

640-607

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Cisco Certified Network Associate 3.0 CCNA 3.0

Version 8.0

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Note for the simulation questions (13, 79, 195, 203, 331): If you are unsure of the testing environment, try the following address:

http://www.cisco.com/warp/public/10/wwtraining/certprog/testing/simulation/demo_sim.html

QUESTION NO: 1

You can configure PPP on which of the following types of physical interfaces? (Choose two)

- A. Ethernet
- B. Token Ring
- C. Synchronous Serial
- D. Asynchronous Serial

Answers: C, D.

Explanation: Point-to-Point Protocol (PPP) provides router-to-router and host-network connections over synchronous and asynchronous circuits. PPP was designed to work with several network layer protocols, including IP and IPX. It also has built in security features such as PAP (Password Authentication Protocol) and CHAP (Challenged Handshake Authentication Protocol).

Incorrect Answers:

A: Ethernet is a LAN (Local Area Network) architecture. It uses either a star or a bus topology to exchange data.

B: Token Ring is a type of network in which the computers are arranged in a circular fashion. These computers pass a token between each other. This token is used to communicate data.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 373.

QUESTION NO: 2

Frame Tagging is used to interconnect multiple switches and to maintain VLAN information as traffic goes between switches. Which of the following statements about the Frame Tagging are true? (Choose two)

- A. A Filtering table is developed for each switch.
- B. Frame Tagging defines a unique user defined ID to each frame.
- C. A unique identifier is placed in the header of each frame as it is forwarding between switches.
- D. Frame Tagging is technique that examines particular information about each frame based on user-defined offsets.

Answer: B, C.

Explanation: Frame tagging or frame identification uniquely assigns a user-defined **ID** to each frame. This is sometimes referred to as VLAN ID. Cisco created frame tagging to be used when an Ethernet frame traverses a trunked link.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 186-187.

QUESTION NO: 3

Your company is having trouble connecting a Cisco router to a Nortel router using Frame Relay. What is the default encapsulation type for Frame Relay on a Cisco router?

- A. HDLC
- B. PPP
- C. IETF
- D. Cisco
- E. ANSI

Answer: C.

Explanation: For a router to operate in a Frame Relay network the serial interface must be configured for Frame Relay Encapsulations. There are two types of Frame Relay encapsulation types: Cisco and IETF. When you are connecting to a non Cisco router the frame relay encapsulation type is IETF.

Incorrect Answers

- A.** HDLC stands for High level Data Link Control. This is the encapsulation type on synchronous serial links.
- B.** Point to Point Protocol (PPP). This provides for host to network and router to router connections over synchronous and asynchronous circuits.
- D.** Cisco is the other Frame Relay encapsulation type. This is the default on Cisco routers but needs to be change when communicating with non Cisco routers.
- E.** Cisco routers support three types of LMIs: Cisco, ANSI and Q933a. This question is looking for the default encapsulation type.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 418-420, 416, and 373-374.

QUESTION NO: 4

The IP address 131.107.0.0 is a class B address. What is the range of binary values for the first octet in this address class?

- A. 10000000-11111111
- B. 00000000-10111111
- C. 10000000-10111111
- D. 10000000-11011111
- E. 11000000-11101111

Answer: C

Explanation: Class B addresses have a range of 128 – 191. One of these numbers would appear in the first octet of a Class B address. 128 and 191 are converted to binary below:

	128	64	32	16	8	4	2	1
128	1	0	0	0	0	0	0	0
191	1	0	1	1	1	1	1	1

Therefore the first octet converted to binary is 10000000 – 10111111.

Incorrect Answers

- A:** The 10000000-11111111 range, 128-255, does not define an address class.
- B:** The 00000000-10111111 range, 0-191, does not define an address class.
- D:** The 10000000-11011111 range, 128-223, does not define an address class.
- E:** The 11000000-11101111 range, 192-239, does not define an address class.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 220 – 223.

QUESTION NO: 5

TCP is a connection-oriented protocol. An advantage of operating in a connection-oriented environment is that a connection is established between both ends before the transfer of information can begin. What is a disadvantage of using a connection-oriented protocol such as TCP?

- A. Packet acknowledgement may add overhead.
- B. Packets are not tagged with sequence numbers.
- C. Loss or duplication of data packets is more likely to occur.
- D. The application layer must assume responsibility for correct sequencing of the data packets.

Answer: A.

Explanation: One of the benefits of a connection-orientated protocol is that there is a guarantee of delivery of data. This guarantee is provided as the two communicating exchange PDUs during transmission and if an acknowledgement is not received then the data is retransmitted. As can be imagined this exchange of PDUs can cause an increase in overhead.

Incorrect Answers:

B: Sequence numbers are added to insure correct order

C: Packet loss, duplication, and ordering are handled by connection-oriented protocols.

D: The transport layer (such as TCP) handles sequencing.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 29-30.

QUESTION NO: 6

Switches have three primary modes to handle frame switching. Which one of these modes looks at the destination address and then immediately forwards the frame to the destination?

- A. CSMA/CD
- B. FULL DUPLEX
- C. CUT THROUGH
- D. HALF DUPLEX
- E. FRAGMENTATION
- F. STORE AND FORWARD

Answer: C.

Explanation:

In cut-through mode, the switch checks the destination address (DA) as soon as the header is received and immediately begins forwarding the frame. Depending on the network transport protocol being used (connection or connectionless orientate), there is a significant decrease in latency from input port to output port. The delay in cut-through switching remains constant regardless of the size of the frame, because this switching mode starts to forward the frame as soon as the switch reads the DA.

Incorrect Answers:

A: CSMA/CD is not a method of transporting frames. Rather it is a set of rules that are used to determine how network devices will respond to two different devices attempting to communicate on a data channel at the same time.

B: Full duplex refers to how two switches communicate with each other. In this case, there is a transmission of data in two directions at the same time.

D: Half duplex refers to how two switches communicate with each other. With half duplex the communication can only be in one direction and if not a collision will occur.

E: This is not a method of frame communication.

F: In store and forward the entire frame must first be received before it can be forwarded on.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 162-5.

QUESTION NO: 7

Which of the following are Application layer protocols that use TCP/IP? (Choose three.)

- A. ARP
- B. HTTP
- C. SMTP
- D. FTP
- E. ICMP

Answer: B, C, D

Explanation: There are a number of TCP/IP application layer protocols. The common TCP/IP application layer protocols include: FTP, Telnet, SMTP, and HTTP.

Incorrect Answers:

A. ARP operates at the Internetwork layer of the TCP/IP protocol stack.

E. ICMP operates at the Internetwork layer of the TCP/IP protocol stack.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 206 – 215.

QUESTION NO: 8

Two types of frame tagging are ISL and 802.1Q. Question No: What is the purpose of Frame Tagging?

- A. They provide best path determination.
- B. They allow the exchange of filtering tables.

- C. They specify different implementation of the Spanning-Tree Protocol.
- D. They provide **inter-switch** VLAN communication.

Answer: D

Explanation: The purpose of frame tagging (ISL tagging) is to interconnect multiple switches and to keep VLAN information as it goes through various switches.

Incorrect Answers:

A, B, and C. This are not the purposed for frame tagging.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 186 – 187.

QUESTION NO: 9

You company has decided to use RIP version 1 as the routing on a Cisco router. What is the command to enable rip as the routing protocol on the company's router?

Answer: Router rip

Explanation: The key characteristics of RIP include: it is a distance vector protocol, hop count is the metric used for path selection, it maximum allowable hop count is 15, it broadcasts it entire routing table every 30 seconds by default and it can be load balanced as many as six equal cost paths (4 paths are the default). To configure RIP not only does the router rip command need to be inputted but also it must be followed by the network command. The network command must be issued for each directly connected network.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 278-279.

QUESTION NO: 10

Your company has decided to use IP RIP version 1 as the routing protocol. Which of the following are the commands you can use to configure IP RIP version 1 on your router?

- A. Router RIP
network 172.16.1.0
network 10.1.0.1
- B. Router RIP
network 172.16.0.0

- network 10.0.0.0
- C. Router RIP
 - network 172.16.1.0 172.16.1.1
 - network 10.1.0.0 10.1.1.1
- D. Router RIP
 - network 172.16.1.0 255.255.255.0
 - Network 10.1.0.0 255.255.0.0

Answer: B.

Explanation: To enable RIP version 1 not only does the router rip command need to be used but also it must be followed by the network command. The network command must be issued for each directly connected network. The network command must be followed by a valid network address.

Incorrect Answers:

- A:** Is this series of commands the network 10.1.0.1 is not a valid command.
- C:** If 4 networks are directly connected they must have their own network command.
- D:** There is no need to include a subnet mask with a network command.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 278-9.

QUESTION NO: 11

Spanning-Tree was originally developed by DEC. What is the reason Spanning-Tree is used in a switched LAN?

- A. To provide a mechanism for network monitoring in switched environments.
- B. To prevent routing loops in networks with redundant paths.
- C. To prevent routing switching loops in networks with redundant switched paths.
- D. To manage, the addition, deletion, and naming of VLANs across multiple switches.
- E. To segment a network into multiple collision domains.

Answer: B.

Explanation: The purpose of the Spanning Tree Protocol (STP) is to provide for redundant paths within a switched environment while ensuring that there is a loop free network. This is done as the redundant ports are blocked.

Incorrect Answers:

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- A. STP does not provide mechanism to monitor a switched network.
- C. Loops are not referred to as “routing switching loops”.
- D. STP is not used for VLAN management.
- E. Switches create multiple collisions domains and not STP.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 155-156.

QUESTION NO: 12

Switches have three primary modes to handle frame switching. Which two statements about the store and forward switching method are true? (Choose two)

- A. Latency remains constant regardless of frame size.
- B. Latency through the switch varies with frame length.
- C. The switch receives the complete frame before beginning to forward it.
- D. The switch checks the destination address as soon as it receives the header and begins forwarding the frame immediately.

Answer B, C.

Explanation:

In store and forward mode, the switch must receive the complete frame before forwarding takes place. The destination and source addresses are read, the cyclic redundancy check (CRC) is performed, relevant filters are applied, and the frame is forwarded. If the CRC is bad, the frame is discarded. The latency (or delay) through the switch varies with frame length.

Incorrect Answers:

- A:** Is wrong because the latency changes with the frame size.
- D:** Is wrong because it waits for the complete name and not merely the destination address.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 162.

QUESTION NO: 13

Acme Ltd. consists of three campuses: North, Main and South. They have purchased three 2501 routers. Each router has one Ethernet interface and two serial interfaces. Each campus is connected serially to its neighbor. The routers have been working properly.

The connection between North and Main ceases operation one day and an unauthorized entry is detected on the South router.

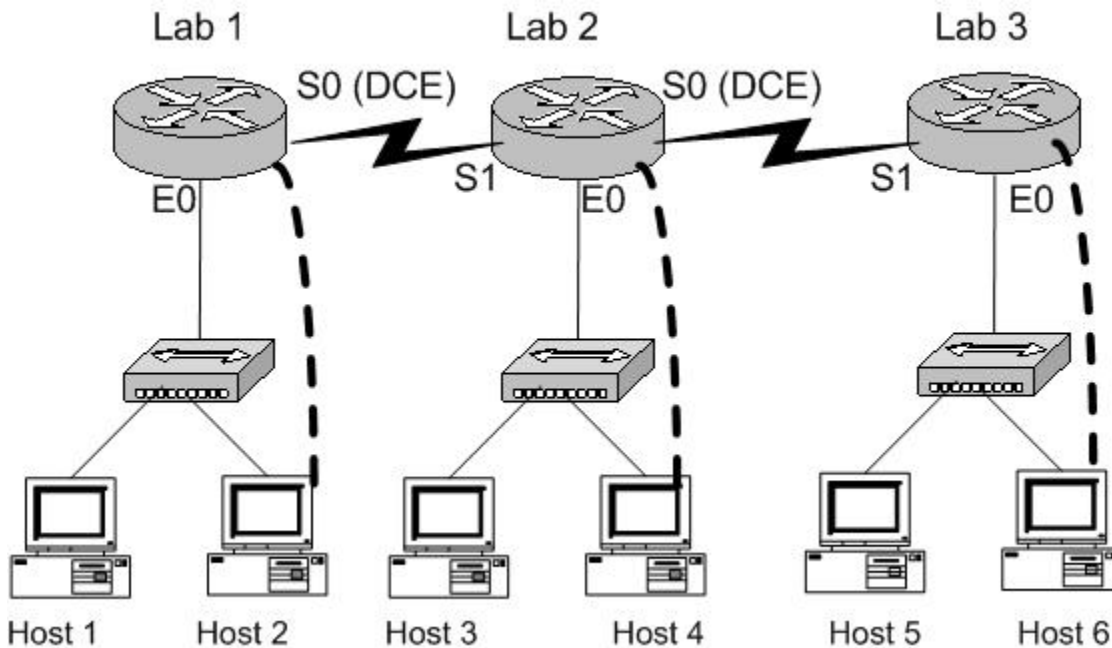
Determine the problem and restore connectivity. The network has been configured with the following characteristics:

The routers are named North, Main, South.

All networks have the default subnet mask.

RIP is the routing protocol.

The clocking signal is provided on the serial 0 interface.



Lab 1

Name: North

E0: 192.168.159.1

S0: 192.168.75.1

Secret password : testk

Lab 2

Name: Main

E0: 192.168.112.1

S0: 192.168.201.1

S1: 192.168.75.2

Secret password : testk

Lab 3

Name: South

E0: 192.168.65.1

S1: 192.168.201.2

Secret password : testk

Start by clicking on the router you want to configure.

Answer Lab 1:

<Click on router the leftmost router – below the Lab 1 label>

enable

config terminal

hostname North

enable secret testk

interface ethernet 0

ip address 192.168.159.1 255.255.255.0

no shutdown

exit

interface serial 0

clock rate 64000

ip address 192.168.75.1 255.255.255.0

no shutdown

exit

router rip

network 192.168.159.0

network 192.168.75.0

^z

copy running-config startup-config

Explanation:

Note: comments are added in text after the !-sign. They will not be shown during simulation.

First we click on the Lab 1 router.

Router Con0 is now available ! The router starts

Press RETURN to get started. ! Here we press return

```

Router>enable                ! We must enter EXEC mode (or enable mode as it also called)
Router#config terminal        ! We must enter configuration mode.
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname North ! We change the host name
North(config)#enable secret testk ! We set the password
North(config)#interface ethernet 0 ! We enter interface configuration mode for ethernet 0
North(config-if)#ip address 192.168.159.1 255.255.255.0 ! We set the IP address for Ethernet 0.
! Note that we use a 24 bit network mask.
!It is a class C address.

North(config-if)#no shutdown ! We start the interface
%LINEPROTO-5-UPDOWN: Line protocol on Interface Ethernet0, changed state to up
%LINK-3-UPDOWN: Interface Ethernet0, changed state to up

North(config-if)#exit ! We exit interface configuration for Ethernet 0
North(config)#interface serial0 ! We enter interface configuration mode for the serial0 interface.
! Note that there are no space in serial0
North(config-if)#clock rate 64000 ! We set a clockrate. We must do it to enable communication between
! the routers. They must be synchronized.
North(config-if)#ip address 192.168.75.1 255.255.255.0 ! IP address for serial0
North(config-if)#no shutdown ! Start the serial0 interface
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0, changed state to up
%LINK-3-UPDOWN: Interface Serial0, changed state to up

North(config-if)#exit ! Exit interface configuration mode
North(config)#router rip ! Start the routing protocol. RIP does not need further configuration.
! RIP works well in this small network.
! We enter router configuration mode.

North(config-router)#network 192.168.159.0 ! We enable RIP on the network of Ethernet E0.
North(config-router)#network 192.168.75.0 ! We enable RIP on the network of Serial0.
North(config-router)#^Z ! We exit configuration mode and return to enable mode.
%SYS-5-CONFIG_I: Configured from console by console
North#copy running-config startup-config ! We save our configurations to NVRAM
Destination filename [startup-config]?y ! We confirm with Enter.
North# ! We are finished.

```

You don't need to make full configuration because all routers have already been configured but they have some mistakes. Your task is to find these mistakes and fix them. Maybe the easy way is to remember full config, but better is to understand the right configuration. You need to add two networks for Lab 1 as we only have to add the networks we have on the router. For LAB 2 we add three networks, and for LAB 3 we add two networks.

Wendell Odom. Cisco CCNA Exam #640-507 Certification Guide. (Cisco Press: 2000) pages 374-403.

Note: If you are unsure of the testing environment, try the following address:

http://www.cisco.com/warp/public/10/wwtraining/certprog/testing/simulation/demo_sim.html

Answer Lab 2:

```
enable
config terminal
hostname Main
enable secret testk
interface ethernet 0
ip address 192.168.112.1 255.255.255.0
no shutdown
exit
interface serial 0
clock rate 64000
ip address 192.168.201.1 255.255.255.0
no shutdown
exit
interface serial 1
ip address 192.168.75.2 255.255.255.0
no shutdown
exit
router rip
network 192.168.75.0
network 192.168.112.0
network 192.168.201.0^z
copy running-config startup-config
```

Explanation: Very similar to Lab 1. We have two serial interfaces in lab 2 to configure. We must also make sure that we enable RIP on all three interfaces with the network command.

Answer Lab 3:

```
enable
config terminal
```

```
hostname South
enable secret testk
interface ethernet 0
ip address 192.168.65.1 255.255.255.0
no shutdown
exit
interface serial 1
ip address 192.168..201.1 255.255.255.0
no shutdown
exit
router rip
network 192.168..201.0
network 192.168..65.0
^z
copy running-config startup-config
```

Explanation: Very similar to Lab 1 and Lab 2. Lab C only has one serial interface, serial1.

QUESTION NO: 14

Which layer of the OSI model ensures reliable end-to-end delivery of data?

- A. Application
- B. Presentation
- C. Session
- D. Transport
- E. Network

Answer: D

Explanation: The Transport Layer, Layer 4, of the OSI reference model provide to methods of end-to-end delivery of data. These methods of delivery are reliable and unreliable. TCP is a reliable method and UDP is unreliable.

Incorrect Answers:

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- A. The Application Layer is best described as the user interface. This is how users/applications access protocols to access a network.
- B. The Presentation Layer controls how data is presented and also provides other services such as encryption.
- C. The Transport Layer is in charge of communication management (including establishing and terminating of communication).
- E. The Network Layer is responsible for an addressing scheme so that routers can determine a path.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 10 – 30.

QUESTION NO: 15

You company uses a switch in the training department. You need to be able to make changes to this switch remotely so that you can allow different classrooms to have access to the Internet as needed. What do you have to configure on this switch so that you can remotely make these changes? (Choose two.)

- A. The switch name must match the workgroup name of the local network.
- B. The switch must be configured with an IP address and default gateway.
- C. The remote workstations must have access to the VSM of the switch.
- D. CDP must be enabled on the switch so that other devices on the network can locate it.

Answer: B, C

Explanation:

To remotely configure a switch you will need to use the Visual Switch Manager (VSM). In order VSM to function properly the switch will require an IP address and network connectivity. Remote locations must use a web browser to connect to VSM.

Incorrect Answers:

- A. VSM does not require that the switch name match the local workgroup name.
- D. CDP is not required for VSM but it is used as an information-gathering tool.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 165 and 114.

QUESTION NO: 16

What one of the following is an example of a layer 2 MAC address?

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- A. 192.201.63.251
- B. 19-22-01-63-25
- C. 0000.1234.FEG
- D. 00-00-12-34-FE-AA

Answer: D.

Explanation: MAC address is a uniquely assigned address to each device on the network. The MAC **address is 48 bits** in length and is expressed as hexadecimal digit. The first 6 digits specify the manufacturer ID and the remaining 6 are unique to host. No two MAC addresses can be same. In addition MAC addresses are usually comprised of 6 pairs, each pair can be two number, two letters or a combination of a number and a letter.

Incorrect Answers:

- A:** 192.201.63.251 contains too many numbers and is an IP address.
- B:** There are only 6 pair combinations in 19-22-01-63-25.
- C:** 0000.1234.FEG is short one letter or one number.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 20.

QUESTION NO: 17

You issue the command `show ip route` which of the following correctly describes the codes displayed in your route table after you issue this command? (Choose two.)

- A. I-Indicates a route was learned through an internal protocol.
- B. S-Indicates a route was learned through static command.
- C. R-Indicates a route was learned through RIP.
- D. S-Indicates a route was learned through a serial port.
- E. R-Indicates a route was learned through a reliable port.

Answer: B, C

Explanation:

- B:** S stands for static.
- C:** R stands for RIP.

Note:

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

D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
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, o - ODR

Incorrect Answers

A: I stands for a route learned through IGRP.

D: S stands for static.

E: R stands for RIP.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 280 – 281.

QUESTION NO: 18

What can you use to connect a user's pc directly to a router?

- A. Connect the PC's COM port to the router's console port using a straight-through cable.
- B. Connect the PC's COM port to the router's console port using a crossover cable.
- C. Connect the PC's COM port to the router's Ethernet port using a straight-through cable.
- D. Connect the PC's Ethernet port to the router's Ethernet port using a crossover cable.
- E. Connect the PC's Ethernet port to the router's Ethernet port using a rollover cable.
- F. Connect the PC's Ethernet port to the router's Ethernet port using a straight-through cable.

Answer: E.

Explanation: To connect the PC directly to the router we can use a cross-over RJ-45 cable and connect the cable to an Ethernet port on the router and to the Network adapter on the PC.

Incorrect Answers

A, B: In order to connect to the console port of the router a rollover cable must be used.

C: To connect to an Ethernet port on the router we must use a network adapter on the PC.

E: A rollover cable can be used to connect a PC to the console port, not an Ethernet port, on the router.

Furthermore, one extra adapter would also be required.

F: A crossover cable must be used to directly connect a PC to a router.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 51 – 52.

QUESTION NO: 19

What are good reasons for using layer two switches? (Choose two)

- A. To reduce collisions.
- B. To increase collisions.
- C. To increase the number of collision domains.
- D. To decrease the number of collision domains.
- E. To decrease the number of broadcast domains.

Answer: A, C.

Explanation:

A switch creates multiple collision domains, and reduces the number of nodes in the domain. This results in less contention and interference which in turn reduces the number of collisions.

Incorrect Answers:

B: Switches are design to REDUCE collisions and not increase them.

D: When a switch segments a network it increase the number of domain and it does not reduce them.

E: A switch can neither increase nor decreases the broadcast domains.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 30-31.

QUESTION NO: 20

Full-duplex gives you the ability to send and receive data at the same time. Which of the following Ethernet standards can operate in full-duplex mode? (Choose two.)

- A. 10Base2
- B. 10Base5
- C. 10BaseT
- D. 100BaseT

Answer: C, D

Explanation: In order for full duplex transmissions to be supported the “cable” requires a means by which to receive and send transmissions at the same time. This is achieved through the use of twisted pairs. Both 10BaseT and 100BaseT utilize twisted pairs.

Incorrect Answers

A, B: Coaxial cable, either Thicknet (10Base5) or Thinnet (10Base2) only support one single transmission. If there is more than one transmission then a collision will occur.

Reference:

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 15 – 16, and 164.

QUESTION NO: 21

Which of the following devices support Full Duplex Ethernet ? (Choose two.)

- A. Switch to host.
- B. Switch to switch.
- C. Hub to hub.
- D. Switch to hub.
- E. Hub to host.

Answer: A, B

Explanation: Devices that are connected to switches can communicate in full duplex mode. This includes switched that are connected to other switches.

Incorrect Answers:

C, D, and E. Hubs can only communicate in half duplex mode (CSMA/CD). Therefore none of these options are correct.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 164 – 165.

QUESTION NO: 22

Which three are examples of the functions of connection oriented services? (Choose three)

- A. Connection parameters are synchronized.
- B. Any loss or duplication of packets can be corrected.
- C. The data packet is independently routed and the service does not guarantee the packet will be processed in order.
- D. A data communication path is established between the requesting entity and the peer device on the remote end system.

Answer: A, B, D.

Explanation:

In order to establish a connection-orientated service, the connection must first be established. An example of this would be the TCP/IP suites use of the three-way handshake. The sending and receiving of synchronization and acknowledgment packets between the sending system and the receiving system accomplish a three-way handshake. Errors can be corrected when the sender does not receive an acknowledgment, within a specified amount of time, from the receiving system the packet will be resent.

Incorrect Answers:

C: Due to the acknowledgement of packets, the order that packets are received is ensured.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 29-30.

QUESTION NO: 23

What is the correct order of PDUs in data encapsulation?

- A. Data, Frame, Packet, Segment, Bit
- B. Data, Frame, Segment, Packet, Bit
- C. Data, Packet, Frame, Segment, Bit
- D. Data, Packet, Segment, Frame, Bit
- E. Data, Segment, Frame, Packet, Bit
- F. Data, Segment, Packet, Frame, Bit

Answer: F

Explanation: Encapsulation steps

Step 1: The application creates the data

Step 2: The transport layer segments the data.

Step 3: The network layer puts the data into packets.

Step 4: The data link layer puts data into frames.

Step 5: The physical layer transmits the bits.

Reference: Wendell Odom. Cisco CCNA Exam #640-607 Certification Guide. (Cisco Press: 2002) page 96.

QUESTION NO: 24

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If you take a dotted-decimal class A IP address such as 10.0.0.1 and convert the first octet to binary. Which of the following is the correct bit pattern for the first octet?

- A. 0xxxxxxx
- B. 10xxxxxx
- C. 110xxxxx
- D. 1110xxxx
- E. 11110xxx

Answer: A

Explanation: The range for Class A address is 1 to 126. 10 convert into binary is 00001010. The only answer that follows this pattern is A.

Incorrect Answers:

- B.** With a 1 in the first bit of the binary number the value will be at least 128. 128 is above the range of Class A addresses.
- C.** With ones in the first 2 bits the value for the octet will need to be 192 or greater. This is outside the range of Class A addresses.
- D.** With ones in the first 3 bits the value for the octet will need to be 224 or greater. This is outside the range of Class A addresses.
- E.** With ones in the first 4 bits the value for the octet will need to be 240 or greater. This is outside the range of Class A addresses.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 221 – 223.

QUESTION NO: 25

Which of the following statements about a reliable connection oriented data transfer are true? (Choose two)

- A. Recipients acknowledge receipt of data.
- B. When buffers are filled to capacity, datagrams are discarded and not re transmitted.
- C. Windows are used to control the amount in outstanding acknowledged data segments.
- D. If the segments timer expires between receipt of an acknowledgement the sender drops the connection.
- E. The receiving device waits for acknowledgements from the sending device before accepting more data segments.

Answer: A, C.

Explanation:

Connection orientated protocols, such as TCP, communication use acknowledgement of packets. This is how error control is possible. To govern the flow of data between devices, TCP uses a flow control mechanism. The receiving TCP reports a “window” to the sending TCP. This window specifies the number of octets, starting with the acknowledgment number, that a receiving TCP is currently prepare to receive.

TCP windows sizes are variable during the lifetime of the connection. Each acknowledgment contains a window advertisement that indicates how many bytes the receiver can accept. TCP also maintains a congestion control window that is normally the size as the receiver’s window but is cut in half when a segment is lost (for example, there is congestion). This approach permits the window to be expanded or contracted as necessary to manage buffer space and processing.

Incorrect Answers:

- B:** With connection orientate protocols packet delivery is guaranteed. Packet will not be dropped. Flow control (windowing) addresses the buffer issue.
- D:** If the sending system does not receive an acknowledgement from the receiving system then the packet will be resent.
- E:** The receiving device sends the acknowledgement of packets and this states how much data the receiving device can receive.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 213-4.

QUESTION NO: 26

Which two statements are valid? (Choose two.)

- A. Full-duplex Ethernet consists of a shared broadcast domain, while half-duplex Ethernet consists of a private broadcast domain.
- B. Full-duplex Ethernet is collision free, while half-duplex Ethernet is subject to collisions.
- C. Full-duplex Ethernet provides higher throughput than half-duplex Ethernet of the same bandwidth.
- D. Full-duplex Ethernet provides lower throughput than half-duplex Ethernet of the same bandwidth.
- E. Full-duplex Ethernet consists of a shared cable segment while half-duplex Ethernet provides a point-to-point link.

Answer: B, C

Explanation: Full-duplex involves only two participants. Both can transmit simultaneously. Half-duplex, on the other hand, can have many participants on the same network segment. Only one be transmitting at a time.

B: Using Full-Duplex only two participants ensures that there can be no collisions. Half-duplex must use CSMA/CD to handle the collisions.

C: Full-duplex mode is faster than half-duplex.

Incorrect Answers

A: All nodes on a half-duplex Ethernet segment share the same broadcast domain.

D: The opposite is true.

E: The opposite is true.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 164 – 165.

QUESTION NO: 27

What is the network address for a host with the IP address 123.200.8.68/28?

- A. 123.200.8.0
- B. 1231.200.8.32
- C. 123.200.8.64
- D. 123.200.8.65
- E. 123.200.8.31
- F. 123.200.8.1

Answer: C

Explanation: In a network with 28 network bits only the last four bits are used for the hosts. We write the 4th octet in binary:

68 decimal = 01000100 binary (64+4)

We have to clear all host bits:

01000000 binary = 64 decimal

The network part is 123.200.8.64.

Incorrect Answers:

A. For the network to be represented as 123.200.8 then the IP address would need a /24 at the end. In this case /28 was used.

B, D, E, and F. In these cases with the IP address provided these options are impossible.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 227 – 232.

QUESTION NO: 28

How does a layer two device such as a bridge or switch function?

- A. It maintains a table of the IP address of the host connected to its internet segment
- B. It passes packets outside of its network segment if its IP address cannot be found on its table.
- C. It looks up the frames destination in its address table and sends the frame towards the destination.
- D. It maintains the table of the data link layer and network layer addresses for the host connected to its network segment.

Answer: C.

Explanation:

A transparent bridge stores information in memory in what is called a “forwarding table”. The forwarding table lists each end station (from which the bridge has heard a frame within a particular time period) and the segment on which it resides. When a bridge hears a frame on the network, it views the destination address and compares it to the forwarding table to determine whether to filter, flood or copy the frame into another segment.

Incorrect Answers:

- A:** The forwarding table does not contain a list of IP address. Rather it contains a list of devices that it is connect to and on which segment each device resides.
- B:** If the destination device is unknown to the bridge, the bridge forwards the frame to all segments except the one on which it was received. This process is known as flooding.
- D:** The device maintains a list of the data link layer addresses for host connected to its network segment.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 22.

QUESTION NO: 29

Which of the following are reasons to use VLANs? (Choose three.)

- A. They increase the size of collision domains.
- B. They allow logical grouping of users by function.
- C. They enhance network security.
- D. They increase the size of broadcast domains while decreasing the number of broadcast domains.
- E. They increase the number of broadcasts domain while decreasing their size.
- F. The simplify switch administration.

Answer: B, C, E

Explanation:

B: Users can logically be grouped into VLAN.

C: By grouping users into different VLANs, a secure VLAN can be created. Only some users could be allowed to access the secure VLAN. This improves security.

E: Each separate VLAN is a separate broadcast domain. Creating VLAN increase the number of broadcast domains and decrease the size of each broadcast domain.

Incorrect Answers

A: The size of the collision domain decreases by the use of VLANs.

D: The opposite is true.

F: VLANs must be configured so VLANs increase the switch administration.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 179 – 182.

QUESTION NO: 30

You need to segment your network which of the following hardware devices can you use to segment your network? (Choose three.)

- A. Hub
- B. Repeater
- C. Switch
- D. Bridge
- E. Router
- F. Media converter

Answer: C, D, E

Explanation:

C: A switch is able to segment the network at the data link layer.

D: A bridge is able to segment the network at the data link layer.

E: A router is able to segment the network at the network layer.

Incorrect Answers

- A: A hub regenerates and/or redistributes signal and work at physical layer of the OSI model and is unable to segment the network.
- B: A repeater only regenerates the signal and works at physical layer of the OSI model and is unable to segment the network.
- F: Media converter only connects dissimilar media, and connects them into a single segment.

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 16 – 17.

QUESTION NO: 31

Your company is concerned about Security on your network. Each department has its own file server and the company also has an enterprise server that is shared by all departments. The accounting department is concerned about the accounting information being accessible from the other departments. What can you as the network administrator use to control the information so that it's not being passed between the departments?

- A. Bridge between management and sites.
- B. Routers to provide the most secure segmentation.
- C. A hub to provide the ease of management and a satisfactory alternative for the network security.
- D. An Ethernet switch to secure separation through programming the access list of each port of the switch.

Answer: B.

Explanation:

Routers provide better separation, dividing the segments into both separate collision and broadcast domains, and provide access lists for controlling security.

Incorrect Answers:

A, C, D: Are Layer 2 devices, which breaks up the collision domains, but is still one broadcast domain. Security and filtering within these devices are primitive (although switching is a little more advanced). Any filtering that can be done at layer 2 is primitive and requires a lot of administrative effort.

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 18-28.

QUESTION NO: 32

What are the advantages of using the OSI layered network model? (Choose three.)

- A. Allows multiple-vendor development through standardization of network components.
- B. Creates a list of communication rules that all companies must implement to get onto the Internet.

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- C. Allows various types of network hardware and software to communicate.
- D. Prevents changes in one layer from affecting other layers, so it does not hamper development.
- E. Allows companies to develop proprietary interfaces.

Answer: A, C, D

Explanation:

A: The OSI model promotes standardization.

C: The layered approach allows various types of network hardware and software to communicate.

D: Each layer should be a separate black box. A change in one layer would not impact other layers.

Incorrect Answers

B: The OSI model does not contain standardization of applications in this way.

E: Proprietary interfaces do not fit within the OSI model.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 10 – 11.

QUESTION NO: 33

You have a leased line configured at a small office that connects to the corporate office. Your company would also like to have a backup in case the leased line goes down. Which WAN service would you most likely choose to backup the leased line?

- A. Frame relay with SVC
- B. Dedicated serial line
- C. ISDN with DDR
- D. ATM

Answer: C

Explanation: ISDN is a low-cost backup solution that only is used when it is needed.

Incorrect Answers

A: Frame Relay is a high-performance solution and would be a costly backup solution.

B: There is no need to use a dedicated connection. We only need to use the connection if the main line goes down.

D: ATM is a high-performance solution and would be a costly backup.

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 368 – 373 and 387 –389.

QUESTION NO: 34

What was one of the most important reasons the International Organization for Standardization released the OSI model?

- A. Users could access network server faster.
- B. Different vendor's networks could work with each other.
- C. The industry could create a standard for how computers work.
- D. The network administrator could increase the overall speed of their network.

Answer: B.

Explanation:

The ISO model separated the various functions so that a vendor did not have to write an entire stack. One vendor could write device drivers for their device, and not worry about higher layers, and the work can be contained and modularized. This also speeds up the process of bringing a product to market, as it minimizes code that a vendor needs to write.

Incorrect Answers:

- A:** The ISO model does not make things faster; overall they might slow things down a bit because of the overhead of passing data through the layers.
- C:** This ISO model is for networking, not computer functions.
- D:** The ISO model does not provide any speed boost.

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 10-12.

QUESTION NO: 35

Which channels are used by ISDN BRI?

- A. 2d+b
- B. 23d+b
- C. 2b+d
- D. 23b+d

Answer: C

Explanation: ISDN BRI has two Bearer Channels (B) and a Signaling channel (D).

Reference: Cisco CCNA Exam #640-607 Certification Guide. (Cisco Press: 2002) page 549.

QUESTION NO: 36

Access-list 122 permit ip 131.107.30.0 0.0.0.255 any

You apply the access-list above. Which is the effect?

- A. Permit all packets matching the first three octets of the source address to all destinations.
- B. Permit all packets matching the last of the destination address and accept all source address.
- C. Permit all packets from the third subnet of the network address to all destinations.
- D. Permit all packets matching the host bits in the source address to all destinations.
- E. Permit all packets to destination matching the first three octets in the destination address.

Answer: A

Explanation: This is an extended access list that permits source packets matching the first three octets of the 131.107.30.0 address. Furthermore, the **any** keyword specifies that all destinations will be accepted.

Note: Syntax for an extended access list

access-list *access-list-number* {**deny** | **permit**} *protocol source source-wildcard destination destination-wildcard* [**precedence** *precedence*] [**tos** *tos*]

Incorrect Answers

B: The source-wildcard is specified first before the destination wildcard.

C: All source addresses matching the first three octets of **131.107.30.0** will be permitted.

D: The mask used in access-list does not work as a subnet masks. A 0.0.0.255 access-list mask matches the first three octets, not the last “host” octet.

E: The first three octets in the source, not destination, address must match. All destination addresses are allowed with the **any** keyword.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 304 – 306.

B: This is a full Class C subnet mask, and only provides for ONE network, and we need 28.

E: This gives us 6 bits of network, and the problem calls for 5.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 228 – 236.

QUESTION NO: 38

Cisco supports three types of switching modes on switches. Which mode of switching can have a variable latency through the switch?

- A. Store-and-forward.
- B. Cut-through.
- C. Fragment-free.

Answer: A

There are 3 primary operating modes that are used for frame switching. These modes are store-and-forward, cut-through and fragment free. When store-and-forward is used the switch must receive the whole frame before it can be forwarded. This makes the latency time variable.

Reference: Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 162-163.

Incorrect answers:

- B:** During a cut-through operation, the switch forwards the frame once it receives the Destination Address. This keeps the latency constant.
- C:** The fragment-free mode reads only the first 64 bytes before forwarding the frame. This makes the latency time practically constant.

QUESTION NO: 39

Your company has purchased some Cisco routers from an online auction. You need to make a backup copy of the IOS and store it on a TFTP server. Which of the following should be done prior to copying the IOS image to a TFTP server? (Choose three.)

- A. Make sure that the network server can be accessed.
- B. Check that the authentication for access is set.

- C. Ensure 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:

A: The TFTP server must be accessible from the router.

C: The TFTP server must be able to store the IOS image.

D: The file naming convention and the path of the TFTP server must be checked.

Incorrect Answers

B: TFTP does not use authentication.

E: The TFTP server does not have to boot IOS. It can use any operating system with network functionality.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 132 – 134.

QUESTION NO: 40

Which of the following correctly identifies switched and routed data flow?

- A. Switches create a single collision domain and a single broadcast domain. Routers provide separate broadcast domains.
- B. Switches create separate collision domains but a single broadcast domain. Routers provide separate broadcast domains.
- C. Switches create a single collision domain and a separate broadcast domain. Router provides a separate broadcast domain as well.
- D. Switches create separate collision domains and separate broadcast domains. Routers provide separate collision domains.

Answer: B

Explanation:

Switches break up the collision domains, but it is still a single broadcast domain. Routers also create separate collision domains, but also separate broadcast domains, as routers usually do not pass broadcast traffic.

Incorrect Answers:

A: Switches create multiple collision domains.

C: Switches maintain one broadcast domain, and separate/multiple collision domains.

D: Switches maintain one broadcast domain.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 30-31.

QUESTION NO: 41

Your boss is concerned about routing loops with the use of distance vector routing protocols such as RIP and IGRP in your network you would like to ensure him that there are mechanisms used to prevent the possibility of a routing loop. Which of the following are examples of this mechanism? (Choose two.)

- A. Link-state advertisement (LSA)
- B. Spanning Tree Protocol.
- C. Shortest path first tree.
- D. Split horizon.
- E. Hold-down timers.

Answer: D, E

Explanation: RIP and IGRP are distance vector routing protocols. RIP and IGRP use holddown counters and split horizon to prevent route looping.

Note: Hold-downs are used to prevent regular update messages from inappropriately reinstating a route that might have gone bad.

Split horizons derive from the premise that it is never useful to send information about a route back in the direction from which it came.

Incorrect Answers

A: Link-state routing protocols use LSAs. However, LSAs are not used by distance vector routing protocols like RIP or IGRP.

B, C: The spanning tree protocol and the shortest path first tree is used by Layer 3 routing protocol such as Enhanced IGRP or OSPF, not by RIP or IGRP.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 266 – 268.

QUESTION NO: 43

You just finished installing a new operating system on a computer located in the accounting department. You would like to verify the network configuration from the new computer so you establish FTP connection to a remote TFTP server. Which layer of the OSI model did you use for this operation?

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- A. Application
- B. Presentation
- C. Session
- D. Transport
- E. Data link
- F. Internet

Answer: A

Explanation: The Application layer is the layer at which users use protocols to achieve access to the network. Using FTP to connect to a TFTP server is an excellent example.

Incorrect Answers

- B.** The presentation layer is focused on ensuring that data is readable once it has crossed the network.
- C.** The session layer of the OSI model is responsible for communication. That is, the establishment, management, and ending of communication.
- D.** The transport layer is focused on providing the establishment guidelines of communication.
- E.** The data link layer provides the details on where the data is coming from and where it is going.
- F.** The internet layer is not a layer of the OSI Model. It is a layer in the TCP/IP model that corresponds to the network layer of the OSI model.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 10 – 18.

QUESTION NO: 44

Match the OSI layer with the appropriate description.

Place the name of the OSI layer next to its description

OSI Layer name	Description			
place here	This layer segments and reassembles data into a data stream			
place here	This layer manages device addressing, tracks the location of devices on the network, and determines the best way to move data			
place here	This layer transmits the data and handles error notification, network topology, and flow control.			
physical	data link	network	transport	session

Answer:

Place the name of the OSI layer next to its description

OSI Layer name	Description
transport	This layer segments and reassembles data into a data stream
network	This layer manages device addressing, tracks the location of devices on the network, and determines the best way to move data
data link	This layer transmits the data and handles error notification, network topology, and flow control.

physical	session

Explanation: The transport layer assembles the packets into data, and prepares the data for the session layer above. The Network layer determines the route of moving data. Remember the Network layer is layer 3, and routers work on layer 3. The network layer includes routing functions, and keep this in mind when the question says determines the best way to move data. On the data link layer, the actual transmission occurs.

The physical layer does not modify the data and package it, not is involved with addressing and routing, so it does not apply. The session layer also does not modify data or determine routes or transmit data, so it would not apply to any of the above.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 12-13.

QUESTION NO: 45

You have installed a new PC to your access layer switch. You have configured the IP address, subnet mask, default gateway, and DNS settings. You have verified that the information you have entered is correct and that the proper cable was used however this PC is unable to access devices that are connected to the same switch. What is the likely cause of this problem?

- A. The router lacks a routing table entry for the new host.
- B. The host switch port is assigned to the incorrect VLAN.
- C. The host MAC address is incorrectly configured.
- D. A VTP instance for the new host has not been installed.

Answer: B

Explanation: In order for a host to access a switch the host switch port must be configured for the correct VLAN. By default VLAN 1 is configured for the ports.

Incorrect Answers

A: Hosts do not need route entries at the router.

C: This would cause this behavior.

D: There is no such thing as VTP instance.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 193 – 198.

QUESTION NO: 46

Cisco supports three different LMI types for Frame Relay. Which of the following are the type LMI types? (Choose three.)

- A. IETF
- B. Q931
- C. Q933A
- D. IEEE
- E. CISCO
- F. ANSI

Answer: C, E, and F

Explanation: The Supported LMI Types are cisco (the default), ansi, and q933a.

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 415 – 416.

QUESTION NO: 47

Which hardware device enables high-speed data exchange on a LAN?

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

Answer: C

Explanation:

A switch can be used to gain high-speed data transfer between segments, especially when cut through is used. The internals of the switch are specifically designed for high-speed transfer, even with high volumes.

Incorrect Answers:

- A:** A hub causes the segment to be shared, and collisions slow down the segment. A hub does not cause segmentation.
- B:** A bridge usually separates a small amount of segments and with large amounts of data transfer across the bridge; the bridge can become a bottleneck.
- D:** A repeater extends the distance of the segment by amplifying electrical signals, but does not segment the LAN.

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 32-38.

QUESTION NO: 48

To perform password recovery on a Cisco router you have to modify which of the following? (Choose two.)

- A. Nvram
- B. Configuration register
- C. Boot flash

- D. Cmos
- E. Flash

Answer: A, B

Explanation: During the password recovery procedure NVRAM and the configuration register are resetted.

Reference: Password Recovery Procedure

http://www.cisco.com/warp/public/474/pswdrec_2500.html

QUESTION NO: 49

You just purchased a brand new Cisco 2621 router. By default when the router boots which search sequence does it use to locate the IOS software?

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

Answer: A

Explanation: First FLASH is used to load the IOS image. If that fails, the IOS image is loaded from a TFTP server. If that fails as well then a minimal IOS is loaded from ROM.

Incorrect Answers

B: NVRAM is used to store configuration data, not IOS images.

C, D: Only if there is no IOS image in Flash memory or at FTP server, a basic version of IOS loaded from ROM.

QUESTION NO: 50

You would like the router to look in NVRAM upon boot up. Which one of the following would be the correct value for the configuration register?

- A. 0x42
- B. 0x2102

- C. 0x001
- D. 0x2101

Answer: B

Explanation: The factory-default setting for the configuration register is 0x2102. This indicates that the router should attempt to load an IOS image from Flash memory and load the startup configuration. Flash memory is also known as NVRAM.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 126 – 128.

QUESTION NO: 51

Which of the following are true about connection-oriented network servers? (Choose two.)

- A. Non-reliable
- B. Reliable
- C. Less bandwidth-intensive
- D. Handshaking

Answer: B, D

Explanation: Connection orientation connections are considered reliable as they ensure the deliver of data. This is done through acknowledgements. Further when establishing a communication a three-way handshake is used.

Incorrect Answers:

- A. Connection orientated communication is reliable.
- C. Due to the acknowledgements connection orientated communications are very bandwidth intensive.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 29 – 30.

QUESTION NO: 52

You have been hired as a consultant to troubleshoot the company's network. You issue the debug ip rip command to troubleshooting the rip network. You notice your Ethernet interface 10.1.0.0 shuts down. Which update message is seen in your routers debug ip rip output regarding that network?

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- A. Subnet 10.1.0.0, metric 0
- B. Subnet 10.1.0.0, metric 1
- C. Subnet 10.1.0.0, metric 15
- D. Subnet 10.1.0.0, metric 16

Answer: D

Explanation: RIP (Routing Information Protocol) is a distance vector protocol. RIP uses hop counts as metric. The designers of RIP believed that the protocol was unlikely to be practical for networks with a diameter larger than 15. The maximum hop count is therefore set to 15. In RIP when a network is not reachable then its metric is changed to 16.

Incorrect Answers:

- A:** A metric of 0 denotes a directly connected route and indicates that the interface is up.
- B:** This metric indicates that the interface is up and that the destination is reached with a hop count of 1.
- C:** This metric indicates that the interface is up and that the destination is reached with a hop count of 15.

RFC2453, RIP Version 2

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 276 – 278.

QUESTION NO: 53

You have been assigned a class C network address. Your manager has asked to you create 30 subnets with at least 5 hosts per subnet for the different departments in your organization. What should the subnet mask be to create 30 subnets?

Answer: 255.255.255.248

Explanation: We need 3 bits for the hosts ($2^3 - 2 = 6 > 5$). This would provide for 30 subnets ($2^5 - 2 = 30$). A 29-bit ($24 + 5$) network mask translates the 4th octet to 248 (=11111000 binary). The network mask used should be 255.255.255.248.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 225 – 226 and 236.

QUESTION NO: 54

Your manager is concerned about security on the subnet 10.0.1.0/24 that has the accounting servers on it. He would like to make sure users can not telnet to those accounting servers and as asked you to add a statement to your existing access-list to prevent users from accessing those devices via telnet. Which one of the following statements should you enter?

- A. Access-list 15 deny tcp 10.0.1.0 255.255.255.0 eq telnet
- B. Access-list 115 deny tcp any 10.0.1.0 eq telnet
- C. Access-list 115 deny udp any 10.0.1.0 eq 23
- D. Access-list 115 deny tcp any 10.0.1.0 0.0.0.255 eq 23
- E. Access-list 15 deny telnet any 10.0.1.0 0.0.0.255 eq 23

Answer: D

Explanation: We must use an extended access list. The correct answer is:

Access-list 115 deny tcp any 10.0.1.0 0.0.0.255 eq 23

115 - the access-list number

deny – the access list denies traffic

any – any source is allowed

10.0.1.0 0.0.0.255 – allows any destination with addressing with the pattern 10.0.1.x

eq 23 – select the telnet port (TCP 23)

Note: Syntax extended access list.

access-list *access-list-number* [**dynamic** *list-name* [**timeout** *value*]] {deny | permit} *protocol source source-wildcard destination destination-wildcard* [**precedence** *precedence*] [**tos** *tos*] [**log**] **log-input**

Incorrect Answers

A: We must specify both source (source + source wildcard) and destination (destination + destination wildcard). Furthermore the mask is incorrect. The mask cannot be used as a subnet mask.

B, C: No destination wildcard is specified.

E: We cannot specify **telnet** as protocol. We specify it as a port with the **eq 23** (or **eq telnet**)

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 304 – 306.

QUESTION NO: 55

You purchased a router from an online auction and you are unable to login to privileged mode because the router has been configured with a password. You need to perform password recovery. One of the first steps in performing password recovery is recording the current configuration register setting from user mode. What is the command to view the configuration register?

- A. Show register.
- B. Show flash.
- C. Show boot.
- D. Show version.

Answer: D

Explanation:

The show version command displays version information for the hardware and firmware. This includes the register settings.

Incorrect Answers:

- A:** This is not a valid command.
- B:** The show flash command displays information in relation to router memory and image file.
- C:** The show boot IOS command displays the settings of the boot environment variables.

Reference: Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 128-137.
<http://www.cisco.com/univercd/cc/td/doc/product/lan/c3550/1214ea1/3550cr/ccimtoc.htm>

QUESTION NO: 56

What are the generic parts of a layer 3 address?

- A. An internetnetwork number and a URL .
- B. A vendor code and a serial number.
- C. A network number and host number.
- D. A broadcast number and unicast number.
- E. A domain identifier and a device identifier.

Answer: C

Explanation: The network layer address exists at Layer 3 of the OSI reference model. These address are hierarchical in that they define networks first and then devices or nodes on each of the networks.

Incorrect Answers:

- A:** A URL is used in the application layer, (HTTP).
- B:** This is describing a MAC address that is Layer 2.
- D:** This is not an addressing mode.
- E:** This is used in the application layer, Domain for DNS.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 20-29.

QUESTION NO: 57

There are some differences between routed and routing protocols. Which of the following are examples of those differences? (Choose two.)

- A. A routed protocol is assigned to an interface and determines the method of packet delivery.
- B. A routing protocol determines the path of a packet through a network.
- C. A routed protocol determines the path of a packet through a network.
- D. A routing protocol operates at the transport layer of the OSI model.
- E. A routed protocol updates the routing table of a router.

Answer: A, B

Explanation:

- A:** A routed protocol delivers data.
- B:** A routing protocol routes data.

Incorrect Answers

- C, E:** A routed protocol only delivers data, it does not route data or update any routing tables.
- D:** A routing protocol does not work at transport layer, layer 4. Many routing protocols work at layer 3, the network layer.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 254 – 255.

QUESTION NO: 58

Which show commands can you use to identify the local DLCI number? (Choose two.)

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- A. Show frame-relay local-dlci
- B. Show frame-relay pvc
- C. Show frame-relay dlci
- D. Show frame-relay map
- E. Show ip route

Answer: B, D

Explanation:

B: The **Show frame-relay pvc** command is used to display statistics about PVCs for Frame Relay interfaces. The statistical information include the DLCI number of the interface..

D: The **show frame-relay map** command displays the current map entries and information about the connections. This information includes the DLCI number.

Incorrect Answers

A, C: There are no such commands.

E: The routing information, which is produced by the show ip route command, does not include any DLCI number.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 422 – 423 and 280.

QUESTION NO: 59

When setting up Frame Relay for point-to-point subinterfaces, you enter the following configuration:

```
Router(config)#int s0/0
Router(config-if)#ip address 10.39.0.1 255.255.0.0
Router(config-if)#encapsulation frame-relay
Router(config-if)#interface s0/0.39 point-to-point
Router(config-if)#frame-relay interface-dlci 139
Router(config-if)#exit
Router(config)#exit
Router#copy run start
```

Which of the following must not be configured?

- A. The Frame Relay encapsulation on the physical interface.
- B. The local DLCI on each subinterface.
- C. An IP address on the physical interface.
- D. The subinterface type as point-to-point.

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Answer: C

Explanation:

When setting up Frame Relay for point-to-point subinterfaces it is recommend that the network layer address, the IP address, should be removed from the physical interface. The network layer address should be configured to the subinterface instead.

Incorrect Answers:

- A:** When establishing a Frame Relay for point-to-point subinterfaces the Frame Relay encapsulation on the physical interface must be configured.
- B:** When establishing a Frame Relay for point-to-point subinterfaces the local DLCI on each subinterface must be configured.
- D:** When establishing a Frame Relay for point-to-point subinterfaces the subinterface must be configured as point-to-point.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 427-429.

QUESTION NO: 60

What is an advantage of segmenting your LAN with a switch?

- A. Smaller collision domains.
- B. Elimination of broadcast.
- C. Decrease cost of implementation.
- D. Larger number of users within the same domain.

Answer: A

Explanation:

By making more collision domains, each domain is smaller, resulting in fewer collisions, and thus an advantage.

Incorrect Answers:

- B:** Broadcast still occurs on the segments, even with routers.
- C:** Due to extra hardware, or more advanced hardware, implementation is higher.
- D:** By segmenting you are decreasing the number of users, thus reducing the number of contenders for the medium.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 30-31.

QUESTION NO: 61

Your ISP has provided you the following class B network range 131.107.0.0/24. Which of the following statements is true regarding this network? (Choose two.)

- A. There are 254 usable hosts per subnet.
- B. There is one usable network.
- C. There are 255 usable hosts per subnet.
- D. There are 254 usable subnets.
- E. There are 30 usable subnets.
- F. There are 62 usable hosts per subnet.

Answer: A, D

Explanation:

A: There are 8 bits for the hosts (32-24). We use the formula $2^{\text{number_of_host_bits}-2}$. So there are 254 hosts (2^8-2) per subnet.

D: There are 8 bits for the subnets (8 bits for hosts, 16 bits for the class B subnet: 32-8-16). Cisco want us to use the formula $2^{\text{number_of_subnet_bits}-2}$. This gives 254 (2^8-2) possible subnets.

Note: Cisco routers are able to use 256 subnets. In Microsoft exams the correct answer would be that 256 subnets are available.

Incorrect Answers

B: According to Cisco there are two unusable networks namely 131.107.0.0/24 and 131.107.255.0/24.

C: Only 254 hosts are usable on each subnet. The lowest IP address in subnet is the subnet number. The highest address is the broadcast address.

D, E: This are incorrect as well.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 233 – 235.

QUESTION NO: 62

You just purchased a Cisco router from an online auction and now you have configured the router and everything is working perfectly in your test lab. You then issue the command copy run start to save your configuration to NVRAM. You turn off the power and mount the router in the production rack. After connecting the power cord you power up the router and the router boots into setup mode. You issue the show startup-config from privileged mode and your entire configuration is there. Which of the following indicates a possible source of the problem?

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- A. Hardware failure NVRAM prevents the router from loading the configuration.
- 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.

Answer: C

Explanation: We must bypass the startup configuration and boot from ROM. This will enable use to select a new user name and password which will enable us to access the router. Basically we perform a password recovery procedure.

Reference: Password Recovery Procedure
http://www.cisco.com/warp/public/474/pswdrec_2500.html

QUESTION NO: 63

Once you have defined interesting traffic with the dialer-list command, you then must associate an ISDN phone number with the next hop router address. Which IOS command should you use?

- A. Isdn destination number.
- B. Dialer map.
- C. Isdn spid1.
- D. Isdn line number.

Answer: B

Explanation:

The dialer map command is used to define one or more dial-on-demand numbers to reach one or more destinations for a particular interface. This is the exact command to associate an ISDN phone number with the next hop router address.

Incorrect Answers:

- A:** This is not a valid command.
- C:** The isdn spid1 command specifies the SPID required for b channel to access the ISDN network when your router makes its call to the local ISDN exchange.
- D:** This is not a valid command.

Steve McQuerry. [Interconnecting Cisco Network Devices](#). (Cisco Press: 2000) pages 397-406.

QUESTION NO: 64

You have just purchased a new Cisco router. Which mode should you use to create an initial configuration on your router?

- A. Copy mode.
- B. User mode.
- C. Setup mode.
- D. Startup mode.

Answer: C

Explanation:

If no configuration file exists for the router in NVRAM, the operating system executes a question driven initial configuration routine often referred to as the system configuration dialog. This special mode is also known as the setup dialog.

Incorrect Answers:

A: There is no copy mode

B: You can't do configurations in user mode. The router only enters this mode when it has already been configured.

D: There is a startup procedure but not a startup mode.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 82-84.

QUESTION NO: 65

If RIP uses hop count to determine the best path what does IGRP use?

- A. The highest metric value.
- B. The lowest composite metric value.
- C. The lowest hop-count and delay.
- D. The highest bandwidth and reliability
- E. The lowest administrative distance.

Answer: B

Explanation: IGRP calculates the metric by adding together weighted values of different characteristics of the link to the network in question.

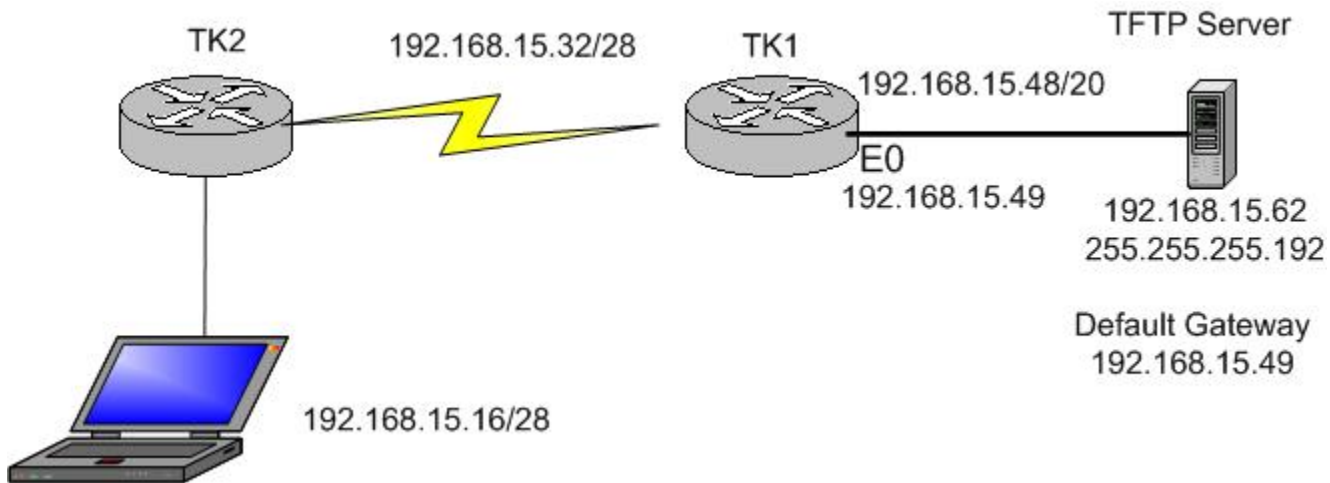
Incorrect Answers:

- A. IGRP select the route with the lowest metric value as the best route.
- C. Hop count is not one of the parts of the IGRP composite metric.
- D. IGRP uses the lowest bandwidth value when selecting a path.
- E. Administrative distance is not part of the IGRP composite metric.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 283 – 284.

QUESTION NO: 66

Exhibit



You are network administrator for the network shown in the exhibit above. Adding the new router, called TK2, the network has been augmented. You would like to backup the IOS image of the new router to the TFTP server. However, the backup procedure fails.

What could be the cause of the problem?

- A. Incorrect default gateway of the tftp server.
- B. Incorrect subnet mask of the tftp server.
- C. Incorrect IP address of the tftp server.
- D. Incorrect IP address on E0 of the TK1 server.
- E. Incorrect subnet mask on the TK2 router.

Answer: B

Explanation: The subnet mask of the tftp server must match the subnet mask of the local ethernet interface of the TK1 router.

Incorrect Answers

A: The default gateway of the TFTP server is the local e0 interface of TK1. This is the correct setting.

C: The IP address of the TFTP server is in the appropriate network range.

D: The IP address of the E0 interface of TK1 is in the appropriate network range.

E: The subnet mask of TK2 seems to be correct. It is the same as the subnet mask of the laptop client PC.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 237 – 239.

QUESTION NO: 67**Exhibit:**

```

Hostname: Central
Ph#473-3000, 473-3001
SPID1:52981734130001
SPID2:52981734130001

```

```

Hostname: Remote
Ph#473-5000, 473-5001
SPID1:92732291340001
SPID2:92732291340002

```



Central Partial Configuration

```

isdn switch-type basic-ni
username Remote password king
interface bri0
    ip address 10.1.1.1 255.255.255.0
    encapsulation ppp
    ppp authentication chap
    isdn spid1 51055512360001
    isdn spid1 51055512360002
    dialer map ip 10.1.1.2 name Remote
    1238001
dialer-list 1 protocol ip permit

```

Your company is using ISDN to connect the Remote office to the Central office. The connection is not working between the two routers. You issue the show running-config command looking at the configuration above. Which additional command must be issued on the Central router before interesting traffic will be sent to the Remote router?

- A. (config-if)# dialer-group 1
- B. (config-if)# dialer-list 1
- C. (config-if)# dialer map 1
- D. (config-if)# dialer-route 1

Answer: A

Explanation:

Once the above commands have been entered to enabled DDR, then the last step required is to bind the traffic destination to an interface by linking the interesting traffic definition already created. This is done with the dialer-group command. In this case the proper command would be (config-if)# dialer-group 1.

Incorrect Answers:

B: The interesting traffic was already identified the first time the dialer-list 1 command was used.

C: The dialer map command is used to identify the router to be dialed. In this case this has already been done.

D: There is no such thing as a dialer route command.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 398-405.

QUESTION NO: 68

What one of the following protocols is an example of a link state routing protocol that uses the TCP/IP protocol stack?

- A. IP
- B. IS-IS
- C. NLSP
- D. OSPF
- E. RIP ver 2

Answer: D

Explanation: OSPF is a link-state protocol that can be used in routing that is part of the TCP/IP protocol stack.

Incorrect Answers:

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- A: IP is a protocol, and a routed protocol, but NOT a routing protocol.
- B: IS-IS is a routing algorithm used by the ISO protocol stack.
- C: NLSP is part of the Novell protocol stack.
- E: RIP (and RIP V2) are distance vector protocols.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 274-276, 215-216, 331, and 278.

QUESTION NO: 69

The default bandwidth of a high-speed serial link is 1.544 or T1. What is the correct command to change the bandwidth of the interface to 64K?

- A. Bandwidth 64
- B. Band width 64
- C. Bandwidth 64000
- D. Band width 64000
- E. Bandwidth 64K

Answer: A

Explanation: The command is **bandwidth** and the parameter should specify the bandwidth in kilobits.

Reference:

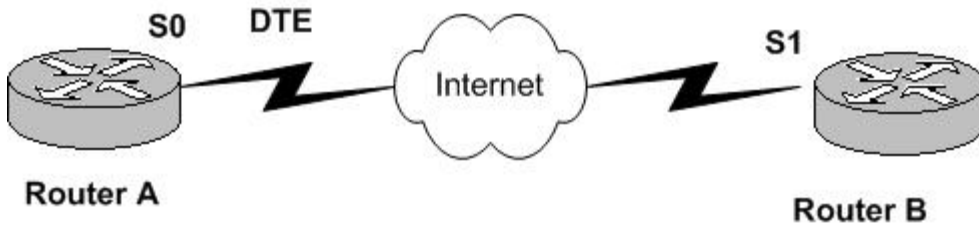
Incorrect Answers

- B, D:** Incorrect command. Bandwidth is one word, not two.
- C:** This would be 64000kbps or 64Mbps.
- E:** Cannot use a parameter **64K**.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 105 and 420.

QUESTION NO: 70

Exhibit:



```
RouterA# show interface s0
Serial 0 is up, line protocol is down
  Hardware is HD64570
  Internet address 10.1.1.1
  Encapsulation HDLC, loopback not set, keepalive set
(10sec)
```

Router A is unable to connect to Router B, which is a Nortel router, through the network cloud. Using the command output shown what must be configured on Router A's interface s0 to change the line protocol from down to up?

- A. No shutdown.
- B. Encapsulation ppp.
- C. Interface serial point-to-point.
- D. Clock rate 56000.

Answer: B

Explanation: To ensure that the line comes up the encapsulation type must be enabled. This is done with the encapsulation ppp command.

Incorrect Answers:

A: The interface is already enabled therefore this command is not required.

C: The serial interface has already been created; this command would not solve the problem.

D: This will only set the clock rate and not bring solve the problem.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 381, 105, 432, and 407.

QUESTION NO: 71

What is one benefit of using a hierarchical addressing framework?

- A. Increase availability of addresses.
- B. Decrease distance between routers.

- C. Increase router memory requirements.
- D. No need to maintain routing information.

Answer: A

Explanation:

By partitioning the address ranges increases the availability of addresses. Instead of having one size fits all, the address ranges are pooled into different sizes to satisfy different needs, and provides a better distribution of addresses.

Incorrect Answers:

B: Hierarchical addressing will not affect the distance between routers.

C: Hierarchical addressing should DECREASE router memory requirements.

D: Routing information is needed because the adjacent networks are not sequential in line with the current network, so a routing table is needed to know how to get to other networks.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 24-26.

QUESTION NO: 72

Frame relay has a feature that prevents PVCs from shutting down from lack of activity.

What is the name of this feature?

- A. DLCI
- B. BECN
- C. FECN
- D. LMI
- E. CIR
- F. De

Answer: D

Explanation: The **keepalive** command enables the keepalive sequence, which is part of the Local Management Interface (LMI) protocol. The keepalives will prevent the PVC from shutting down.

Incorrect Answers:

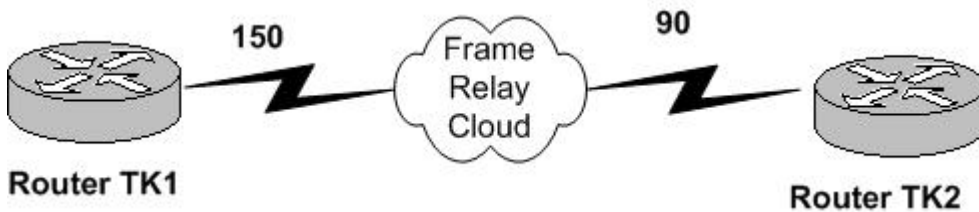
A. The Data Link Connection Identifier (DLCI) is used for identification purposes and not to maintain a connection.

- B. BECN is not a LMI signaling standard. It stands for Backward Explicit Congestion Notification.
- C. FECN is not a LMI signaling standard. It stands for Forward Explicit Congestion Notification.
- D. CIR stands for Committed Information Rate. It does not maintain a connection.
- E. DE will not maintain a connection.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 414 – 418.

QUESTION NO: 73

Exhibit:



Frame Relay switch maps the DLCIs between Router A to Router B to create a PVC. Which statement below correctly identifies the reference point between the local router and the Frame Relay switch to which it is connected?

- A. Locally significant DLCI
- B. Globally significant DLCI
- C. Locally significant LMI
- D. Globally significant LMI

Answer: A

Explanation:

The DLCI (Data-Link Connection Identifier) is a number that identifies the logical circuit between the router and the Frame Relay switch. The Frame Relay switch maps the DLCIs between each pair of routers to create a PVC. DLCIs have local significance in that the identifier references the point between the local router and the Frame Relay switch, which it is connected.

Incorrect Answers:

- B:** As the DLCI are significant to just the two routers involved in the exchange of information it is not proper to refer to globally significant DLCI.
- C:** Locally significant LMI is not the answer. LMIs are responsible for managing the connection between the routers and not the assignment of numbers.
- D:** Globally significant LMI is not the answer. LMIs are responsible for managing the connection between the routers and not the assignment of numbers.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 414-416.

QUESTION NO: 74

Novell Netware allows multiple Layer two frame structures. Cisco supports all of the frame types. Cisco and Novell have assigned different names for the same encapsulation type. Which of the following are correct matches of the Novell term to the equivalent Cisco IOS term for the same framing types? (Choose two)

- A. Ethernet_II-ARPA
- B. Ethernet_802.3-SAP
- C. Ethernet_802.2-LLLC
- D. Ethernet_SNAP-SNAP

Answer: A, D

Explanation:

When you configure an IPX network, you might need to specify a non default encapsulation type either on the Novell servers or on the Cisco router. Cisco and Novell have assigned a different name for the same encapsulation type. It is imperative that the encapsulations are the same for both the Novell equipment and the Cisco devices. Some of the encapsulation type pairings include:

Novell IPX Name	Cisco Name
Ethernet_802.3	novell-ether
Ethernet_802.2	sap
Ethernet_II	ARPA
Ethernet_SNAP	snap

Incorrect Answers:

B: The proper pairing for 802.3 is novell-ether.

C: The proper pairing for 802.2 is sap.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 335-336.

QUESTION NO: 75

Consider Frame Relay multipoint subinterfaces. Which is a valid statement?

- A. An IP address is required on the physical interface of the central router.
- B. All routers are required to be fully meshed.

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- C. All routers must be in the same subnet to forward routing updates and broadcasts.
- D. Multipoint is the default configuration for Frame Relay subinterfaces.

Answer: D

Explanation: Cisco serial interfaces are multipoint interfaces by default unless specified as a point-to-point subinterface.

Incorrect Answers

- A:** An IP address is required for each subinterface. An IP address is not required for the physical interface.
- B:** Routers are not required to be fully meshed.
- C:** Routers do not have to be in the same subnet.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 428 – 429.

QUESTION NO: 76

Encapsulation is the method of passing data down the stack of the OSI model and adding headers and trailers. Which one of the following shows the correct order of Data Encapsulation?

- A. Data, Packet, Segment, Frame.
- B. Segment, Data, Packet, Frame.
- C. Data, Segment, Packet, Frame.
- D. Packet, Data, Segment, frame.

Answer: C.

Explanation: Data encapsulation is a process in which information is wrapped in the data section of another protocol. In the OSI model each layer encapsulates the layer immediately above as the data flows down the protocol stack. The order of encapsulation is

- | | |
|-------------------------------------|---------|
| 1. Application/Presentation/Session | DATA |
| 2. Transport | SEGMENT |
| 3. Network | PACKET |
| 4. Data Link | FRAMES |
| 5. Physical | BITS |

Incorrect Answers:

- A:** With Data, Packet, Segment, Frame; packet and segment are inverted.
- B:** With Segment, Data, Packet, Frame; data and segment are inverted.
- D:** With Packet, Data, Segment, frame; the only information package in the proper order is frame.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 13.

QUESTION NO: 77

The ICMP ping used for troubleshooting a network can be used on a Cisco router in which modes? (Choose two)

- A. User.
- B. Privileged.
- C. Global Configuration.
- D. Interface Configuration.

Answer: A, B

Explanation: The ping command is used to check network and host reachability. The ping command can be used at both the privileged exec mode and the user exec mode.

Incorrect Answers:

C: The global configuration mode can be used to configure global parameters of the device. The ping command cannot be used in this mode.

D: The interface configuration mode is used to configure a specific interface. The ping command cannot be used in this mode.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 99 and 167.
http://www.cisco.com/univercd/cc/td/doc/cisintwk/itg_v1/tr1902.htm

QUESTION NO: 78

The advanced editing features are turn on by default on Cisco routers. To turn off these features you enter the command terminal no editing. With the advanced editing features turned on what is the effect of Ctrl-Z?

- A. Exits back to privileged exec mode.
- B. Disconnects from the router.
- C. Aborts the ping operation.
- D. Exits privileged exec mode.

Answer: A

Explanation: Ctrl-Z exits back to privileged exec mode (enable mode).

Incorrect Answers:

- B.** To end a terminal connection you will need to use the logo command to log off of a router.
- C.** Ctrl Z will not disable the ping command. An Access List could be used to prevent ping from functioning.
- D.** You would need to enter Ctrl Z one more time to exit the privileged exec mode.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 89 – 97.

QUESTION NO: 79

A soft drink company has made the decision to provide 3 branches with network connectivity. There is a LAN in each branch. The Vanilla and Chocolate routers are fully configured. The Plain router is almost fully configured. However, it does not have the routing protocol configured. Configure the routing protocol and publish all networks on the Plain router.

The configurations of the routers are as follows:

- **The routers are named Vanilla, Chocolate, and Plain.**
- **RIP is the routing protocol used.**
- **The clocking is provided on the serial 0 interface.**
- **The password on the Plain router is “TestKing”**
- **The default subnet mask is used on all interfaces**
- **The IP addresses are listed below.**

Vanilla

E0 192.168.149.1

S0 192.168.199.1

Chocolate

E0 192.168.55.1

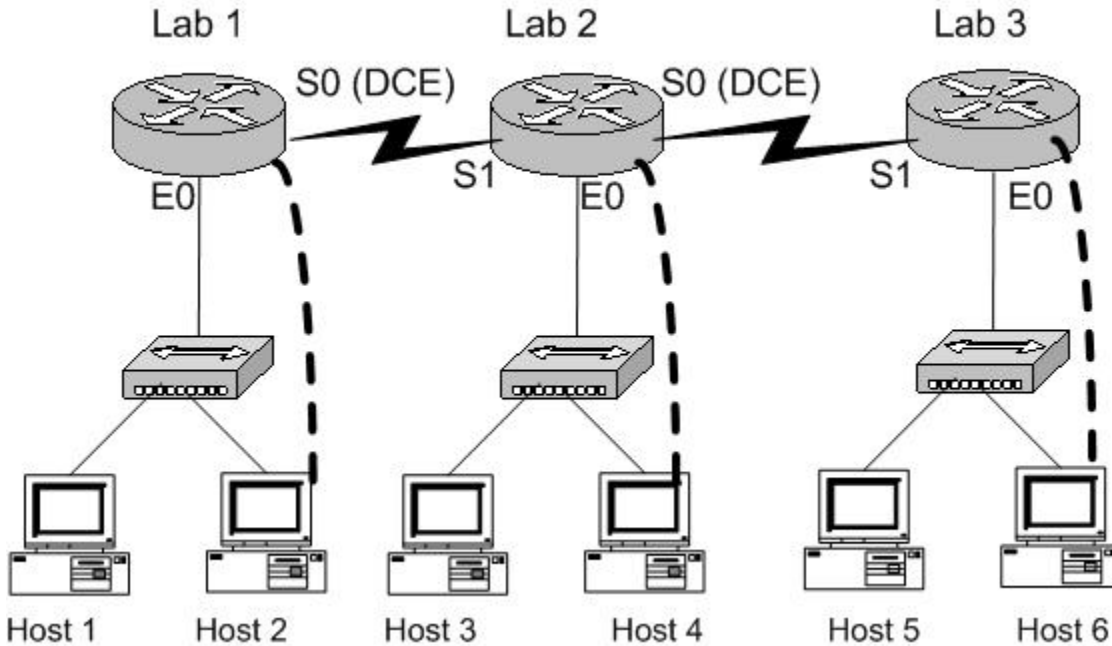
S0 192.168.101.1

S0 192.168.199.1

Plain

E0 192.168.65.1

S0 192.168.101.1

**Lab 1****Name: Vanilla****E0 192.168.149.1****S0 192.168.199.1****Lab 2****Name: Chocolate****E0 192.168.55.1****S0 192.168.101.1****S1 192.168.199.1****Lab3****Name: Plain****E0 192.168.65.1****S1 192.168.101.2****Secret Password: TestKing****Answer Lab 3:****enable****config terminal****hostname Plain**

```

enable secret TestKing
interface ethernet 0
ip address 192.168.65.1 255.255.255.0
no shutdown
exit
interface serial1
ip address 192.168.101.2 255.255.255.0
no shutdown
exit
router rip
network 192.168.65.0
network 192.168.101.0
network 192.168.55.0
network 192.168.149.0
network 192.168.199.0
^z
copy running-config startup-config

```

Explanation:

< Click on the Lab 3 router >

Router Con0 is now available

Press RETURN to get started.

! Press enter.

```

Router>enable                ! Enter enable mode
Router#config terminal       ! Enter terminal configuration mode.
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname Plain ! Change hostname
Plain(config)#enable secret TestKing ! Enable secret password
Plain(config)#interface ethernet 0 ! Enter interface configuration mode.
Plain(config-if)#ip address 192.168.65.1 255.255.255.0 ! Configure the IP address of the interface.
! Note that we use a class C subnet mask.
Plain(config-if)#no shutdown ! Start the interface
%LINEPROTO-5-UPDOWN: Line protocol on Interface Ethernet0, changed state to up
%LINK-3-UPDOWN: Interface Ethernet0, changed state to up

Plain(config-if)#exit       ! Exit configuration of Ethernet 0 interface
Plain(config)#interface serial1 ! Configure serial1 (no space in serial1)
Plain(config-if)#ip address 192.168.101.2 255.255.255.0 ! Configure the IP address of the interface.

```

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```

Plain(config-if)#no shutdown                ! Start the interface
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1, changed state to up
%LINK-3-UPDOWN: Interface Serial1, changed state to up

Plain(config-if)#exit                      ! Exit interface configuration.
Plain(config)#router rip                   ! Enable RIP. Enter router configuration mode.
Plain(config-router)#network 192.168.65.0 ! Enable RIP on interface Ethernet 0
Plain(config-router)#network 192.168.101.0 ! Enable RIP on interface Serial1
                                           ! We have now added the two local networks. That should
                                           ! be enough, but we are specifically been required to publish
                                           ! all networks. We add the three remote networks as well.
Plain(config-router)#network 192.168.55.0 ! The three external networks are added as well.
Plain(config-router)#network 192.168.149.0
Plain(config-router)#network 192.168.199.0
Plain(config-router)#^Z                   ! Exit configuration mode.
%SYS-5-CONFIG_I: Configured from console by console
Plain#copy running-config startup-config   ! Save running configuration to NVRAM
Destination filename [startup-config]?     ! Accept defaults and save it.
Warning: Attempting to overwrite an NVRAM configuration
previously written by a different version of the system image.
Overwrite the previous NVRAM configuration?[confirm]
Building configuration...

[OK]
Plain#

```

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 277 – 279 and 133.

QUESTION NO: 80

Exhibit:

```

TestKing# show ipx interface e0
Ethernet0 is up, line protocol is up
  IPX address is 6F2C.0000.0c5d.b36e, NOVELL_ETHER [up] line-up, RIPPQ:0,
  SAPPQ: 0
  Delay of this IPX network, in ticks is 1 throughput 0 link delay 0
  IPXWAN processing not enabled on this interface.
  IPX SAP update interval is 1 minute(s)
  IPX type 20 propagation packet forwarding is disabled
  Incoming access list is not set
  Outgoing access list is not set
  IPX helper access list is not set
  SAP GNS processing enabled, delay 0 ms, output filter list is not set
  SAP Input filter list is not set
  SAP Output filter list is not set
  SAP Router filter list is not set

```



```

Input filter list is not set
Output filter list is not set
Router filter list is not set
Netbios Input host access list is not set
Netbios Input bytes access list is not set
Netbios Output host access list is not set
Netbios Outpus bytes access list is not set
Updates each 60 seconds, aging multiple RIP: 3 SAP: 3
SAP interpacket delay is 55 ms, maximum size is 480 bytes
RIP interpacket delay is 55 ms, maximum size is 432 bytes
IPX accounting is disabled
IPX fast switching is configured (enabled)
RIP packets received 0, RIP packets sent 1
SAP packets received 0, SAP packets sent 1

```

Novell IPX addressing uses a two-part address that consists of 32 bits for the network number and 48 bits for the node number. What is the node number/layer 2 address as shown in the output of the show ipx interface e0 command?

- A. 6F2C
- B. 0000.0c
- C. 5d.b35e
- D. 0c5d.b363
- E. 0000.0c5d.b363
- F. 6F2C.0000.0c5d.b363

Answer: E

Explanation:

An IPX address is composed of two parts: the network number and the node number. For IPX the node number is usually obtain from MAC address of the network interface. In this case the network number is 6F2C and the node number/MAC address is 0000.0c5d.b363

Incorrect Answers:

- A:** 6F2C is the network number, which is a layer 3 address.
- B:** This only part of the MAC address thus incorrect.
- C:** This only part of the MAC address thus incorrect.
- D:** This only part of the MAC address thus incorrect.
- F:** This is the IPX address. As stated previously this address is part layer 3 and part layer 2.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 332 and 345-6.

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QUESTION NO: 81

Using the following address and subnet mask 195.106.14.0/24 what is the total number of networks and the total number of host per network?

- A. 1 network with 254 hosts.
- B. 2 networks with 128 hosts.
- C. 4 networks with 64 hosts.
- D. 6 networks with 30 hosts.

Answer: A

Explanation: As the last octet is for host addresses, the maximum number networks is 1 to determine the number of host use the formula $(2^8) - 2$. That is $256-2=254$.

Incorrect Answers:

B and C: These combinations of networks and hosts are not possible.

D: This would require a subnet mask of 255.255.255.224.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 236.

Wendell Odom. Cisco CCNA Exam #640-507 Certification Guide. (Cisco Press: 2000) page 238.

QUESTION NO: 82

Which wide area network technology was designed to work with traditional POTS lines and provide SOHO's and users with a higher speed digital dial-up service?

- A. Frame relay
- B. X.25
- C. ATM
- D. ISDN

Answer: D

Explanation: Compared to analog modems, ISDN provides a digital service with faster connection times and somewhat higher speeds.

Note: POTS= plain old telephone system. SOHO= small office/home office networks

Incorrect Answers:

- A. Frame relay is used to handle multiple virtual circuits.
- B. X.25 defines how the connections between DTE and DCE are maintained.
- C. ATM was designed to take advantage of the speeds offer by media such as E3 and T3.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 387 – 389 and 373.

QUESTION NO: 83

One of the best ways to understand how to build a network is to understand the method in which traffic is passed across the network. One of the reasons the OSI model was created to help you understand how a network operates. Which three devices operate at all seven layers of the OSI model? (Choose three.)

- A. Network host
- B. Network management station
- C. Transceiver
- D. Bridge
- E. Web server
- F. Switch

Answer: A, B, E

Explanation: The three devices that operate at all seven layers of the OSI model are network hosts, network management station and web server. This is how these devices are able to perform their functions.

Incorrect Answers:

- C:** A transceiver is not used in a network environment.
- D:** A bridge is a Layer 2 device.
- F:** A switch is a Layer 2 device.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 21-22.

QUESTION NO: 84

Which of the following are functions that occur at the transport layer of the OSI model? (Choose three)

- A. Route selection-IP
- B. Sliding window-UDP
- C. Well known ports-IP
- D. Route validation-ICMP
- E. Connection oriented-TCP/IP
- F. Three way handshake TCP/IP
- G. No acknowledgement-UDP

Answer: E, F, G

Explanation: The key to answering this question is the difference between connection and connectionless protocols. TCP is a connection orientated protocol that us a three-way handshake to establish a connection. UDP is a connectionless protocol that does not guarantee delivery therefore there is no acknowledgements.

Incorrect Answers:

- A:** Route selection and IP are network layer, not transport layer functions.
- B:** Sliding windows is used in connection oriented, and UDP is connectionless.
- C:** Well-known ports are functions of UDP & TCP.
- D:** ICMP, which is used for the ping command, does not validate routes.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 28-30.

QUESTION NO: 85

Which wide are network technology was designed to use high-performance digital lines and is packet switched?

- A. FDDI
- B. ISDN
- C. ATM
- D. Frame Relay

Answer: D

Explanation: Frame Relay is a packet switching technology that uses digital lines.

Incorrect Answers

- A:** FDDI is a topology.
- B:** ISDN is not a packet switched service.
- C:** ATM is a broadband technology.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 373 – 374.

QUESTION NO: 86

IP addresses use hierarchical numbering. What portion of the address that will identify the network number?

- A. Subnet Mask.
- B. Dots between octets.
- C. Class of first octet.
- D. Assignments of DHCP.
- E. Address Resolution Protocol.

Answer: C.

Explanation:

In general, IP addresses contain two fields: one for the network and another for host. Class A address have a range of 1 to 126 and the network portion of the IP address is restricted to the first eight bits (octet). Class B address have a range of 128 –191.255.0.0 and the network portion of the IP address is contain in the first 2 octets. Class C IP addresses has a range of 192.223.255.255.0 and the network portion of the IP addresses is the first three octets of the IP address. Class D addresses include the range of 224.0.0.0 to 239.255.255.255 and are used for multicast address. Class E addresses have a range of 240.0.0.0 to 247.255.255.255 and are reserved for experimental purposes.

Incorrect Answers:

- A:** Although the subnet mask is used network devices to determine what part of the IP use address for the network, the subnet and the host address but it is not part of the IP address hierarchy.
- B:** The dots are used for making the IP address readable by humans, but have no determination of the network number.
- D:** DHCP (Dynamic Host Configuration Protocol) provides a mechanism for allocating IP addresses dynamically so that addresses can be reused when hosts no longer need them.
- E:** Address Resolution Protocol (ARP) determines the data link layer address of the destination devices for known destination IP addresses network number.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 215-227.

QUESTION NO: 87

Looking at this address 255.255.255.255 which one of the following is true?

- A. IP, a flooded broadcast.
- B. IP, a directed broadcast.
- C. IPX, a flooded broadcast.
- D. IPX, a remote directed broadcast.

Answer: A

Explanation: Flooded broadcast (255.255.255.255) are not propagate and are considered local and are sent to every host on the network.

Incorrect Answers:

B: The IP identified is not directed broadcast. Direct broadcast use the IP of the network
C and D: 255.255.255.255 is an IP address, not an IPX address.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 231-233.

QUESTION NO: 88

Using a protocol analyzer you determine your LAN traffic is experiencing congestion. What could be some possible causes for a congested network? (Choose four.)

- A. Too many hosts in a broadcast domain.
- B. Full Duplex operation.
- C. Broadcast storms.
- D. Multicasting.
- E. Segmentation.
- F. Low bandwidth.

Answer: A, C, D, F

Explanation:

A: Too many hosts in a broadcast domain would cause many collisions and congestion.

C: Broadcast storms would have a negative impact on available bandwidth.

D: Multicasting targets multiple destinations and requires a lot of bandwidth.

F: Low available bandwidth would of course result in a congested network faster than a network with higher bandwidth.

Incorrect Answers

B: Full duplex operation would decrease congestion.

E: Segmentation decreases the collisions domains, the network traffic, and the congestion.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 150 –152 and 16 – 23.

QUESTION NO: 89

RouterA is directly connected to RouterB. On RouterA you shutdown the interface that is going to RouterB (you put it administratively down). If you issue the command `show interface` on RouterB what output status would you see on the interface that is connected to RouterA?

- A. Interface is down, line protocol is down.
- B. Interface is down, line protocol is up.
- C. Interface is up, line protocol is down.
- D. Interface is up, line protocol is up.

Answer: A

Explanation: The line protocol would be down, and the interface would be down. The first part of the result will indicate whether the interface hardware is active or not. As you put the interface administratively down the interface will be down. The line protocol result indicates whether the process believes that interface is usable or not. If three keepalives are missed protocol will be marked as down.

Incorrect Answers:

- B.** It can be assumed that the three keepalives have been missed and thus the line protocol would be done.
- C and D.** You put the interface administratively down as a result the interface would be down.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 106 – 109.

QUESTION NO: 90

Which layer of the OSI model handles data translation, code formatting, and encryption occur?

- A. Physical
- B. Data link
- C. Network
- D. Transport

- E. Session
- F. Presentation

Answer: F

Explanation:

The presentation layer provides a variety of coding and conversion functions that are applied to application level data. These functions ensure that the data sent from the application layer of one system can be read the application layer of another system.

Incorrect Answers:

- A:** The physical layer is what puts the actual data onto the wire.
- B:** The data link layer is involved in converting bits into bytes, converting bytes into frames and with error detection.
- C:** The network layer provides logical addressing so that routers can perform route determination.
- D:** The transport layer provides delivery of the data and error correction prior to retransmit.
- E:** The session layer is responsible for establishing, managing, and terminating communications sessions between presentation layer entities.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 11-12.

QUESTION NO: 91

Using a class C address you need five subnets with a maximum of 17 hosts on each of these subnets. Which subnet mask would you use?

- A. 255.255.255.192
- B. 255.255.255.224
- C. 255.255.255.240
- D. 255.255.255.248

Answer: B

Explanation: 255.255.255.224 will support the configuration.

For 5 networks, we need a minimum of 3 bits. We get this in the following way: Add two to the requirement, then round up to the next power of 2. So, we get $5+2=7$, next highest is 8, because 2 to the 3rd power is 8. Thus 3 bits.

For 17 hosts, we do the same thing, we get $17+2=19$, next highest is 32, which is 5 bits, 2 to the 5th power is 32.

Now 3 bits network and 5 bits host make an octet. For a subnet mask, 3 bits are $128+64+32 = 224$.

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Incorrect Answers:

A: This supports too many hosts and not enough networks

C and D: They support too few hosts and too many networks.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 230-236.

QUESTION NO: 92

What is the protocol and what is the second part of the following network address? (Choose all that apply.)

10.0.0.254 mask 255.0.0.0

- A. IPX MAX address.
- B. IP Class C director broadcast.
- C. Private IP address node number.
- D. Public IP address directed broadcast.
- E. Private IP address directed broadcast.

Answer: C

Explanation: The Internet Assigned Numbers Authority (IANA) has reserved the following three blocks of the IP address space for private Internets:

10.0.0.0 - 10.255.255.255 (10/8 prefix)
172.16.0.0 - 172.31.255.255 (172.16/12 prefix)
192.168.0.0 - 192.168.255.255 (192.168/16 prefix)

Remember all three ranges!

Reference: RFC 1918, Address Allocation for Private Internets

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 194.

QUESTION NO: 93

There are five different types of IP address classes. What IP address class is used for multicasting?

- A. A
- B. B
- C. C
- D. D
- E. E

Answer: D

Explanation: Multicasting is possible due to Class D IP addresses. Class D address range is 224.0.0.0 to 238.255.255.255.

Incorrect Answers:

- A. Class A addresses are not used for multicasting.
- B. Class B addresses are not used for multicasting.
- C. Class C addresses are not used for multicasting.
- E. Class E addresses are for research purposes.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 223 – 224.

QUESTION NO: 94

Which layer of the OSI model uses packets as the PDU (Protocol Data Unit)?

- A. Data link
- B. Session
- C. Presentation
- D. Network
- E. Transport

Answer: D

Explanation:

The packet is the encapsulation type of the Network layer.

Incorrect Answers:

- A: The data unit of the data link layer is the frame.

- B:** The session layer is not involved in the data encapsulation process.
- C:** The presentation layer ensures that the receiving system can read the data and is not involved in encapsulation.
- E:** The transport layer data unit is the segment.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 11-13.

QUESTION NO: 95

Cisco supports IPX traffic using different encapsulation types can go over the same interface.

- A. TRUE
- B. FALSE

Answer: A

Explanation:

Multiple encapsulations can be specified on an interface, but only if multiple network numbers have also been assigned, where each network number belongs to only one encapsulation type and each encapsulation type has only one network number. Although several encapsulation types can share the same interface, clients and servers with different encapsulation types cannot communicate directly with each other.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 335.

QUESTION NO: 96

What must you do to test connectivity on a dial on demand routing (DDR) link?

- A. Increase the idle timer parameter.
- B. Send interesting traffic across the link.
- C. Switch
- D. Repeater

Answer: B

Explanation: To test DDR connectivity you will need to send interesting traffic across the link.

Incorrect Answers:

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- A. This will not have the desired result.
C and D. These devices will not allow you to test connectivity.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 400 – 406.

QUESTION NO: 97

Your company is considering purchasing a new accounting software application from ABC accounting company. The ABC accounting company has decided to come in and let you install a demo copy of their software so that you can test it in your network with a few hosts. The server and the hosts that will connect to this server will need a 10Mbps connection. Your company is currently using a hub. Your company has decided to use this new accounting software application. However when you ran your packet analyzer you noticed the rest of the hosts on your network that are not using this application have a bandwidth problem with the new accounting system installed. Since your company has decided to use this new application they would like you to resolve the bandwidth problem. What is the most economical decision would you implement for resolving this problem?

- A. Install new 100 Mbps switches, and change all hosts' NIC to 100 Mbps.
- B. Segment network with router, and place all testing hosts and the new server into a separate subnet (network).
- C. Add a Bridge and separate the two networks.

Answer: B

Explanation: A router helps in creating more broadcast domains and decreasing the scope of each broadcast domain. This will improve network utilization.

Incorrect Answers

- A:** A switch would increase the number of collision domains and decrease the scope of each collision domain. However, the broadcast domain would still be the same.
C: This would only give two collision domains. A switch would provide more collision domains.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 16 – 17.

QUESTION NO: 98

What are the benefits of replacing a hub with a bridge and segmenting the network?

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- A. It increases the number of collision domains.
- B. It decreases the number of collision domains.
- C. It increases the number of broadcast domains.
- D. It decreases the number of broadcast domains.

Answer: A.

Explanation:

Bridge networks have the following characteristics: each segment has its own collision domain, all connected devices are part of the same broadcast domain, and all segments must have the same data link layer implementation.

Incorrect Answers:

B: When a network is segmented by a bridge the collisions domains increase and not decrease.

C and D: The addition of a bridge to a network has no effect on the number of domains.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 23-4.

QUESTION NO: 99

To govern the flow of data between two devices, TCP uses a flow control mechanism. Which one of the following is true about this mechanism?

- A. TCP makes no effort to check for lost or duplicate data packets.
- B. The application layer must sequence data packets when using TCP.
- C. TCP controls the flow of UDP data through negative acknowledgements NAK.
- D. TCP is a connection-oriented protocol that acknowledges receipt of data packets and is considered reliable.

Answer: D

Explanation: Connection oriented protocols are reliable as the usually acknowledge the receipt of data packets. TCP is connection oriented.

Incorrect Answers:

A: TCP is connection oriented and guarantees packet delivery and order.

B: TCP is connection oriented, and guarantees packet ordering

C: TCP does not mix with UDP, a different transport protocol.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 29 and 207.

QUESTION NO: 100

Your company has decided to use IGRP instead of RIP as the routing protocol. They want to use autonomous system number 130. Which is the correct command for this installation?

- A. Router(config)# igrp 130
- B. Router(config)# network 130
- C. Router(config)# router igrp 130
- D. Router(config)# enable igrp 130

Answer: C

Explanation: To enable IGRP as a routing process one uses the router igrp command. This command must include the AS number within it. Thus the command to set IGRP for AS 130 is:

```
router igrp 130
```

Incorrect Answers:

A: Igrp 100 is not a valid command.

B: The network command is used to identify what network the AS is directly connected to. In this case (network 100) the command is wrong as it contains the AS number and not the network number.

D: The enable command is used for entering privilege mode. Further the enable command does not use the AS number.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 285-286 and 69.

QUESTION NO: 101**Exhibit:**

```
TestKing1#show interface serial 0/0
Serial0/0 is down, line protocol is down
  Hardware is HD64570
  Internet address is 172.22.5.1/30
  MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec, rely 255/255, load 1/255
  Encapsulation HDLC, loopback not set, keepalive set (10 sec)
  Last input never, output 00:03:11, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0 (size/max(drops)): Total output drops: 0
  Queuing strategy: weighted fair
  Output queue: 0/1000/64/0 (size/max active/threshold/drops)
    Conversations 0/2/256 (active/max active/max total)
    Reserved Conversations 0/0 (allocated/max allocated)
```

```

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
11 packets output, 476 bytes, 0 underruns
 0 output errors, 0 collisions, 27 interface resets
 0 output buffer failures, 0 output buffers swapped out
11 carrier transitions
DCD=down   DSR=down   DTR=down   RTS=down   CTS=down

```

TestKing1 cannot establish a connection to TestKing2 using the show interface serial 0/0 command on TestKing1 command which layer of the OSI model is most likely the problem?

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

Answer: A

Explanation:

The key to answering this question is “Serial0/0 is down”. This indicates that the actual serial interface is down. Thus there is a problem with the physical layer.

Incorrect Answers:

B: The exhibit does not indicate a problem with the data link layer.

C: The exhibit does not indicate a problem with the network layer.

D: If the output just indicated that “line protocol is down” then there would be a problem with the line protocol. If this were the only problem then there would’ve been a problem with the transport layer.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 107-110.

QUESTION NO: 102

All TCP/IP hosts implement the ICMP protocol?

- A. TRUE
- B. FALSE

Answer: A

Explanation: This is a requirement because ICMP has other uses besides ping, for example destination unreachable or when ICMP is sent to provide better routing information.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 217-218.

QUESTION NO: 103

Aaron is troubleshooting a problem on his network he issues the command ping 10.0.0.2 to test the physical connectivity between two devices? Which type of ICMP messages was carried in the IP datagrams?

- A. ICMP echo request.
- B. Information request.
- C. Timestamp reply.
- D. Redirect.
- E. Source quench.

Answer: A

Explanation: The PING utility uses ICMP echo requests.

Incorrect Answers:

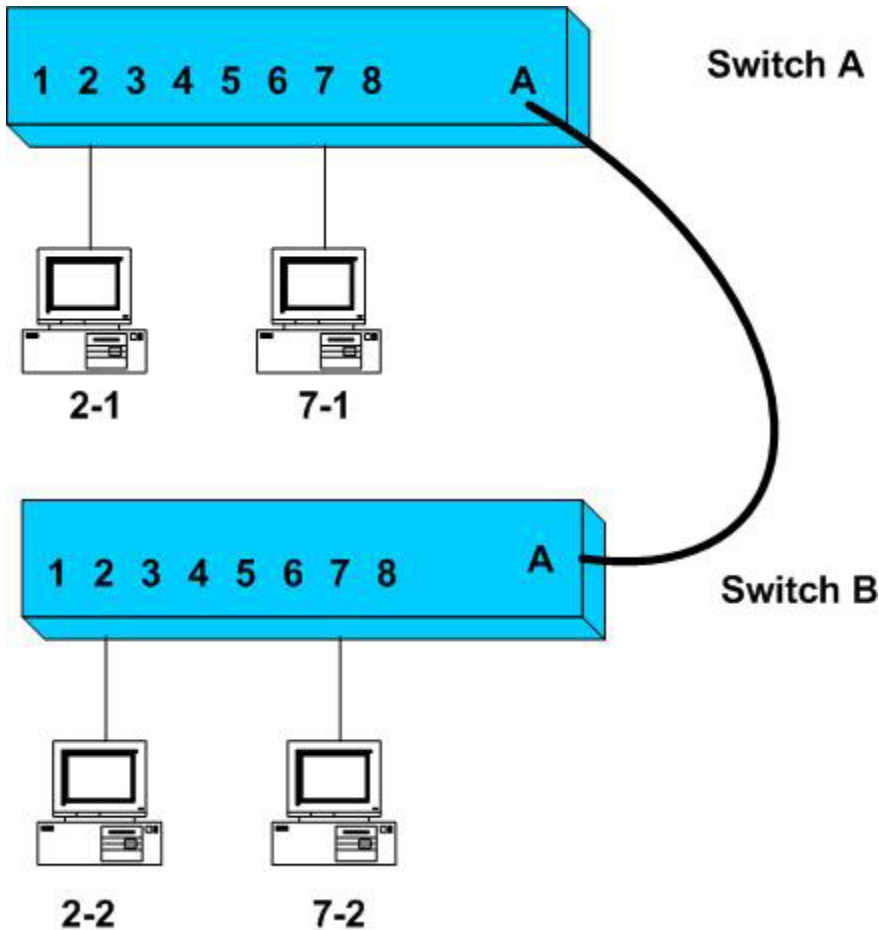
B, C, D. These are all types of ICMP defined messages.

E. Source quench is not an ICMP defined message.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 217 – 218.

QUESTION NO: 104

Exhibit:



Looking at the diagram above ports 1 through 4 are assigned to VLAN1 and ports 5 through 8 are assigned to VLAN3 on each switch. The switches are interconnected over an ISL trunk link. Which of the following actions would test proper VLAN and trunk operation? (Choose three.)

- A. Host 2-1 can ping Host 2-2
- B. Host 2-1 can ping Host 7-2
- C. Host 2-1 can not ping Host 2-2
- D. Host 7-1 can not ping Host 2-2
- E. Host 7-1 can ping Host 7-2

Answer: A, D, E.

Explanation:

A: Host 2-1 and Host 2-2 are both in VLAN1 and a ping should be successful.

D: Host 7-1 is in VLAN3 while Host 2-2 is in VLAN1. A ping between those hosts should fail.

E: Host 7-1 and Host 7-2 are both in VLAN1 and a ping should be successful.

Incorrect Answers

B: Host 2-1 and Host 7-2 are in different VLANs and a ping should fail.

C: Host 2-1 and Host 2-2 are both in VLAN1 and a ping should be successful.

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 184 – 198 and 124.

QUESTION NO: 105

Christopher issues a show cdp neighbor command from RouterA. RouterA has connections to RouterB and RouterC through the serial s0 and s1. Which three pieces of CDP information about neighboring routers are displayed on your console terminal? (Choose three)

- A. The neighboring router's host name.
- B. The neighboring router's hardware platform.
- C. Up to one address for each protocol supported.
- D. Up to two addresses for each protocol supported.
- E. As many addresses as are configured for each protocol supported.

Answer: A, B, C

Explanation:

When issuing a show cdp entry command, the following information is provided:

- 1) Neighbor device ID
- 2) Layer 3 protocol information (ie IP address)
- 3) Local interface and Port identifiers of the neighbors remote ports
- 4) The hold time in seconds
- 5) Devices capabilities
- 6) Device Platform
- 7) IOS type and version.

Incorrect Answers:

D and E: You only display ONE address.

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 116-119.

QUESTION NO: 106

How do you change the Console password on the Sonic router to "cisco"?

- A. Sonic(config)#line con 0
Sonic(config-line)#login
Sonic(config-line)#password cisco
- B. Sonic(config)#line con 0
Sonic(config-line)#login
Sonic(config-line)# password Cisco

Answer: A

Explanation: Passwords are case sensitive.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 102 – 103.

QUESTION NO: 107

You have just entered the command:

Superhero(config-line)#logging sync

Cisco IOS allows which keystroke(s) to complete the syntax of a partially entered command.

Which keystroke(s) did you use to complete the above command above to the completed command below?

Superhero(config-line)#logging synchronous

- A. Ctrl+shift+6 then x.
- B. Ctrl+Z
- C. TAB
- D. /?
- E. Shift

Answer: C

Explanation: The TAB key completes a command if the command is not ambiguous.

Incorrect Answers:

- A. This is not a CLI editing key sequence.
- B. This will exit you out of the mode you are currently in.
- D and E. These are not a CLI editing key sequence.

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 96 – 97.

QUESTION NO: 108

Which of the following statements about layer 2 bridges and switches are true? (Choose three.)

- A. Switches are primarily software based while bridges are hardware based.
- B. Both bridges and switches forward Layer 2 broadcasts.
- C. Bridges are frequently faster than switches.
- D. Switches have a higher number of ports than most bridges.
- E. Bridges define broadcast domains while switches define collision domains.
- F. Both bridges and switches make forwarding decisions based on Layer 2 addresses.

Answer: B, D, F

Explanation: Switches and bridges are both Data Link layer devices and make their forwarding decision based on Layer 2 addresses. As a result they have a number of similar attributes. Switched have a higher port density.

Incorrect Answers:

- A: Switches are hardware based.
- C: Switches are most often faster than bridges.
- E: Both define broadcast domains.

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 21-22.

QUESTION NO: 109

Julia telnets to a pc on a remote subnet, which MAC address will be present in the ARP table when you issue the show arp command?

- A. MAC address of the destination host Ethernet port.
- B. MAC address of the local router Ethernet port.
- C. MAC address of the destination router Serial port.
- D. MAC address of the local router Serial Port.

Answer: A

Explanation: As you are telnetting into the host the show arp command will display the MAC address of that host.

Incorrect Answers

B, C, and D: As you used telnet to connect to the remote host you will be provided with the information of that host.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 216 – 219.

QUESTION NO: 110

RouterA has two redundant paths serial links to RouterB. RouterA and RouterB are only using the IPX protocol. You have noticed that RouterA is not using both paths to get to RouterB. Which command can you enter to enable load balancing across those serial links?

- A. ipx load-balance.
- B. ip maximum-paths 2.
- C. ipx maximum-paths 2.
- D. ipx load-share.

Answer: C

Explanation: To set the maximum number of equal-cost paths the Cisco IOS software uses when forwarding packets, use the **ipx maximum-paths** command.

Incorrect Answers:

- A.** The ipx load-balance is not a valid command.
- B.** The ip maximum-paths 2 is not a valid load balancing command for ip.
- D.** The ipx load-share is not a valid command.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 340 – 341.

QUESTION NO: 111

The ABC Company has hired you as a consultant to add a new VLAN named SALES to there existing switched network. Which of the following are true regarding configuration of this VLAN? (Choose three.)

- A. The VLAN must be created.
- B. The VLAN must be named.
- C. An IP address must be configured for the SALES VLAN.
- D. The desired ports must be added to the new VLAN:
- E. The VLAN must be added to the STP domain.

Answer: A, B, D

Explanation: To add a VLAN there are a number of things that must be done. First it must be created, then named and assigned ports.

Incorrect Answers:

C: IP addresses do not need to be configured for VLANs.

D: The VLAN does not need to be added to the STP domain.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 195-199.

QUESTION NO: 112

To distinguish between each PVC what does the Frame Relay switch use?

- A. Data link connection identifier (DLCIs)
- B. CNs
- C. FECNs
- D. Local management interface LMI

Answer: A

Explanation:

The DLCI (Data-Link Connection Identifier) is a number that identifies the logical circuit between the router and the Frame Relay switch. The Frame Relay switch maps the DLCIs between each pair of routers to create a PVC. DLCIs have local significance in that the identifier references the point between the local router and the Frame Relay switch, which it is connected.

Incorrect Answers:

B: CN does not exist.

C: A Forward Explicit Congestion Notification (FECN) is a notification of congestion problems occurs.

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D: LMI is a signaling standard between the router device and the Frame Relay switch, and is not an addressing method.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 414-416.

QUESTION NO: 113

Which one of the layers of the seven layer OSI model uses positive acknowledgement and retransmission to ensure reliable delivery?

- A. Application
- B. Presentation
- C. Session
- D. Transport
- E. Data link
- F. Physical

Answer: D

Explanation: The transport layer implements connection-oriented communication by using positive acknowledgement and retransmission. This ensures reliable delivery, at the cost of some overhead.

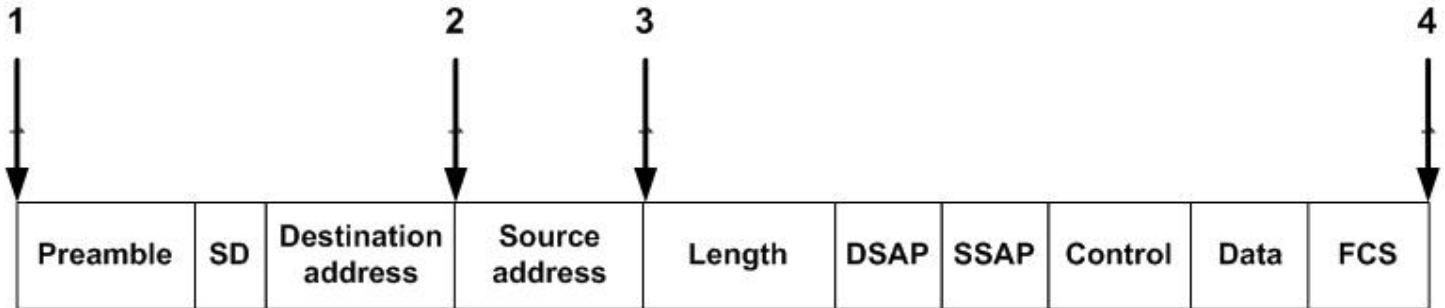
Incorrect Answers:

- A.** The application layer is how users and applications access protocols and does not deal with the receipting and resending of data.
- B.** The presentation layer deal with several things, such as how things are presented and encrypted, but not with the transmission of data.
- C.** The session layer ensures that data from different applications are kept separate and with the controlling the communication process.
- E.** The data link layer detects errors but not the transmission of data.
- F.** The physical layer moves the bits between the devices and is not concerned with the process.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 10 – 11.

QUESTION NO: 114

Exhibit:



Catalyst Switches have three primary operating modes that are used to handle frame switching Cut-through, Store-and-forward and Fragment-free looking at the frame shown in the diagram which point is the store-and-forward switching decision made?

- A. 1
- B. 2
- C. 3
- D. 4

Answer: D

Explanation: When store-and-forward is employed the complete frame must be first received.

Incorrect Answers:

- A:** In a switched environment the frame will not be immediately sent.
- B:** This is the point at which the cut-through mode will start sending a frame.
- C:** This is the point at which the fragment-free mode will start sending a frame.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 162-163.

QUESTION NO: 115

Ron is an employee that is able to work from home to provide technical support for the company during the evening hours. Part of Ron's responsibility is to make sure the company's SQL database is working at all times for the companies customers. Ron runs big client-server applications and also transfers large files. These changes must happen quickly. The company is concerned about cost for these connections and also would like a practical solution. What connection would you suggest for this organization?

- A. An ISDN basic rate interface (BRI) connection to the user's home.
- B. A dedicated T1 connection to the user's home.

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- C. A dedicated Frame Relay connection to the user's home.
- D. A standard 28.8 analogue dial up connection to the users home

Answer: A

Explanation: This will provide up to two channels of 64K each, or a 128K multichannel. It is faster than conventional modems, but cost effective.

Incorrect Answers:

B: T1 will be way too expensive.

C: Frame Relay is also expensive in software and hardware, as well as circuit availability in the user's home area. (Although not all areas have ISDN either, ISDN is more common)

D: A modem will be cheap enough, but can NOT handle large data transfers, it will be too slow.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 43-45.

QUESTION NO: 116

The Presentation layer of the OSI model has a variety of coding and conversation functions that are applied to the application layer data. Which of the following are examples of this coding? (Choose three)

- A. Rich Text Format (RTF)
- B. Quick Time movie
- C. FTP
- D. TFTP
- E. SMTP
- F. MIDI

Answer: A, B, F

Explanation:

A: RTF is presentation layer text format that can handle pictures.

B: QuickTime is a presentation layer video and audio format.

F: MIDI is a presentation layer sound format.

Incorrect Answers:

C. FTP is an application layer protocol. This protocol deals with transferring of files.

D. TFTP is a simpler version of FTP and resides at the application layer.

E. SMTP is an application layer protocol. This protocol deals with the sending of emails.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 11.

http://www.cisco.com/univercd/cc/td/doc/cisintwk/ito_doc/introint.htm#xtocid17

QUESTION NO: 117

What are benefits of bridging (Choose two.)

- A. To reduce broadcasts within collisions domains.
- B. To reduce collisions within broadcasts domain.
- C. To increase the number of broadcasts domains.
- D. To increase the broadcasts within collisions domains.
- E. To increase the number of collision domains.
- F. To increase the efficiency of routing.

Answer: B, E

Explanation:

B: Bridging reduces the scope of the collision domains. The collision domains are contained within the broadcast domains.

E: Bridging increases the number of collision domains.

Incorrect Answers:

A. As all devices connected to the same bridge are in the same broadcast domain, all broadcasts are forward to all collisions domains. Therefore broadcasts are not reduced.

C. Bridges do not affect the number of broadcast domains.

D. Bridges neither increase nor decrease the broadcasts within a collision domain.

F. Bridges do not necessarily increase the efficiency of routing.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 22 – 24 and 30 – 31.

QUESTION NO: 118

To successfully troubleshoot LAN/WAN connectivity problems on a router which of the following commands could you use? (Choose three.)

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

Answer: A, D, F

Explanation: There are a number of commands that can be used to troubleshoot connectivity problems on a router. The ping command verifies connectivity, the show ip route command shows a great deal of information that is useful for troubleshooting connectivity, and the show interfaces command displays statistics for the network interfaces on the router.

Incorrect Answers:

B: Tracert is not a valid command. The Cisco command is trace.

C and E: These are great Microsoft troubleshooting commands but they are not valid Cisco commands.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 124, 107-110, and 406-407.

QUESTION NO: 119

What is the total bandwidth of an ISDN BRI circuit?

- A. 54 kps
- B. 64 kps
- C. 112 kps
- D. 128 kps
- E. 144 kps

Answer: E

Explanation: A BRI Circuit is 2 x 64K data channels plus one 16K control channel = 144K

A PRI Circuit is 23 64K data channels plus one 64K control channel = 1.544M = T1 (for USA)

Incorrect Answers:

- A:** One B channel is 64 and the one class D is 16 kbps. 54 kbps is impossible.
- B:** A BRI contains 2 B channels $2 \times 64 = 128$ plus a 16 class D channel for a total of 144 kbps.
- C:** There is no mathematical way to obtain 112 kbps with BRI.
- D:** 128 kbps only accounts for the class B channels and not for the class D channel.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 390-391.

QUESTION NO: 120

Which of the following are layer 7 protocols? (Choose two.)

- A. Ping
- B. Telnet
- C. FTP
- D. TCP
- E. IP

Answer: B, C

Explanation: Telnet and FTP are both application layer protocols.

Incorrect Answers

- A and E.** Ping and IP are both network layer protocols and not application layer protocols.
- D.** TCP is a transport layer protocol.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 10 – 11.

QUESTION NO: 121

Using a protocol analyzer we noticed sustained, heavy collisions in our CSMA/CD LANs. What are some possible effects could this have on our LAN? (Choose three.)

- A. Increased broadcast traffic.
- B. Delay.
- C. Low throughput.
- D. High throughput.
- E. Congestion.

F. Higher bandwidth.

Answer: B, C, E

Explanation: Whenever there is sustained high collision environment the results are longer delays, congestion and low throughput.

Incorrect Answers:

A: This will not increase broadcast traffic.

D: Due to the collision the throughput will decrease.

F: The bandwidth will not be affected.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 16-17.

QUESTION NO: 122

To configure a Frame Relay Router with subinterfaces on interface Serial 3. Which subinterface number could you use for this configuration?

- A. 1 and 2.
- B. 3.2 and 3.3
- C. 1 and 1.1
- D. 3.1a and 3.1b.

Answer: B

Explanation:

When you configure a subinterface you use the interface {typenumber.suberinterfeace-number} command. As you are configuring serial interface 3 the command would be:

Interface serial 3.1 (where 3 indicate the interface and .1 indicates the first subinterface.)

This would be followed by a command to set the encapsulation type and then the command:

Interface serial 3.2

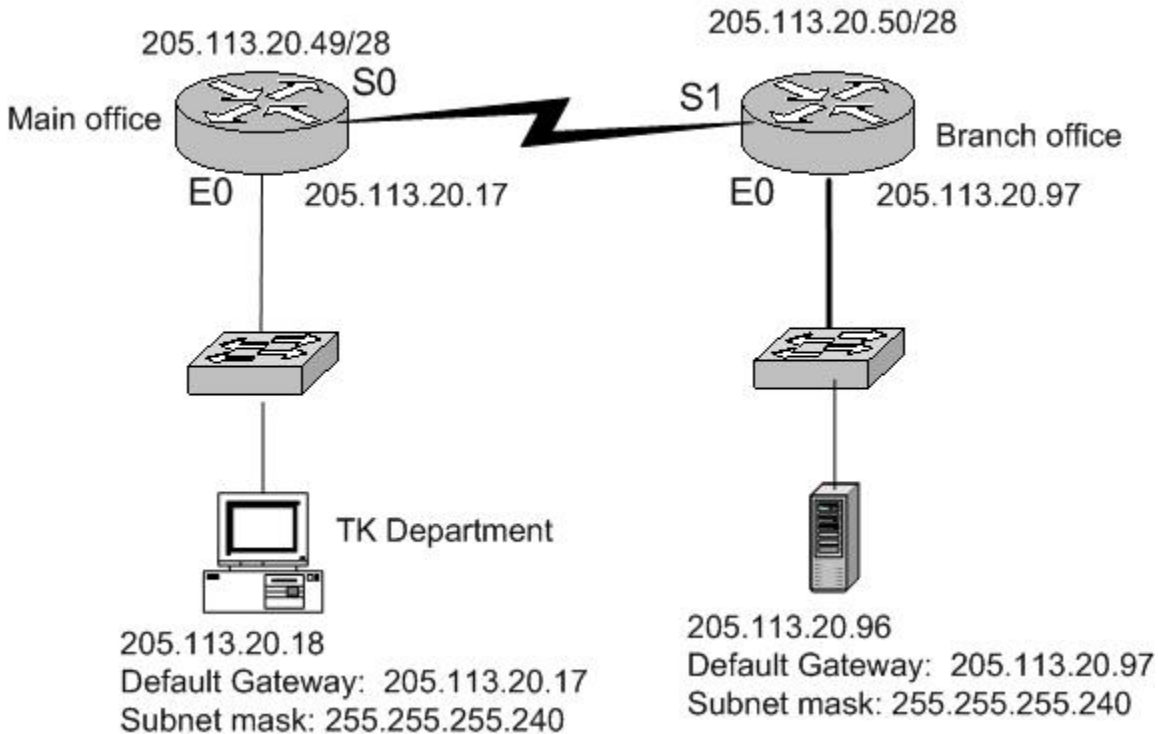
This command would also need to be followed by its encapsulation type.

Incorrect Answers:

A, C and D: For a subinterface to be numbered the interface needs to be indicated. Therefore the command would need to be 0.x. x could be any number between the range of 1 to 4294967293.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 342-343.

QUESTION NO: 123



Clients residing in the TK Department report access problems. They are unable to connect to the new server at the Branch Office.

What is a possible cause of this problem?

- The default gateway of the workstations in the sales department is incorrect.
- The subnet mask of the workstations in the sales department is incorrect.
- The default gateway of the server at the Branch Office is incorrect.
- The host address of the server at the Branch Office is invalid.
- The serial 0 interface on the Main Office router and the serial 1 interface on the Remote Office router are not on the same subnetwork.

Answer: D

Explanation: When you convert the IP address (205.113.20.96) of the server and the subnet mask (255.255.255.240) to binary you will get the following results: (IP address first and then the subnet mask.)

```
11001101 01110001 00010100 01100000
11111111 11111111 11111111 11100000
```

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Thus it is determined that the IP address on the host is in fact the subnet address. This is what would be causing the network problems.

Incorrect Answers:

- A. The default gateway in the sales department is correct.
- B. The subnet mask is correct.
- C. The default gateway in the branch office is correct.
- E. This is no problem here.

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 233 – 234.

QUESTION NO: 124

Most networks are often described as using either 10BaseT or 100BaseTX media. What does the 'Base' in these media types mean?

- A. It describes the signaling method for communication on the network.
- B. It refers to the type of media used in the network.
- C. It relates to the speed of transmission of network signals.
- D. It defines the allowable length of media that can be used.
- E. It defines half-duplex or full-duplex operation.

Answer: A

Explanation: There are two main signaling types: Baseband and Broadband.

Incorrect Answers:

- B:** TX represents the media type. TX r= Cat 5 cable.
- C:** The speed of the transmission is represented by the 100 (mbps).
- D:** The maximum cable length for 100BaseTX is 100 m and is not represented in the standard name.
- E:** 100BaseTX is for full-duplex operation. This cannot be interrupted from the name.

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 45-48.

QUESTION NO: 125

Given the following criteria for granting access from a remote site to your LAN:

Restrict access on interface E1

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E1=207.87.81.173
Deny access to telnet, FTP, SNMP
Allow all other types of operations.

Which line should come last in configuring your access list?

- A. Access-List 101
- B. Access-List 101 deny E0 telnet FTP
- C. Access list 101 allow all except FTP telnet
- D. Access list 101 permit IP 0.0.0.0 255.255.255.255 any
- E. Access List 101 deny IP 207.87.81.173 TCP EQ 20 21 23

Answer: D

Explanation: D is correct; it will permit all other traffic and protocols to pass.

This question seems to lack some information. Usually you want to deny access to functions on an IP address and allow other data to pass. One thing to remember is that when using an access list, anything that is not matched is denied. That means that if we restrict this one entry, and do NOTHING else, all other data will NOT pass through the router. So, does ALL other types of operations in the question imply allow all other operations and traffic? Assuming so, we need a entry that allows all other operations and traffic.

Incorrect Answers:

- A:** This is an incomplete command.
- B:** The interface is not used in the access list; the access list will be binded later.
- C:** The command is not even in the correct format. And it is permit or deny, not allow.
- E:** We are doing the last line and want remaining traffic to pass.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 318-321.

QUESTION NO: 126

You are configuring an old router that is running an old IOS that does not support inverse arp. If a router does not support inverse arp how can you setup this frame relay connection?

- A. Configure static maps.
- B. Define an IP address.
- C. Disable DHCP on the Frame Relay router.
- D. Configure a static route to the remote network.

Answer: A

Explanation: When a remote router does not support Inverse ARP, or when you want to control broadcast traffic when using routing, you must define the address-to-DCLI table statically. These entries are referred to as static maps.

Incorrect Answers:

B: Defining an IP address would not have the desired effect.

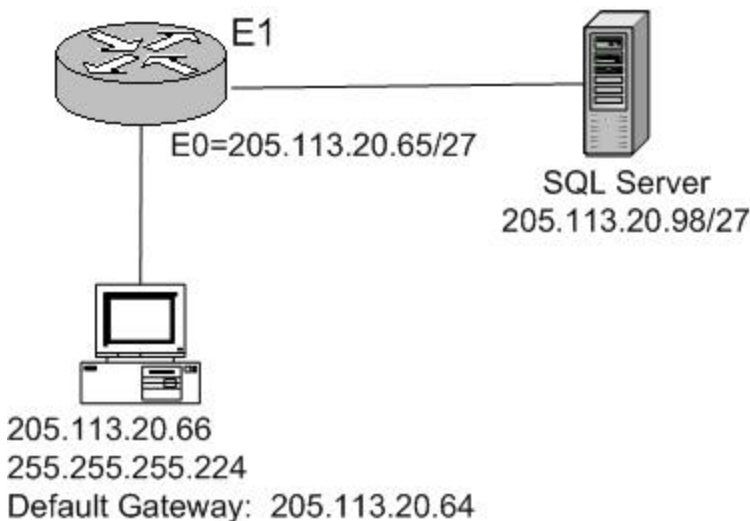
C: DHCP can't provide a mapping to a remote Frame Relay router.

D: Reverse ARP is used to map IP addresses to the DLCI, and is not a routing issue.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 420-421.

QUESTION NO: 127

Exhibit



You are the network administrator of the network shown in the exhibit. You have just added a PC to the network. However, the PC is unable to connect to the SQL Server computer.

What can be the cause of this problem?

- A. PC's IP address.
- B. PC's subnet mask.
- C. PC's default gateway.
- D. Router interface E0 IP address.

Answer: C

Explanation: The default gateway address on the PC, 205.113.20.64, is not part of the local network 205.113.20.65/27. This is a possible cause of the connectivity problem.

Incorrect Answers

A: The IP address of the PC, 205.113.20.66, is appropriate since it belongs to the local network 205.113.20.65/27.

B: The PC uses a 27-bit subnet mask, which is the same as the local interface on the router.

Note: 224 decimal is 11100000 binary.

D: The 205.113.20.65 belongs to the 205.113.20.65/27 by definition. It is not a network address or broadcast. It is valid.

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 233 – 234.

QUESTION NO: 128

Comparing half-duplex Ethernet to full-duplex Ethernet which of the following are true? (Choose two.)

- A. Shared collision domain.
- B. Private collision domain.
- C. Higher effective throughput.
- D. Lower effective throughput.
- E. Private broadcast domain.

Answer: A, D

Explanation: Half-duplex Ethernet have a lower effective throughput due to shared collision domain the a full-duplex Ethernet.

Incorrect Answers:

B: The collision domain is shared not private.

C: Half-duplex as a lower effective throughput.

E: It is a shared collision domain not a private broadcast domain.

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 180-182.

QUESTION NO: 129

Assuming a default subnet mask which two pieces of information can be derived from the IP address 131.107.2.200? (Choose Two)

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- A. It is a Class C address
- B. It is a Class B address
- C. The network address is 131.0.0.0
- D. The network address is 131.107.2.0
- E. The host portion of the address is 2.200

Answer: B, E

Explanation: This is a class B address. 128-191 is the range for the first octet in a class B range. The subnet mask is 16-bit.

Incorrect Answers:

A: This is a class B address

C and D: The network address is 131.107

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 222-227.

QUESTION NO: 130

You have just entered the command copy running-config startup-config command to save your configuration so that if the router is rebooted it will keep your configuration. Which type of router memory normally stores the startup configuration?

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

Answer: D

Explanation: The startup configuration is usually stored in the non-volatile RAM (NVRAM).

Incorrect Answers:

- A.** The RAM runs the running configuration and the Cisco IOS image.
- B.** The ROM contains the microcode.
- C.** The Flash memory contains the IOS image.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 124 – 126.

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QUESTION NO: 131

You have hired a new consultant to help you setup and configure a router in the Florida office. You are located in the company headquarters in Atlanta from the DOS command prompt, you are able to ping a router but are unable to telnet it. What is most likely causing this problem?

- A. The PC has a bad network interface card.
- B. The IP address of the router is on a different subnet.
- C. No password has been set on the router vty lines.
- D. The default gateway is not set on the PC.
- E. The IP address of the workstation is incorrect.

Answer: C

Explanation: In order to telnet to a router a password must be set on the router's vty line.

Incorrect Answers:

- A:** You could not ping if there was a bad NIC.
- B:** Telnet is design to allow remote connections.
- D:** There is no need to a default gateway to telnet
- E:** You would not be able to ping id the IP address was wrong.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 103.

QUESTION NO: 132

Management has reported that they cannot access the corporate files on the company's ftp server from home. They were able to do this in the past. You feel that somebody has changed an access list that is preventing those managers from accessing the corporate data. The access list number is 131. Which command displays access list 131?

- A. Show access-list 131
- B. Show IP access list 131
- C. Display IP address list 131
- D. Display access-list 131 details

Answer: A

Explanation: To display the contents of access list 131 the show access-list 131 command would need to be used.

Incorrect Answers:

B: To show the contents of all ip access lists the show ip access-lists command is required. There is no need to specify the specific access list

C and D: With a Cisco device whenever you want to display something a show command will be used.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 324-6.

QUESTION NO: 133

You have a direct serial link to an adjacent router. You do not have connectivity, and when you run the show running-config the output says that the serial interface is shutdown.

You issue the command: show interface s0

What will the output include?

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

Answer: B

Explanation: Both the interface and the line protocol should be down.

Incorrect Answers:

A. Serial 0 would be down.

C. The line protocol would be down.

D. Serial 0 would be marked as down and not administratively down.

E. Serial 0 would be marked as down and not administratively down plus the line protocol would also be down.

F. Serial 0 would be down.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 106 – 109.

QUESTION NO: 134

RouterC does not appear to be receiving RIP updates from RouterB, which command can you enter on RouterC to see if it is receiving these RIP updates?

- A. Show ip protocols.
- B. Show ip route rip.
- C. Debug ip rip.
- D. Debug ip updates.
- E. Debug ip transactions.

Answer: C

Explanation: The debug **debug ip rip** command displays information on RIP routing transactions. It would enable us to see if the RIP updates are received.

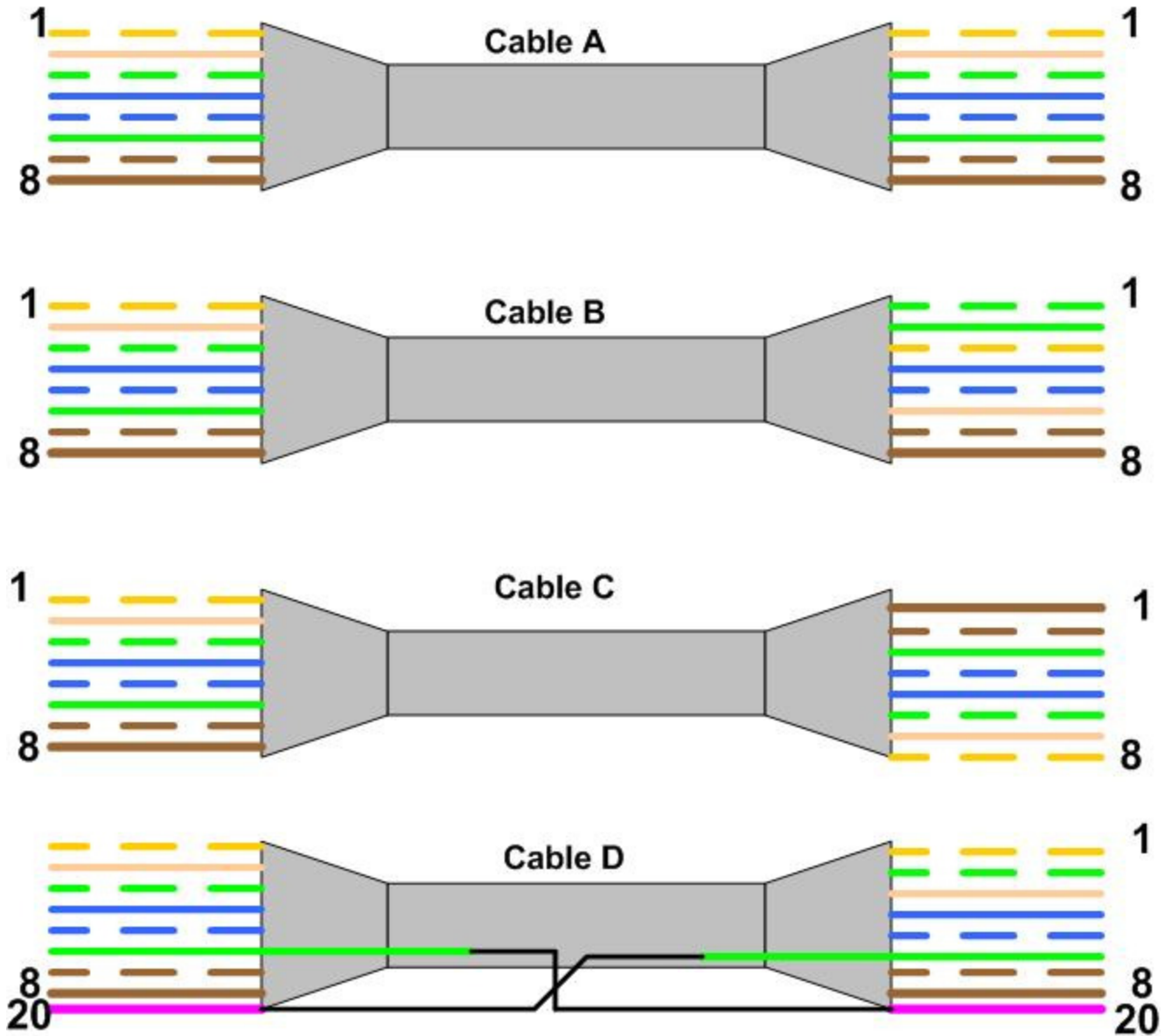
Incorrect Answers:

- A.** The show ip protocol command is used to see if a router is delivering bad routing information.
- B.** This is not a valid command. RIP is not a parameter of show ip route command.
- D and E.** These are not valid debug commands.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 279 – 282.

QUESTION NO: 135

Exhibit:



Which one of the following cables allows a router to another router over the Ethernet? This is a direct connection and not using a hub or a switch.

- A. Cable A
- B. Cable B
- C. Cable C
- D. Cable D

Answer: B

Explanation: A crossover cable must be used to connect similar devices. A crossover cable crosses the critical pairs in order to align, transmit, and receive signals.

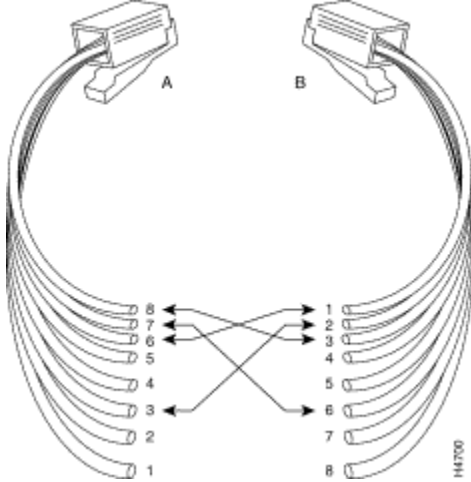
Note: In a crossover cable

pin 1 connects to pin 3

pin 2 connects to pin 6

pin 3 connects to pin 1

Cable B meets these requirements.



References: Cisco, Cables

Incorrect Answers:

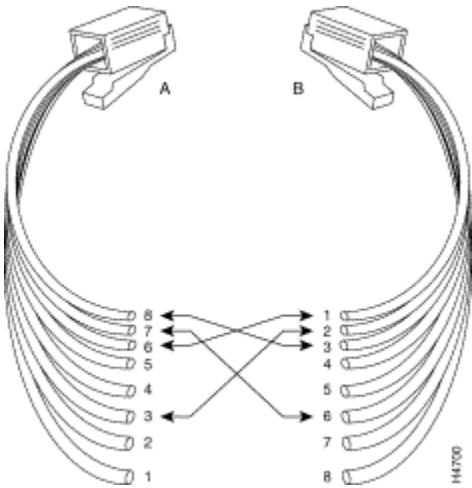
A: This cable each pin to the corresponding pin. It would not function.

C: This is a straight-through cable. You cannot connect two similar devices with a straight-through cable.

Note: In a straight-through cable

Pin 1 and pin 2 must be a twisted pair

Pin 3 and pin 6 must be a twisted pair.



D: The critical pairs are not twisted.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 49 – 51.

QUESTION NO: 136

To configure and apply a standard access list on an interface which two of the following are required? (Choose two)

- A. Define and access list number and its parameter.
- B. Enable an interface to become part of the access list group.
- C. Define the number of access list to be supported on an interface.
- D. Copy the access list definition to each interface that will support it.

Answer: A, B

Explanation: Adding an access list to a router, as a packet filter is a two-step process. First, you create the list. Then, you apply that list to any interface that you want to filter the selected traffic.

Incorrect Answers:

C: An existing access list is bound to the interface

D: There is no need to copy an access list, an access list can be bound to multiple interfaces.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 310-311.

QUESTION NO: 137

Which one of the following commands below is an example of a hybrid routing protocol?

- A. Router rip
- B. Router igrp 100
- C. Router ospf 1
- D. Router eigrp 100

Answer: D

Explanation: EIGRP is a hybrid routing protocol. This means it uses both distance vector and link-state routing mechanisms.

Incorrect Answers

- A:** RIP is a distance vector routing protocol.
- B:** IGRP is a distance vector routing protocol.
- C:** OSPF is a link state routing protocol.

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 274 – 276.

QUESTION NO: 138

In troubleshooting an Internetwork which of the following commands are usually used? (Choose two.)

- A. Ping
- B. Trace
- C. Verify
- D. Test IP
- E. Echo IP
- F. Config IP

Answer: A, B

Explanation: The ping command will confirm connectivity and trace will determine the routes an outgoing packet will take.

Incorrect Answers:

C – F: These are not valid commands.

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) page 124.

QUESTION NO: 139

802.3 Ethernet networks use (CSMA/CD). This means that multiple stations have access to media , and before one station can access that media, it must first “listen” (carrier sense) to make sure no other station using the same media. If two stations transmit at the same time, the result is a collision. If this happens a back off algorithm is used. What is this back off algorithm used for?

- A. It is latency stored and forward switching.
- B. It is the time used to token passing from machine to machine.
- C. It is re transmission delay that is encountered when a collision occurs.
- D. It the result of two nodes transmitting at the same time the frames from each transmitting device collide and are damaged.

Answer: C

Explanation: Backoff is done when a collision occurs. Those trying to transmit at the same time “back-off” and attempt to retransmit at a later time. A 802.3 network uses collision detection, so that the transmitters are notified of the collision. Then using a random calculated wait time, re-transmission occurs. By using a random wait time, hopefully both transmitter wait a different amount of time and do not attempt simultaneous transmission again.

Incorrect Answers:

- A:** Back off occurs after a collision has occurred and is not latency stored and forward switching.
- B:** Has nothing to do with the passing of the token.
- D:** Back off is used to prevent another collision.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 16-17.

QUESTION NO: 140

In your test environment you are connecting two routers together using a back-to-back serial cable. You are not using DSU/CSUs between these devices. Which additional command must be used to be able to establish this connection between these two routers on the router acting as the DCE?

- A. Serial up.
- B. Line protocol up.
- C. Clock rate.
- D. Dce rate.
- E. Dte rate.

Answer: C

Explanation: To enable synchronization on the serial link we must configure the clock rate.

Incorrect Answers:

A, B, D, E. These are not valid commands.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 104 – 106.

QUESTION NO: 141

If Ctrl-p recalls the previous command line what does the up arrow key provide within the Cisco IOS?

- A. Recalls the previous command line.
- B. Moves the cursor one line up.
- C. Redisplays the current command line.
- D. Capitalize the command line.

Answer A

Explanation: The arrow key has the same effect as Ctrl-P. It allows you to scroll to previously issued IOS commands.

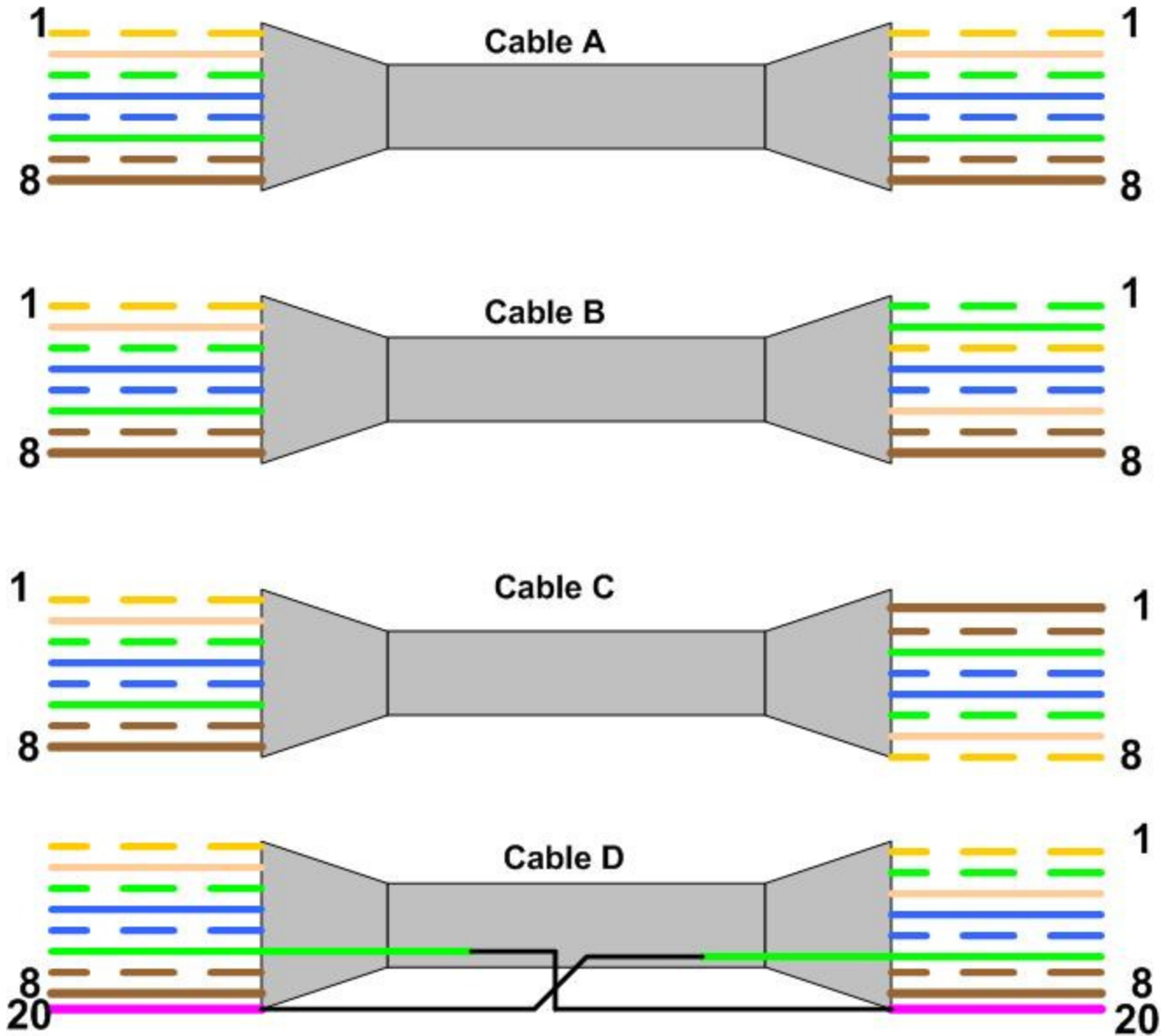
Incorrect Answers:

- B.** There is no shortcut to move the cursor one line up.
- C.** Ctrl n or the down arrow will move to more commands.
- D.** There is no shortcut to capitalize the command line.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 104 – 107.

QUESTION NO: 142

Exhibit:



Company XYZ has purchased another switch to add to their existing network. They want you to connect this new Ethernet switch to an existing Ethernet switch. Which cable from the diagram above would you use to connect these two switches together?

- A. Cable A
- B. Cable B
- C. Cable C
- D. Cable D

Answer: B

Explanation: A crossover cable must be used to connect similar devices. A crossover cable crosses the critical pairs in order to align, transmit, and receive signals.

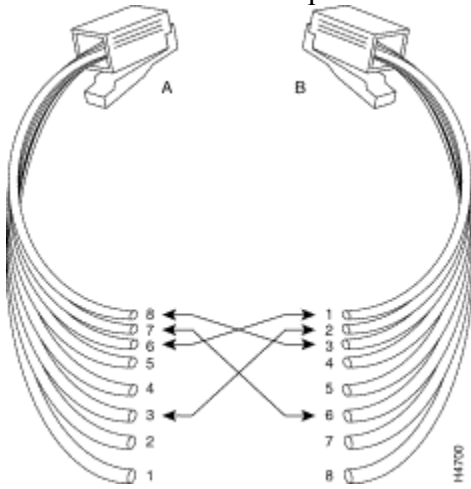
Note: In a crossover cable

pin 1 connects to pin 3

pin 2 connects to pin 6

pin 3 connects to pin 1

Cable B meets these requirements.



References: Cisco, Cables

Incorrect Answers:

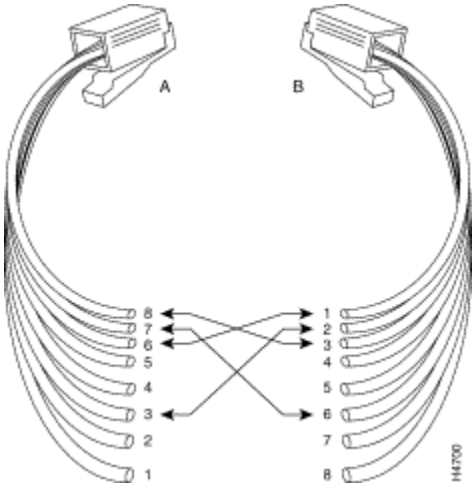
A: This cable each pin to the corresponding pin. It would not function.

C: This is a straight-through cable. You cannot connect two similar devices with a straight-through cable.

Note: In a straight-through cable

Pin 1 and pin 2 must be a twisted pair

Pin 3 and pin 6 must be a twisted pair.



D: The critical pairs are not twisted.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 49 – 51.

QUESTION NO: 143

In comparing Fast Ethernet to 10baseT Ethernet which of the following are true? (Choose four)

- A. Fast Ethernet uses the same maximum transmission unit (MTU).
- B. Fast Ethernet is based on an extension to the IEE 802.3 specifications.
- C. Fast Ethernet uses the same media access control MAC mechanism.
- D. Fast Ethernet preserves the frame format that is used by the 10BaseT Ethernet.
- E. Fast Ethernet uses a speed increase 100 times to that of the 10BaseT Ethernet.

Answer: A, B, C, D

Explanation: Fast Ethernet shares a great deal of similarities with 10BaseT Ethernet. These similarities are the same MTU, same MAC mechanism and frame format. Fast Ethernet is based on IEE 820.3u, which is an extension to IEE 820.3.

Incorrect Answers:

E: Its speed 10 times faster, not 100 times.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 44-45.

QUESTION NO: 144

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You are concerned about broadcast traffic in your network. You would like to split up your network into two separate broadcast domains. Which one of the following hardware devices can you use?

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

Answer: B

Explanation: A router splits the network into subnets. Each subnet is a separate broadcast domain.

Incorrect Answers

A, D: Hubs and repeaters work at the physical layer. They are not able to reduce either broadcasts or collisions.

C: A bridge splits the network into collision domains. However, a bridge would have no affect on the broadcast domains.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 30 – 31.

QUESTION NO: 145

You need to find out the IPX address on a Cisco 2500 series router. Which command displays all routed protocols and the interfaces on which the protocol is enabled?

- A. Show protocols.
- B. Show protocol brief.
- C. Show interfaces protocol.
- D. Show interfaces.
- E. Show routed.
- F. Show routed interfaces.

Answer: D

Explanation: The show interfaces command displays statistics for all interfaces configured on the switch. This information is displayed by interface and includes the routing protocols.

Incorrect Answers:

A. The show protocols command will display the network layer address but it will not provide information on the routed protocols.

- B:** This is not a valid command.
- C:** This is not a valid command.
- E:** This is not a valid command.
- F:** This is not a valid command.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 80-81.

Todd Lammle. CCNA: Cisco Certified Network Associate Study Guide. (Sybex: 1999) pages 275 – 276.

QUESTION NO: 146

Which one of the following is a fact about half-duplex Ethernet operation?

- A. With half duplex transmission frames feed into a single cable in one direction at a time.
- B. Half duplex transmission between stations is achieved by using point-to-point Ethernet and fast Ethernet connection.
- C. Half duplex transmission between stations is achieved by using point to multi point Ethernet and fast Ethernet connection.
- D. Half duplex Ethernet technology provides a transmit circuit connection wired directly to the receiver circuit at the other end of the connection.

Answer: A

Explanation: Half-duplex only operates in one direction at a time on the cable.

Incorrect Answers:

B and C: Fast Ethernet is not used for half duplex connections.

D: This is done in Full Duplex and half duplex.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 163-164.

QUESTION NO: 147

An Ethernet switch has many functions. Which of the following are correct functions of a Layer 2 Ethernet switch? (Choose two)

- A. Establishes a single collision domain.
- B. Establishes multiple collision domains.
- C. Builds a dynamic MAC address mapping table.
- D. Maintains a routing table.
- E. Forwards unicast frames only.

Answer: B, C

Explanation:

B: Each switch port is a separate collision domain.

C: Since switches work at Layer- 2 (some work at Layer 3 as well) they are able to build a MAC address table. This table improves performance.

Incorrect Answers

A: A switch separate the network into separate collision domains, on for each port on the switch.

D: Layer-2 switches do not understand layer-3 information. They are not able to build routing tables.

E: Switches are able to forward broadcasts. They simple send the signal on all port except the receiving port.

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 21 – 24.

QUESTION NO: 148

A graphics art company located in Miami, Florida noticed that their windows size was changed from 3000 to 4000 during the data transfer stage of a TCP session, what can a sending host do?

- A. Transmit 3000 bytes before waiting for an acknowledgement.
- B. Transmit 4000 packets before waiting for an acknowledgement.
- C. Transmit 4000 bytes before waiting for an acknowledgement.
- D. Transmit 4000 segments before waiting for an acknowledgement.
- E. Transmit 3000 frames before waiting for an acknowledgement.
- F. Transmit 3000 packets before waiting for an acknowledgement.

Answer: C

Explanation: For TCP a window size is in bytes. When a window size increases the sending device can increase transmission to the new size. In this case the new size 4000 bytes.

Incorrect Answers:

A: Prior to the increase in bytes the old window size was 3000 bytes.

B: Window size is bytes not packets.

D: Window size is bytes not segments

E: Window size is bytes not frames.

F: Window size is bytes not packets.

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 213-214.

QUESTION NO: 149

You need to issue the command show startup-config from privileged mode. How can you tell you are in privileged mode?

- A. >
- B. !
- C. #
- D. :

Answer: C

Explanation: On a router the privileged mode is indicated by a # prompt.

Incorrect Answers:

A: The user mode is indicated by a > prompt.

B and D: These are not valid router prompts.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 69-70.

QUESTION NO: 150

You are unable to connect to the company's local tftp server using the IP address 10.0.0.20 from your personal computer. You would to test your personal computer to make sure the TCP/IP has been corrected installed. Which one of the following actions will allow you to test the protocol stack on your personal computer?

- A. Ping 127.0.0.0
- B. Ping 203.125.12.1
- C. Telnet 127.0.0.1
- D. Ping 127.0.0.1
- E. Tracert 203.125.12.1

Answer: D

Explanation: Pinging the loopback address is good method to test if the TCP/IP protocol stack is loaded. On clients the loopback address is always 127.0.0.1.

Incorrect Answers:

A. The command ping 127.0.0.0 will not test the local protocol stack.

- B. This command will ping that remote host.
- C. You cannot telnet to 127.0.0.1.
- E. This tracert command will trace the route to 203.125.12.1.

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 123 – 124.

QUESTION NO: 151

Users on your network 10.1.0.0/16 are complaining that they cannot access the company's intranet server using the FQDN www.snowball.com. You are able to ping the IP address but you cannot ping www.snowball.com.

What is the likely cause of this problem?

- A. TCP/IP failure.
- B. DNS failure.
- C. FTP failure.
- D. SNMP failure.

Answer: B

Explanation: When you combined the fact that user cannot connect to the intranet with its domain but you can ping to it using the IP address, there must be a problem with the DNS. DNS translates names into addresses.

Incorrect Answers:

- A:** If there was a problem with TCP/IP then you would not have been able to Telnet to web server.
- C:** A problem with FTP would not cause this problem.
- D:** A SNMP failure would not cause this problem.

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 239-240.

QUESTION NO: 152

Given the network 192.141.27.0/28, identify the valid host addresses. (Choose three.)

- A. 192.141.27.33
- B. 192.141.27.112
- C. 192.141.27.119
- D. 192.141.27.126
- E. 192.141.27.175

F. 192.141.27.208

Answer: A, C, D

Explanation: When you base your calculations on the network address and the provided subnet mask the valid host addresses are 192.141.27.33, 192.141.27.119, and 192.141.27.126.

Incorrect Answers:

B, E and F: These are not valid host addresses.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 233-236.

QUESTION NO: 153

To perform proper and efficient routing what must a router have?

- A. Destination application of an incoming packet.
- B. Number of other packets in a single flow of data.
- C. Destination network address of an incoming packet.
- D. Number of routers that know a path to the destination.

Answer: C

Explanation: A router needs the following information to route packets: destination address, information sources, possible routes, best routes and routing information maintenance and verification.

Incorrect Answers:

A: A router does not route based on application.

B: The number of packet has no relevance to routing decisions.

D: The number of routers has no relevance to routing decisions.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 250-251.

Q.154

Exhibit:

I 154.128.16.0 [100/1100] via 30.100.192.4, 00:00: Ethernet 0

Your trainee studies the routing table on your Catalyst 5000 Switch. One specific entry draws the attention of the trainee (see Exhibit). He is curious about the number 1100 and asks you how it is calculated. You need to tell the trainee what is used in the calculation. (Select two.)

- A. MTU
- B. bandwidth
- C. administrative distance
- D. hop count
- E. metric
- F. delay

Answer: B, F

Explanation: The I indicates that this is an IGRP learned route. The 1100 is the metric of the route. IGRP calculates the metric by adding together weighted values of different characteristics of the link to the network in question. By default IGRP only use bandwidth and delay. IGRP can be configured to use reliability and bandwidth divided by load as well.

Reference: IGRP Metric

<http://www.cisco.com/warp/public/103/3.html>

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 283 – 284.

QUESTION NO: 155

The network 131.107.0.0 needs to be divided into subnets where each subnet has the capacity of 458 IP addresses. What would be the correct subnet mask to accomplish this division keeping the number of subnets at the maximum?

Type the correct value in each box below.

0	.	0	.	0	.	0
---	---	---	---	---	---	---

Answer:

255 . 255 . 254 . 0

Explanation: In order for a Class B IP, such as 172.12.0.0, to have 458 IP available on each subnet then a subnet mask of 255.255.254.0. This subnet mask provides for 126 subnets and 510 IPs.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 234.

QUESTION NO: 156

To configure a console password you type the following command what would normally follow this command?

routers(config) #line console 0

Which operation is most likely to follow?

- A. Configure terminal type.
- B. Enter protocol parameters for a serial line.
- C. Create a password on the console terminal line.
- D. Establish a terminal type 4 connection to a remote host.
- E. Change from configuration mode to console privilege mode.

Answer: C

Explanation: If you want to prevent unauthorized people from logging into your router then you should use the line console command. After this you will need to enter a password.

Incorrect Answers:

- A:** Line console 0 command is for configuring the console password not its type.
- B:** This command is used for console and not a serial line.
- D:** This command is not used to establish connection to a remote host.
- E:** To change from configuration mode to console privilege mode you would use CNTL+Z.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 102-103.

QUESTION NO: 157

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For what purpose does Frame Relay use DLCIs?

- A. They determine the Frame Relay encapsulation type.
- B. They identify the logical circuit between a local router and a Frame Relay WAN switch.
- C. They represent the keepalives used to maintain the PVC in an active state.
- D. They represent the physical address of the router attached to a Frame Relay network.

Answer: B

Explanation: DLCIs (Data Link Connection Identifiers) are used to identify permanent virtual connections. DLCI is have number values ranging from 0 to 1023. Each PVC will have its own unique DLCI

Incorrect Answers:

- A. DLCI does not determine the Frame Relay encapsulation type.**
- C. DLCI has nothing to do with keepalives.**
- D. The physical address is represented by the MAC address.**

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 412 – 414.

QUESTION NO: 158**Exhibit:**

```
RouterTK#show ip route
Codes: C-connected, S-static, I-IGRP, R-RIP, M-Mobile, B-BGP, D-EIGRP, EIGRP external,
       O-OSPF, IA-OSPFinter area, EI-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, Serial 1
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
```

Based on the output of the show ip route command which route will not be entered into a neighbor RIP router?

- A. R 192.168.3.0/24 [120/1] via 192.168.2.2, 00:00:10, Serial0

- B. R 192.168.11.0/24 [120/7] via 192.168.9.1, 00:00:03, Serial1
- C. C 192.168.1.0/24 is directly connected, Ethernet0
- D. R 192.168.5.0/24 [120/15] via 192.168.2.2, 00:00:10, Serial0

Answer: D

Explanation: This route has the lowest metric of those listed and as such will not be shared with the neighbor.

Incorrect Answers:

- A:** This has the best metric thus it will be shared.
- B:** This route has a better metric therefore it will be shared.
- C:** This is a directly connected network thus it will be shared.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 258-260.

QUESTION NO: 159

Which one of the following commands will allow you to configure a login password that will be used when you connect to the routers console port using the roll-over from your notebook?

- A. Line vty 0
Log in
Password Cisco
- B. Line console
Login
Password Cisco
- C. Line login terminal
Password Cisco
- D. Line console 0
Login
Password CISCO
- E. Line console 0
Login
Password Cisco

Answer: E

Explanation: This is the proper procedure.

Incorrect Answers:

- A:** This set of commands are used to establish a login password for incoming Telnet sessions.

- B:** The first command is incomplete. The command should be line console 0.
- C:** There is no such command.
- D:** Whenever you are entry a password great care must be taken, as passwords are case sensitive. In this case the password is suppose to be Cisco and not CISCO.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 101-103.

QUESTION NO: 160

Which WAN technology uses two Bearer (B) channels for data plus one Delta (D) channel for signaling information?

- A. ISDN
- B. Frame Relay
- C. ATM
- D. FDDI

Answer: A

Explanation: ISDN BRI use two B channels and one D channel.

Incorrect Answers:

- B, C.** Frame Relay and ATM are both WAN encapsulation types.
- D.** FDDI is not a WAN technology.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 387 and 373.

QUESTION NO: 161

You have issued the show ip route command and looking at the routing table entry, which of the following are used by default in the calculation of the number 8675309? (Choose two.)

I 131.107.0.0 [100/8675309] via 192.168.16.3, 00:00:55, Ethernet0

- A. MTU
- B. Bandwidth
- C. Administrative distance
- D. Hop count
- E. Metric
- F. Delay

Answer: B, F

Explanation: By default, only bandwidth and delay are used by the IGRP metric. In this case the metric is 8675309.

Incorrect Answers:

- A:** MTU can be used but it is not a default.
- C:** Administrative distance is not used by IGRP.
- D:** Hop count is not used by IGRP.
- E:** 1200 is the metric value.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 283-284.

QUESTION NO: 162

You have typed the command clock on a Cisco router and pressed enter/return you received “% INCOMPLETE COMMAND” response from a Cisco CLI. How can you receive help on this command?

- A. Type “history” to review the prompt before the error.
- B. Enter a question mark to display all console commands.
- C. Type “help” followed by the command to see the command parameter.
- D. Re enter the command followed by question mark to view key words.

Answer: D

Explanation: Whenever you have a problem with a command on a switch the quickest way to get help with the command is to reenter the command and follow it with ?. When one gets the incomplete error there should be no space in between the reentered command and the question mark

Incorrect Answers:

- A:** The history command will display the commands that were most recently entered. This will not provide help with completing the command.
- B:** The ? will provide you with a listing of commands but not the parameters to complete the command.
- C:** A help command is not provided in IOS.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 76-78.

QUESTION NO: 163

Using a class C network address your company needs 5 subnets with at least 18 hosts per subnet. What would the subnet mask be for this network?

Answer: 255.255.255.224

Explanation: We need 5 bits for the hosts ($2^5 - 2 = 30 > 18$). A 27 bit (32-5) network mask translates the 4th octet to 224 (=11100000 binary). The network mask used should be 255.255.255.224.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 225 and 236.

QUESTION NO: 164

What does ISL trunking protocol use to identify the VLAN membership of a frame over trunked links?

- A. Frame filtering with VLAN ID
- B. Frame tagging with VLAN ID
- C. Frame filtering with trunk ID
- D. Frame tagging with trunk ID
- E. Frame filtering with VTP port ID

Answer: B

Explanation: One form of frame tagging that VLANs use is ISL tagging. The ISL tag includes the VLAN ID.

Incorrect Answers:

A, C and E: Frame filtering will not achieve the desired result.

D: Frame tagging does not include the trunk ID.

Wendell Odom. Cisco CCNA Exam #640-507 Certification Guide. (Cisco Press: 2000) page 175.

QUESTION NO: 165

To configure information into RAM on a router which three commands can be used? (Choose three)

- A. Configure memory.
- B. Configure terminal.
- C. Configure overwrite.
- D. Copy TFTP startup-Config.
- E. Copy running-Config startup-Config.
- F. Copy startup-Config running-Config.

Answer: A, B, F

Explanation: There are a number of commands that can be used to ensure information is configured into the RAM of routers. The one that is used most commonly is the copy startup-config running-config command. This command copies the configuration in the NVRAM into the RAM. The other two commands are configure memory (an older command that can most often still be used) and configure terminal command. The configure terminal command will open the command line from which changes to the RAM can be made.

Incorrect Answers:

C: This is not a valid command.

D and E: Both of these commands will make changes to the NVRAM and not the RAM directly.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 132-136.

QUESTION NO: 166

Using the address 192.64.10.0/28 how many subnets and hosts are available?

- A. 62 networks and 2 hosts
- B. 6 networks and 30 hosts
- C. 8 networks and 32 hosts
- D. 16 networks and 16 hosts
- E. 14 networks and 14 hosts

Answer: E

Explanation: The 192.64.10.0/28 address is a Class C network. Class C network use a 24 bit subnet mask. We have subnetted this network into 192.64.10.0/28. We use 4 bits for the network and 4 bits for the hosts.

We calculate the available subnets and the available hosts.

Number of networks: $2^4 - 2 = 14$

Number of networks: $2^4 - 2 = 14$

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 225 – 226.

QUESTION NO: 167

The network 131.107.4.0/24 was advertised by a neighbor router from RIP and IGRP. You also added a static route to 131.107.4.0/24 manually. Which route would be used to forward traffic?

- A. The IGRP route.
- B. The static route.
- C. The RIP route.

D. All three will load balance.

Answer: B

Explanation: If there are several routing sources providing common routing information, an administrative distance value is used to rate the trustworthiness of each routing source. The lower the administrative distance the more trustworthy it is. Static routes have a default distance of 1, IGRP has a default distance of 100, and RIP has a default distance of 120.

Incorrect Answers:

A: IGRP does not have the lowest administrative distance.

C: RIP does not have the lowest administrative distance in fact it has the highest.

D: As the administrative distance differs there can be no load balancing.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 256-258.

QUESTION NO: 168

You just purchased a new router from Cisco and now are in the process of installing it. Upon boot up the router enters the setup mode. You are prompted to enter the enable password and the enable secret password. What is the difference between the two passwords?

- A. The enable password is encrypted.
- B. The enable secret password uses IPsec password authentication.
- C. The enable secret password cannot be seen as clear text when viewing the configuration.
- D. The enable secret password acts as a backup in case the enable password is compromised.

Answer: C

Explanation: The enable secret password is always encrypted and can't be reverse decrypted for display.

Incorrect Answers:

A: The enable secret password is Always encrypted, the enable password is optionally encrypted.

B: IPSEC is not used for the password.

D: Enable secret password would act as a backup if the secret password was lost and forgotten, or for some reason failed to be recognized.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 86

QUESTION NO: 169

What is the broadcast address for this network 192.57.78.0/27?

- A. 192.57.78.33
- B. 192.57.78.64
- C. 192.57.78.87
- D. 192.57.78.97
- E. 192.57.78.159
- F. 192.57.78.254

Answer: E

Explanation: We must decide which of the IP address is a valid broadcast address for any of the 192.57.78.0/27 subnets. We know that a broadcast address has all host bits set to 1. We simply convert the 4th octet to binary and check if all five rightmost bits are 1.

159 decimal equals 1011111. This is a broadcast address for the 192.57.78.0/27 network.

Incorrect Answers

- A:** 33 decimal equals 00100001 binary. This is not a broadcast address in the 192.57.78.0/27 network.
- B:** 64 decimal equals 01000000 binary. This is not a broadcast address in the 192.57.78.0/27 network.
- C:** 87 decimal equals 01010111 binary. This is not a broadcast address in the 192.57.78.0/27 network.
- D:** 97 decimal equals 00000111 binary. This is not a broadcast address in the 192.57.78.0/27 network.
- F:** 254 decimal equals 11111110 binary. This is not a broadcast address in the 192.57.78.0/27 network.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 233 – 234.

QUESTION NO: 170

When installing the IGRP routing protocol which of the following is also required?

- A. Connected network numbers.
- B. IP address mask.
- C. Metric weights.
- D. Autonomous system number.
- E. Registered administrative id.

Answer: D

Explanation: IGRP requires an autonomous system number. The autonomous system number must be entered directly after the router igmp command and before the network command.

Incorrect Answers:

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- A: The network command is used to identify the directly connected networks but this is done after the autonomous system number.
- B: The IP address mask is not required.
- C: Metric weights are not required.
- E: Registered administrative id is not required.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 285.

QUESTION NO: 171

Cisco has just released a new version of Cisco IOS and you would like to use this new version. You have downloaded this IOS from Cisco's web site and stored it on your TFTP server. Which of the following commands should you use to copy this IOS to your router?

- A. Copy flash ftp.
- B. Copy ftp flash.
- C. Copy flash tftp.
- D. Copy tftp flash.

Answer: D

Explanation: Whenever you need to load a new copy of the IOS onto the router (because the old one is damaged or you are upgrading you can download a copy of the new image from the tftp server. The proper command is copy tftp flash.

Incorrect Answers:

- A: IOS images are stored on a tftp server and not a ftp server. This is not a valid command.
- B: IOS images are stored on a tftp server and not a ftp server. This is not a valid command.
- C: The copy flash tftp command actually copies the IOS from the router to the tftp server. This is the exact opposite of what the question asked.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 138-140.

QUESTION NO: 172

What is the decimal and hexadecimal equivalent of the binary number 01010101?

Answer: Decimal : 85
 Hexadecimal : 55

Explanation:

01010101 binary equals 85 (64+16+4+1) decimal.

0101 (leftmost 4 bits) equals 5 hexadecimal.

0101 (rightmost 4 bits) equals 5 hexadecimal.

01010101 binary equals 55 hexadecimal.

Note:

Other examples:

10101010 binary, equals 170 decimal and AA hexadecimal

10100101 binary, equals 165 decimal and A5 hexadecimal

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 227 – 231.

QUESTION NO: 173

Exhibit

```
#debug ppp authentication

ppp serial1: send CHAP challenge id=47 to remote
ppp serial1: CHAP challenge from TestK
ppp serial1: CHAP response received from TestK
ppp serial1: CHAP response id=47 received from TestK
ppp serial1: Send CHAP success id=47 to remote
ppp serial1: Remote passed CHAP authentication
ppp serial1: Passed CHAP authentication
ppp serial1: Passed CHAP authentication with remote
```

You issued the command debug ppp authentication what type of handshaking was used for this PPP session?

- A. One-way
- B. Two-way
- C. Three-way
- D. No handshake required during authentication.

Answer: C

Explanation: We see that CHAP authentication is used. CHAP use three-way handshaking. We can also see the three-way handshake if we examine the exhibit carefully (challenge, challenge, response, response, success).

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 378 – 383.

QUESTION NO: 174

Which of the following protocols is referred to as a hybrid routing protocol because it has features of both distance-vector and link-state?

- A. RIP
- B. OSPF
- C. EIGRP
- D. IGRP

Answer: C

Explanation: EIGRP is an example of a balanced hybrid routing protocol. It uses distance vectors with more accurate metrics to determine the best paths to destination networks. However, it differs from most distance vector protocols as it also has some features of link-state protocols.

Incorrect Answers:

A and D: These are examples of distance vector routing protocol.

B: OSPF is an example of a link-state routing protocol.

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 275-276 and 259.

QUESTION NO: 175

You would like to be able to make a backup copy of your IOS that is stored on your router. Which of the following commands can you use so that the router will become a TFTP host so that it can save the IOS to a TFTP server?

- A. Copy flash tftp
- B. Config tftp server
- C. Write network <router name>
- D. Tftp-server system <filename>
- E. Setup server tftp <systemname>

Answer: A

Explanation: To copy a system image to a TFTP network server you use **copy flash tftp** command.

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Note: Syntax

copy *flash-url*

tftp: [[*//location*] / *directory*] / *filename*]

Copies the system image from Flash memory to a TFTP server. Specify the file location and filename as the **flash-url** argument.

Reference: Cisco, Loading and Maintaining System Images

B: This is not a valid command.

C: This is not a valid command.

D: This is not a valid command.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 138 – 139.

QUESTION NO: 176

Your access list has one statement;

access-list 131 permit ip any 131.107.7.0 0.0.0.255 eq tcp

What does the word “any” mean in the following extended access list statement?

- A. Check any of the bits in the source address.
- B. Permit any wildcard mask for the address.
- C. Accept any source address.
- D. Check any bit in the destination address.
- E. Permit 255.255.255 0.0.0.0.
- F. Accept any destination address.

Answer: C

Explanation: The **permit** keyword permits traffic. The **any** keyword implies that any address is allowed. Here any is used as the *source* and *source-wildcard* parameter (see note below). Therefore the access-list permits any source address.

Note: Syntax for an extended access list

access-list *access-list-number* { **deny** | **permit** } *protocol source source-wildcard destination destination-wildcard* [**precedence** *precedence*] [**tos** *tos*]

The access-list-number must be in the 100 to 199 or the 2000 to 2699 range.

Reference: Cisco, Command Reference

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 308 – 309.

QUESTION NO: 177

Routing Protocols use which OSI layer to determine the best path to a network?

- A. Data Link
- B. Network
- C. Physical
- D. Presentation
- E. Session
- F. Transport

Answer: B

Explanation: Routing protocol work at the network layer (layer 3) in the OSI model.

Incorrect Answers:

- A. Data Link layer is concern with a number of things (error detection for example) but not for route determination.
- C. Physical layer has nothing to do with route determination. It puts the bits onto the physical wire.
- D. Presentation layer deals with how the data is presented and not how it is routed.
- E. Session layer is responsible for establishing, managing, and ending communication.
- F. Transport layer is responsible for the connection type and error correction.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 11 – 12.

QUESTION NO: 178

If we are using IPX as our routed protocol and our network has an existing Novell Server with an IPX network address of 4ad1 and we are connecting a Cisco routers Ethernet port to the same segment. The MAC address of the Ethernet port is 021f.2cfe.8322. What will the complete IPX address be for the Ethernet port.

Enter the IPX address for the port.

0 . 0 . 0 . 0

Answer:

4ad1 . 021f . 2cfe . 8322

Explanation:

An IPX address is composed of two parts: the network number and the node number. For IPX the node number is usually obtain from MAC address of the network interface. In this case the network number is 4ad1 and the node number/MAC address is 021f.2cfe.8322. Thus the ipx address is 4ad1.021f.2cfe.8322.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 332-333.

QUESTION NO: 179

Which two of the following were created to avoid routing loops with distance vector routing protocols? (Choose two)

- A. Split horizon.
- B. Route Poison.
- C. Area Hierarchies.
- D. Link State Algorithms.

Answer: A, B

Explanation: There are a number of ways of reducing the chance of routing loops. One way is split horizon. The split horizon rule is that it is not useful to send information about a route back in the direction from which the original update came. Another way is route poisoning. Route poisoning attempts to eliminate routing loops caused by inconsistent updates. With this technique, the router sets a table entry that keeps the network state consistent while other routers gradually converge correctly on the topology change.

Incorrect Answers:

C: Hierarchical areas make for a more efficient use of address but will not prevent loops.

D: Link State is a different method than Vector Routing, they are not combined for loop elimination.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 266-270.

QUESTION NO: 180

The Defense Advanced Research Projects Agency (DAPRA) developed the TCP/IP suite of protocols. Which layer in that TCP/IP model corresponds to the OSI model's network layer?

- A. Application
- B. Transport
- C. Internet
- D. Network
- E. Physical

Answer: C

Explanation: The ARPA model Internet layer corresponds to the network layer of the OSI model.

Reference: <http://www.cisco.com/univercd/cc/td/doc/product/iaabu/centri4/user/scf4ap1.htm>

QUESTION NO: 181

Exhibit

```
RouterTK1(config)#router igrp 200
RouterTK1(config-router)#network
192.168.3.0
RouterTK1(config-router)#network
192.168.4.0
RouterTK1(config-router)#network
192.168.5.0
RouterTK1(config-router)#network
172.16.0.0
```

```
RouterTK2(config)#router igrp 300
RouterTK2(config-router)#network
192.168.3.0
RouterTK2(config-router)#network
192.168.6.0
RouterTK2(config-router)#network
192.168.7.0
```

Examine the Routing tables of RouterTK1 and RouterTK2 above after the next IGRP update is sent from RouterTK1 to RouterTK2 what networks will show up in RouterTK2's route table.

- A. 192.168.3.0
192.168.4.0
192.168.5.0
192.168.6.0
192.168.7.0
172.16.0.0
- B. 192.168.3.0
192.168.6.0
192.168.7.0
- C. 192.168.3.0
192.168.4.0
192.168.5.0
192.168.6.0
192.168.7.0
- D. 172.16.0.0
- E. 192.168.3.0
192.168.4.0
192.168.5.0

Answer: B

Explanation: Routers must have same AS number. Only the networks defined at RouterTK2 will be shown. No networks will be copied from RouterTK1.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 282 – 286.

QUESTION NO: 182

Your router stores routing tables, ARP cache, and packet buffers where are these stored?

- A. ROM
- B. RAM
- C. NVRAM
- D. Flash memory

Answer: B

Explanation: RAM (random access memory) is used by all computers to store information. Cisco routers use RAM to store packet buffers, routing tables and ARP cache.

Incorrect Answers:

A: ROM are chips that are used to help boot a system, and are changed only by replacing the chips themselves.

B: NVRAM is used to save long-term items that don't change much, such as the startup configuration.

D: Flash is used to save copies of the IOS code.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 125-126.

QUESTION NO: 183

You are the network administrator of the Sonic Water Company. One of your users is unable to reach the company's web site that is hosted at a remote site. Looking at the personal computer you discover the following information:

Local PC – 10.0.3.35/24

Default gateway – 10.0.3.1

Remote server – 10.0.5.250/240

You then conduct the following tests from the offending local PC:

ping 127.0.0.1 – successful

ping 10.0.3.35 – successful

ping 10.0.3.1 – unsuccessful

ping 10.0.5.250 – unsuccessful

Which of the following problems would create the test results listed above?

- A. TCP/IP not correctly installed.
- B. Local physical layer problem.
- C. Local NIC not functioning.
- D. Remote physical layer problem.

Answer: B

Explanation: The client was only able to ping itself, not the default gateway or the remote server. A local physical layer problem, for example a faulty patch cable, could explain the results above.

Incorrect Answers:

A: You would not be able to ping anything if TCP/IP was not correctly installed.

C: You would not be able to ping anything if the local NIC was not functioning.

D: A remote physical layer problem would not prevent the local PC from pinging the gateway.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 124 – 125.

QUESTION NO: 184

Which are the following are considered ISDN benefits? (Choose four)

- A. Full time connectivity across the ISDN supported by Cisco IOS routing using dial on demand routing DDR.
- B. Small office and home office sites can be economically supported with ISDN basic rate interface BRI services.
- C. ISDN replaces signaling system ss7 in the public switch telephone network PSTN backbone.
- D. ISDN can be used as a backup service for a lease line connection between the remote and central offices.
- E. Modem racking and cabling can be eliminated by integration with digital modem cards on Cisco IOS network access servers NAS.

Answer: A, B, D, E

Explanation: When ISDN is implemented there are great deals of benefits. Among these benefits are higher speeds, ability to use DDR, reduce need for equipment, economic to deploy in medium size companies, and the ability to use other mediums as backup

Incorrect Answers:

C: ISDN can be used on the existing telephone network without the need of signaling changes.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 387-400.

QUESTION NO: 185

You are the network administrator of the ABC Tire Company. You receive a call from a user who is unable to reach a server at a remote server 10.0.5.250/240. Using VNC (Virtual Network Computing) you connect to the user's computer and discover the following information:

Local PC – 10.0.3.35/24

Default gateway – 10.0.3.1

Remote server – 10.0.5.250/240

You then conduct the following tests from the user's PC:

ping 127.0.0.1 – successful

ping 10.0.3.35 – successful

ping 10.0.3.1 – successful

ping 10.0.5.250 – unsuccessful

Which of the following problems would create the test results listed above?

- A. TCP/IP not correctly installed.
- B. Local physical layer problem.
- C. Local NIC not functioning.
- D. Remote physical layer problem.

Answer: D

Explanation: As the ping of the remote server was unsuccessful there is a problem with the remote physical layer problem.

Incorrect Answers:

- A:** You would not be able to ping anything if TCP/IP was not correctly installed.
- B:** You would not be able to ping the local IPs if there was a problem with the local physical layer.
- C:** You would not be able to ping anything of the local NIC was not functioning.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 124.

QUESTION NO: 186

Gail was working on your Cisco router while you were at lunch. Which command will display the last commands Gail entered?

- A. Control header.
- B. Show buffer.
- C. Show history.
- D. Show history buffer.

Answer: C

Explanation: The show history command will show of the commands that are stored in the buffer.

Incorrect Answers:

A, B, D: Are not valid IOS commands.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 94.

QUESTION NO: 187

What is the bit pattern for the first octet of a class B network address 129.107.0.0?

- A. 0xxxxxxx
- B. 10xxxxxx
- C. 110xxxxx
- D. 1110xxxx
- E. 11110xxx

Answer: B

Explanation: Class B networks use a default subnet mask of 255.255.0.0 and have 128-191 as their first octet. 129 binary is 10000001 and 191 binary is 10111111.

Incorrect Answers:

- A. Require a 1 in the first space of the octet to be a Class B address.
- B, C, D, E. Are too large to be a Class B addresses.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 221 – 223.

QUESTION NO: 188

Which command will provide you with information regarding the Layer 3 IP address of a directly connected neighbor?

- A. Show ip interface
- B. Show cdb neighbors
- C. Show cdp neighbors detail
- D. Show ip route
- E. Show ip link status
- F. Telnet

Answer: C

Explanation: The show cdp neighbors detail command displays information about neighboring devices. The information displayed includes Layer 3 protocol information and Neighbor Device ID. The show cdp entry command also results in the same information as the show cdp neighbors detail command.

Incorrect Answers:

- A: The show ip interface command displays IP interface information and indicates whether any access lists are set for a specific interface.

- B:** The show cdp neighbors command displays such information as Neighbor Device ID and Local Interface but nothing on Layer 3 protocols.
- D:** The show ip route command displays the contents of the ip routing table.
- E:** This is not a valid command.
- F:** The telnet command is used to establish a telnet command.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 116-119, 324-324, 280, and 120.

QUESTION NO: 189

How many bits are used for a MAC address and how is number expressed?

- A. 24 bits expression as a decimal number.
- B. 24 bits expression as a hexadecimal number.
- C. 36 bits expression as a binary number.
- D. 48 bits expression as a decimal number.
- E. 48 bits expression as a hexadecimal number.

Answer: E

Explanation:

The MAC address is a 48 bit address expressed as 12 hexadecimal digits. The first 24 bits or 6 hexadecimal digits of the MAC address contain a manufactures identification or vendor code (also known as the Organizationally Unique Identifier – OUI). To ensure uniqueness, the IEEE administers OUIs. The last 24 bits or 6 hexadecimal digits are administered by each vendor and often represent the interface serial number.

Incorrect Answers:

- A, B, and C:** MAC addresses are 48 bits that are expressed as a hexadecimal number.
- D:** MAC addresses are expressed as hexadecimal, not decimal.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 19-20.

QUESTION NO: 190

User Datagram Protocol is a Connectionless transport layer protocol in the TCP/IP protocol stack. UDP is defined in RFC 768. Which of the following are generally considered to be characteristics of UDP? (Choose two.)

- A. Non-reliable.
- B. Reliable.
- C. Less bandwidth-intensive.
- D. Handshaking.

Answer: A, C:

Explanation: Connectionless protocols, for example UDP, do not establish a connection between the communicating partners and do not use acknowledgements. This makes connectionless protocols non-reliable. However, this also makes them less bandwidth intensive since they carry very little overhead data.

Incorrect Answers

B: Connection-oriented protocols are reliable.

D: Connectionless protocols do not establish a connection so they have no use of handshaking.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 206 – 208.

QUESTION NO: 191

You have been called in to fix a router that is having security issues. The router has an access list configured on it but the list does not seem to be working. What command can you use to see if the access list has been applied to an interface?

- A. Show access-list.
- B. Show ip route.
- C. Show ip interface.
- D. Show interface.
- E. Show interface list.

Answer: C

Explanation: The show ip interface command display IP interface information and indicates whether any access list are set for a specific interface and it also indicates if the access list is inbound or outbound.

Incorrect Answers:

A: This is not a valid command.

B: The show ip route command displays the contents of the ip routing table.

D: The show interface command displays the serial interface configuration.

F: This is not a valid command.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 324-325, 280, and 106

QUESTION NO: 192

Exhibit:

172	20	7	160	
-----	----	---	-----	--

172.20.7.160	10101100	00010100	00000111	10100000	Host	1
255.255.255.192	11111111	11111111	11111111	11000000	Mask	2

You are configuring an IP printer that is connected to your network. You would like to use the last IP address that is on your subnet for this printer. You run ipconfig on your personal computer and the exhibit shows your IP address and its subnet mask. Based on your IP address and subnet mask what would the last possible address be on your subnet?

- A. 172.20.7.255
- B. 172.20.7.197
- C. 172.20.7.190
- D. 172.20.7.129
- E. 172.20.255.255

Answer: C

Explanation: In order to determine the last available host you will need to draw a vertical line just after the last contiguous subnet mask 1 bit. On the next line write the address that it to the left of the line and then to the right of the line place all 1s in the remaining spaces until the last free space. Place a 0 in this place. Convert the binary to dotted-decimal and this will be the last available host.

In this case the binary would be:

10101100 00010100 00000111 10 111110

This converts to

172.20.7.190

Incorrect Answers:

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- A: This is the IP that would be used to send a broadcast to all host of the 172.20.7 subnet.
- B: With the facts of this question this is not a valid IP.
- D: This is the IP address used to send a message to all hosts on the 172.20 network.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 232-234.

QUESTION NO: 193

Which of the following devices operate at Data Link layer of the OSI model? (Choose two)

- A. Router
- B. SMTP server
- C. Transceiver
- D. Switch
- E. Bridge
- F. Hub

Answer: D, E

Explanation: Switches and bridges operate the Data Link layer, layer 2, of the OSI model.

Incorrect Answers

- A: A router operates at the network layer, layer 3.
- B: An SMTP server operates at the upper layers of the OSI model.
- C: A transceiver works at the physical layer, layer 1.
- F: A hub operates at the physical layer, layer 1.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 14 – 25.

QUESTION NO: 194

You have just created an IP extended access list and now wish to apply this to an interface. Which command will allow you to apply the list to an interface?

- A. Permit access-list 101 out
- B. Ip access-group 101 out

- C. Apply access-list 101 out
- D. Access-class 101 out
- E. Ip access-list e0 out

Answer: B

Explanation: In order for an access list to be activated the ip-access group command must be used. This command activates the ip access list on an interface. Before you use the ip-access group command you must take care to ensure that you have configured an access list. If you do not the result will be permit any.

Incorrect Answers:

A, C-E: Are not valid commands.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 305.

QUESTION NO: 195

A publishing company has three routers in their network. Marshal, Sherman, and Patton. The Marshal and Sherman routers are fully configured. The Patton router is also fully configured, but need to have a password for the first 5 virtual lines, password for console, and an encrypted password for privileged mode.

Configure the passwords on the Patton router according to the table below.

Type	Password
Telnet	apple
Console	pear
Privileged	peach

- **The routers are named Marshal, Sherman, and Patton.**
- **The network is subnetted with a mask 255.255.255.224**
- **The routing protocol is RIP**
- **The serial 0 interface is provided with clocking.**
- **The chart below includes the IP addresses.**

Lab 1

Name : Marshal

E0 : 192.168.12.33

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S0 : 192.168.12.65

Lab 2

Name : Patton

E0 : 192.168.12.97

S0 : 192.168.12.129

S1 : 192.168.12.68

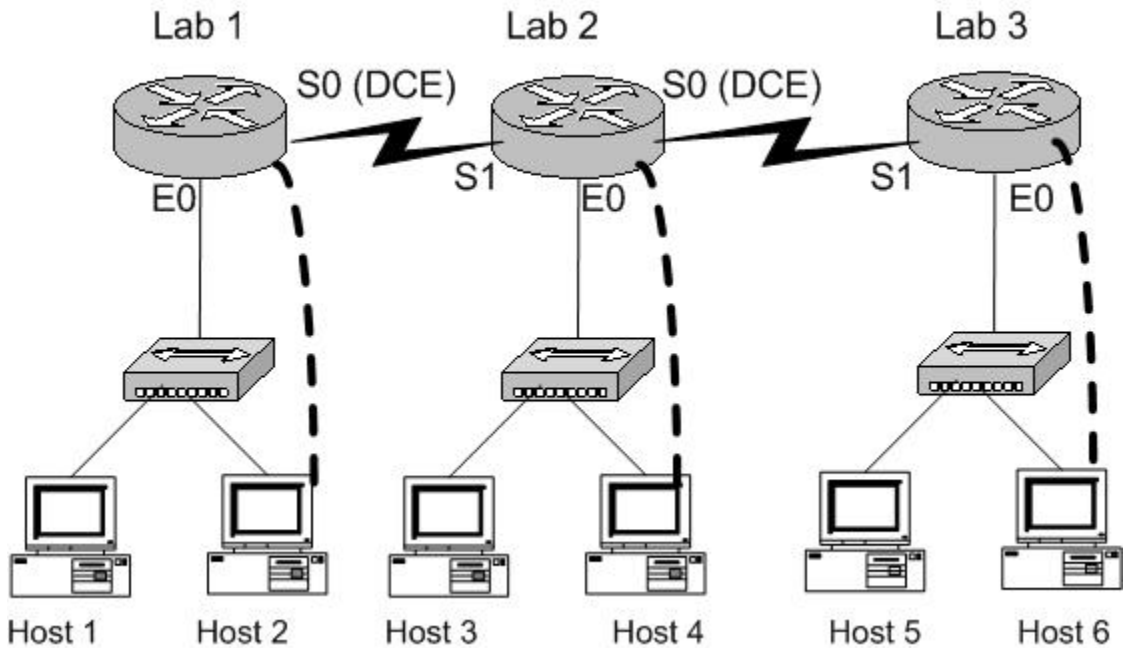
Lab 3

Name : Sherman

E0 : 192.168.12.97

S0 : 192.168.12.129

S1 : 192.168.12.68



Start by clicking on the router you want to configure.

Answer Lab 2:

<Click Router 2>

```

enable
config terminal
hostname Berley
enable secret peach
line con 0
login
password pear
line vty 0 4
login
password apple
^Z
copy running-config startup-config

```

Explanation:

We should configure the passwords, not any IP configuration on the interfaces.

First we click on the Lab2 router.

Router Con0 is now available

Press RETURN to get started.

! We press enter.

```

Router>enable
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname Patton
Patton(config)#enable secret peach
Patton(config)#line con 0
Patton(config-line)#login
Patton(config-line)#password pear
Patton(config-line)#line vty 0 4
Patton(config-line)#login
Patton(config-line)#password apple
Patton(config)#^Z
%SYS-5-CONFIG_I: Configured from console by console
Patton#copy running-config startup-config
Destination filename [startup-config]?
Warning: Attempting to overwrite an NVRAM configuration
previously written by a different version of the system image.
Overwrite the previous NVRAM configuration?[confirm]

```

! We enter enable mode

! We enter terminal configuration mode

End with CNTL/Z.

! We change the host name. This is however not required.

! Set the secret password.

! Configure the terminal connection

! Specify the terminal connection password

! Configure the telnet connections. Numbered 0, 1, 2, 3, 4.

! Specify password

! Exit from configuration mode.

! Save the running config to NVRAM.

! Confirm default selections

Building configuration...

[OK]
Patton#

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 102 – 103.

QUESTION NO: 196

Which one of the following characteristics about Ethernet Switches is true?

- A. Symmetric switching allows connection between ports of unlike bandwidth and does not require memory buffering.
- B. Memory buffering is used to prevent a bottleneck when ports of different bandwidth are connected on a symmetric switch.
- C. The latency can be reduced if the switch utilizes the store and forward method of switching. Store and forward is better for error detection.
- D. The cut-through method of switching is faster because the switch forwards the packet to the destination as soon as it reads the destination address.

Answer: D

Explanation: In cut-through mode, the switch checks the destination address (DA) as soon as the header is received and immediately begins forwarding the frame. Depending on the network transport protocol being used (connection or connectionless orientate), there is a significant decrease in latency from input port to output port. The delay in cut-through switching remains constant regardless of the size of the frame , because this switching mode starts to forward the frame as soon as the switch reads the DA.

Incorrect Answers:

- A:** Symmetric switching provides evenly distributed bandwidth to each port, while asymmetric switching provides unlike, or unequal, bandwidth between some ports.
- B:** This is not a true statement.
- C:** Store-and-forward switching increases latency.

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 162-163.
http://www.cisco.com/univercd/cc/td/doc/cisintwk/ito_doc/lanswtch.htm

QUESTION NO: 197

To configure RouterTK for operation in a Frame Relay environment, one of the recommended items to configure is the IGRP metric for the speed of the link. What command should you use?

- A. RouterTK(config)# IGRP metric 36k
- B. RouterTK(config)# bandwidth 36
- C. RouterTK(config-if)# metric 36k
- D. RouterTK(config-if)# bandwidth 36

Answer: D

Explanation: The **bandwidth** command overrides the default bandwidth. The bandwidth has no effect on the actual speed of the line. Instead, it is used to compute routing metrics and the load of the link. Bandwidth is expressed in Kilobits. It is specified during interface configuration.

Reference: Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 104-106.

Incorrect Answers

- A:** You cannot use **36k** in this statement. You have to supply a numerical value. Furthermore, you have to be in interface configuration mode.
- B:** You must be in interface configuration mode to define the bandwidth. The prompt must be *RouterTK(config-if)#*.
- C:** You cannot use **36k** in this statement. You have to supply a numerical value.

QUESTION NO: 198

Exhibit

```
TestK#show access-list
Extended IP access list 135
      deny    tcp any 131.107.0.0 0.0.255.255
eq 53
      deny    tcp any any eq telnet

TestK#show ip interface e0
Ethernet0 is up, line protocol is up
  Internet address is 172.17.9.60/24
  Broadcast address is 255.255.255.255
  Address determined by setup command
  MTU is 1500 bytes
  Helper address is not set
  Directed broadcast forwarding is enabled
  Outgoing access list is 135
  Inbound access list is not set
```

```
Proxy ARP is enabled
Security level is default
Split horizon is enabled

Rest of configuration omitted.
```

You have created an Extended IP access list. Now you apply the access list to Ethernet 0.

What is the result of this action?

- A. Only e-mail and telnet access will be permitted out of Ethernet 0.
- B. All hosts on the 172.30.24.64 network will be permitted e-mail and telnet access.
- C. All TCP protocols will be permitted out of Ethernet 0 except e-mail and telnet.
- D. All IP traffic out of Ethernet 0 will be denied.
- E. The access-list is numbered incorrectly and will fail.

Answer: D

Explanation: The exhibit is showing an extended IP access-list configuration. For this access list to have the desired effect it will require a permit statement at the end as there is an implicit deny statement otherwise. The statement should be: access-list 105 permit ip any any.

Incorrect Answers:

A, B and C: All traffic out will be denied without a permit statement.

E: The access-list is correctly numbered.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 310-320.

QUESTION NO: 199

Which of the following ranges are used for IPX standard access lists?

- A. 100 - 199
- B. 600 - 699
- C. 800 - 899
- D. 1000 - 1099

Answer: C

Explanation:

Access list exist for IPX traffic, just like they do with IP traffic. Like IP there are ranges for IPX access list. The IPX access list ranges are: 800 to 899 – standard access lists, 900 to 999 – extended access lists, and 1000 to 1099 – SAP filter access lists.

Incorrect Answers:

A: 100-199 is the range for an extended ip access address.

C: This is not a defined access list range.

D: The range 1000-1099 is for SAP filter access list.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 350-351 and 305.

QUESTION NO: 200

There are three major groups of routing protocols: distance-vector protocols, link-state protocols, and hybrid protocols. Select two valid statements regarding routing protocols? (Choose two)

- A. Distance vector protocols send the entire routing table to directly connected neighbors.
- B. Link state protocols send the entire routing table to all routers in the network.
- C. Distance vector protocols send updates about directory connected neighbors to all networks listed in the routing table.
- D. Link state protocols send updates containing the state of their own links to all other routers on the network.

Answer: A, D

Explanation: Distance vector protocols send their entire routing table to adjacent routers. Link-state protocols only send link-state updates to all routers on their network (or autonomous system).

Incorrect Answers:

B. Link state protocols do not send their entire routing table rather only updates on their own links.

C. Distance vector protocols in fact send their entire routing tables.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 259 – 260 and 274 – 275.

QUESTION NO: 201

Consider a standard half- duplex Ethernet circuitry. What is true concerning this circuitry?

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- A. It is alternate one-way communication.
- B. The receive (RX) is wired directly to the transmit (TX) of the remote station.
- C. The receive (TX) is wired directly to the receive (RX) of the remote station.
- D. Collisions are not possible.
- E. Both stations can transmit simultaneously.

Answer: A

Explanation: Half-duplex is a form of one-way communication. Traffic can flow in both directions, but only alternatingly, not simultaneously in both directions..

Incorrect Answers:

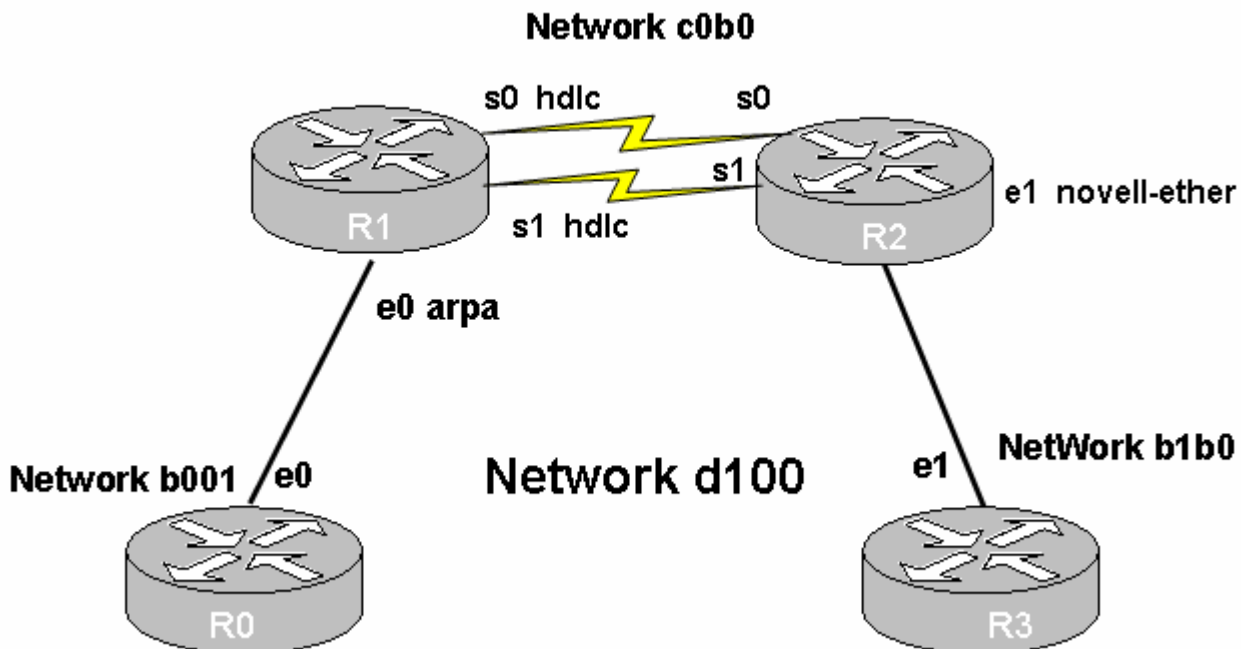
B, C: This describes a possibly wiring of full-duplex circuitry.

D: Collisions are possible on Half-duplex circuitry. CSMA/CD must be used to detect collisions. Collisions are not possible on Full-duplex circuitry.

E: Full-duplex stations are required for simultaneous transmission.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 163-165.

QUESTION NO: 202



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You are configuring R3 so that it can communicate with R2 on Ethernet port e1. What encapsulation should you use on s0 to setup this IPX network?

- A. SAP
- B. HDLC
- C. ARPA
- D. Novell-Ether

Answer: D

Explanation: In order for both routers to communicate they must be using the same type of encapsulation. Therefore e1 of router R3 must have novell-ether encapsulation.

Incorrect Answers:

A, B, and C: The two routers must have the same encapsulation type to communicate properly thus these encapsulation types could not be used.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 334-337.

QUESTION NO: 203

A Web consulting business has three routers in their systems. These router, Venus, Afrodite, and Zeus, are placed in separate local area networks. The Venus and Afrodite routers need no further configuration. The configuration of Zeus is also complete, except the password for the first 5 virtual lines, the password for the console, and the password for the privileged mode. The CIO has told you that the privileged password must be encrypted to achieve highest possible security.

Your task is to configure the passwords on the Zeus router. The passwords to configured are:

Type	Password
Telnet	Testking
Console	andorra

Lab 1

Name: Zeus

E0 : 213.197.14.189

SO : 213.197.14.211

Lab 2

Name: Venus

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E0 : 213.197.14.23

SO : 213.197.14.37

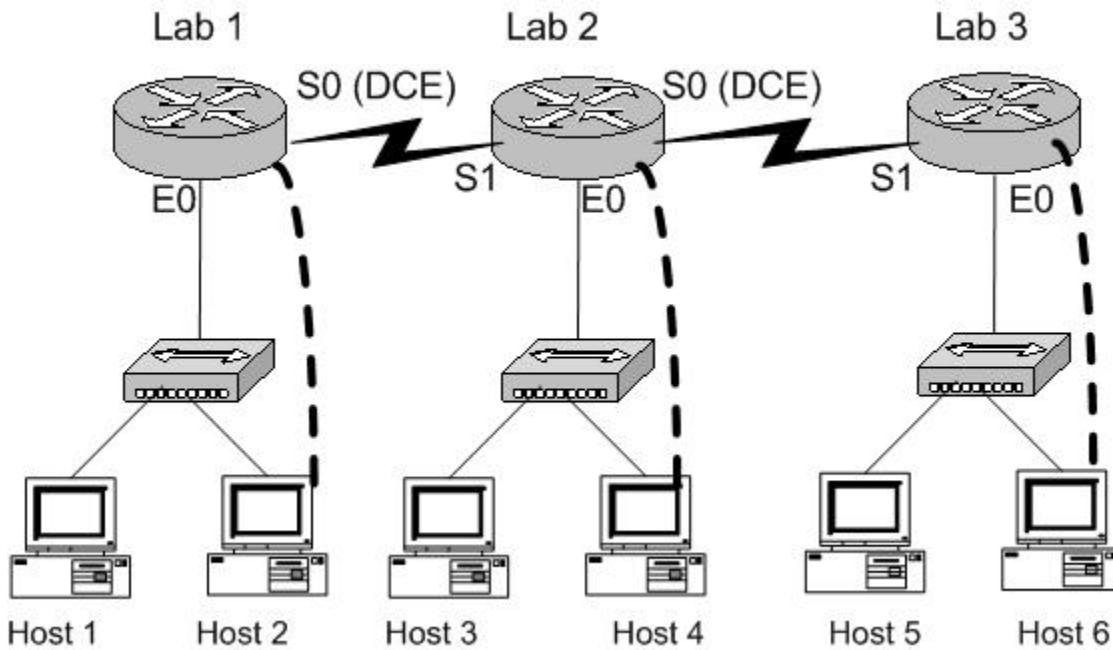
Lab 3

Name: Afrodite

E0 : 213.197.14.73

SO : 213.197.14.113

S1 : 213.197.14.120



Start by clicking on the router you want to configure.

Simulation answer:

Lab 1

<Click on the router below the Lab 1>

enable

config terminal

enable secret whatsoever

line vty 0 4

login

password Testking

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```

line console 0
login
password andorra
^z
copy running-config startup-config

```

Explanation:

For the task you don't need to change anything but passwords and we only have to perform Lab 1.

Router Con0 is now available

Press RETURN to get started.

! We press enter.

```

Zeus>enable
Zeus#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Zeus(config)#enable secret whatsoever
Zeus(config)#line vty 0 4
Zeus(config-line)#login
Zeus(config-line)#password Testking
Zeus(config-line)#line console 0
Zeus(config-line)#login
Zeus(config-line)#password Andorra
Zeus(config-line)#^Z
%SYS-5-CONFIG_I: Configured from console by console
Zeus#copy running-config startup-config
Destination filename [startup-config]?
Warning: Attempting to overwrite an NVRAM configuration
previously written by a different version of the system image.
Overwrite the previous NVRAM configuration?[confirm]
Building configuration...

[OK]
Zeus#

```

! Enter enable mode for configuration.

! Define an enable password (choose something).
! Make sure that you use the secret keyword.

! We configure the telnet keyword on all 5 telnet
! connections: 0, 1, 2, 3, 4

! Specify the telnet password.

! We configure the console password

! We specify the console password.

! We exit configuration mode with Ctrl-Z.

! We copy the running configuration to NVRAM.

! We accept the default target location (press enter)

! We confirm the overwrite (press enter)

Wendell Odom. Cisco CCNA Exam #640-507 Certification Guide. (Cisco Press: 2000) pages 28-30.

QUESTION NO: 204

You just purchased a brand new Cisco 2621 Router and now would like to configure password protection on this router. Which of the following are true regarding passwords on this router?

- A. All passwords can be encrypted.
- B. All passwords can be entered using the set-up dialogue.
- C. A password can be set before a user can enter the privileged mode.
- D. A password can be set for individual lines.
- E. TACACS or Radius password authentication can be used.

Answer: A, C, D, E

Explanation: In general enabled passwords are not encrypted but with the service password-encryption command all passwords are encrypted. Passwords are entered in the privileged mode and they can be set for individual lines. In addition TACAS or Radius password authentication can also be used.

Incorrect Answers:

B: The set-up dialogue box can only be used to enter some passwords.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 102-103.

QUESTION NO: 205

You want to make sure that access-list you just created does not conflict with an existing access-list. Which router command allows you to view all of the access-lists created and the contents of all access lists?

- A. Router# show interface.
- B. Router> show IP interface.
- C. Router# show access-lists.
- D. Router> show all access list.

Answer: C

Explanation: The show access-lists command will display the contents of all access lists. C is the closest to this command.

Incorrect Answers:

- A:** Only access lists bound to that interface would be displayed
- B:** Show ip interface command must be given in the privilege EXEC mode.
- D:** This is not a valid command.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 324-325.

QUESTION NO: 206

Which one of the following statements about an Ethernet LAN is true?

- A. The advantage of a full duplex is the ability to transmit data over Mbase2 cable.
- B. Full duplex Ethernet requires a point-to-point connection when only two nodes are present.
- C. Ethernet switches can use full duplex mode to connect multiple nodes to a single port of a switch.
- D. Half duplex is a cut through packet processing method that is very fast with little error correction, full duplex is store and forward method that is slower but has better error correction.

Answer: B

Explanation: Full duplex always requires there to be a point to point connection.

Incorrect Answers:

A: Full duplex is done over CAT 5 cable.

C: Full duplex can only be done if one node is attached to a particular port.

D: Half/Full duplex is independent of cut-through and/or store and forward.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 165.

QUESTION NO: 207

Assuming that our network is using an older version of UNIX what is the maximum number of subnets that can be assigned to networks when using the address 131.107.0.0 with a subnet mask of 255.255.240.0?

- A. 16
- B. 32
- C. 30
- D. 14
- E. It is an invalid subnet mask for the Network

Answer: D

Explanation: 131.107.0.0 is a Class B IP address. With a subnet mask of 255.255.240.0 they maximum number of subnets are 14 and 4094 hosts.

Incorrect Answers:

A: 16 is not a valid maximum number of subnets for a Class B IP address.

- B:** 32 is not a valid maximum number of subnets for a Class B IP address.
- D:** For a maximum number of subnets to be 30 the subnet mask would need to be 255.255.248.0.
- E:** 255.255.240.0 is a valid subnet mask.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 233 – 235.

QUESTION NO: 208

AJ has just created an IP access-list and you will like to see if he has applied this access-list to an interface. Which one of following commands will allow you to see if an access-list has been applied to an interface?

- A. Router# show ip interface
- B. Router> show access-list
- C. Router# show ip access-list
- D. Router> show interface ip access-list

Answer: A

Explanation: The show ip interface command displays IP interface information and indicates whether any access lists are set for a specific interface.

Incorrect Answers:

- B:** The show access-lists command must be given in the privileged EXEC mode.
- C:** Even if the proper command was used the end result would be the displaying of all IP access lists running in the router, not for a particular interface.
- D:** This is not a valid command.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 324-325.

QUESTION NO: 209

You have just been hired to setup a new company network. This company will be using an accounting package that requires multiple hosts. These hosts are the accountants and they must be able to support data transfer between each other at a rate of 10 Mbps. The company will also have a file server that is used for the other employees of the company who just use word processing applications that use less than 3 Mbps to transfer files to server.

What is your economical recommendation?

- A. That the existing 10BaseT hub be replaced with 100BaseT hub to improve overall performance.

- B. That a router can separate the testing application from the rest of the network thus allowing the testing application more bandwidth.
- C. That the switch be installed so that enterprise server can be provided a 100 Mbps port and each of the testing application hosts can be given dedicated 10 Mbps ports.
- D. That a bridge be placed between the enterprise server and all other users with the exception of the testing application.

Answer: C

Explanation: With buffering in the switch, the enterprise server can serve multiple hosts at almost full capacity, since the 100Mbps port will be faster than the rest of the users totaled as a whole.

Incorrect Answers:

- A:** This would require all NICs to be upgraded, and result in a large collision domain with possible poor performance.
- B:** A router would become a bottleneck, and not allow efficient performance.
- D:** A bridge would be a bottleneck, and not be able to provide the necessary performance and throughput.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 31-38.

QUESTION NO: 210

You would like to use Ethernet 100BaseTx in your network. What is the maximum cable length?

- A. 10 m
- B. 50 m
- C. 100 m
- D. 1000 m

Answer: C

Explanation: The 100BaseTx maximum cable length is 100 m.

Incorrect Answers:

- A and B:** Neither 10 m nor 50 m are maximum cable lengths.
- F:** This is the maximum length of fiber optic.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 45-46.

QUESTION NO: 211

One of the security mechanisms used in securing a router is access-lists. You have decided to use Standard IP access lists in your company which of the following is an example of a Standard IP access lists?

- A. Access-list standard 172.16.4.13
- B. Access-list 2 deny 172.16.4.13 0.0.0.0
- C. Access-list 101 deny 172.16.4.13 0.0.0.0
- D. Access-list 199 deny 172.16.4.13 255.255.255.255

Answer: B

Explanation: A standard access list is in the range of 1-99 and the proper command syntax is access-list {access-list number} {permit or deny} {test conditions}. In this case the test condition is an ip address.

Incorrect Answers:

- A:** The access command must contain a number and whether the action is to be permitted or denied.
- C:** Is an extended access-list number and not a standard number.
- D:** 199 is also an extended access-list number and not a standard number.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 304-305.

QUESTION NO: 212

Using your protocol analyzer you have determined your network is very congested. Currently all the devices are connected through a hub. Which solution would best decrease congestion on the network?

- A. Add a second hub.
- B. Replace the hub with a router.
- C. Replace the hub with a switch.
- D. Replace the hub with a repeater.

Answer: C

Explanation: A switch would eliminate the collision domains and thus increasing speed.

A router would break each segment into their own collision domains and broadcast domains. This would reduce network congestion the most.

Incorrect Answers:

- A:** There will still be one collision domain which would mean that the network would still be congested.
- B:** A router can be used to segment the network into subnets. However, this would require further adjustments: the subnets must be created. Furthermore, a switch is faster than a router and a single hub needs to be replaced.
- D:** A repeater does not affect congestion.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 20-27.

QUESTION NO: 213

What is the maximum cable distance for 100BaseT?

- A. 607 ft
- B. 25 meters
- C. 1000 ft
- D. 100 meters
- E. 185 meters

Answer: D

Explanation: A 100BaseT cable cannot be any longer than 100 meters.

Incorrect Answers:

A, B, C, & E: Are wrong.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 45.

QUESTION NO: 214

Which of the following are true about debug output?

- A. The default is to send debug output to the console screen.
- B. To view debug output from a telnet session, the "terminal monitor" command must be used.
- C. If the "logging buffered" command is used, the debug output would be sent to RAM and can be viewed with the "show log" command.
- D. If the "no logging console" command were configured, output would not be sent to the console.
- E. All of the above.

Answer: E

Explanation: Debug is one of the most powerful diagnostics tools to troubleshoot a router. By default the output goes to the console screen. User might or might not be interested in seeing the messages as they occur. The console port always receives syslog messages. When a user telnets to the router, however, no syslog messages are seen unless the user issues the terminal monitor command. Another alternative for viewing syslog messages is to have the IOS record the syslog messages in a buffer in RAM, and then use the show logging command to display the messages. For telnet users, having the messages buffered using the global config command logging buffered is particularly useful. The no console logging command were configured, output would be sent to a telnet session.

Incorrect Answers:

A, B, C and D: Are partially correct individually.

Wendell Odom. Cisco CCNA Exam #640-507 Certification Guide. (Cisco Press: 2000) pages 33.

QUESTION NO: 215

Your company has decided to pay for one ISDN B channel to your to house so that you can do some technical support from home. What is the bandwidth capacity of a single ISDN B channel?

- A. 16 Kbps
- B. 64 Kbps
- C. 128 Kbps
- D. 512 Kbps
- E. 1.54 Mbps

Answer: B

Explanation:

The Bearer (B) channel transfer rate is 64 kbps.

Incorrect Answers:

A: Is the Delta (D) channel that has a transfer rate of 16 kbps.

C, D and E: The ISDN B channel only operates at a maximum of 64 kbps.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 387-388.

QUESTION NO: 216

You are using two back-to-back serial cables in your test lab between two Cisco routers. You have determined that one of these routers is the DCE by using the show controllers command. You now need

to configure the clock rate to 64 Kbps on serial0 which one of the following commands will allow you to do this?

- A. Clockrate 64
- B. Clock rate 64
- C. Clockrate 64000
- D. Clock rate 64000
- E. Set clockrate 64
- F. Serial 10 clockrate 64
- G. Clock rate 64000 serial 10

Answer: D

Explanation: The proper syntax to set the clock rate is clock rate {speed}. Please remember the speed cannot be abbreviated.

Incorrect Answers:

A and C: Clock rate must be separated.

B: The speed cannot be abbreviated and must be 64000.

E, F and G: These are not valid commands.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 105-106.

QUESTION NO: 217

You have just purchase a brand new router and need to configure this router after the router boots up you exit the setup mode by pressing Ctrl-C and you are now in user mode which command do you use to enter the privileged mode so that you can configure the router?

- A. Set
- B. Enable
- C. Configure
- D. Privileges

Answer: B

Explanation: To change from the user EXEC mode to the privileged EXEC mode the command is enable.

Incorrect Answers:

A: The command set must be followed by another parameter such as user and the set command cannot be used to get into the privileged mode

C: Configure is used in privileged mode, but does not ENTER that mode.

D: This is not a valid command.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 69-70.

QUESTION NO: 218

Which of the following are considered VLAN benefits?

- A. It increases the number of broadcast domains.
- B. It decreases the number of broadcast domains.
- C. It increases the number of collision domains.
- D. It decreases the number of collision domains.
- E. Since it is a virtual interface, it never shuts down.

Answer: A

Explanation: A VLAN is a logical broadcast domain that can span multiple physical LAN segments. A VLAN can be designed to provide independent broadcast domains for stations logically segmented by function, project teams, or application without regard to the physical location of the users. Due to this the number of broadcast domains increase.

Incorrect Answers:

- B:** The broadcast domains actually increase not decrease.
- C:** There is no direct effect on collision domains.
- D:** There is no direct effect on collision domains.
- E:** Virtual interfaces can be shut down.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 179-184.

QUESTION NO: 219

Gail is having trouble configuring Frame Relay subinterfaces. You decide to send Gail an email explaining some of the installation procedures. Which of the following should you include in your email? (Choose three)

- A. Each subinterface is configured either multi point or point to point.
- B. Any network address must be removed from the physical interface.
- C. The configuration of subinterfaces is done in router Config-(if)# mode.
- D. Frame relay encapsulation must be configured on each sub interface.

Answer: A, B, C

Explanation: When configuring Frame Relay at the sub interface there are a number of points that you be kept in mind. To configure subinterfaces on a physical interface, do the following:

1. Select the interface you want to create subinterfaces on, enter interface configuration mode, (config-if)#.
2. It is recommended that you remove any network layer address assigned to the physical interface and assign the network layer address to the subinterface.
3. Configure Frame Relay encapsulation on the physical interface.
4. Identify the subinterface as either multipoint or point-to-point.

Incorrect Answers:

D: The encapsulation type must be done on the physical interface.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 428-429.

QUESTION NO: 220

You are using setup mode to configure your router for the first time. What does the square bracket indicate in setup mode?

- A. Current or default settings.
- B. Hard coded values that cannot be modified.
- C. Values entered by the administrator but not saved.
- D. Values that must be returned to NVRAM before becoming enabled.

Answer: A

Explanation: When in the setup dialog box the default/current settings are in the square brackets.

Incorrect Answers:

B, C, and D: The square brackets represent current or default settings.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 85.

QUESTION NO: 221

You have just purchased a router from an online auction and this router had an existing IOS installed on it. You would like to make a backup copy of this IOS. Which one of the following commands will allow you to do this?

- A. Copy Flash TFTP
- B. Save Copy TFTP
- C. Write Backup TFTP
- D. Write Backup (server-name)
- E. Copy backup 2 (server-name)

Answer: A

Explanation: The proper command to save the IOS image is copy flash tftp. This will copy the IOS onto a tftp server.

Incorrect Answers:

B: There is no save command. With Cisco to save something you most often copy it.

C and D: There is no Write command.

E: This is not a valid command combination.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 138-139.

QUESTION NO: 222

You are concerned about security on your network. You have a router that is connected to the Internet and do not want your RIP updates being sent out this interface that is connected to the Internet. Which command will prevent these updates from going out the interface without using access-lists?

- A. Passive route.
- B. Default routes.
- C. Passive interface.
- D. Route update filtering.

Answer: C

Explanation: The passive interface command will prevent the sending of RIP updates.

Incorrect Answers:

A: Passive routes as used with IGRP and not RIP.

B: Default/static routes will not prevent RIP updates.

D: Filtering is most often achieved on a router with an access list.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 254-282.

QUESTION NO: 223

Which of the following correctly describe IP addressing? (Choose Two)

- A. IP multicast addresses start with 240.
- B. A host portion of all 1's indicates a network broadcast.
- C. The value of zero (0) in the host portion means "all hosts" on the network.
- D. IP addresses are four octets long and contain a network portion and a host portion.

Answer: B, D

Explanation: IP addresses contain 4 octets. IP addresses contain two parts: one to identify the network and the other to determine the host. Which octet identifies what is dependant on the class of the IP address. When a message is to be flooded the IP address contains all 1s.

Incorrect Answers:

- A:** Multicast broadcasts of range of IPs is 224-239t. 240 begins the range of reserved (Class E) addresses.
- C:** To flood a message to all host of a network, the IP address would contain the network identification and then all 1s (represented by 255) in the host portion of an IP.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 222-232.

QUESTION NO: 224

You are performing password recovery on a router and you have already adjusted the configuration register and are now in the router that appears to have no configuration. You notice the old configuration is still saved in NVRAM and you now want to copy the old configuration that is in NVRAM to the current configuration that is in RAM. Which command retrieves the configuration file from NVRAM?

- A. Config NVRAM.
- B. Copy NVRAM running-config.
- C. Copy startup-config running-config.
- D. Copy running-config startup-config.

Answer: C

Explanation: To copy the IOS image in the NVRAM to the RAM the copy startup-config running-config command is used.

Incorrect Answers:

A: This is not a valid command combination.

B: This is not a valid command combination.

D: This actually copies the IOS image from the RAM to the NVRAM which is the exact opposite of what the question asked.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 133.

QUESTION NO: 225

Which of the following are facts about Reverse Address Resolution Protocol? (Choose two.)

- A. It generates parameter problem messages.
- B. It maps IP addresses to Ethernet addresses.
- C. It maps Ethernet addresses to IP addresses.
- D. It is implemented directly on top of the data link layer.

Answer: C, D

Explanation: Reverse Address Resolution Protocol (RARP) is another protocol defined at the IP layer. RARP is used by workstations that do not know their own IP address when they come up. RARP allows workstations to send out a request for its own IP by sending its own Layer 2 MAC address to a waiting RARP server. ARP and RARP are implemented directly on top of the data link layer.

Incorrect Answers:

A: RARP determine IPs based on MAC addresses.

B: ARP maps IP addresses to MAC addresses.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 218-220.

QUESTION NO: 226

Your company has decided to use a (BRI) connection between the Florida office and the Georgia office. You would like to configure dial on demand routing (DDR) on this connection. Which of the following commands are required to setup DDR? (Choose three)

- A. Define static routes.
- B. Configure the dialer information.
- C. Specify interesting traffic that can enable the link.
- D. Define DDR password to exchange when the link comes up.

Answer: A, B, C

Explanation:

To configure standard DDR, the following steps are required:

1. Define static routes – What route do I take to get to the destination?
2. Specify interesting traffic – What traffic type should enable the link?
3. Configure the dialer information – What number do I call to get to the next hop router, and what service parameters do I use to call?

Incorrect Answers:

D: Defining a DDR password is not required.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 400-403.

QUESTION NO: 227

For security reasons you would like a system message displayed when logging into a router. Which of the following allows you to create this message?

- A. Banner MOTD
- B. Message MOTD
- C. Banner Message
- D. Message Banner

Answer: A

Explanation: In order for a user to see a message when the log into a router a message of the day will need to be employed. The command to do this is banner motd.

Incorrect Answers:

B: The command is banner not message.

C: The proper parameter is motd not message.

D: This is an invalid command.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 101-102.

QUESTION NO: 228

You have just configured DDR (Dial on Demand Routing) and would like to test the link. What can you use to bring up the connection?

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- A. Increase the idle timeout parameter.
- B. Send interesting traffic across the link.
- C. Reboot one of the Integrated Services Digital Network (ISDN) routers.
- D. Reset the DDR Integrated Services Digital Network (ISDN) router statistics to zero.

Answer: B

Explanation:

Of the options provided above the best way to determine if there is connectivity on a dial-on-demand routing link is to send interesting traffic across the link. If there is connectivity a link will be initiated and established to send the interesting traffic. If there is no connectivity then the link will not be established.

Incorrect Answers:

- A:** Increasing the idle time parameter will only result in increasing the idle time.
- C:** Rebooting the router will only result in the router going through its post.
- D:** This action will not confirm whether a DDR has connectivity or not.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 397-407.

QUESTION NO: 229

You need to create a subinterface so that you can support different Frame-Relay encapsulations. Which command specifies a second subinterface on serial interface zero?

- A. Interface s 0.2 point - to point.
- B. Interface 2 s 0 point to point.
- C. Sub interface 2 s 0 point to point.
- D. Interface 0 sub 2 point to point.
- E. Interface s 0.1 point to point sub 2.

Answer: A

Explanation: The proper syntax for configuring a second subinterface is interface 0.2 point-to-point. Option A is the closest to this command. The syntax after the command interface is serial interface number (0 in this case).subinterface number (2 in this case) and this followed by the either multipoint or point-to-point.

Incorrect Answers:

- B:** Remember that the syntax is suppose to be number.subinterface number and that there is suppose to be two hyphens in point -to-point.
- C:** The command is interface not subinterface.

- D:** The two numbers are broken by a period and not the word sub.
- E:** This is not the proper syntax. Remember the interface and subinterface are identified by number.subintreface number.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 428-429.

QUESTION NO: 230

You issued the show spantree e0/1 command which part of the output indicates that virtual LAN1 (VLAN1) is functioning properly?

- A. Root port is fast Ethernet 0/26.
- B. Port Ethernet 0/1 of VLAN is forwarding.
- C. Designated port is Ethernet 0/1, path cost 10.
- D. Designated root has priority 0 address 00D0.588F.B600.
- E. VLAN is executing the IEEE compatible spanning tree protocol.

Answer: E

Explanation: To determine if the VLAN is functioning properly on will need to examine the first line of the output. That is, VLAN is executing the IEEE compatible spanning tree protocol.

Incorrect Answers:

- A:** This line indicates what the switch thinks is the root port.
- B:** This line indicates which port is forwarding.
- C:** This line indicates the designated port and its associated cost.
- D:** This line indicated the MAC address of the designated root.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 199-200.

Q.231

Frame Relay uses _____ to define the rate, in bits per second , that the Frame Relay switch agrees to transfer data?

- A. Clock rate (CR).
- B. Committed Information Rate (CIR)
- C. Local management interface (LMI)
- D. Data-link connection identifier (DLCI)
- E. Committed Rate Measurement Interval (CRMI)

Answer: B

Explanation: CIR is the rate, in bits per second, at which the service provider states that data will be transferred.

Incorrect Answers:

A: Clock rate is the transmission medium speed, which is determined by modem clocking.

C: LMI is a signaling standard between the router device and the Frame Relay switch that is responsible for managing the connection and maintaining the status between the devices.

D: DLCI is addressing used to identify virtual circuits.

E: This is the sampling period used in controlling CIR, but is not the rate itself.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 413-414.

QUESTION NO: 232

You are trying to determine if the connection between your Router and the Frame-Relay switch is good. Which show command should you use to view Frame Relay local management interface (LMI) traffic statistics?

- A. Show lmi.
- B. Show ip route.
- C. Show interface.
- D. Show statistics.
- E. Show frame-relay lmi.

Answer: E

Explanation: The show frame-relay lmi command displays lmi statistics. An example of one of these statistics is the number of status messages sent between the local router and the Frame Relay switch.

Incorrect Answers:

A: Show lmi is not a valid command.

B: Show ip route command displays the contents of the IP routing table.

C: Show interface command displays a serial interface configuration

D: Show statistics is not a valid command.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 422-423, 280, and 106.

QUESTION NO: 233

Which of the following is a Layer 2 device?

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

Answer: C

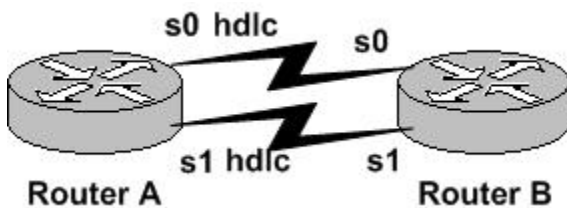
Explanation: Switches and Bridges run on Layer 2.

Incorrect Answers:

A and D: They are Layer 1 – Physical Layer devices

B: Routers are layer 3 device.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 14-24.

QUESTION NO: 234

You are configuring the IPX encapsulation between RouterA and RouterB. This connection will be using the S0/0 port on RouterA to S0/0 on RouterB. Which encapsulation type should be used for the S0/0 port of RouterB?

- A. SAP
- B. HDLC
- C. ARP
- D. NOVELLEETHER

Answer: B

Explanation: RouterA S0/0 connects to RouterB S0/0. RouterA S0/0 uses HDLC, and BOTH sides must run the same protocol in order to communicate (it is like talking the same language; you can't have one side English and the other Side French).

So the correct answer is HDLC.

Incorrect answers:

A, B and C: The two routers must have the same encapsulation type to communicate properly thus these encapsulation types could not be used.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 368-373.

QUESTION NO: 235

Our network uses both IPX and IP addressing and we have a direct connection to the Internet using IP. We would like to allow our IPX traffic to also be able to go across this internet to a remote router on the other side. Which term below will allow us to encapsulation IPX inside of IP so that we can send it across the Internet?

- A. Bridging.
- B. Tunneling.
- C. Data-link control.
- D. Generic routing.
- E. Packet switching.

Answer: B

Explanation: Tunneling is the process whereby a router encapsulates one Layer 3 protocol inside another protocol (typically IP) for transport across a network to another router. The receiving router de-encapsulates the packet, leaving the original packet.

Incorrect Answers:

A: Bridging occurs within the same collision domain.

C: Data link control has nothing to do within communication between networks.

D: Generic routing is not the Cisco term used for communication between networks.

E: Packet switching refers to WAN communication.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 12-14.

QUESTION NO: 236

You have decided to remove RIP routing on your router and install IGRP. You have issued the command no router rip on all of your routers. You now need to install IGRP on your routers. Which commands should you use to enable IGRP routing?

- A. router igrp 100
network 192.168.1.0
network 10.0.0.0
- B. router igrp 100
network 192.168.1.0
network 10.2.0.0
- C. router igrp 100
network 192.168.1.0 192.168.1.1
network 10.2.0.0 10.2.1.1
- D. router igrp 100
network 192.168.1.0 255.255.255.0
network 10.2.0.0 255.255.0.0

Answer: A

Explanation: To enable IGRP you use the router igrp and network commands. Please note an autonomous system number must follow the router igrp command and a valid network number must follow the network command. For RIP and IGRP network numbers must be a major class network number and does include neither subnet numbers nor individual addresses.

Incorrect Answers:

B: The number 10.2.0.0 is the problem for this option

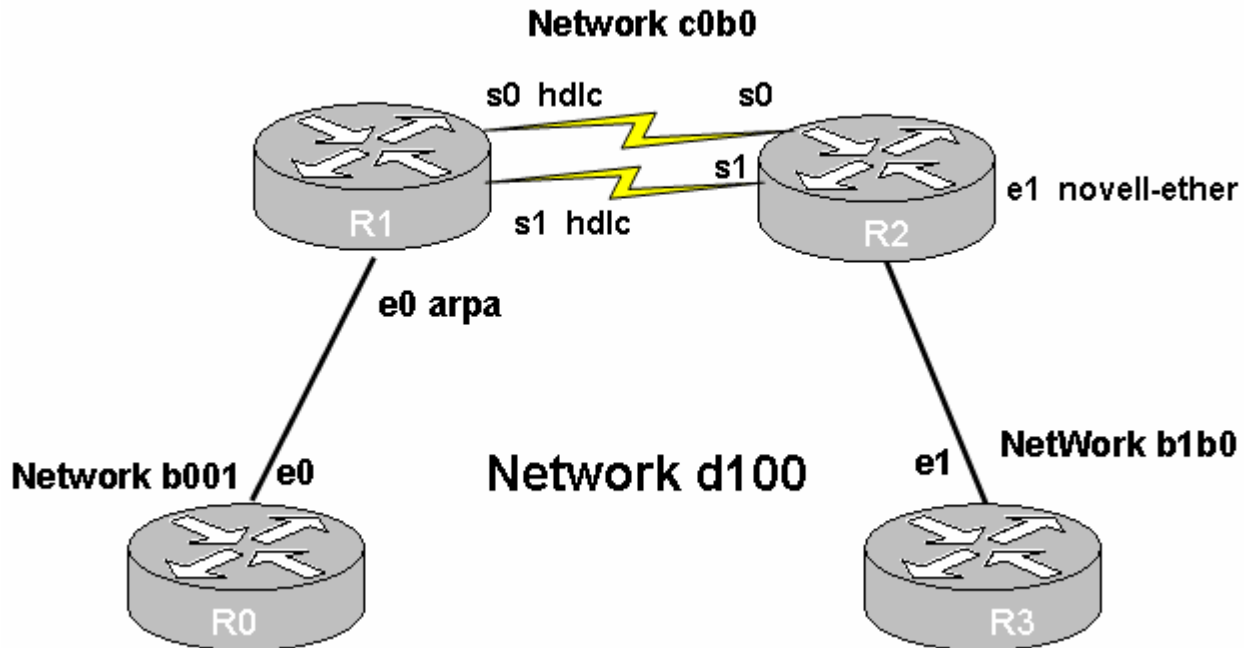
C: Each network identified must have its own network command.

D: This is not correct, as there is no need to use the subnet mask for the networks.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 277, 285-286.

QUESTION NO: 237

Exhibit



You want to create a sub interface on serial 0 on Router R2. Which of the following is the correct syntax to create this sub interface 2?

- A. Interface s0.2 point-to-point.
- B. Interface 2s0 point-to-point.
- C. Subinterface 2s 0 point-to-point.
- D. Interface s0 sub2 point-to-point.
- E. Interface s0.1 point-to-point sub2.

Answer: A

Explanation: The proper syntax for configuring a second subinterface is interface 0.2 point-to-point. Option A is the closest to this command. The syntax after the command interface is serial interface number (0 in this case).subinterface number (2 in this case) and this followed by the either multipoint or point-to-point.

Incorrect Answers:

- B:** Remember that the syntax is suppose to be number.subinterface number and that there is suppose to be two hyphens in point -to-point.
- C:** The command is interface not subinterface.
- D:** The two numbers are broken by a period and not the word sub.
- E:** This is not the proper syntax. Remember the interface and subinterface are identified by number.subintreface number.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 428-429.

QUESTION NO: 238

Using a Packet analyzer you discover the following address 238.255.255.255. What is the protocol and what is the purpose of the address?

- A. IPX; a SAP broadcast.
- B. IP; a multicast address.
- C. IP; a reserved address.
- D. IP; a directed broadcast.
- E. IPX; a flooded broadcast.

Answer: B

Explanation: Class D addresses (multicast addresses) include the following range of network numbers: 224.0.0.0 to 239.255.255.255. 238.255.255.255 is within this range.

Incorrect Answers:

A: This is not an IPX address.

C: Class E addresses (research addresses and sometimes called reserved) include the following range of network numbers: 240.0.0.0 to 247.255.255.255.

D: An IP directed broadcast would include the first 3 octets of the IP address and 255 would replace the fourth octet.

F: This is not an IPX address.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 222 – 224.

QUESTION NO: 239

Your company is using Novell v4.1. You need to display the Novel IPX address on a router. Which one of the following commands will allow you to display this address?

- A. Show IPX addresses.
- B. Show IPX interface.
- C. IPX network <number>
- D. Display IPX addresses
- E. Show IPX routing details

Answer: B**Explanation:**

The show ipx interface command shows the status of the IPS interface and IPS parameters configured on each interface. This includes the IPX address.

Incorrect Answers:

A: There is no such command as show ipx addresses.

C: The ipx network command is used to enable IPX routing on a particular interface. The <number> parameter is used to identify the network that IPX is enabled on.

D: Whenever you want to display something on a Cisco interface you use a show command. There is no such command as display ipx addresses.

E: There is no such command as show ipx routing details. To show the contents of a routing table you would use the show ipx route command.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 345-347.

QUESTION NO: 240

Which statement should you use to deny telnet access only from Network 210.93.105.0 to Network 223.8.151.0?

- A. Access-list one deny 210.93.105.0.0.0.0.0 any eq 23 access-list one permit any.
- B. Access-list 100 deny tcp 210.93.105.0 0.0.0.255 223.8.151.0 0.0.0.255 eq 23
- C. Access-list 100 deny ip 223.8.151.0 0.0.0.255 any eq 23
Access-list 100 permit ip any any
- D. Access-list 100 deny tcp 210.93.105.0 0.0.0.255 223.8.151.0 0.0.0.255 eq telnet
Access-list 100 permit ip any any

Answer: D

Explanation: Great care must be taken whenever an access list is configure as there is an assumption of deny all when they do not match the access list. The proper command for configuring an extended access to deny telnet traffic is: access-list 100 deny tcp source address destination address eq telnet. When configured this way the access list will deny ftp traffic and permit all other.

Incorrect Answers:

A: The entire statement has syntax problems. You use a number, not a word (one) for the access list, and the access list for this problem needs to be an extended address list in the range of 100-199.

B: This access list will deny access, but then any non-match falls through and will be denied.

C: This access list denies access from 223.8.151.0 to anywhere else – this is not what the problem asked. 223.8.151.0 is supposed to be the destination, not the source.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 318-320.

QUESTION NO: 241

Given the configuration example:

```
interface ethernet0
ipx network 100
ipx access-group 800 out
interface ethernet1
ipx network 200
interface ethernet2
ipx network 300
access-list 800 permit 200 100
```

Which two actions result from implementing this configuration? (Choose two.)

- A. IPX network 400 will not receive any traffic.
- B. Traffic from network 200 for network 100 will be forwarded out e0.
- C. Traffic from network 200 for network 200 will be forwarded out e0.
- D. Traffic from network 200, destined for network 100, will be forwarded out e2.
- E. The access list is applied to an outgoing interface and filters outbound traffic.

Answer: B, E

Explanation:

The key commands for this question are “ipx access-group 800 out” and “access-list 800 permit 200 100”. The first command identifies the access list as an outbound access list. In the command “access-list 800 permit 200 100” the first network, 200, is source network number and the second network, 100, is the destination network.

Incorrect Answers:

- A:** There is no reference to network 400 in this question.
- C:** Network 200 would not need the access list to send traffic within itself.
- D:** This traffic will be forwarded to interface e0, not interface e2..

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 353-354.

QUESTION NO: 242

You are trying to convince your boss to switch from a hub to a Cisco switch. You have explained to your boss that you will have fewer collisions with the Cisco switch because you will be using full-duplex. Your boss responds with how many collisions are caused by transmitting and receiving frames simultaneously in full-duplex mode. What should your response be?

- A. One
- B. Two
- C. None
- D. Several

Answer: C

Explanation: Full Duplex requires one and only one device to be hooked up to a switch port, and each switch port is a separate collision domain. Since there is no contention (the node has exclusive control of the segment) there are no collisions.

A, B and D: It is impossible for collision to occur within a full duplex network.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 163-165.

QUESTION NO: 243

Using a class C address 192.168.10.X what would the subnet mask be if we needed two subnets with a maximum of 35 hosts on each subnet?

- A. 255.255.255.192
- B. 255.255.255.224
- C. 255.255.255.240
- D. 255.255.255.248

Answer: A

Explanation: For the networks, we need 2 bits. We must really accommodate for networks, because when we subnet the formula is $2^{*n} - 2$. For 35 hosts, we need a minimum of 37 hosts for the same reason, $2^{*n} - 2$. We round 37 up to the next power of 2, which is 64, and we need 6 bits for the host. We use $2+6=8$ bits.

When we look at the bit locations, the first two bits of the fourth octet will be $128+64=192$. Thus the subnet mask will be 255.255.255.192. Since there is no room to adjust the allocation, everything fits fully into 8 bits, none of the other subnet masks will provide this combination.

Incorrect Answers:

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B, C and D: These subnet masks provide too many networks and not enough host addresses.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 225-228 and 236.

QUESTION NO: 244

You as the administrator issue the shutdown command on Serial 1. You later view this interface using the show interface Serial 1 command. How will this interface be displayed?

- A. Serial 1 is up, line protocol is up.
- B. Serial 1 is up, line protocol is down.
- C. Serial 1 is down, line protocol is down.
- D. Serial 1 is administratively down, the line protocol is down.

Answer: D

Explanation: The shutdown command administratively disables an interface. The result is the interface will be down as will the line protocol. It will end calls in progress.

Incorrect Answers:

- A:** The statement shows that the interface and the protocols are both up. This would not be the case if the shutdown command were used.
- B:** This statement shows that the line is up but the line protocol is down.
- C:** The line would be administratively down if the shutdown command had been used.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 107, 406-407.

QUESTION NO: 245

Company ABC was supplied the following Class C IP address 195.20.10.0. You have been hired as the network administrator of Company ABC. Your first task is to split the address for the different buildings that Company ABC owns and operates. Which of the following are the most important factors when subnetting the addresses? (Choose two)

- A. Determine the number of separate networks required.
- B. Determine how many devices will require DHCP addressing.
- C. Determine the maximum number of host that will be on each subnet.
- D. Determine the minimum number of host that will be on each subnet.
- E. Determine which router will be the IP default gateway for each subnet.

Answer: A, C

Explanation: Whenever a network is going to be divided by a router a number of factors needs to be considered when selecting a subnet mask. Two factors that need to be considered is the number of networks that you require and the maximum number of host each subnet will require.

Incorrect Answers:

B: DHCP addressing is not relevant in the subnet mask design.

D: Since the number of hosts has to satisfy ALL of the subnets, we must accommodate the subnet with the highest number of hosts, so we need the maximums of each, and then take the largest of all the maximums.

E: This task may need to be done but this task has nothing to do with designing the new subnet mask.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 235-237.

QUESTION NO: 246

What are two benefits of segmenting a network with a later 2 bridge? (Choose two)

- A. To reduce collisions.
- B. To increase collisions.
- C. To add collision domains.
- D. To reduce collision domains.
- E. To have more broadcast domains.

Answer: A, C

Explanation: When you segment a network with a bridge you are reducing the number of collisions by creating another collision domain.

Incorrect Answers:

B: A bridge decreases collisions, not increases collisions.

D: Collision domains are increased, not decreased.

E: There is still one and only one broadcast domain.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 21-24.

QUESTION NO: 247

Which of the following can reset a hold-down timer? (Choose three.)

- A. When the hold-down timer expires.

- B. When infinity is finally defined as some maximum number.
- C. When the router exchanges update summaries at area borders.
- D. When the router detect faulty LSPs propagating through the internetwork.
- E. When another update is received indicating a new route with a better metric.
- F. When another update is received indicating the original route to the network has been restored.
- G. When the router receives a processing task proportional to the number of links in the internetwork.

Answer: A, E, F

Explanation: Holddown timers work as follows:

1. When a router receives an update from a neighbor indicating that a previously accessible network is now in accessible, the router marks the route as inaccessible and starts the holddown timer.
2. If an update arrives from the neighboring router with a better metric than originally recorded for the network, the router marks the network as accessible and removes the holddown timer.
3. If at any time before the holddown timer expires an update is received from a different neighboring router with a poorer metric, the update is ignored. Ignoring an update with a poorer metric when the holddown is in effect allows more time for the knowledge to change to propagate through the network.
4. During the holddown period, routes appear in the routing table as “possible down”.

Routers remain in holddown until one of the following events occurs: the holddown expires; another update is received indicating a new route with a better metric; and a flush timer, which is the time a route would be held before being removed, removes the route from the routing table.

Incorrect answers:

B, C, D and G: None of these situations will remove a holddown timer.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 269-273.

QUESTION NO: 248

You are troubleshooting a problem between RouterA and RouterB from RouterA. Which command will successfully ping the ip address of RouterB?

- A. RouterA>ping 131.5.5.0
- B. RouterA# ping 131.5.5.30
- C. RouterA> ping 131.5.5.256
- D. RouterA# ping 131.5.5.255

Answer: B

Explanation: In order to ping an individual IP address you must be in the privileged EXEC mode.

Incorrect Answers:

- A:** To ping you must be in the privileged EXEC mode not the user EXEC mode.
- C:** To ping you must be in the privileged EXEC mode not the user EXEC mode.
- D:** This is not a valid host IP individual IP address.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 69 and 123-124.

QUESTION NO: 249

In comparing TCP with UDP what is an advantage of using a connectionless protocol such as UDP?

- A. Packet acknowledgement may reduce overhead traffic.
- B. Loss or duplication of data packets is less likely to occur.
- C. Packets are not acknowledged which reduces overhead traffic.
- D. The application relies on the transport layer for sequencing of the data packets.

Answer: C

Explanation: Connectionless protocols have many advantages. One of the main advantages is that there is a reduction in overhead traffic, as acknowledgments are not sent. This does, though, increase the likelihood of a lost packet.

Incorrect Answers:

- A:** There is no packet acknowledgement in UDP.
- B:** This is the opposite, UDP does not guarantee against packet loss.
- D:** UDP does not expect packet ordering.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 29-30.

QUESTION NO: 250

You are suggesting that your company uses IP RIP as its routing protocol. Your boss would like you to list some facts about IP RIP before he approves your request. Which of the following statements about IP RIP are true? (Choose two.)

- A. It limits hop counts to 31.
- B. It is a link-state routing protocol.
- C. It uses autonomous system numbers.
- D. It is capable of load sharing over multiple paths.
- E. It uses bandwidth as the metric for path selection.
- F. It broadcasts updates every 30 seconds by defaults

Answer: D, F

Explanation: Key characteristics of RIP include the following: it is a distance vector protocol, hop count is used as the metric for path selection, maximum allowable hop count is 15, broadcast routing updates every 30 seconds, RIP can be load balanced over as many as 6 equal cost paths, RIP 1 requires a major classful network number to advertise and RIP 2 use VLSMs.

Incorrect answers:

- A:** RIP's maximum allowable hop count is 15.
- B:** RIP is a distance vector protocol.
- C:** It uses network numbers/VLSMs.
- E:** Hop count is used as the metric for path selection.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 278.

QUESTION NO: 251

Which of the following troubleshooting tools use the protocol ICMP? (Choose two)

- A. Ping
- B. Telnet
- C. Configure
- D. Trace route
- E. Show commands
- F. Standard access list

Answer: A, D

Explanation: The two protocol tools that use ICMP messages to perform their function are ping and trace route.

Incorrect Answers:

- B:** Telnet uses TCP.
- C:** Configure is not a protocol tool.
- E:** They are not part of ICMP, nor do they use ICMP.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 217-218.

QUESTION NO: 252

Which one of the following is a layer two broadcast?

- A. The IP subnet used is 255.255.255.0
- B. The IP address used is 255.255.255.255
- C. The MAC address used is 00-00-00-00-00-00
- D. The MAC address used is FF-FF-FF-FF-FF-FF.

Answer: D

Explanation: The MAC address for a broadcast is FF-FF-FF-FF-FF-FF.

Incorrect Answers:

A and B: These are IP addresses and 802.3 uses MAC addresses.

C: This is the address used for a multicast.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 149-152.

QUESTION NO: 253

If I have VLAN 3, and VLAN 4 configured on a Cisco Switch, and I would like to have pc's on VLAN 3 communicate with pc's on VLAN 4. Which of the following will allow this inter-VLAN communication to take place?

- A. It takes place through any Cisco router.
- B. It takes place through a Cisco router that can run ISL.
- C. It takes place through a router, but this disables all the router's Security and filtering functionality for the VLANs.
- D. For nonroutable protocols, (e.g., NetBEUI) the router provides communications between VLAN domains.
- E. Inter-VLAN communications is not possible because each VLAN is a separate broadcast domain.

Answer: B

Explanation: In a switched environment, packets are switched only between ports designated to be within the same "broadcast domain". VLANs perform network partitioning and traffic separation at Layer 2. So, inter-VLAN communication cannot occur without a Layer 3 device such as a router, because network layer (Layer 3) devices are responsible for communicating between multiple broadcast domains. Note that, at Layer 2, an interface uses ISL to communicate with a switch.

Incorrect Answers:

- A:** The router requires ISL.
- C:** The router does not change the security settings.
- D:** The router will not route a nonroutable protocol into the VLAN.
- E:** Without a router inter-VLAN communication is impossible.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 241-244.

QUESTION NO: 254

John was having problems connecting to the company's game server by the FQDN. John then used the ping command and was successful in pinging the game server. If a packet analyzer were used while John was using the ping command what would the two most common request/reply pair with ICMP messages be? (Choose two)

- A. Echo reply
- B. Echo request
- C. Source quench
- D. Fragment offset
- E. Information redirect
- F. Destination reachable
- G. Echo control message

Answer: A and B.

Explanation: The most common form of these messages are pings, ICMP echo request, and ICMP echo replies.

Incorrect Answers:

C, D, E, F, and G: These are not types of ICMP messages.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 217-219.

QUESTION NO: 255

An IPX address consists of which of the following?

- A. Network number; IP address.
- B. MAC address; node number.
- C. Network number; MAC address.

D. Network number; subnet number.

Answer: C

Explanation:

An IPX address is composed of two parts: the network number and the node number. For IPX the node number is usually obtain from MAC address of the network interface.

Incorrect Answers:

A: An ipx address does contain the network number but it does not contain an IP address.

B: The MAC address and node number are most often the same thing.

D: The ipx address does not contain the subnet number.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 332-333.

QUESTION NO: 256

Which of the following correctly compares Fast Ethernet to Ethernet? (Choose four.)

- A. Fast Ethernet uses the Same Maximum Transmission Unit (MTU).
- B. Fast Ethernet is based on an extension to the IEEE 802.3 specification.
- C. Fast Ethernet uses the same Media Access control (MAC mechanisms).
- D. Fast Ethernet preserves the frame format that is used by Ethernet.
- E. Fast Ethernet offers a speed increase one hundred times that of the Ethernet.

Answer: A, B, C, and D.

Explanation: Fast Ethernet shares a great deal of similarities with Ethernet. These similarities are the same MTU, same MAC mechanism and frame format. Fast Ethernet is based on IEEE 802.3u, which is an extension to IEEE 802.3.

Incorrect Answers:

E: Its speed is 10 times faster, not 100 times.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 44-45.

QUESTION NO: 257

**Which two are facts about integrated services digital network (ISDN)?
(Choose two)**

- A. ISDN provides only data only capability.
- B. ISDN provides an integrated voice/data capability.
- C. The ISDN standards define the hardware and call setup schemes for end-to-end digital connectivity.
- D. Users receive more bandwidth on WANs with a leased line of 56kbps than with multiple b channels.

Answer: B, C

Explanation:

ISDN stands for Integrated Services Digital Network. ISDN refers to a collection of standards that define a digital architecture that provides an intergraded voice/data capability to customers' premises facility. The ISDN standards define the hardware and call setup schemes for end-to-end digital connectivity.

Incorrect Answers:

A: ISDN provides for voice and data capability.

D: BRI offers a total of 144 kbps and ISDN PRI offers even more.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 390.

QUESTION NO: 258

You need to install RIP as the routing protocol of your network. Which of the following shows the correct prompt and command to install RIP as the routing protocol? (Choose one)

- A. Router# rip.
- B. Router rip.
- C. Router (Config)# rip.
- D. Router (Config)# router rip.

Answer: D

Explanation: In order to configure RIP as the routing protocol you need to ensure that you are in the route configuration mode and that you use the command router rip.

A: This is both the wrong mode and command.

B: This is both the wrong mode and command.

C: This is the proper mode but the wrong command.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 277-279.

QUESTION NO: 259

The TCP/IP model was created to provide standards used in internetworking. Which of the following statements are true about this model? (Choose three)

- A. IP provides connection less service and routing capabilities.
- B. ARP enables devices to locate the IP address of local devices.
- C. UDP provides simple connection less service without windowing or acknowledgements.
- D. ICMP provides connection oriented management data to routers and layer three switches.
- E. TCP enables devices to send large quantities of data using switching in a connection-oriented manner.

Answer: A, C, E

Explanation: The TCP/IP protocol stack is very similar to the OSI model protocol stack. With TCP/IP connection orientated and connection less communication is possible. Both IP and UDP are both connectionless. TCP is a connection-orientated protocol.

Incorrect Answers:

B: RARP and not ARP provide this functionality.

D: ICMP is connection less.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 215-218.

QUESTION NO: 260

Which command is used to set the bandwidth metric of a Frame Relay connection?

- A. Router(Config)# clock rate 56
- B. Router(Config-if)# bandwidth 56
- C. Router(Config)# bandwidth 56000
- D. Router(Config-if)# clock rate 56000

Answer: B

Explanation: The bandwidth command overrides the default bandwidth. The bandwidth has no effect on the actual speed of the line. Instead, it is used to compute routing metrics ad the load of the link. Bandwidth is expressed in Kilobits. It is specified during interface configuration.

Incorrect Answers:

A: The clock rate command is used to set the bandwidth on DCE cable not a Frame Relay connection that must not be abbreviated plus it must be used in the interface configuration mode.

C: To change bandwidth of an interface you must be in the interface configuration mode and the rate must be expressed kilobits per second.

D: The clock rate command is used to set the bandwidth on DCE cable not a Frame Relay connection.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 104-106.

QUESTION NO: 261

Computer A is trying to ping Computer B on the same Ethernet LAN using the IP address. A request is sent out of Computer A as a broadcast looking for the MAC address of Computer B. What is the protocol that sent out this broadcast to find Computer B's MAC address?

- A. It uses a Proxy ARP.
- B. It uses ARP requests.
- C. It uses RARP requests.
- D. It uses router look up table.

Answer: B

Explanation: Address Resolution Protocol is used to resolve or map a known destination IP address to a MAC sublayer address to allow communication.

Incorrect Answers:

- A:** Proxy ARP is most often used with hosts on separate subnets.
- C:** Reverse ARP is used to resolve an IP address on a given MAC address.
- D:** A router's table is not used for this.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 218-220.

QUESTION NO: 262

Which of the following can be used as methods that can be used to simplified network management by implementing (VLANs)? (Choose four)

- A. VLANs allow you to implement multiple layers switching easily.
- B. VLAN can group several broadcasts domains into multiple logical subnets.
- C. It is no longer necessary to install cables to move a user from a new network to another.
- D. Network adds, moves and changes are achieved by configuring a port into a VLAN.
- E. A group of users needing high security can be put into a VLAN so that no users outside the VLANs can communicate with them.
- F. As a logical grouping of users, VLANs can be considered independent from their physical or geographic locations.

Answer: C, D, E, F

Explanation: The introduction of VLANs into a network has a number of benefits. The benefits include: security, segmentation and flexibility. VLANs allow you to group users into a common broadcast domain regardless of their physical location in the internetwork. VLANs greater flexibility allows user to moved easily, changes to the network can be as simple as configuring a port and security can be increased.

Incorrect Answers:

A: VLANs add complexity to the switch configurations.

B: The VLAN still maintains one broadcast domain in each VLAN

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 179-184.

QUESTION NO: 263

Which of the following are modes used for frame switching on Cisco switches? (Choose two)

- A. Full duplex
- B. Half duplex
- C. CSMA/CD
- D. Cut through
- E. Fragmentation
- F. Store and forward

Answer: D, F

Explanation: There are 3 primary operating modes that are used for frame switching. These modes are store-and-forward, cut-through and fragment free. When store-and-forward is used the switch must receive the whole frame before it can be forwarded. During a cut-through operation, the switch forwards the frame once it receives the Destination Address. Finally, the fragment-free mode reads the first 64 bytes before forwarding the frame.

Incorrect Answers:

A and B: These are transmission modes of whether the transmission is done one way at a time (half Duplex) or simultaneous two-way (Full Duplex).

C: This is a physical transmission medium, typically used in Ethernet LANs.

E: There is a fragment-free mode not a fragment mode.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 162-163.

QUESTION NO: 264

When troubleshooting Frame Relay peer problems between two routers which two commands should you use to show the routers that are reachable? (Choose two)

- A. Show IP map.
- B. Show IP route.
- C. Show frame-relay map.
- D. Debug frame-relay map.

Answer: B, C

Explanation: The show ip route command displays the contents of the IP routing table. The routing table includes entries for all known networks and subnetworks plus it displays how the information was **learned**. The show frame-relay map command show the Frame Relay DLCI-to-IP address mappings. When the results of these two commands are considered together will provide the data needed to determine routing information.

Incorrect Answers:

A and D: Neither are valid commands.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 280-281, 431-432.

QUESTION NO: 265

ISDN is sometimes used in locations that do not offer support for DSL or Cable Modems connections. Your choices may be Analog modems or an ISDN connection in those remote locations. ISDN has benefits over regular dial up modem connections. Which of the following are examples of these benefits? (Choose three)

- A. PVCs are faster and more reliable.
- B. No specialized equipment is required.
- C. Data transfer is faster than typical modems.
- D. Call setup is faster than with standard telephone service.
- E. It carries many types of data traffic such as voice, video, and data.

Answer: C, D, E

Explanation:

Brining digital connectivity via ISDN to a site has many benefits. These benefits include:

- The capability to carry a variety of user-traffic feeds. ISDN provides access to all-digital facilities for videos, voice, packet-switched data, and enriched telephone network services.
- Much faster call setup than modem connections. ISDN can be set up in less than a second.
- Much faster data transfer for ISDN (64 kbps) than modems (28.8 to 56 kbps).

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Incorrect Answers:

A: PVCs are used in Frame Relay connections and not in ISDN.

B: ISDN does need specialized equipment such as TE1, NT2, NT1, TE2, and TAs.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 387-393.

QUESTION NO: 266

You would like to configure IP RIP on your Cisco Router. Which of the following steps below are required to install IP RIP? (Choose two)

- A. Specify the routing protocol.
- B. Configure static Rip routes.
- C. Specify directly connected subnets.
- D. Specify directly connected networks.

Answer: A, D

Explanation: In enable a router with RIP it takes two basic steps: select the routing protocol and identify the networks that the router is directly connected to. These steps are achieved with the commands router rip and network.

Incorrect Answers:

B: There is no such thing as a static RIP route.

C: With RIP you specify the directly connected networks, not the directly subnets.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 278-279.

QUESTION NO: 267

Billy was hired to setup Frame Relay subinterfaces on a point-point connection between two routers. Which of the following should Billy take into consideration when setting up this connection? (Choose Two)

- A. Configure the router to forward all broadcast packets.
- B. Remove any network address assigned to the physical interface.
- C. Configure the local data-link connection identifier for the subinterfaces.
- D. Partition the total committed information rate available among the subinterfaces.

Answer: B, C

Explanation: There are a number of things that must be done to configure a subinterface. Two of these steps are: the removal of the network address from the physical interface and assign that address to the subinterface and configure the DLCI for the subinterface.

Incorrect Answers:

A: This is not a frame-relay task and in fact if it was done loops would most likely occur.

D: This is not done during frame-relay subinterface creation.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 428-429.

QUESTION NO: 268

The Internet Control Message Protocol (ICMP) is implemented by all TCP/IP hosts. Which of the following demonstrate the functions of the ICMP Protocol? (Choose Two)

- A. To map IP addresses to Ethernet addresses.
- B. To map common names to network addresses.
- C. To forward SNMP alerts to management consoles.
- D. To generate an echo reply in response to a ping test.
- E. To send a host or post unreachable message from a router to the source of an undeliverable packet.

Answer: D, E

Explanation: ICMP has a great many functions that it can perform. Two of these functions are: destination unreachable messages and echo reply messages.

Incorrect Answers:

A: This is done by ARP & RARP protocols.

B: This is done by Domain Name Services (DNS).

C: A SNMP agent does this.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 217-218.

QUESTION NO: 269

In today's networks which encapsulation methods are most commonly used (ISDN)?

- A. IP and IPX
- B. IP and PPP
- C. PPP and SDLC
- D. PPP and HDLC

Answer: D

Explanation: There are a number of WAN encapsulation types available. The two most commonly used are Point-to-Point Protocol (PPP) and Cisco High-Level Data Link Control (HDLC). The reason HDLC is employed so much is that it is the default encapsulation type on point-to-point dedicated links and circuit switched connections. PPP is a non-proprietary encapsulation and this is while it is used to communicate between devices from different vendors.

Incorrect Answers:

A: IP and IPX are not encapsulation types. They are routing protocols.

B: Only PPP is an encapsulation type.

C: SDLC is a protocol used in IBM SNA systems.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 372-376.

QUESTION NO: 270

You are configuring a PPP CHAP connection between two routers. The hostnames are SNOWBALL1 and SNOWBALL2. The SNOWBALL1 router has already been configured. You are responsible for configuring SNOWBALL2. The password configured on SNOWBALL1 is cisco. Which of the following is the correct username syntax that you will need to configure on SNOWBALL2?

- A. Username SNOWBALL2 password cisco
- B. Username SNOWBALL1 password cisco
- C. Username SNOWBALL2 password SNOWBALL1
- D. Username SNOWBALL1 password SNOWBALL2

Answer: B

Explanation: We must allow SNOWBALL2 access to SNOWBALL1. We should therefore specify the username and the password of the hosting router: the peer router. The username of the peer router is SNOWBALL1) and the password is cisco.

Incorrect Answers:

A: We should use the peer username, not the local username

C, D: We must use the password of the peer, not the local password..

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 380-382.

QUESTION NO: 271

Point-to-Point protocol (PPP) is used as a WAN encapsulation between two routers. Which one of the following is true regarding PPP?

- A. PPP supports TCP/IP, but not Novell IPX.
- B. PPP is being phased out of existence by the Serial Line Internet protocol.
- C. PPP provides router-to-router and host-to-network connections over both synchronous and asynchronous circuits.
- D. PPP is an ITU-T and ANSI standard that defines the process for sending data over a packet-switched data network.

Answer: C

Explanation: PPP provide router-to-router and host-to-network connections over **synchronous** and asynchronous circuits.

Incorrect Answers:

A: PPP supports both IP and IPX.

B: PPP is causing SLIP to be phased out.

D: PPP was not designed as a standard for packet-switched data networks.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 373.

QUESTION NO: 272

A Novell IPX address has 80 bits. 32 bits for the network number and 48 bits for the node number. How is the node number determined?

- A. It is the serial number of the given device.
- B. It is assigned as a lease by Novell DHCP.
- C. It is also set by the network administrator.
- D. It is usually the MAC address of one interface.
- E. It is downloaded by NetWare Core Protocol (NCP).

Answer: D

Explanation: It is determined by the MAC address, so all other options are wrong.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 335-336.

QUESTION NO: 273

Which two statements about a Layer 2 bridge are true? (Choose two)

- A. A bridge floods multicasts.
- B. A bridge floods broadcasts.
- C. A bridge does not flood multicasts.
- D. A bridge does not flood broadcasts.

Answer: A, B

Explanation: A bridge must send all multicasts and broadcast to all ports, since there is only one broadcast domain.

Incorrect Answers:

C and D: Because a bridge DOES flood broadcasts and multicasts.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 22.

QUESTION NO: 274

What are two commands that you can use to view your access lists? (Choose two)

- A. Show filters.
- B. Show access-lists.
- C. Show IP access-list.
- D. Show running-Config.

Answer: B, C

Explanation: The show access-list command is used to display all access lists' contents. Furthermore, if you only want to display IP access lists then you would issue the show ip access-lists command.

Incorrect Answers:

A. There is no show filters command.

D. Even though the show running-config is a very common and powerful tool it cannot be used to display the contents of an access list. Rather it will display the configuration files.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 324 – 325 and 98 – 99.

QUESTION NO: 275

Which IP address range is allowable given an IP address of 131.107.2.56 and 28-bits of subnetting?

- A. 131.107.2.48 to 131.107.2.63
- B. 131.107.2.48 to 131.107.2.62
- C. 131.107.2.49 to 131.107.2.62
- D. 131.107.2.49 to 131.107.2.63
- E. 131.107.2.55 to 131.107.2.126

Answer: C

Explanation: When we say 28 bits of subnetting, this is similar to a CIDR question. We have a subnet mask of 28 bits of ones followed by 4 bits of zeros, or 255.255.255.240, and gives subnets with a stride of 16, or 14 hosts per subnet (16-2 because we subtract out the two broadcast ranges of all zeros and all ones)

This will yield subnets, some networks are as follows:

131.107.2.0.
131.107.2.16
131.107.2.32
131.107.2.48
131.107.2.64
etc...

So, we can fit a network of 131.107.2.48-131.107.2.63
131.107.2.48 is the network, and the all zeros broadcast range.
131.107.2.63 is the broadcast, and is the all ones broadcast range.

So, we can't user 48 or 63, and the valid host address range would be 49-62.

C is correct; this is the only range that fits.

Incorrect Answers:

A, B, D, and E: These are not the proper ranges with the information provided in the question.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 233-237.

QUESTION NO: 276

Which of the following are true about 172.16.0.254/16?

- A. IPX:MAC addresses.
- B. IP:classC directed broadcast.

- C. Private IP address:node number
- D. Public IP addresses:directed broadcast.
- E. Private IP addresses directed broadcast.

Answer: C

Explanation: The Class B network of 172.16 is a Class B Private Address Range, and the second part (0.254) is the host address, or node number/address.

Incorrect Answers:

A: The address is an IP address format.

B: The question is a Class B address, if it were Class C, the mask would be 255.255.255.0

D: 172.16 is not a public IP address.

E: 0.254 is not a broadcast address.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 234-236.

QUESTION NO: 277

If you issued the command show access-list 101 list what would be displayed?

- A. All extended access lists.
- B. All access lists within the router.
- C. The contents of standard access list 101
- D. The contents of extended access list 101

Answer: D

Explanation: As the command is directing that the contents of access list 101 be displayed and as 101 is a number for an extended IP access list D is correct.

Incorrect Answers:

A and B: Only access list 101 will be displayed.

C: Standard IP address lists are in the range of 1-99, IP extended address lists are in the range of 100-199.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 303, 324-325.

QUESTION NO: 278

You are troubleshooting a router that you believe it configured with an incorrect IP address. You issue the show configuration command from privileged mode. Which part of the output shows the specific configured IP addresses and subnet masks?

- A. The IP host table.
- B. The interfaces output.
- C. Each section of the output.
- D. Each section of the output.
- E. The global configuration statements.
- F. The section under the autonomous system number.

Answer: B

Explanation: Each interface that has the IP protocol, will show all IP addresses that were configured on that interface, with subnet masks.

Incorrect Answers:

A: This only shows the IP to host mappings, like the mapping of a HOSTS table.

C, D, E, and F: These options do not provide this information.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 106-110.

QUESTION NO: 279

Which one of the following protocols used in the TCP/IP protocol stack is considered a reliable connection-oriented protocol?

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

Answer: C

Explanation: TCP is a connection-oriented, reliable protocol. In connection-orientated environment, a connection is established between both ends before transfer of information can begin.

Incorrect Answers:

A: IP is a connectionless protocol.

B: UDP is a connectionless protocol.

D: DNS is a service, not a protocol.

E: OSPF is a routing protocol.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 206-215.

QUESTION NO: 280

Most modern IP networks today use a variety of different equipment. Which statements are true about IP networks?

- A. A broadcast source MAC contains all zeros.
- B. A MAC address is part of the physical layer of the OSI model.
- C. Bridges to make forwarding decisions use MAC addresses: routers use IP addresses.
- D. IP addresses are now a flat addressing scheme: MAC addresses use a hierarchical addressing scheme.

Answer: C

Explanation: A bridge uses MAC addresses to make routing decisions whereas a routers uses IP addresses to makes its routing decisions.

Incorrect Answers:

- A:** For Broadcasts MAC uses the address is all ones, or X'FF' for each octet.
- B:** The MAC address is part of the Data Link Layer.
- D:** It is reversed. MAC is Flat Addressing, and IP is hierarchical.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 170-173.

QUESTION NO: 281

Which of the following WAN encapsulations support multiple upper layer protocols? (Choose Two)

- A. PPP
- B. LAPD
- C. ISDN
- D. HDLC

Answer: A, D

Explanation: Cisco has a proprietary HDLC. This Cisco HDLC frame uses a proprietary type field that acts as protocol field, which makes it possible for multiple network later protocols to share the same serial link.

PPP is not a proprietary protocol. As result, it is most often used to connect devices of different vendors. In addition, it encapsulates network layer protocol information that makes it possible to support multiple upper layer protocols.

Incorrect Answers:

B: LAPB is a layer 2 protocol but LAPD is not

C: ISDN is a Layer 1 (Physical) layer protocol, not Layer 2(data link).

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 373-376.

QUESTION NO: 282

You need to install RIP on your router. Which command enables directly connected network 131.107.10.0 to be used by RIP?

- A. Router(Config)# rip 131.107.10.0
- B. Router(Config-router)# rip 131.107.10.0
- C. Router(Config-router)# network 131.107.10.0
- D. Router(Config-router)# network 131.107.0.0

Answer: D

Explanation: The network command allows the routing process to identify the interfaces will participate in the sending and receiving of messages.

Incorrect Answers:

A and B: These are not valid commands. In addition, A is in the wrong mode.

C: This is the wrong network number. The 131 is a Class C subnet, using a default mask of 255.255.255.0, the network requires 3 octets of individual (1-254) networking addressing. 131.55.0.0 will cause a all zeros subnet broadcast.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 276-277.

QUESTION NO: 283

In 100BaseT Ethernet cabling 100 is the maximum segment length, and T is the Type of Media in this case Twisted-Pair. What does the term 'Base' refer to?

- A. Cabling type.
- B. Signaling type.
- C. 100 mode type.

- D. Spectrum used.
- E. Speed category.

Answer: B

Explanation: There are two main signaling types: Baseband and Broadband.

Incorrect Answers:

- B:** T is the cabling type, in this case Twisted Pair.
- C:** 100 is the speed, in this case 100mbps.
- D:** Spectrum, such as fiber, would be part of the cabling type.
- E:** is the speed category, in this case 100mbps.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 44-45.

QUESTION NO: 284

When using Frame Relay which statement about the Committed Information Rate (CIR) is true?

- A. It is the rate, in bits per second, at which the Frame Relay switch agrees to transfer data
- B. It is the clock speed (port speed) of the connection (local loop) to the Frame Relay cloud
- C. It is the maximum number of bits that the switch can transfer during any Committed Rate Measurement Interval
- D. It is a signaling standard between the CPE device and the FR switch. It is responsible for managing the connection and maintaining status between the devices.

Answer: A

Explanation: CIR is the rate in bits per second at which the service provided guarantees that data will be transferred.

Incorrect Answers:

- B:** Clock rate defines the clock speed.
- C:** CIR can be exceeded.
- D:** CIR is not a signaling standard.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 414.

QUESTION NO: 285

Which key do I press to have the IOS finish typing a known command for me?

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- A. <Tab>
- B. <Ctrl R>
- C. <Spacebar>
- D. <Right Arrow>

Answer: A

Explanation: Tab completes a partially entered command if enough characters have been entered to make it unambiguous.

Incorrect Answers:

- B:** The key combination will refresh the command line and everything typed up to this point.
- C:** This just produces a space.
- D:** This will not produce the desired result.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 97-98.

QUESTION NO: 286

Ten personal computers are connected to separate 10Mbps ports on a switch. How much bandwidth will be available for each pc?

- A. 1.25
- B. 4
- C. 16
- D. 10
- E. 60

Answer: D

Explanation: Using switching technology, each port can provide full bandwidth, in this case 10mbps, so each station can get a full 10mbps.

Incorrect Answers:

A, B, C and E: Due to the fact that each workstation is connected to it's own 10 Mbps port, each port can provided it full 10 mbps.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 170-175.

QUESTION NO: 287

In which order takes the data encapsulation place.

Click the task button & Place the encapsulation.

Place the data encapsulation steps in the proper order

Order	Steps
place step one here	Synchronization of a pattern of 1's and 0's with some clocking function, allows transmission on a medium and recognition of the data bits.
place step two here	Data is segmented and packaged with information to allow the sending and receiving hosts to reliably communicate.
place step three here	Alphanumeric user input is formatted for sending over the internetwork.
place step four here	A frame is built to allow communication over and interface to the network.
place step five here	Data is encapsulated with a network header specifying source and destination logical addresses.

Answer:

Place the data encapsulation steps in the proper order

Order	Steps
	Alphanumeric user input is formatted for sending over the internetwork.
	Data is segmented and packaged with information to allow the sending and receiving hosts to reliably communicate.
	Data is encapsulated with a network header specifying source and destination logical addresses.
	A frame is built to allow communication over and interface to the network.
	Synchronization of a pattern of 1's and 0's with some clocking function, allows transmission on a medium and recognition of the data bits.

Explanation:

We can also look at this as layer functions, then sort:

Step One: Physical Layer

Step Two: Transport Layer

Step Three: Application Layer

Step Four: Data Link Layer

Step Five: Network Layer

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 10-14.

QUESTION NO: 288

You are configuring NAT (Network Address Translation) on a Cisco Router. The instructions that you found on Cisco's web site recommend that on your inside network the following IP addresses shown in the EXHIBIT are used. Why are these addresses recommended?

EXHIBIT:

10.0.0.0 to 10.255.255.255

172.16.0.0 to 172.31.255.255

192.168.0.0 to 192.168.255.255

- A. They are private IP addresses.
- B. They cannot be leased with DHCP.
- C. They are allocated for VOIP.
- D. They represent IP classless addresses.
- E. They are used by the inter NIC for administration.

Answer: A

Explanation: RFC 1918 defines networks and addresses 10.0.0.0 through 10.255.255.255, 172.16.0.0 through 172.31.255.255, and 192.168.0.0 through 192.168.25.255 as reserved addresses to be used as internal private addresses and not to connect directly to the public Internet.

Incorrect Answers:

B: They can be leased by DHCP.

C: They are not allocated for VOIP.

D: These range of addresses still retain their implied class.

E: Inter NIC does not use these IPs for administration.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 224.

QUESTION NO: 289

Which of the following can be using to determine the best path to reach a remote destination on a Cisco router? (Choose two)

- A. Static route entry.
- B. Default route entry.
- C. Dynamic route entry.
- D. Temporary route entry.
- E. Permanent route entry.

Answer: A, C

Explanation: When a router must send packets that are not directly connected it must have either a static route or a dynamic router entry.

Incorrect Answers:

B: A default gateway does not always determine the appropriate path.

D and E: Routes can be temporary or permanent, but this is an attribute of the route entry itself. This does not determine path information.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 250-252.

QUESTION NO: 290

IGRP is Cisco propriety routing protocols that as all routing protocols use metrics to determine the best path to a destination. Which are the default metrics for this routing protocol?

- A. Maximum Transmission Unit
- B. cumulative interface delay
- C. path bandwidth value
- D. reliability from source to destination
- E. link loading in bits-per-second
- F. hold-down timers for updates

Answer: B, C

Explanation: By default the IGRP metric is a function of bandwidth and delay.

Note: IGRP uses a composite metric that is calculated by factoring weighted mathematical values for internetwork delay, bandwidth, reliability, and load. Reliability and load, can take on any value between 1 and 255; bandwidth can take on values reflecting speeds from 1200 bps to 10 Gbps, while delay can take on any value from 1 to 2^{24} .

Incorrect Answers

A: Maximum Transmission Unit (MTU) can be included in the IGRP metric, but it isn't included by default.

D: Reliable of the path can be used as a metric, however it is not included in the metric by default.

E: Bandwidth, not link loading, is including the metric. Furthermore, the bandwidth is scaled by 10,000,000 in kilobits per second.

F: Hold down timers cannot be used to calculate the metrics for IGRP.

Cisco CCNA exam #640-607 Certification Guide, Cisco Press, RIP and IGRP Feature Comparison, page 429

QUESTION NO: 291

Which of the following are true about layer 3 of the OSI model? (Choose four)

- A. It uses a two-part address.
- B. It maintains routing tables.
- C. It uses broadcast addresses.
- D. It establishes network addresses.
- E. It provides access to the LAN media.
- F. It provides media independence for upper layers.
- G. It provides path selection for Internet work communication.

Answer: A, B, C, G

Explanation:

The network layer defined how to transport traffic between devices that are not locally attached in the same broadcast domain. For the communication the device will require two pieces of information: a logical address associated with the source and destination stations and a path through the network to reach the desired destination. Both of the required information is stored in the devices routing table. The addresses within the routing table are considered to be a logical network address that contains two parts: one part that identifies the network and another part that uniquely identifies the host on each of those networks. If the address of the destination device is unknown to the device it will broadcast the packet to the remaining interfaces.

Incorrect Answers:

D: The network layer does not establish addresses rather it uses the addresses to route information.

E: The physical layer provides access to media.

F: The data link layer provides media independence for upper layers.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 24-6.

QUESTION NO: 292

The data link layer of the OSI model was broken down into two sublayers. What are the names of these sublayers? (Choose two)

- A. MAC
- B. LLC
- C. SAP
- D. LCP
- E. NetWare Core Protocol (NCP)

Answer: A, B

Explanation: The data link layer has two sublayers. These sublayers are: MAC and LLC.

Incorrect Answers:

C: The Service Access Point is used by Netware to advertise servers, and runs at a higher layer.

D: This protocol is used in PPP, but is not part of the data link layer itself.

E: NCP is used by Netware, and runs at a higher layer.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 18-19.

QUESTION NO: 293

In troubleshooting a Frame Relay Link on serial 0/2 which command displays the LMI, DLCI, and bandwidth for that link?

- A. Show interface serial 0/2
- B. Show frame-relay serial 0/2.
- C. Show protocol frame-relay serial 0/2
- D. Show serial 0/2 encapsulation frame-relay.

Answer: A

Explanation: The show interfaces command displays statistics for all interfaces configured on the switch.

Incorrect Answers:

B, C and D: These are not valid commands.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 81-81.

QUESTION NO: 294

What is the benefit of segmenting a network with a router into two different segments called segment one and segment two?

- A. It increases the number of collisions.
- B. It decreases the number of broadcast domains.
- C. It connects segment one's broadcast to segment two.
- D. It prevents segment one's broadcast from getting to segment two.

Answer: D

Explanation: The broadcast domains are broken up and separated.

Incorrect Answers:

A: The number of collisions is decreased.

B: The number of broadcast domains is increased.

C: The broadcast domains are broken up and separated.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 26-27.

QUESTION NO: 295

Which one of the following is true about User Datagram Protocol?

- A. It is reliable and acknowledged.
- B. It is unreliable and acknowledged.
- C. It is reliable and unacknowledged.
- D. It is unreliable and unacknowledged.

Answer: D

Explanation: UDP is connectionless and unacknowledged protocol. Although UDP is responsible for transmitting messages, no checking for segment delivery is provided at this layer. UDP depends on upper-layer protocols for reliability.

Incorrect Answers:

A: UDP is neither reliable nor acknowledged.

B: UDP is not acknowledged.

C: UDP is not reliable.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 207.

QUESTION NO: 296

Which one of the following commands will start the IP processing on interface e0?

- A. IP-Space enable.
- B. Network IP-Address.
- C. IP address *IP-address subnet mask*.
- D. The exit command from the enable configuration.
- E. Copy running-configuration to startup-configuration.

Answer: C

Explanation: The ip address command is used to start IP processing on a router (in fact the same command is also used to do the same on a switch).

Incorrect Answers:

A: This is not a valid command.

B: The network command is most often used to identify directly connected networks.

D: This is not a valid command.

E: This command will copy the running config to the NVRAM.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 245, 133, 277.

QUESTION NO: 297

Ethernet switches operate at the Data Link layer of the OSI model. These Layer 2 devices have three major functions which of the following describe these functions? (Choose three)

- A. Loop avoidance.
- B. Address learning
- C. Hop count limiting
- D. Broadcast filtering
- E. Packet forward/filtering.

Answer: A, B, E

Explanation: A switch has three basic functions, which increase the available bandwidth on a network. These functions are address learning, forward/filter decision, and loop avoidance,

Incorrect Answers:

C: Although a switch functions a lot like a multi-port bridge, a switch does not affect – nor is affected by – the hop count.

D: By their very design Broadcasts are meant to be seen by everyone.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 146-152.

QUESTION NO: 298

The network administrator has just make changes to a router. You have been hired to make sure those changes are correct and that they have been saved in NVRAM. In Cisco IOS software, which command displays the backup configuration to see if the changes have been saved to NVRAM?

- A. Show flash.
- B. Show version.
- C. Show tftp-config.
- D. Show backup-config.
- E. Show startup-config .

Answer: E

Explanation: This shows the startup configuration in NVRAM, which is the backup for the running configuration that runs in RAM.

Incorrect Answers:

- A:** Show flash command lists the contents of the flash showing the IOS images that are stored. Remember, the backup configuration is in the NVRAM, not Flash nor RAM.
- B:** This command shows information on the running configuration.
- C:** This is not a valid command.
- C:** This is not a valid command.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 98-99, 131.

QUESTION NO: 299

When you issue the command *show version*, your router returns:

```
Cisco Internetwork Operating System Software
IOS (tm) C2600 Software (C2600-IS-M), Version 12.2(4)T, RELEASE SOFTWARE (fc1)
TAC Support: http://www.cisco.com/tac
Copyright (c) 1986-2001 by cisco Systems, Inc.
Compiled Fri 28-Sep-01 06:59 by ccai
Image text-base: 0x80008088, data-base: 0x812E7ADC
```

```
ROM: System Bootstrap, Version 11.3(2)XA4, RELEASE SOFTWARE (fc1)
```

```
DSL uptime is 2 days, 17 hours, 30 minutes
System returned to ROM by power-on
System image file is "flash:c2600-is-mz.122-4.T.bin"
```

```
cisco 2621 (MPC860) processor (revision 0x102) with 60416K/5120K bytes of memory.
```

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Processor board ID JAB041306DU (1285222064)

M860 processor: part number 0, mask 49

Bridging software.

X.25 software, Version 3.0.0.

2 FastEthernet/IEEE 802.3 interface(s)

2 Serial(sync/async) network interface(s)

1 ATM network interface(s)

32K bytes of non-volatile configuration memory.

16384K bytes of processor board System flash (Read/Write)

Configuration register is 0x0101

From where does the router boot?

- A. ROM
- B. NVRAM
- C. FLASH
- D. A TFTP server

Answer: A

Explanation: If you want your router to boot automatically from ROM you need to set the boot field to 1 (0x1).

Incorrect Answers:

B: To boot from the NVRAM the boot field must be set from the range of 2 to F (0x2 to 0xF).

C: To boot from FLASH the boot system flash command would need to be used.

D: To boot from a TFTP server the boot system tftp command would need to be used.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 127-130.

QUESTION NO: 300

Which statement is true about Layer 2 bridges?

- A. While bridges are used to segment networks they will not isolate broadcast or multicast packets.
- B. A bridge looks at every packet with in its network segment and works like a hub, re-broadcasting the packet if the destination is with in its network segment.
- C. A bridge maintains a table of the IP addresses of the hosts with in its network segment and forwards the packet directly to the destination based upon the IP address.
- D. Bridge resets the hop count by keeping all packets within the network segment only packets addressed to its specific destination host outside the network segment are allowed to pass through the bridge.

Answer: A

Explanation: Bridges (and switches) maintain only one broadcast domain.

Incorrect Answers:

B: If the data does not need to be transferred by the bridge, then it does not need to be rebroadcasted.

C: A bridge operates on layer 2 using MAC addresses, and IP addresses are Layer 3.

D: The hop count is not reset.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 21-24.

QUESTION NO: 301

Given the following IP address from the Class B address range:

131.107.21.12

Your network plan requires no more than 126 hosts on a subnet that includes this address. When you configure the IP address in Cisco IOS software, which value should you use as the subnet mask?

- A. 255.255.0.0
- B. 255.255.128.0
- C. 255.255.255.128
- D. 255.255.255.252

Answer: C

Explanation:

Since we have to reserve the all ones and all zeros broadcast addresses, we take 126, add 2, and round up to the next power of 2. We get $126+2=128$, and 128 is a power of 2, and takes 7 bits of the subnet mask to represent the host address.

In the fourth octet of the subnet mask, we have 1 bit for the network, and 7 bits for the host. This high order NETWORK bit is the 128 bit. Based on the definition of the subnet mask, all network bits before this bit MUST BE one, so we get:

255.255.255.128

Incorrect Answers:

A, B, and D: They do not provide a maximum of 126 hosts.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 233-236.

QUESTION NO: 302

**You want to configure the IP address on the interface of your router.
Which of the following commands achieves this goal?**

- A. router(config-if)#ip address 163.63.56.5 subnet mask 255.255.240.0
- B. router(config-if)# 163.63.56.5 255.255.240.0
- C. router(config-if)#ip address 163.63.56.5 255.255.240.0
- D. router(config-if)# 163.63.56.5 subnet mask 255.255.240.00
- E. router(config-if)#ip address 163.63.56.5 /29
- F. router(config-if)#ip address 163.63.56.5 subnet mask /20

Answer: C

Explanation: The syntax of command is:

ip address *ip-address* *mask* [*secondary*]

The command must be issued in Interface mode.

Incorrect Answers

A, B, D, E; F: Incorrect syntax.

Cisco CCNA exam #640-607 Certification Guide, Cisco Press, page 343

QUESTION NO: 303

Which one of the following is not a characteristic of a network segment on a transparent switch?

- A. The segment has its own collision domain.
- B. The segment can translate from one media to a different media.
- C. All devices in the segment are part of the same broadcast domain.
- D. One device per segment can currently send frames to the switch.

Answer: B

Explanation: A switch is usually only handle one media type at a time.

Incorrect Answers:

A, C and D: The statements are characteristics of a network segment on a switch.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 78-80.

QUESTION NO: 304

Which of the following are two ways Cisco supports multiple IPX logical networks on an individual interface? (Choose two)

- A. Network number.
- B. Routing protocol.
- C. Encapsulation type.
- D. Autonomous system number.

Answer: A, C

Explanation:

Multiple encapsulations can be specified on an interface, but only if multiple network numbers have also been assigned, where each network number belongs to only one encapsulation type and each encapsulation type has only one network number. Although several encapsulation types can share the same interface, clients and servers with different encapsulation types cannot communicate directly with each other.

Incorrect Answers:

B: Routing protocol does not enable multiple logical networks.

D: Autonomous System Number is used with certain routing protocols, and do not provide support of logical networks.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) page 335.

QUESTION NO: 305

When configuring a Frame Relay network your provider assigns you a DLCI number between 16 and 1007 which one of the following statements about this data-link connection identifier (DLCI) is true?

- A. It is a number that identifies a local virtual circuit in Frame Relay network.
- B. It is a signaling standard between the CPE device and the Frame Relay switch.
- C. It is check speed port speed of the connection (local loop) to the Frame Relay cloud.
- D. It is maximum number of uncommitted bits that the Frame Relay switch will attempt to transfer beyond the committed information rate (CIR).

Answer: A

Explanation: The DLCI (Data-Link Connection Identifier) is a number that identifies the logical circuit between the router and the Frame Relay switch. The Frame Relay switch maps the DLCIs between each pair of routers to create a PVC. DLCIs have local significance in that the identifier references the point between the local router and the Frame Relay switch, which it is connected.

Incorrect Answers:

- B:** DLCI is not a signaling standard.
- C:** This is the local access rate.
- D:** This is not a function of DLCI.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 413-414.

QUESTION NO: 306

Which of the following describes the basic steps a connection oriented uses for communication? (Choose three)

- A. Call setup
- B. Data transfer
- C. Load Balancing
- D. Call termination
- E. Call prioritization
- F. Data segmentation
- G. Data link identification

Answer: A, B, D

Explanation:

In connection oriented services, the three steps are: Call Setup, Data Transfer, Call Termination.

Incorrect Options

C, E, F and G: These options may occur but are not required.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 29-30.

QUESTION NO: 307

Given an IP address of 131.107.2.160 and a subnet mask of 255.255.255.192, to which subnet does the host belong?

- A. 131.107.2.32
- B. 131.107.2.64
- C. 131.107.2.96
- D. 131.107.2.128
- E. 131.107.2.192

Answer: D

Explanation: When we look at the last octet of the subnet mask, we have $192=128+64$, which is the two high order mask bits, leaving 6 bits for host addressing. Each subnet strides 64 addresses, including broadcast, leaving the following networks:

131.107.2.0
131.107.2.64
131.107.2.128
131.107.2.192

We now look at the host address, which is 160, and find that it fits between 128 and 192, so the network is 131.107.2.128.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 227-234.

QUESTION NO: 308

The OSI model has 7 layers. The physical layer is numbered as the first. Which devices operate at the level above the physical layer? (Choose two.)

- A. router
- B. SMTP server
- C. transceiver
- D. switch
- E. bridge
- F. hub

Answer: D, E

Explanation:

Switches and bridges work at layer 2, the Data Link layer, of the OSI model.

Incorrect Answers

A: A router works at layer 3, the Network layer, of the OSI model.

B: A SMTP server works at layer 7, the Application layer, of the OSI model.

C: A transceiver works at layer 1, the Physical layer, of the OSI model.

F: A hub works at layer 1, the Physical layer, of the OSI model.

QUESTION NO: 309

You telnet into Router B from Router A and now would like to be able to telnet to Router C but keep the connection open to Router B. What key sequence is used to suspend your telnet session and return you to Router A so that you can telnet to Router C?

- A. Suspend.
- B. The command exit.
- C. CTRL – ESC followed by x.
- D. CTRL – ALT – DEL followed b ESC.
- E. CTRL- Shift-6 followed by x.

Answer: E

Explanation: To suspend a Telnet session and escape from the remote target system back to your local switch or router, press the keys Ctrl-Shift-6 at the same time, release the key sequence, and then press the character x.

Incorrect Answers:

A, B, C, and D: These are not the proper key combinations to suspend a Telnet session.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 122-123.

QUESTION NO: 310

TCP is considered a reliable protocol. Which one of the following is used to insure reliability?

- A. Route selection
- B. Acknowledgement
- C. Session checkpoints
- D. System authentication

Answer: B

Explanation: Acknowledgement is required to insure packets were not loss and this is how a reliable transport layer connection is maintained.

Incorrect Answers:

A: Route selection is performed by the network layer.

C: These are not transport layer functions.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 28-30.

QUESTION NO: 311

Which layer of the 7 layer OSI model does the ping command operate?

- A. Session
- B. Network
- C. Transport
- D. Maintenance

Answer: B

Explanation:

As the ping command is used to test network connectivity it resides on the network layer of the OSI model.

Incorrect Answers:

- A:** The session layer is responsible for establishing, managing, and terminating communications sessions between presentation layer entities. This layer is not responsible for the ping command.
- C:** The transport layer of the OSI model is responsible for the delivery of information in either a reliable or unreliable manner. Ping does not reside at this layer of the OSI model.
- D:** There is no maintenance layer in the OSI model.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 124, 10-13.

QUESTION NO: 312

You have opened up a TAC case for one of your routers that is not working correctly. One of the fields of the TAC case is what is your software version? Which show command can be issue to display system configuration information, software version and the names and sources of configuration files and boot images on a router?

- A. Show boot.
- B. Show flash.
- C. Show Config.
- D. Show version.

Answer: D

Explanation: The show version command displays information about the system hardware, the software version the names and sources of the configuration files and the boot images.

Incorrect Answers:

A: Is not a valid command.

B: The show flash command displays the contents of the Flash memory, which includes the image filenames and sizes.

C: The show config command displays the configuration profile from which the command is entered.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 78, 131 and 466.

QUESTION NO: 313

You would like to see if a host table has been created on a router. Which command displays the IP addresses assigned to specific host names?

- A. Show hosts.
- B. Show interface.
- C. Ping host name.
- D. Config host name.
- E. Show host mapping.
- F. Show host name IP address.
- G. Trace IP addresses host name.

Answer: A

Explanation: The show hosts command displays a cached list of host names and addresses.

Incorrect Answers:

B: The show interface command is used to display the configuration of an interface.

C – G: These are not valid commands.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 106, 240-241.

QUESTION NO: 314

At startup the Cisco routers show startup messages. The startup messages can be grouped into different groups. Which of these of these groups of messages identifies the router components that you can configure during setup of the initial system configuration?

- A) System Bootstrap, Version 11.3(1)XA, PLATFORM SPECIFIC RELEASE SOFTWARE (fc1)
Copyright (c) 1998 by cisco Systems, Inc,
CS2600 platform with 32768 Kbytes of main memory
- B) Rp,,pm 1 b f
program load complete, entry point: 0x800008000, size: 0xef4e0
Self decompressing the image :#####[OK]
- C) Notice: NVRAM invalid, possible due to write erase,
program load complete, entry point:0x80008000, size 0x415b20
Self decompressing the image: #####
#####[OK]
Restricted Rights Legend....(abridged)
- D) Cisco Internetwork Operating System Software
IOC (tm) C2600 Software (C2600-JS-M), Version 11.3(2)XA,
PLATFORM SPECIFIC RELEASE SOFTWARE (fc1)
Copyright 1996-1998 by Cisco Systems Inc.
Compiled 10-Mar-98 14:25 by gneale
Image text-bas: 0x80008084, database: 0x809CD49C
- E) Cisco 2611 (MP C860) processor (revision 0x100) with 24576K/8192K bytes of memory,
Processor board ID 04614954
M860 processor, part number 0 mask 32,
Bridging software,
X.25 software, Version 3.0.0,
2 Ethernet/IEEE 802.3 interface(s)

Answer: D

Explanation: It is possible to upgrade the Cisco IOS image. In D) we can see that the current IOS version is 11.3.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 131 – 132.

QUESTION NO: 315

How many valid host IP addresses are available on the following network/subnetwork?

131.107.10.16/30

- A. 2

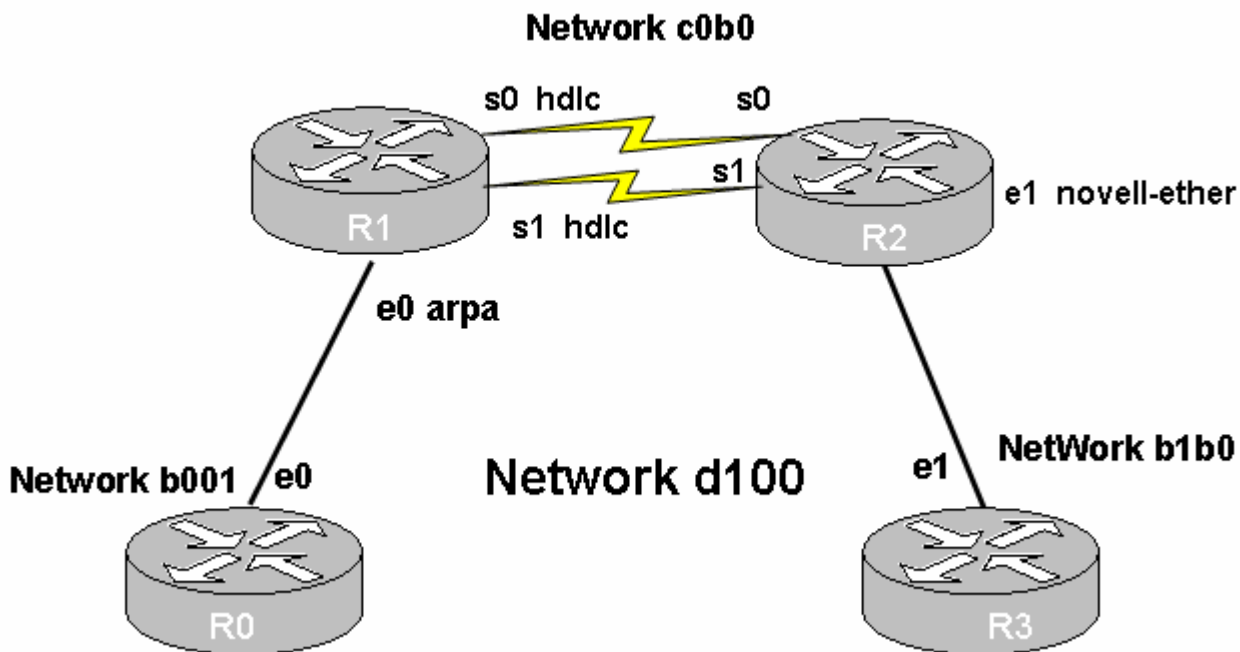
- B. 30
- C. 254
- D. 16,382
- E. 65,534

Answer: A

Explanation: This is a CIDR problem, also called supernetting. When you see the /xx notation, the xx is the consecutive number of one bits in the subnet mask. In this case, /30 = 30, and is also a subnet mask of 255.255.255.252. This leaves 2 bits (4 hosts) for host addressing, however since we reserve 2 addresses, that leaves a net of 2 Host Addresses, max.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 227-234.

QUESTION NO: 316



You are configuring R2 so that it can communicate with R1 on serial port s0. What encapsulation should you use on s0 to setup this IPX network?

- A. SAP

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- B. HDLC
- C. ARPA
- D. Novel Ether

Answer: B

Explanation: Router R2 S0 connects to Router R1 S0. Router R1 S0 uses HDLC, and BOTH sides must run the same protocol in order to communicate (it is like talking the same language; you can't have one side English and the other Side French).

So the correct answer is B – HDLC.

Incorrect answers:

A, B and C: The two routers must have the same encapsulation type to communicate properly thus these encapsulation types could not be used.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 368-373.

QUESTION NO: 317

Which one of the following is a reason to use a hardware address?

- A. To obtain a vendor code/serial number from the user.
- B. To transmit a frame from one interface to another interface.
- C. To transmit a packet from one local device to another local device.
- D. To transmit data from one local device to remote device across Internet.
- E. To contain logical information about a device to use an end-to-end transmission.

Answer: B

Explanation: A hardware address is used to transmit frames on the hardware level.

Incorrect Answers:

A: A vendor code/serial number is a form of hardware address, and the user does not provide it.

C: Packets and devices are at a higher level in the layers.

D: Devices are handled at a higher layer, and use different addressing.

E: A logical device with end-to-end may span more than two hardware interfaces; device addresses are used from interface to interface, or hop-to-hop.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 172-175.

QUESTION NO: 318

Which command verifies encapsulation as well as IP address and MAC address on a router configured for Frame Relay?

- A. Show IP
- B. Show interface
- C. Show statistics
- D. Show frame-relay

Answer: B

Explanation: The show interface command will show information regarding the encapsulation and Layer 1 and Layer 2 status. It also displays information about the DLCIs used on the Frame Relay configured serial interface.

Incorrect Answers:

A: The show ip command displays the switches current IP configuration.

C: This is not a valid command.

D: Frame-relay will require another parameter after the show frame-relay IOS command.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 421-424 and 82.

QUESTION NO: 319

You purchased a router from an online auction. You issued the erase startup-config command on this router to return the router to factory defaults. When you power cycle the router what mode will the router boot up in?

- A. Setup.
- B. Startup.
- C. User EXEC.
- D. User privileged.
- E. Global configuration.

Answer: A

Explanation: When a router is booted, it will copy the startup-config from NVRAM to the RAM and begin execution. Since the erase wiped out the startup configuration, the router can't start. This forces the router into setup mode, where a configuration has to be built from by scratch.

Incorrect Answers:

B: Because there is no configuration to startup.

C, D, and E: Because there is no longer a configuration to run, these modes do not exist.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 84-90 and 134.

QUESTION NO: 320

The _____ is the rate in bits per second which a Frame Relay switch agrees to transfer data?

- A. Clock rate.
- B. Committed information rate.
- C. Local management interface.
- D. Data-link connection identifier.
- E. Committed rate measurement interval.

Answer: B

Explanation: CIR is the rate, in bits per second, at which the service provider states that data will be transferred.

Incorrect Answers:

A is incorrect; clock rate is the transmission medium speed, which is determined by modem clocking.

Odom. Cisco CCNA Exam #640-507 Certification Guide. (Cisco Press: 2000) pages 28-30

C: LMI is a signaling standard between the router device and the Frame Relay switch that is responsible for managing the connection and maintaining the status between the devices.

D: DLCI is addressing used to identify virtual circuits.

E: This is the sampling period used in controlling CIR, but is not the rate itself.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 413-414.

QUESTION NO: 321

Which two statements are true about half duplex and full duplex? (Choose two)

- A. Ethernet 802.3 utilizes a half duplex method for data transfer.

- B. In a 100mbps point to point connect, a full duplex connection can provide 400mbs of data transfer.
- C. Ethernet switches can use the full duplex mode to connect multiple nodes on a single port office switch.
- D. Full duplex Ethernet takes advantage of UTP using one pair of transmission and other pair for reception.

Answer: A and D

Explanation: Half duplex Ethernet is most often found in a 802.3 network and full duplex achieves data transmission by using one pair to receive data and another to send data.

Incorrect Answers:

- B:** In full duplex you can maximize up to double – by transmitting and receiving at the same time, for a nominal maximum throughput of 200mbps.
- C:** When running full duplex, only one device can be attached to the port.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 163-165.

QUESTION NO: 322

CSMA/CD was created to help detect collisions. In regards to CSMA/CD what is the backoff algorithm used for on an 802.3 network?

- A. It is latency in store and forward switching.
- B. It is the time used for token passing for machine to machine.
- C. It is the retransmission delay that is reinforced when a collision occurs.
- D. It is the result of two nodes transmitting at a same time the frames from each transmitting device collide and are damaged.

Answer: C

Explanation: Backoff is done when a collision occurs. Those trying to transmit at the same time “back-off” and attempt to retransmit at a later time. A 802.3 network uses collision detection, so that the transmitters are notified of the collision. Then using a random calculated wait time, re-transmission occurs. By using a random wait time, hopefully both transmitter wait a different amount of time and do not attempt simultaneous transmission again.

Incorrect Answers:

- A:** Back off occurs after a collision has occurred and is not latency stored and forward switching.
- B:** Has nothing to do with the passing of the token.
- D:** Back off is used to prevent another collision.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 16-17.

QUESTION NO: 323

Which switching mode reads the entire frame including the CRC before the frame is forwarded?

- A. CSMA/CD
- B. Full duplex.
- C. Cut through.
- D. Half duplex.
- E. Fragmentation.
- F. Store and forward

Answer: F

Explanation: In store and forward mode, the switch must receive the complete frame before forwarding takes place. The destination and source addresses are read, the cyclic redundancy check (CRC) is performed, relevant filters are applied, and the frame is forwarded. If the CRC is bad, the frame is discarded. The latency (or delay) through the switch varies with frame length.

Incorrect Answers:

- A:** CSMA/CD is the physical method used on a 802.3 LAN
- B:** Full duplex is when you can transmit and receive at the same time.
- C:** In cut-through mode the frame is forwarded after the Destination Address has been read.
- D:** Half Duplex means EITHER transmit or receive, but not both at the same time,
- E:** This is not a switch mode. Fragment-free mode is a switch mode.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 162-163.

QUESTION NO: 324

When Layer 2 devices were first created there was no way of detecting bridging loops. A protocol was created by DEC to stop these loops. What protocol did DEC create?

- A. Virtual LANs.
- B. Frame filtering.
- C. Cut through switching.
- D. Spanning tree protocol.

Answer: D

Explanation: Spanning Tree protocol builds ONE path through all the nodes, and eliminates any loops. Anything sent along the tree will not encounter any loops because the protocol will eliminate any loops.

Incorrect Answers:

A: VLANs is not a loop resolution technology.

B: Frame Filtering is not a loop resolution technology.

C: Cut through switching is not a loop resolution technology. Rather it is a form of forwarding.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 155-160.

QUESTION NO: 325

Cisco's switching modes include cut-through, store and forwarded and a modified version of the first two methods. Which statement about switching methods is true?

- A. The stored and forward method has low latency.
- B. The cut through method and switching has high latency.
- C. The modified version holds the packet in memory until 50% of the packet reaches the switch.
- D. The modified version holds the packet in memory until the data portion of the packet reaches the switch.

Answer: D

Explanation: The modified cut-through (also known as fragment-free) the switch reads into the first 64 bytes before forwarding the frame.

Incorrect Answers:

A: Store and Forward has HIGH latency.

B: Cut-Through has LOW latency.

C: It is not 50%. In the modified version, the frame transmission does not start until the first 64 bytes are read.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 162-163.

QUESTION NO: 326

```
RouterTK#show ip route
```

```
Codes: C-connected, s-static, l -IGRP, R -RIP, M -mobile, B -BGP, D -EIGRP, EX - EIGRP external,
        O - OSPF, IA -OSPF inter area, EI -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 202.30.8.0 /24[120/1] via 202.30.2.2, 00:00:16, Serial 0
C 202.30.9.0 /24 is directly connected, Serial 1
R 202.30.10.0 /24 is possibly down, routing via 202.30.9.1, Serial 1
R 202.30.11.0 /24 is possibly down, routing via 202.30.9.1, Serial 1
C 202.30.1.0 /24 is directly connected, Ethernet 0
C 202.30.2.0 /24 is directly connected, Serial 0
R 202.30.3.0 /24 [120/1] via 202.30.2.2, 00:00:17. Serial 0
R 202.30.4.0 /24 [120/15] via 202.30.2.2, 00:00:17, Serial 0
R 202.30.5.0 /24 [120/15] via 202.30.2.2, 00:00:17, Serial 0
R 192.158.6.0 /24 [120/15] via 202.30.2.2, 00:00:17, Serial 0
R 202.30.7.0 /24 [120/1] via 202.30.2.2, 00:00:17, Serial 0

```

You are troubleshooting a router with default settings. You are concerned about the 202.30.10.0 and 202.30.11.0 routes. In particular you are interested how long they will be kept in the routing table. What would be the maximum time these routes would be kept in the routing table?

- A. 30 seconds
- B. 60 seconds
- C. 240 seconds
- D. 360 seconds
- E. 630 seconds

Answer: D

Explanation: The Rs on the 202.30.10.0 and 202.30.11.0 lines (see below) indicates that the routes were learned from the RIP protocol. With default settings RIP learned routes can be kept for up to 6 minutes before they are removed.

```

R 202.30.10.0 /24 is possibly down, routing via 202.30.9.1, Serial 1
R 202.30.11.0 /24 is possibly down, routing via 202.30.9.1, Serial 1

```

QUESTION NO: 327

```
RouterTK#show ip route
```

```
Codes: C-connected, s-static, l -IGRP, R -RIP, M -mobile, B -BGP, D -EIGRP, EX - EIGRP external,
O - OSPF, IA -OSPF inter area, EI -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 202.30.8.0 /24[120/1] via 202.30.2.2, 00:00:10, Serial 0
C 202.30.9.0 /24 is directly connected, Serial 1
R 202.30.10.0 /24 [120/7] via 202.30.9.1, 00:00:02, Serial 1
R 202.30.11.0 /24 [120/7] via 202.30.9.1, 00:00:03, Serial 1

```

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```

C 202.30.1.0 /24 is directly connected, Ethernet 0
C 202.30.2.0 /24 is directly connected, Serial 0
R 202.30.3.0 /24 [120/1] via 202.30.2.2, 00:00:10. Serial 0
R 202.30.4.0 /24 [120/15] via 202.30.2.2, 00:00:10, Serial 0
R 202.30.5.0 /24 [120/15] via 202.30.2.2, 00:00:10, Serial 0
R 202.30.6.0 /24 [120/15] via 202.30.2.2, 00:00:10, Serial 0
R 202.30.7.0 /24 [120/1] via 202.30.2.2, 00:00:10, Serial 0

```

You examine the routing table of your router named RouterTK. This routing table will be sent to neighboring routers via broadcasts. Some routes might be discarded and not entered in to the routing tables of the neighboring RIP routers. Which of the following routes would be discarded in this way?

- A. R 202.30.8.0/24 [120/1] via 202.30.2.2, 00:00:10, Serial0
- B. R 202.30.11.0/24 [120/7] via 202.30.9.1, 00:00:03, Serial1
- C. C 202.30.1.0/24 is directly connected, Ethernet0
- D. R 202.30.5.0/24 [120/15] via 202.30.2.2, 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 NO: 328

At Layer 2 of the OSI model, which component connects a host to the network media?

- A. Hub
- B. Switch
- C. Bridge
- D. NIC
- E. Transceiver

Answer: D

Explanation: The data link layer is layer 2 of the OSI model. The data link layer involves frames and uses the burned in MAC addresses that NIC cards and router interfaces have.

Incorrect Answers

A: A hub operates at the physical layer, layer 1.

- C: Bridges operate the Data Link layer, layer 2, of the OSI model. However, they are used to connect network segments, not to connect hosts to the network media.
- B: Bridges operate the Data Link layer, layer 2, of the OSI model. However, they are not used to connect hosts to the network media.
- E: A transceiver works at the physical layer, layer 1.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 21 – 24.

QUESTION NO: 329

You are upgrading your Cisco router IOS from a TFTP server over the network. The upgrade procedure is stopped and you are prompted to erase the current flash contents before continuing. What is most plausible reason for this?

- A. There is insufficient room for more than one image.
- B. The router has detected a copy of the current software image on the TFTP server.
- C. The file **can be relocated and** not compressed.
- D. The image to load is a binary executable file.

Answer: A

Explanation: There might not be enough free Flash memory to store the new image.

Incorrect Answers:

- B. Detecting** a copy of the image will not stop the procedure nor prompt you to erase the current version.
- C. This would not stop the copying of the file.
- D. The image is a binary executable file but this will not result in the prompt above.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 137 – 140.

QUESTION NO: 330

Identify three valid host addresses in the 192.168.27.0 network with a subnet mask of 255.255.255.240. (Choose three)

- A. 192.168.27.33
- B. 192.168.27.112
- C. 192.168.27.119
- D. 192.168.27.126
- E. 192.168.27.175
- F. 192.168.27.208

Answer: A, C, D

Explanation: A subnet mask of 255.255.255.240 divides the 4th octet into a subnet parts: the highest four bits, and a host part: the lowest four bits. We simply check the 4th octet to check that all subnet and host parts are ok. i.e that cannot be: 0000 or 1111

A: 33 decimal is 00100001. Both the subnet and the host part are ok.

C: 119 decimal is 01110111. Both the subnet and the host part are ok.

D: 126 decimal is 1111110. Both the subnet and the host part are ok.

Incorrect Answers

B: 112 decimal is 1110000 binary. This is not a valid host address in this network. It has all host bits 0.

E: 175 decimal is 10101111. All host bits are 1's. This is the local broadcast address and cannot be used as a host address.

F: 208 decimal is 11010000 binary. This is not a valid host address in this network. It has all host bits 0.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 233 – 234.

QUESTION NO: 331

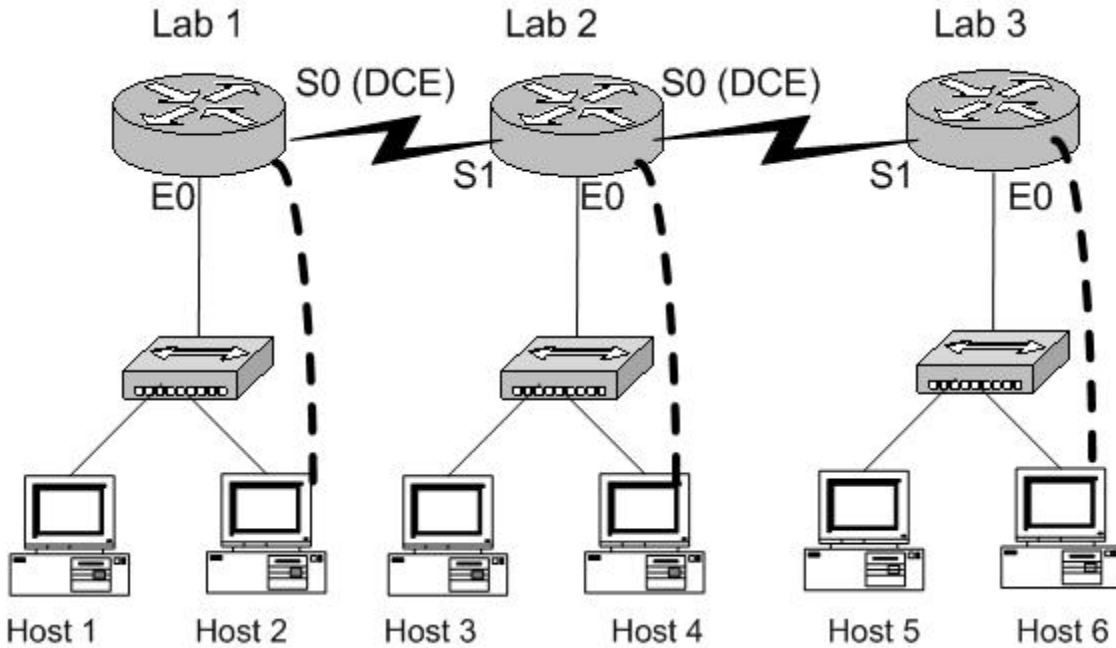
You are a network administrator for an Insurance company TestK. The company has three routers named Tokyo, Kobe and Yokohama. You have already configured the Tokyo and the Kobe routers, but Yokohama still need some further configuration. The Yokohama router need:

- a password for the for the first 5 virtual lines
- a password for the console
- a password for the privileged mode. These password must be encrypted.

The following passwords should be used:

Type	Password
Telnet	Test
Console	King
Privileged	TestKing

The network use a 255.255.255.0 subnet mask, RIP is the only routing protocol used, and clocking is provided on the serial 0 interface.

**Lab 1****Name: Tokyo****E0: 30.15.7.1****S0: 30.15.8.1****Lab 2****Name: Kobe****E0: 30.15.9.1****S0: 30.15.10.1****S1: 30.15.8.2****Lab 3****Name: Yokohama****E0: 30.15.11.1****S1: 30.15.10.2**

Start by clicking on the router you want to configure.

Answer:

Answer Lab 3:

<Click Router 3>

```
enable
config terminal
hostname Yokohama
enable secret TestKing
line con 0
login
password King
line vty 0 4
login
password Test
^Z
copy running-config startup-config
```

Explanation:

We should configure the passwords, not any IP configuration on the interfaces.

First we click on the Lab3 router.

```
Router Con0 is now available
```

```
Press RETURN to get started.
```

! We press enter.

```
Router>enable
```

! We enter enable mode

```
Router#config terminal
```

! We enter terminal configuration mode

```
Enter configuration commands, one per line. End with CNTL/Z.
```

End with CNTL/Z.

```
Router(config)#hostname Yokohama
```

! We change the host name. This is however not required.

```
Yokohama(config)#enable secret TestKing
```

! Set the secret password.

```
Yokohama(config)#line con 0
```

! Configure the terminal connection

```
Yokohama(config-line)#login
```

! Specify the terminal connection password

```
Yokohama(config-line)#password King
```

```
Yokohama(config-line)#line vty 0 4
```

! Configure the telnet connections. Numbered 0, 1, 2, 3, 4.

```
Yokohama(config-line)#login
```

! Specify password

```
Yokohama(config-line)#password Test
```

```
Yokohama(config)#^Z
```

! Exit from configuration mode.

```
%SYS-5-CONFIG_I: Configured from console by console
```

```
Yokohama#copy running-config startup-config
```

! Save the running config to NVRAM.

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```
Destination filename [startup-config]?          ! Confirm default selections
Warning: Attempting to overwrite an NVRAM configuration
previously written by a different version of the system image.
Overwrite the previous NVRAM configuration?[confirm]
Building configuration...
```

```
[OK]
Yokohama#
```

Steve McQuerry. *Interconnecting Cisco Network Devices*. (Cisco Press: 2000) pages 102 –103.