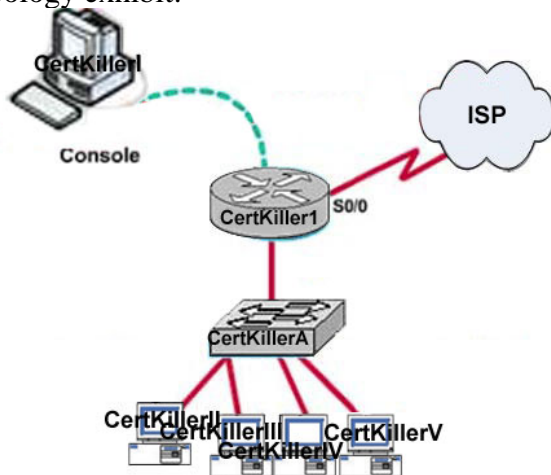
In Command trying to copy startup-configuration into running-configuration, but startup-configuration is doesn't exists because this router doesn't have initial

configuration.



QUESTION 423:

Topology exhibit:



For this question you are required to use various show command from the command line interface of router Certkiller 1 to obtain information so that you can answer the question correctly.

Note: this information is not available in this question however,
What is the subnet broadcast address of the LAN connected to Certkiller 1?

- A. 255.255.255.255
- B. 192.168.53.127
- C. 192.168.53.15
- D. 192.168.53.31
- E. 192.168.53.63

Answer: A

Explanation:

Check the IP Address of Ethernet Port of Router Certkiller 1 where Switch is connected using show ip inter brief, show ip int e0. You can identify the correct IP Address, subnet mask as well as subnet also. In Answer Four Address are broadcast address for /28. So Answer A is correct.

QUESTION 424:

You work as a network administrator at Certkiller .com. You have a new trainee Certkiller.

You are required to explain for Certkiller how the boot system and configuration register commands modify the router boot-up sequence.

What should you tell Miss Bill? Select three.

- A. A configuration register setting of 0x2100 will cause the router to boot to ROM monitor mode.
- B. Boot system commands are entered in boot system configuration mode on the router.
- C. If NVRAM lacks boot system commands and the configuration register is set to 0x2102, the router, by default, uses the IOS located in flash memory,
- D. The configuration register value can be verified with the show running-configuration command.
- E. The router checks for boot system commands without checking the configuration register setting.

Answer: B,C,E

Explanation:

RAM-Sometimes called DRAM for dynamic random-access memory, RAM is used by the router just as it is used by any other computer: for working storage. The running or active configuration file is stored here.

ROM-This type of memory (read-only memory) stores a bootable IOS image, which typically is not used for normal operation. ROM contains the code that is used to boot the router until the router knows where to get the full IOS image or as a backup bootable image, in case there are problems.

Flash memory-Either an EEPROM or a PCMCIA card, Flash memory stores fully functional IOS images and is the default location where the router gets its IOS at boot time. Flash memory also can be used to store any other files, including configuration files.

NVRAM-Nonvolatile RAM stores the initial or startup configuration file.

IOS on a router uses a configuration file for the initial configuration at router startup and the active, running configuration file. The startup configuration file is in NVRAM; the other file, which is in RAM, is the one that the router uses during operation. When the router first comes up, the router copies the stored configuration file from NVRAM into

RAM, so the running and startup configuration files are identical at that point. Also, exterior to the router, configuration files can be stored as ASCII text files anywhere using TFTP or FTP.

The boot process follows this basic litany:

1. The router performs a power-on self-test (POST) to discover and verify the hardware.
2. The router loads and runs bootstrap code from ROM.
3. The router finds the IOS or other software and loads it.
4. The router finds the configuration file and loads it into running config.

Two configuration tools tell the router what OS to load:

1. The configuration register
2. The boot system configuration command

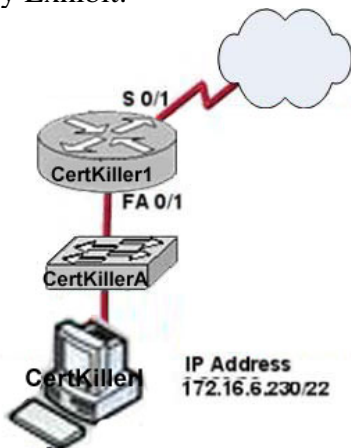
First, the configuration register tells the router whether to use a full-featured IOS, ROMMON, or the limited-feature IOS, which also is called RXBOOT mode. The configuration register is a 16-bit software register in the router, and its value is set using the config-register global configuration command. (Some older routers had a hardware configuration register with jumpers on the processor card, to set bits to a value of 0 or 1.)

On most Cisco routers, the default Configuration Register setting is hexadecimal 2102.

Boot System Commands	Result
No boot command	Tries loading the following (in order): first file in flash; broadcasts looking for TFTP server and a default filename; IOS in ROM; or uses ROM Monitor.
boot system ROM	IOS from ROM is loaded.
boot system flash	The first file from Flash memory is loaded.
boot system flash filename	IOS with the name <i>filename</i> is loaded from Flash memory.
boot system tftp filename 10.1.1.1	IOS with the name <i>filename</i> is loaded from the TFTP server.
Multiple boot system commands, any variety	An attempt occurs to load IOS based on the first boot command the in configuration. If that fails, the second boot command is used, and so on, until one is successful.

QUESTION 425:

Topology Exhibit:



You work as a network administrator at Certkiller .com. Study the exhibit carefully. You want to assign the first usable IP address in the subnetwork to FastEthernet 0/1 on Certkiller 1.

Which Cisco IOS command would achieve this?

- A. Certkiller 1(config-if)#ip address 172.16.3.1 255.255.254.0
- B. Certkiller 1(config)#ip address 172.16.4.1 255.255.252.0
- C. Certkiller 1(config-if)#ip address 172.16.4.1 255.255.254.252
- D. Certkiller 1(config)#ip address 172.16.6.1 255.255.252.0
- E. Certkiller 1(config-if)#ip address 172.16.6.1 255.255.255.252
- F. Certkiller 1(config-if)#ip address 172.16.6.229 255.255.255.252

Answer: F

Explanation:

According Exhibit,

Given IP Address is from Class B:

Default Subnet Mask: 255.255.0.0

Total Number of Network Bits is: 11111111.11111111.11111100.00000000

Subnet Mask: 255.255.255.252 Because 6 bits is used for Network Address

Network ID: 256-252=4

Total Number usable hosts per network is : 22-2=2

Given IP Address on 172.16.6.228 subnet.

First usable IP Address from this subnet is: 172.16.6.229 and Subnet mask is:

255.255.255.252

QUESTION 426:

Exhibit:

```
CertKiller1 # show controllers s0/0
```

```
Interface Serial0/0
Hardware is PowerQUICC MPC860
DTE V.35 clocks stopped
ldb at 0x81DE2098, driver data structure at 0x81DE4DF4
SCC Registers:
```

```
CertKiller1 # show ip interface s0/0
```

```
Serial0/0 is up, line protocol is down
Internet address is 192.168.1.2/24
Broadcast address is 255.255.255.255
```



<some output omitted>

You work as a network technician at Certkiller .com. Study the exhibit carefully.

You are troubleshooting the routers Certkiller 1 and Certkiller 2. For this purpose you have directly connected them through their serial interfaces.

What do you need to do to make the serial line functional?

- A. Change the IP address on the Certkiller 1 router.
- B. Configure the serial 0/0 interface on the Certkiller 2 router with a clockrate.
- C. Replace the broken cable between the two devices
- D. Start the clock on the Certkiller 1 router.

E. Use the no shutdown command on the Certkiller 1 router.

Answer: B

Explanation:

Data communications equipment (EIA expansion). Provides clocking to the data terminal equipment (DTE), data circuit-terminating equipment (ITU-T expansion). Devices and connections of a communications network that compose the network end of the user-to-network interface. The DCE provides a physical connection to the network, forwards traffic, and provides a clocking signal used to synchronize data transmission between DCE and DTE devices. Modems and interface cards are examples of DCE. #show controllers s0/0 shown that cable type is DTE, we don't supply the clock rate value in DTE, it needs to supply from DCE part. Certkiller 2 S0/0 is connected with DCE cable. IP Address scheme is good shown by show ip int s0/0. Due to the clock rate value line protocol is down.