

Final Exam - CCNA 2 Router and Routing Basics (Version 3.1) – Answer

ALL THIS ANSWER IS 100% . (Updated 5 APRIL 1.45 AM)

1

Which router components and operations are correctly described? (Choose two.)

- **RAM - stores the ARP cache**
- NVRAM - store the operating system
- **ROM - stores the backup IOS**
- POST - verifies the validity of the running-config
- Flash - executes diagnostics at bootup
- DRAM - loads the bootstrap

2

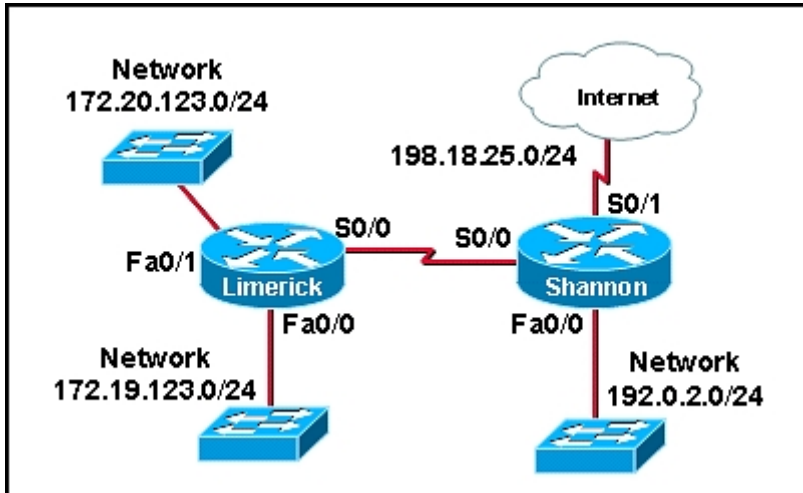
What can a network administrator do to recover from a lost router password?

- perform a reload or reset
- telnet from another router and issue the show running-config command to view the password
- **boot the router to ROM monitor mode and configure the router to ignore NVRAM when it initializes**
- boot the router to bootROM mode and enter the b command to load the IOS manually

3

Which of the following commands will correctly configure an extended ACL? (Choose two).

- Router(config)# access-list 18 permit tcp host 192.168.73.3 eq 25
- **Router(config)# access-list 102 permit tcp 10.43.0.0 0.0.255.255 any eq 80**
- **Router(config)# access-list 187 permit tcp host 192.168.42.34 172.29.0.0 0.0.255.255 eq 23**
- Router(config)# access-list 99 permit host 10.217.32.3
- Router(config)# access-list 128 permit tcp host 192.168.100.31 eq 23



Hosts from the Limerick LAN are not allowed access to the Shannon LAN but should be able to access the Internet. Which set of commands will create a standard ACL that will apply to traffic on the Shannon router interface Fa0/0 implementing this security?

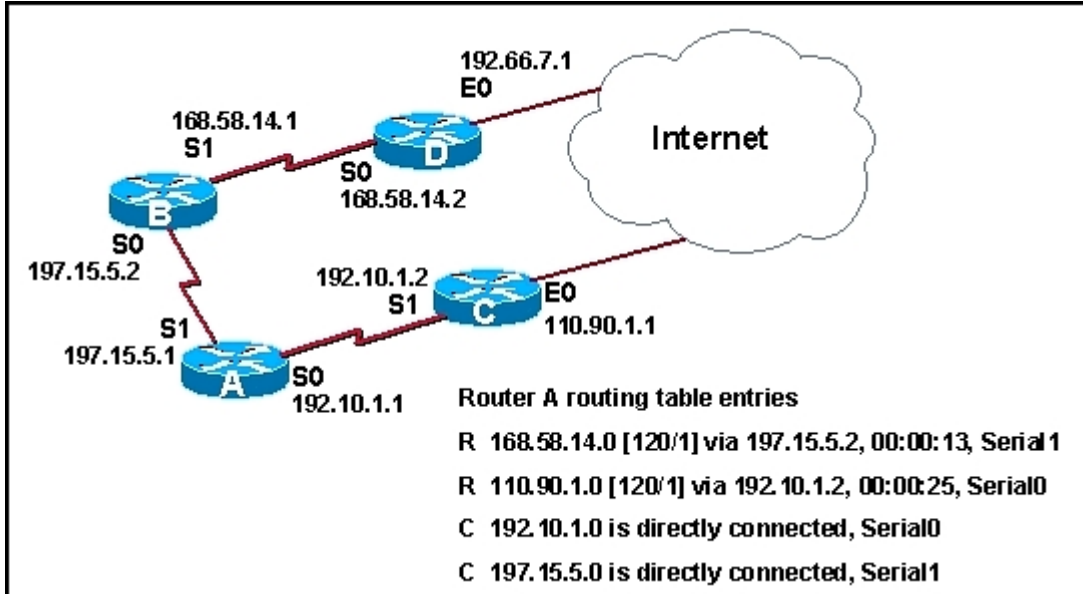
```
access-list 42 deny 172.19.123.0 0.0.0.255 192.0.2.0 0.0.0.255
access-list 42 permit any
```

```
access-list 56 deny 172.19.123.0 0.0.0.255
access-list 56 permit any
```

```
access-list 61 deny 172.19.123.0 0.0.0.0
access-list 61 permit any
```

```
access-list 87 deny ip any 192.0.2.0 0.0.0.255
access-list 87 permit ip any
```

5



Refer to the exhibit. Router D interface S0 on has gone down. What is the maximum time that will elapse before Router A learns that network 168.58.14.0 is down?

- 5 seconds
- 13 seconds
- **17 seconds**
- 25 seconds
- 30 seconds
- 77 seconds

6

Which two steps describe how to create a functional physical connection between a router console and a terminal? (Choose two.)

- Use a crossover cable to connect the terminal serial port to the router console port.
- Use a rollover cable to connect the terminal NIC to the router console port.
- **Use an RJ-45 to DB-9 adapter on the terminal serial port to connect to the cable going to the router console.**
- Use a transceiver to connect a straight-through cable to the router console port.
- Use a straight-through cable to connect the router console port to the terminal NIC.
- **Use a rollover cable to connect from a terminal serial port to the router console port.**

7

```
Chesapeake# show running-config
Building configuration...
Current configuration : 1056 bytes
!
version 12.1
no service single-slot-reload-enable
service timestamps debug uptime
service timestamps log uptime
service password-encryption
!
hostname Chesapeake
!
enable secret 5 $1$DQMv$6Eo9hQxa8ARySF4eFslup1
enable password 7 05080F1C2243
!
ip subnet-zero

<some output text omitted>
```

What facts can be determined from the highlighted text shown in the exhibit? (Choose two.)

- **A weak encryption was applied to all unencrypted passwords.**
- The enable password is now more secure than the enable secret password.
- An MD5 hashing algorithm was used on all encrypted passwords.
- **Any configured user EXEC mode or Telnet passwords will be encrypted in this configuration.**
- The service password-encryption command was used to encrypt all passwords on the router including enable secret.

8

What information can be learned during the initial router bootup? (Choose two.)

- the configuration register value
- **the number and types of interfaces installed**
- **the router model and the amount of memory that is available**
- the amount of memory required to load the IOS and configuration
- the number of interfaces with connected cables

9

What are the features of a serial interface on a router? (Choose two.)

- enabled by default
- assigned a unique MAC address
- must be configured as a DCE in lab and production environments
- must be configured with the default clock rate of 56000
- **may be administratively enabled by using the no shutdown command**
- **must be configured with a valid IP address and subnet mask in order to forward packets**

10

```
Router> show version
Cisco Internetwork Operating System Software
IOS (tm) C2600 Software (C2600-DO3S-M), Version 12.1(5)T12, RELEASE SOFTWARE (fc1)
TAC Support: http://www.cisco.com/tac
Copyright (c) 1986-2002 by Cisco Systems, Inc.
Compiled Tue 05-Feb-02 07:02 by ccai
Image text-base: 0x80008088, data-base: 0x81169C28

ROM: System Bootstrap, Version 12.2(10r)1, RELEASE SOFTWARE (fc1)

Router uptime is 10 minutes
System returned to ROM by power-on
System image file is "flash:c2600-do3s-mz.121-5.T12.bin"

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

<some output text omitted>

Configuration register is 0x2102
```

Given the output shown in the exhibit, in what order and location will the router search for the IOS if no boot system commands are found in the startup-config file?

- ROM, Flash, TFTP server
- Flash, NVRAM, RAM
- ROM, TFTP server, Flash
- RAM, Flash, NVRAM
- **Flash, TFTP server, ROM**

11

What are the primary functions of a router? (Choose two.)

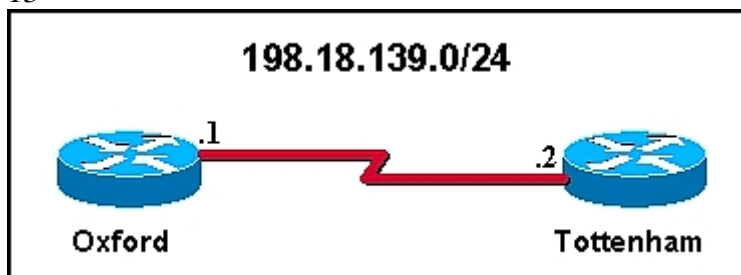
- **determine the best path for packets**
- prevent collisions on the network LAN
- regulate flow control between sender and receiver
- provide domain name resolution
- **forward packets to the appropriate interface**

12

Why are interface descriptions used in router configurations? (Choose three).

- **to enable support personnel to easily identify networks and customers that may be affected by a possible interface issue**
- **to provide comments on the interface without affecting the router functionality**
- to display access warning messages before users enter the interface configuration mode
- to eliminate the need to use IP addresses when using the ping and telnet commands
- **to identify the purpose and location of the interface**

13



Neither router in the exhibit has a host table or DNS available. The interfaces and passwords have been correctly configured. Which of the following commands will initiate a Telnet session? (Choose two.)

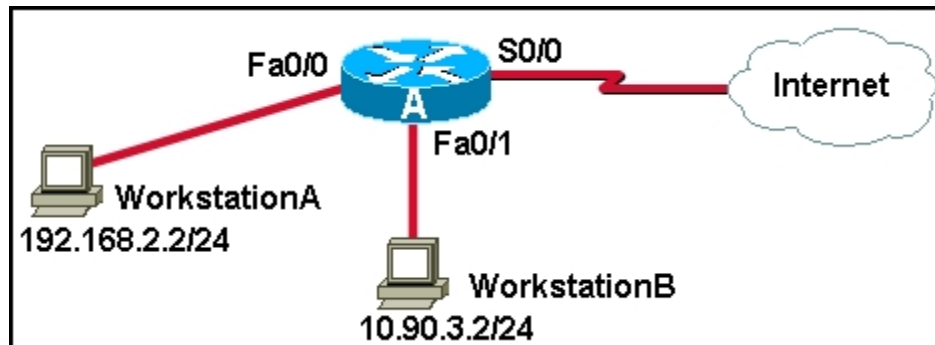
- Tottenham# telnet Oxford
- **Tottenham> telnet 198.18.139.1**
- Oxford# connect 198.18.139.0
- Oxford> connect Tottenham
- Oxford# telnet Tottenham
- **Oxford# 198.18.139.2**

14

What are two possible reasons a router would not load a valid IOS from flash? (Choose two.)

- The configuration register is set to 0x2142.
- **The first boot system command executed in the startup configuration file is boot system rom.**
- **The configuration register is set to 0x2100.**
- The boot field is set to the hexadecimal number 2.
- The startup configuration file is missing or corrupt.

15



What will occur when the following ACL is applied inbound to both FastEthernet interfaces of Router A in the graphic?

```
access-list 125 permit tcp 192.168.2.0 0.0.0.255 10.90.3.0 0.0.0.255 eq 23
access-list 125 permit tcp 10.90.3.0 0.0.0.255 192.168.2.0 0.0.0.255 eq 23
access-list 125 permit tcp 192.168.2.0 0.0.0.255 any eq www
```

- **Workstations A and B will be able to Telnet to each other. Workstation A will be allowed to access Web servers on the Internet, while Workstation B will be denied Internet Web access.**
- Workstations A and B will be able to Telnet to each other. All other traffic will be denied.
- The ACL will have no effect because it should be applied in the outbound direction on the FastEthernet interfaces.
- The ACL will deny all traffic because of the implied deny ip any any statement at the end of the ACL.

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What are some reasons to change the configuration register setting? (Choose two.)

- **to force the system to ignore the configuration file stored in NVRAM**
- to monitor password changes
- to change the POST sequence
- to force the router to boot the IOS from NVRAM
- **to force the system into ROM monitor mode**

17

What are two recommended uses of login banners? (Choose two.)

- **to display security warning messages**
- to welcome any user to the router
- to warn people about misusing privileged EXEC mode
- to identify circuits and other devices connected to the router
- **to announce a scheduled system shutdown**

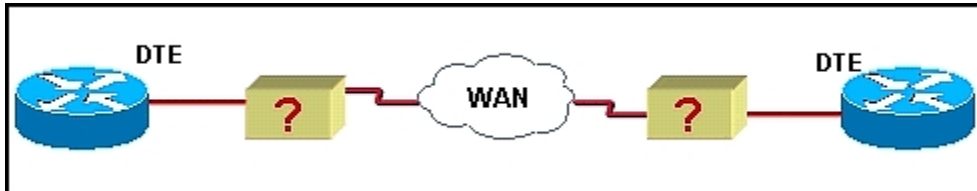
18

A new technician must add boot system commands to one of the department routers. Which available commands will the router return as output when the command shown below is entered? (Choose two.)

Router(config)# boot system ?

- RAM
- NVRAM
- IOS
- IP Address
- **TFTP**
- **FLASH**

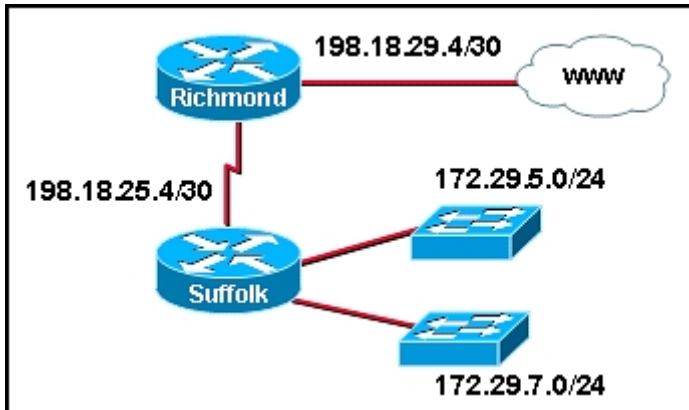
19



Which devices can be used to convert the data from a WAN router at the customer site into a form acceptable for use by the WAN service provider? (Choose three.)

- Ethernet switch
- DTE
- **modem**
- hub
- **DCE device**
- **CSU/DSU**

20



The Suffolk router is directly connected to the networks shown in the graphic and has a default route that points to the Richmond router. All interfaces are active and properly addressed. However, when the workstation on network 172.29.5.0/24 sends a packet to destination address 172.29.198.5, it is discarded by the Suffolk router. What can be a reason for this result?

- The ip classless command is not enabled on the Richmond router.
- The route was ignored if the Richmond router did not include the 172.29.198.0/24 network in its routing updates.
- The Richmond router is in a different autonomous system than the Suffolk router.
- The ip subnet-zero command was not configured on the Suffolk router.
- **The ip classless command is not enabled on the Suffolk router.**

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What are two characteristics of the support for Telnet within Cisco IOS software? (Choose two.)

- **Up to five separate Telnet lines are supported by default in standard edition IOS files.**
- For security purposes, Telnet sessions are required to be established from the privileged mode.
- **A router can host simultaneous Telnet sessions.**
- Once established, a Telnet session can remain operational regardless of network status.
- Telnet tests wireless connectivity and does not require a physical connection between devices to gain remote access.

22

```
Router# show running-config
Building configuration...

Current configuration: 1084 bytes
!
version 12.1
<some output text omitted>

interface Serial0/1
 ip address 192.168.1.1 255.255.255.0
 ip access-group 99 in
 no fair-queue
 clockrate 56000
!
 ip classless
 no ip http server
!
 access-list 99 deny 10.213.177.76
 access-list 99 permit any
!
<some output text omitted>
```

What can be concluded from the output shown in the exhibit? (Choose three.)

- **This is a standard IP access list.**
- This is an extended IP access list.
- **The keyword host is implied in the command line access-list 99 deny 10.213.177.76.**
- The wildcard mask must be configured for this access list to function properly.
- **Host 10.213.177.100 will be allowed access to the Serial0/1 interface.**

23

Which statements are true regarding setup mode? (Choose three.)

- Press Ctrl-z to terminate setup mode.
- **Enter a question mark (?) for help at any point.**
- Press Spacebar to accept the default settings.
- Use setup mode to enter complex protocol features.
- **Press Enter to accept the default settings.**
- **Press Ctrl-c to abort configuration dialog.**

24

Assuming the following ACL is correctly applied to a router interface, what can be concluded about this set of commands? (Choose two.)

```
Router(config)# access-list 165 deny tcp 192.28.115.0 0.0.0.255 172.20.0.0 0.0.255.255 eq 23
Router(config)# access-list 165 permit ip any any
```

- This is a standard IP access list that denies network 192.28.115.0 Telnet access to the 172.20.0.0 network.
- All Telnet traffic destined for 172.20.0.0 from any network will be denied access.
- **Network 192.28.115.0 is denied Telnet access to the 172.20.0.0 network.**
- Network 172.20.0.0 is denied Telnet access to the 192.28.115.0 network.
- **All FTP and HTTP traffic destined for 172.20.0.0 will be permitted access.**

25

Why are routed protocols important to networking? (Choose two.)

- Routed protocols detect collisions and fragments.
- Routers use routed protocols to calculate the best path to a destination.
- **Routed protocols transport data across the network.**
- **The fields and formats used within a packet are defined by routed protocols.**
- Routed protocols are used to configure the metrics used by routing protocols.

26

```
BigCity# show cdp neighbors
Capability Codes: R-Router, T-Trans Bridge, B-Source Route Bridge,
                  S-Switch, H-Host, I-IGMP, r-Repeater
```

Device ID	Local Intrfce	Holdtme	Capability	Platform	PortID
Post	Ser 2/1/26:0	168	R	1605	Ser 0
Haft	Ser 2/0/28:0	162	R	1721	Ser0
McKinley	Ser 2/1/9:0	140	R	2611	Ser 0/0
VRGW	Ser 2/0/6:0	174	R	2621	Ser 0/0
Rice	Ser 2/0/21:0	152	R	2500	Ser 0
Wight	Ser 2/1/11:0	133	R	1721	Ser 0
Farside	Ser 3/0/4:0	166	R	2524	Ser 0
Halden	Ser 2/1/16:0	139	R	1605	Ser 0

Which of the following are correct statements verified by the router output shown in the graphic? (Choose two.)

- Layer 3 connectivity exists between BigCity and the devices in the Device ID column.
- **Layer 2 connectivity exists between BigCity and the devices in the Device ID column.**
- All devices shown in the Device ID column use the TCP/IP protocol suite.
- All devices shown in the Device ID column can be pinged from BigCity.
- **All devices listed in the Device ID column are directly connected to BigCity.**

27

The main router of XYZ company has enough flash and RAM to store multiple IOS images. An administrator wants to upload a second IOS image from a TFTP server to the flash of the router. Which method will accomplish this task?

- Paste the IOS filename to the command line of the router while in global configuration mode. Press enter. Then issue the copy tftp flash command.
- Use the setup utility to load the new image to flash.
- Copy the IOS image file from a TFTP server using the command copyfilenameip addressflash
- **Copy the IOS image file from a TFTP server using the command copy tftp flash. When prompted, provide the IP address or name of the TFTP server and the IOS image filename.**

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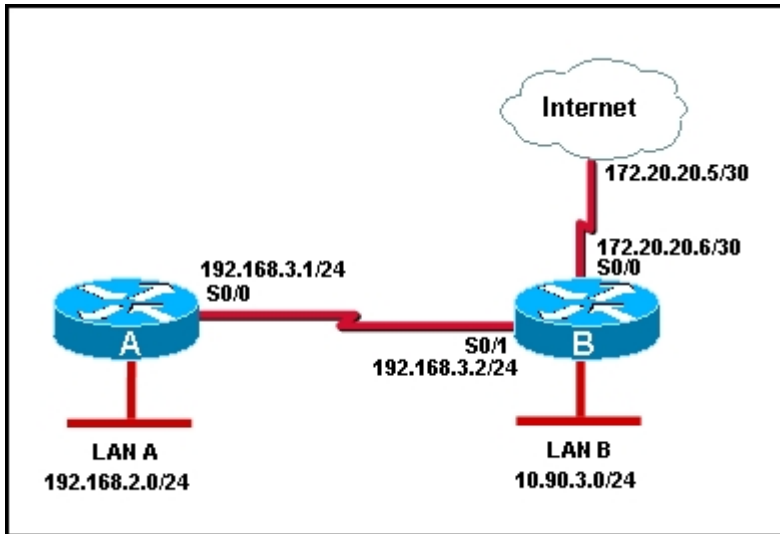
A network administrator must configure a FastEthernet interface with an IP address. The configuration must also identify the remote site to which the interface is connected. Which set of commands will meet these requirements?

```
StPetersburg(config)# banner San Jose T1
StPetersburg(config)# interface fa0/0
StPetersburg(config-if)# ip address 172.26.155.5 255.255.255.252
```

```
StPetersburg(config)# interface fa0/0
StPetersburg(config-if)# ip address 172.26.155.5 netmask 255.255.255.252
StPetersburg(config-if)# description San Jose T1
```

```
StPetersburg(config)# interface fa0/0
StPetersburg(config-if)# ip address 172.26.155.5 255.255.255.252
StPetersburg(config-if)# banner remote site San Jose T1
```

```
StPetersburg(config)# interface fa0/0
StPetersburg(config-if)# ip address 172.26.155.5 255.255.255.252
StPetersburg(config-if)# description San Jose T1
```



Refer to the graphic. Which series of commands will create static routes that will allow Router A and Router B to deliver packets destined for LAN A and LAN B, and direct all other traffic to the Internet?

```
RouterA(config)# ip route 10.90.3.0 255.255.255.0 192.168.3.2
RouterB(config)# ip route 192.168.2.0 255.255.255.0 192.168.3.1
RouterB(config)# ip route 0.0.0.0 0.0.0.0 s0/0
```

```
RouterA(config)# ip route 10.90.3.0 255.255.255.0 192.168.3.2
RouterA(config)# ip route 0.0.0.0 0.0.0.0 192.168.3.2
RouterB(config)# ip route 192.168.2.0 255.255.255.0 192.168.3.1
```

```
RouterA(config)# ip route 0.0.0.0 0.0.0.0 192.168.3.2
RouterB(config)# ip route 192.168.2.0 255.255.255.0 192.168.3.1
RouterB(config)# ip route 172.20.20.4 255.255.255.252 s0/0
```

```
RouterA(config)# ip route 0.0.0.0 0.0.0.0 192.168.3.2
RouterB(config)# ip route 192.168.2.0 255.255.255.0 192.168.3.1
RouterB(config)# ip route 0.0.0.0 0.0.0.0 s0/0
```

Which router component stores the information that is displayed by the show running-config command?

- flash
- NVRAM
- **RAM**
- ROM

31

A network administrator issues the erase startup-config command on a configured router with the configuration register set to 0x2102 and observes the following output:

Erasing the nvram filesystem will remove all files! Continue? [Confirm]

[OK]

Erase of nvram: complete

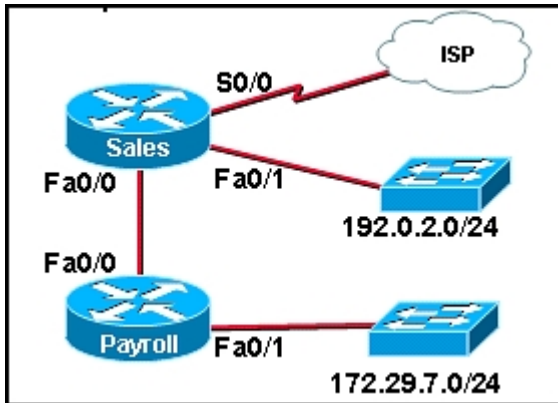
If the router unexpectedly loses power after this sequence, what will occur when power is restored?

- The router will enter ROM monitor mode upon completion of the power-on self test (POST).
- The router will load the last known valid configuration file.
- The router will enter Rx-boot mode.
- **The router will prompt the user to enter setup mode or to continue without entering setup mode.**

32

What are three features of CDP? (Choose three.)

- **provides information on directly connected devices that have CDP enabled**
- **tests Layer 2 connectivity**
- **enabled by default on each interface**
- provides a layer of security
- used for debugging Layer 4 connectivity issues



The following access list has been created to prevent traffic from the 192.0.2.63 host on the Sales LAN from accessing servers and hosts on the Payroll LAN.

```
access-list 26 deny host 192.0.2.63
access-list 26 permit any
```

Refer to the exhibit. Which group of commands will properly place the access list so that only the host on the Sales LAN is denied access to the 172.29.7.0 network but all other traffic is permitted?

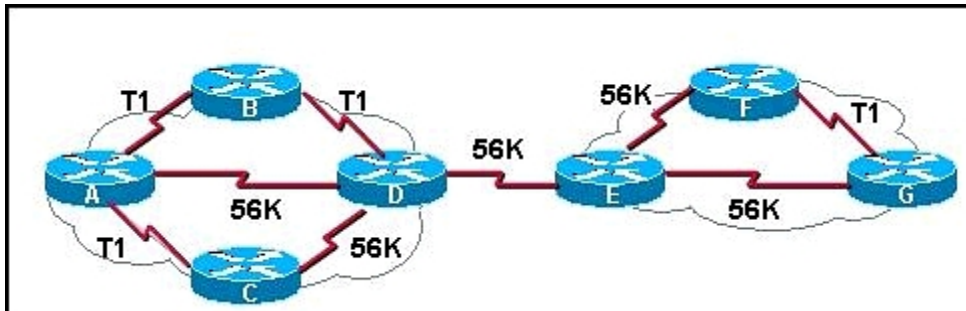
```
Payroll(config)# interface fa0/0
Payroll(config-if)# ip access-group 26 out
```

```
Payroll(config)# interface fa0/1
Payroll(config-if)# ip access-group 26 out
```

```
Sales(config)# interface fa0/1
Sales(config-if)# ip access-group 26 in
```

```
Sales(config)# interface fa0/0
Sales(config-if)# ip access-group 26 out
```

34



Refer to the exhibit. Assuming default metrics are used and the network is fully converged, which path will RIP use to send a packet from Router A to Router F?

- **A, D, E, F**
- A, B, D, E, F
- A, C, D, E, G, F
- A, B, D, E, G, F

35

From the running-config, the following configuration entries are displayed:

```
Router(config)# line vty 0 2
Router(config-line)# password g8k33pr
Router(config-line)# login
```

What can be interpreted from the exhibited configuration? (Choose two.)

- **Three Telnet lines are available for remote access.**
- Two Telnet lines are available for remote access.
- Future configuration of the remaining Telnet lines will require the password to be set to g8k33pr.
- To login to the remote device, g8k33pr will be used as the Telnet and secret password.
- **Remote access to this local router will require a Telnet password of g8k33pr.**

36

If a PC does not have network connectivity to a router, which router port can be used to establish communication?

- **console**
- Ethernet
- serial
- VTY

37

What could a Cisco support technician learn from the IOS filename c2600-d-mz.121-3?
(Choose three.)

- **the format of the file**
- the RAM memory requirements of the file
- **the version number of the file**
- the size of the file
- **the device platform of the file**

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access-list 199 deny tcp 178.15.0.0 0.0.255.255 any eq 23
access-list 199 permit ip any any

Assuming this ACL is correctly applied to a router interface, which statements describe traffic on the network? (Choose two.)

- **All FTP traffic from network 178.15.0.0 will be permitted.**
- All Telnet traffic destined for network 178.15.0.0 will be denied.
- Telnet and FTP will be permitted from all hosts on network 178.15.0.0 to any destination.
- **Telnet will not be permitted from any hosts on network 178.15.0.0 to any destination.**
- Telnet will not be permitted to any host on network 178.15.0.0 from any destination.

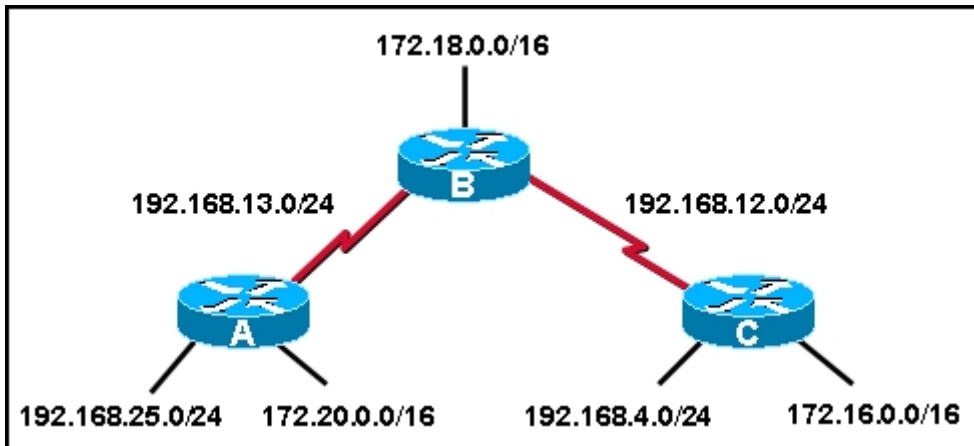
```
Cisco Internetwork Operating System Software
IOS™ C2600 Software (C2600-D-M), Version 12.1(16), RELEASE SOFTWARE (fc1)
<output omitted>

System image file is "flash: c2600-d-mz.121-16.bin"
Cisco 2621 (MPC860) processor (revision 0x102) with 26624K/6144K bytes of memory,
Processor board ID JAD04280AUY (3924580656)
M860 processor: part number 0, mask 49
Bridging software.
x.25 software, Version 3.0.0
Basic Rate ISDN software, Version 1.1
2 FastEthernet /IEEE 802.3 interface(s)
1 Serial network interface(s)
1 ISDN Basic Rate interface(s)
32K bytes of non-volatile configuration memory.
8192K bytes of processor board System flash (Read/Write)

Configuration register is 0x2102
```

While planning an IOS upgrade, the administrator issues the show version command. Based on the output in the graphic, what is the current IOS boot location?

- RAM
- NVRAM
- **Flash**
- ROM



Router A and Router B have been correctly configured to use RIP as a dynamic routing protocol and all interfaces on Router A and Router B are reporting "interface is up, line protocol is up" status. RIP is then configured on Router C using the following commands:

```
RouterC(config)# router rip
RouterC(config-router)# network 192.168.4.0
RouterC(config-router)# network 172.16.0.0
```

If no additional routing is configured on Router A, Router B, and Router C, what will be the result?

- Networks 192.168.12.0/24, 192.168.4.0/24, and 172.16.0.0/16 will be unreachable from Router A.
- Router A will have no knowledge of network 192.168.12.0/24, but will have routes to networks 192.168.4.0/24 and 172.16.0.0/16.
- All networks shown in the graphic will be reachable by Router A, Router B, and Router C.
- **Networks 192.168.4.0/24 and 172.16.0.0/16 will be unreachable from Router A and Router B.**

Based on this partial output of the show ip route command, which routing protocol is configured on the router?

```
R 172.16.3.0/24 [120/3] via 172.16.2.2, 00:00:27, Serial0/0
```

- **RIP**
- EIGRP
- OSPF
- IGP
- BGP

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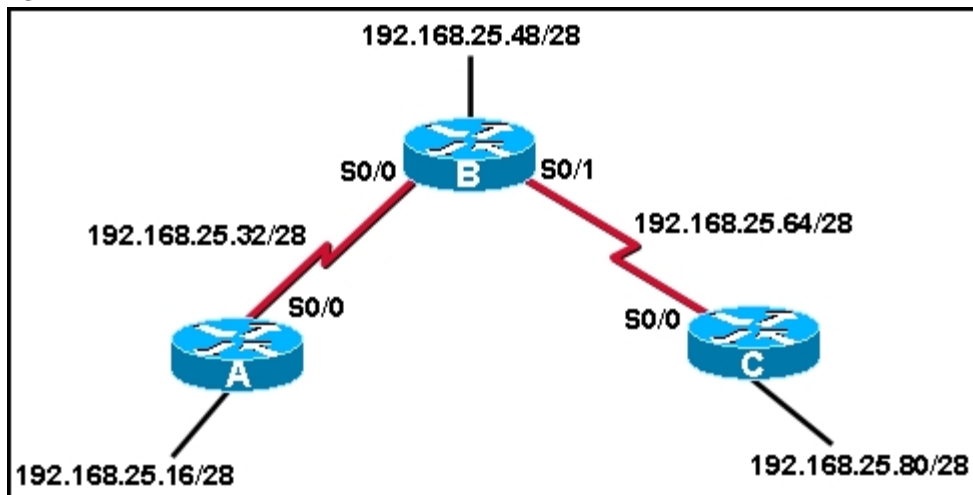
During initial router bootup the following line appears:

"NVRAM invalid, possibly due to write erase."

What are two possible reasons for this result? (Choose two.)

- The startup-config file was not saved to RAM before reboot.
- The IOS has been erased.
- **The router has not been configured.**
- **The startup-config file cannot be located.**
- The router will not enter initial configuration dialog.

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A network administrator has enabled RIP on routers B and C in the network diagram. Which of the following commands will prevent RIP updates from being sent to Router A?

```
A(config)# router rip
A(config-router)# passive-interface S0/0
```

```
B(config)# router rip
B(config-router)# network 192.168.25.48
B(config-router)# network 192.168.25.64
```

```
A(config)# router rip
A(config-router)# no network 192.168.25.32
```

```
B(config)# router rip
B(config-router)# passive-interface S0/0
```

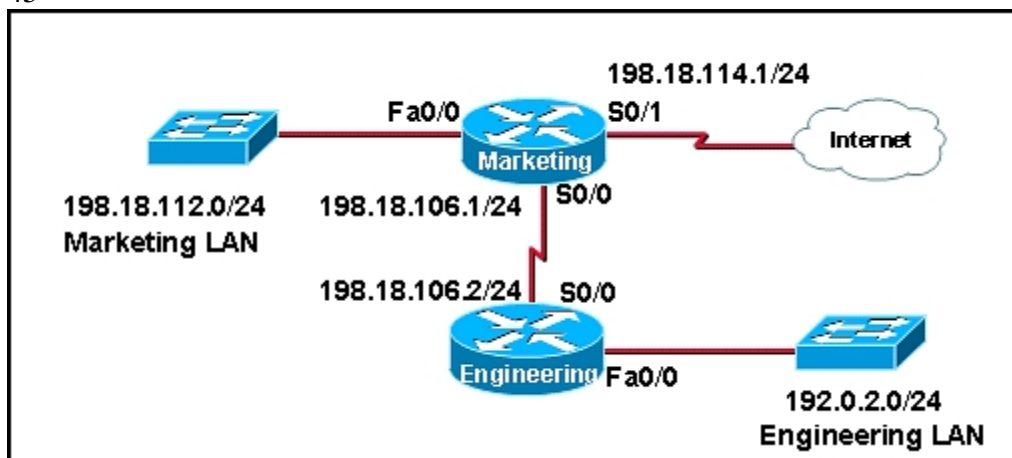
```
A(config)# no router rip
```

44

What critical information about the status of the router can be found in the outputs of both the show interfaces and show protocols commands? (Choose two.)

- **the Layer 3 address of each configured interface**
- the routing protocol configured to forward updates out of each interface
- **the operational status of each interface**
- traffic statistics for each interface
- whether the interface is configured as a DTE or DCE

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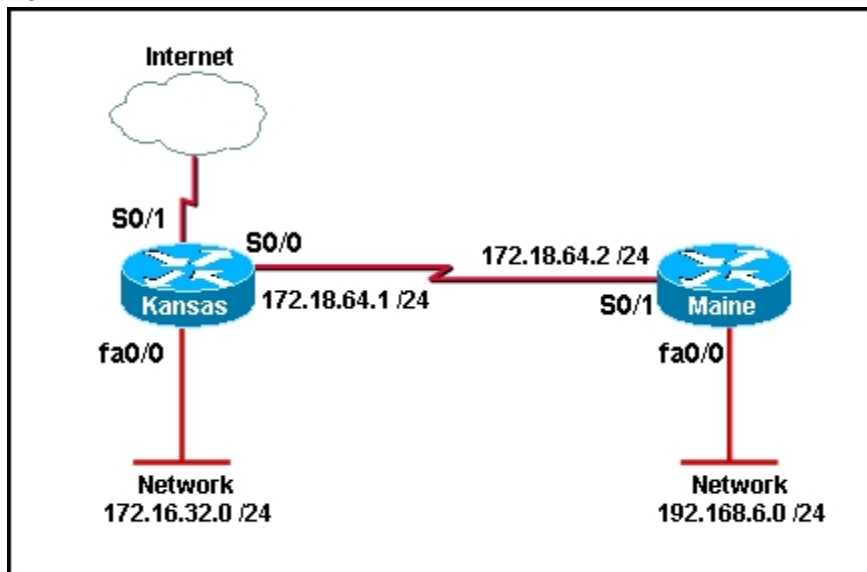
Refer to the exhibit. The new security policy for the company allows all IP traffic from the Engineering LAN to the Internet while only web traffic from the Marketing LAN is allowed to the Internet. Which ACL can be applied in the outbound direction of Serial 0/1 on the Marketing router to implement the new security policy?

```
access-list 197 permit ip 192.0.2.0 0.0.0.255 any
access-list 197 permit ip 198.18.112.0 0.0.0.255 any eq www
```

```
access-list 165 permit ip 192.0.2.0 0.0.0.255 any
access-list 165 permit tcp 198.18.112.0 0.0.0.255 any eq www
access-list 165 permit ip any any
```

```
access-list 137 permit ip 192.0.2.0 0.0.0.255 any
access-list 137 permit tcp 198.18.112.0 0.0.0.255 any eq www
```

```
access-list 89 permit 192.0.2.0 0.0.0.255 any
access-list 89 permit tcp 198.18.112.0 0.0.0.255 any eq www
```



Refer to the graphic. Communication is needed between the LAN connected to the fa0/0 interface of the Kansas router and the fa0/0 interface of the Maine router. All hosts on those LANs also need connectivity to the Internet. Which commands will allow this communication? (Choose three).

Kansas(config)# ip route 192.168.6.0 255.255.255.0 172.18.64.2

Kansas(config)# ip route 192.168.6.0 255.255.255.0 s0/1

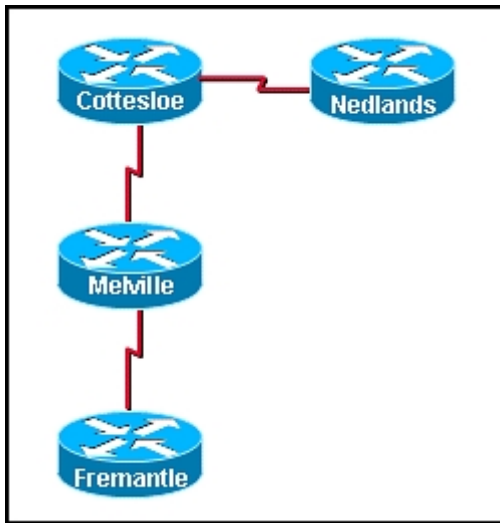
Kansas(config)# ip route 0.0.0.0 0.0.0.0 s0/1

Maine(config)# ip route 192.168.6.0 255.255.255.0 172.18.64.1

Maine(config)# ip route 0.0.0.0 0.0.0.0 s0/1

Maine(config)# ip route 172.16.32.0 255.255.255.0 172.18.64.2

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A network administrator has a console connection to the Fremantle router. Pings to Melville are successful, but pings to Cottesloe and Nedlands fail. What could be a first step in troubleshooting the problem?

- Use an extended ping from Fremantle to each router in the network.
- **Use the show interfaces command from a Telnet session on Melville to check the connection to Cottesloe.**
- Use the traceroute command to discover exactly which link in the network is down.
- Use the show cdp neighbors detail command from Fremantle to gather information about all Cisco routers in the network.

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What are the results of setting the boot field bits in the configuration register to "0000"? (Choose two.)

- The startup-config file will be ignored at bootup.
- The router will load the IOS from Flash.
- **The router will enter ROM monitor mode upon reload.**
- The router will enter boot ROM mode and have limited capabilities.
- **The administrator can enter the b command to manually boot the IOS.**

Which of the following are true statements regarding IGRP and RIP? (Choose two.)

- **IGRP uses a combination of different metrics for path selection.**
- RIP is a proprietary protocol developed by Cisco.
- RIP has the ability to scale to large networks.
- **IGRP has the ability to scale to large networks.**