Number: 100-490
Passing Score: 800
Time Limit: 120
File Version: 3.0

Exam Code: 100-490

Exam Name: Cisco Certified Technician Routing & Switching

Exam A

QUESTION 1
Which type of memory is used to store Cisco IOS Software permanently?

A. NVRAM
B. flash
C. SRAM
D. DRAM

Correct Answer: B
Section:
Explanation:
The type of memory used to store Cisco IOS Software permanently isflash memory. Flash memory is non-volatile, meaning it retains its content even after the device is powered down or restarted. It is commonly used in Cisco devices to store one or more Cisco IOS software images, as well as other files such as backup configuration files.This allows the device to reload the operating system after a reboot without the need to retransfer the IOS image

QUESTION 2
What is the default operating mode when you initially log in to a router?

A. user EXEC
B. global configuration
C. privileged EXEC
D. ROM monitor

Correct Answer: A
Section:
Explanation:
When you initially log in to a Cisco router, the default operating mode isuser EXEC mode. This mode provides a limited set of basic monitoring commands but does not allow for any configuration changes to the router's settings. To make configuration changes, you must enterprivileged EXEC mode(often accessed by theenablecommand), which offers a wider range of commands that allow for the viewing and modification of the configurationGlobal configuration modeis accessed from privileged EXEC mode to modify the router's configuration, andROM monitor modeis a low-level mode used mainly for recovery purposes1.

QUESTION 3
What are the choices for modes of operation when deploying Cisco Catalyst 3850 Series switches?

A. Active mode and Standby mode
B. Install mode and Bundle mode
C. Boot mode and Run mode
D. Exec mode and User mode

Correct Answer: B
Section:
Explanation:
When deploying Cisco Catalyst 3850 Series switches, there are two modes of operation to choose from: Install mode and Bundle mode. Install mode is the default mode for the switch and uses a package-provisioning file named packages.conf to boot the switch. It allows for a more complete set of features and requires fewer resources upon boot1. Bundle mode, on the other hand, is similar to using traditional monolithic Cisco IOS images to

boot the switch. It consumes more memory than Install mode because the packages are extracted from the bundle and copied to the RAM2. Cisco recommends using Install mode for operation due to its efficiency and feature set2.

QUESTION 4
Which command displays a list of file systems that are available on Cisco devices?

A. show memory
B. show directory
C. show file system
D. show version

Correct Answer: C
Section:
Explanation:
The commandshow file systemis used on Cisco devices to display a list of all the file systems available. This command provides information about each file system, including its name, size, free space, and file system type (such as flash or nvram). It's a useful command for network administrators to manage and navigate through different storage areas on Cisco devices, ensuring they can access and maintain the device's file structure effectively.Reference:=File System Commands on Cisco IOS XR Software - Cisco,Working with the Cisco IOS File System, Configuration Files, and Software Images

QUESTION 5
Which two pieces of information are displayed when the show ip interface brief command is used? (Choose two.)

A. Layer 2 address
B. keepalive
C. Layer 3 address
D. encapsulation type
E. interface status

Correct Answer: C, E
Section:
Explanation:
The show ip interface brief command provides a concise summary of the status and IP addressing configuration of interfaces on a Cisco router or switch. Here's what it displays:
Interface: The name of the interface (e.g., FastEthernet0/0, GigabitEthernet1/1).
IP Address: The Layer 3 IP address assigned to the interface (if any).
OK? Indicates the IP layer status of the interface (YES if operational, NO if not).
Method: How the IP address was configured (manual or DHCP).
Status: The Layer 1 status of the interface (up or down).
Protocol: The Layer 2 status of the interface (up or down).
Why other options are incorrect:
Layer 2 address: The show ip interface brief command does not directly display Layer 2 (MAC) addresses. You can use the show interface <interface-name> command for that.
Keepalive: Keepalives are used in some routing protocols but are not generally reflected in the output of the show ip interface brief command.
Encapsulation type: Encapsulation information is also not typically included in the show ip interface brief output.
Cisco IOS show ip interface brief command: [invalid URL removed]
Example output of show ip interface brief: https://www.cisco.com/E-Learning/bulk/public/tac/cim/cib/using_cisco_ios_software/cmdrefs/show_ip_interface.

QUESTION 6
Which command returns the user to the main configuration prompt from the interface configuration prompt?

A. end

B. clear
C. quit
D. exit

Correct Answer: D
Section:
Explanation:
The command that returns the user to the main configuration prompt from the interface configuration prompt is exit. When you are in interface configuration mode on a Cisco device and you want to return to the global configuration mode, you use the exit command. If you want to go all the way back to privileged EXEC mode, you would use the end command or press Ctrl-Z1.

QUESTION 7
Which command provides detailed information about the components that are installed on a router, such as the model, PID, and serial number?

A. show chassis
B. show items
C. show inventory
D. show router

Correct Answer: C
Section:
Explanation:
The show inventory command in Cisco IOS is designed specifically to display detailed hardware inventory information about a Cisco device. This includes:
Component Name: The name or type of each module or card installed.
PID (Product ID): The unique product identifier for the module.
VID (Version ID): The version identifier for the module.
Serial Number: The unique serial number assigned to the module.
Why other options are incorrect:
show chassis: Some Cisco devices support a show chassis command, but the information provided usually focuses on the physical chassis rather than detailed component inventory.
show items: This is not a standard Cisco IOS command.
show router: This command doesn't provide the level of granular hardware information that show inventory does.
Topic 4, Service-related Knowledge

QUESTION 8
Which two IPv4 addresses are assigned to host computers? (Choose two.)

A. 292.10.3.4
B. 10.1.1.20
C. 255.255.255.255
D. 0.0.0.0
E. 192.168.10.15

Correct Answer: B, E
Section:
Explanation:
In the context of IPv4 addresses, a host address is an identifier for a specific device on a network. The addresses 10.1.1.20 and 192.168.10.15 are both within ranges typically reserved for private networks, making them suitable for assignment to host computers within a local network. Address 292.10.3.4 is not a valid IPv4 address because the first octet is beyond the maximum value of 255. Address 255.255.255.255 is reserved for broadcast messages to all hosts on the local network, and 0.0.0.0 is used to denote an unspecified address, often indicating the absence of an IP address123. Reference := IP address, Network address, and Host address Explained, IP address - Wikipedia, Understanding IP Addresses: How IP Addressing Works | ENP

QUESTION 9
Which command sends an echo request packet to the target host and then waits for an echo response message?

A. echo
B. access
C. ping
D. connect

Correct Answer: C
Section:
Explanation:
The ping command is specifically designed to test network connectivity and reachability. Here's how it works:
Echo Request: The ping command sends an ICMP (Internet Control Message Protocol) Echo Request packet to a specified destination IP address or hostname.
Echo Response: If the target host is reachable, it will respond with an ICMP Echo Reply packet.
Analysis: The ping command measures the round-trip time (RTT) between the source and destination. It also reports statistics like packet loss and response times.
Why other options are incorrect:
echo: In some command-line environments, the echo command is used to display text on the screen and does not relate to network testing.
access: This is a general term and does not refer to a specific command for sending echo requests.
connect: Some tools use the connect command to establish a TCP connection to a remote host, but it doesn't directly utilize ICMP echo packets like the ping command.
ping (Wikipedia): https://en.wikipedia.org/wiki/Ping_(networking_utility)

QUESTION 10
Which command displays information about the carrier network, cell site, and available service?

A. show cellular unit network
B. show cellular unit radio
C. show cellular unit hardware
D. show cellular unit profile

Correct Answer: A
Section:
Explanation:
The show cellular unit network command in Cisco IOS is used to view detailed information about the cellular modem and the network it's connected to. Here's the type of information this command usually displays:
Network Status: Whether the device is registered on the cellular network.
Carrier Information: The name of the cellular network provider.
Technology: The cellular technology in use (e.g., 3G, 4G/LTE).
Signal Strength: Signal strength indicators like RSSI and RSCP.
Cell Site Information: Data about the cell tower or base station the device is connected to.
IP Address: The IP address assigned to the cellular interface.
Why other options are less likely:
show cellular unit radio: Provides information about the radio module itself, such as its state and power levels.
show cellular unit hardware: Focuses on hardware-level information of the cellular unit.
show cellular unit profile: Displays configuration details of the cellular profile used to connect to the network.
Cisco command documentation for different show cellular options: https://www.cisco.com/c/en/us/td/docs/routers/wireless-wan/Cisco-Catalyst-Cellular-Gateways/cisco-cellular-gateways-command-reference-guide/m-show_commands.pdf

QUESTION 11
Which Windows-based text editor is preferred for working with a simple text document, such as a Cisco configuration?

A. Microsoft Word
B. Microsoft Notepad
C. Microsoft Access
D. Microsoft Excel

Correct Answer: B
Section:
Explanation:
Microsoft Notepad is the preferred text editor for working with Cisco configuration files and other simple text documents for several reasons:
Plain Text Focus: Notepad is designed specifically for plain text editing. It does not add any formatting, hidden characters, or metadata that could interfere with the configuration file's structure.
Cisco Syntax Compatibility: Cisco configurations rely on specific syntax and spacing. Notepad preserves these elements accurately.
Universality: Notepad is a basic text editor included in all versions of Windows, ensuring accessibility and eliminating the need for additional software.
Why other options are not ideal:
Microsoft Word: Word is a word processor and includes formatting, fonts, and other features that are not compatible with Cisco configuration files. This formatting can corrupt the configuration.
Microsoft Access: Access is a database management system, not suited for text file editing.
Microsoft Excel: Excel is a spreadsheet application and adds its own structure and formatting that conflicts with configuration file formats.

QUESTION 12
From a Windows command prompt, which command displays the local IP address of a computer?

A. ipconfiguration
B. ip configuration
C. ipconfig
D. ip config

Correct Answer: C
Section:
Explanation:
The ipconfig command in Windows is used to display and manage network configuration information for the local computer. Here's what it shows:
IP Address: The IPv4 address assigned to each network adapter.
Subnet Mask: The subnet mask used to determine the network segment.
Default Gateway: The IP address of the router used to send traffic to other networks.
Other Information: DNS servers, DHCP server details, and more.
Incorrect options:
ipconfiguration: This is not a recognized command in the Windows command prompt.
ip configuration: This is also not a recognized command.
ip config: While it might seem like it should work, Windows uses ipconfig without spaces.
How to use ipconfig:
Open the Windows command prompt (Search for 'cmd')
Type ipconfig and press Enter.
Microsoft documentation on ipconfig: https://learn.microsoft.com/en-us/windows-server/administration/windows-commands/ipconfig

QUESTION 13
What are two functions of SmartJack? (Choose two.)

A. It regenerates the signal to compensate for signal degradation from line transmission.
B. It provides signal conversion.
C. It operates at Layer 2 of the OSI model.

D. It provides channel testing.
E. It acts as a concentration point for dial-in and dial-out connections.

Correct Answer: A, B
Section:
Explanation:
A SmartJack is a type of Network Interface Device (NID) that provides advanced features beyond simple electrical connection. Two of its functions include:
* Regenerating the signal: Similar to a repeater, a SmartJack can buffer and regenerate the signal to compensate for signal degradation that occurs during line transmission. This helps maintain signal integrity over longer distances1.
* Signal conversion: A SmartJack may also provide signal conversion, which involves converting codes and protocols to the type needed by the customer equipment. This can include converting framing types or other signal characteristics to ensure compatibility with the connected devices1.
The other options listed are not primary functions of a SmartJack:
* Operating at Layer 2 of the OSI model is not a function of a SmartJack; it is a characteristic of network devices like switches and bridges.
* Providing channel testing (D) is not a standard function of a SmartJack; however, SmartJacks enable phone companies to remotely test customer wiring without a site visit2.
* Acting as a concentration point for dial-in and dial-out connections (E) is not a function of a SmartJack; this is typically a function of devices like modems or access servers.

QUESTION 14
What are two descriptions for FTP? (Choose two.)

A. FTP loads Cisco IOS Software to a router in ROMMON mode.
B. The copy running-config ftp: command copies a configuration file from an FTP server to the running configuration.
C. A router is able to act as an FTP server.
D. FTP uses UDP as its transport protocol.
E. A Cisco router must be configured with the appropriate username and password because FTP usually requires authentication.

Correct Answer: B, E
Section:
Explanation:
1. It is built on a client-server model architecture and uses separate control and data connections between the client and the server2. Here are the explanations for the correct answers:
* B: The copy running-config ftp: command is used to copy the running configuration from a router to an FTP server or vice versa. This is a common method for backing up and restoring configurations on Cisco devices1.
* E: FTP typically requires authentication, which means a Cisco router acting as an FTP client must be configured with the appropriate username and password to access an FTP server. This ensures secure file transfer and access control1.
The other options are incorrect because:
* A: FTP is not used to load Cisco IOS Software to a router in ROMMON mode; this is typically done using TFTP or Xmodem.
* C: While a router can act as an FTP server, this is not a description of FTP itself.
* D: FTP uses TCP as its transport protocol, not UDP. FTP needs the reliability that TCP provides because it ensures the complete and accurate transfer of files1.

QUESTION 15
Which two sets of pins are looped on an RJ-45 56K loopback plug? (Choose two.)

A. pins 1 and 4
B. pins 1 and 7
C. pins 2 and 5
D. pins 2 and 7
E. pins 2 and 8

Correct Answer: A, C
Section:

Explanation:
An RJ-45 56K loopback plug is used to test the functionality of network ports, particularly for T1/56K lines. The correct loopback wiring for such a plug involves looping pins 1 and 4, as well as pins 2 and 5. This configuration allows the device to send and receive signals on the same wire pairs, effectively testing the transmit and receive paths of the port1.

QUESTION 16
Which protocol does TFTP typically use for transport?

A. RSVP
B. TCP
C. HTTP
D. UDP

Correct Answer: D
Section:
Explanation:
TFTP, or Trivial File Transfer Protocol, is a simple protocol used for transferring files. Unlike other file transfer protocols, TFTP operates on top of the User Datagram Protocol (UDP), which is a connectionless protocol. This means that TFTP does not establish a persistent connection between the client and server, and it does not guarantee reliable delivery of packets, error checking, or correction.TFTP is typically used in scenarios where simplicity and minimal memory footprint are more critical than the need for reliable delivery, such as when booting a device over a network123.Reference:=Wikipedia,GeeksforGeeks,PyNet Labs

QUESTION 17
What is the correct IPv6 address notation?

A. 2001:0DB8::/128
B. 2001:0DB8:0::
C. 2001:0DB8::1:1:1:1:1
D. 2001:0DB8:130F:0000:0000:7000:0000:140B

Correct Answer: D
Section:
Explanation:
The correct IPv6 address notation follows the format of eight groups of four hexadecimal digits, separated by colons. The address must have exactly eight groups unless it uses the double colon (::) to represent consecutive groups of zero value. The double colon can only appear once in an address to avoid ambiguity.
Option A is incorrect because it includes a subnet mask (/128) which is not part of the actual address notation. Option B is incomplete as it does not contain enough groups and ends with a single colon. Option C has too many groups (nine instead of eight) and is therefore not a valid IPv6 address. Option D is the correct notation with eight groups of four hexadecimal digits, where necessary leading zeros are included.
IPv6 Address Types, Notation, and Structure Explained1.
IPv6 address formats - IBM2. ==========

QUESTION 18
Which two Cisco Nexus 3400 Series switches support 400-Gbps Ethernet ports? (Choose two.)

A. Cisco Nexus 34180YC
B. Cisco Nexus 34200YC-SM
C. Cisco Nexus 3432D-S
D. Cisco Nexus 3408-S
E. Cisco Nexus 3464C

Correct Answer: C, D
Section:

Explanation:
The Cisco Nexus 3432D-S and Cisco Nexus 3408-S are part of the Cisco Nexus 3400 Series switches that support 400-Gbps Ethernet ports. The Cisco Nexus 3432D-S is designed with 32 ports of 400G, providing high-density and high-throughput capabilities1. The Cisco Nexus 3408-S offers flexibility with 100G or 400G Line-Card Expansion Modules (LEMs), allowing for configurations with 32 ports of 400G2. These switches are engineered for data centers requiring high performance, low latency, and power efficiency, with the Cisco Nexus 3432D-S offering industry-leading performance-per-watt power efficiency at low latency1.

QUESTION 19
Which type of memory stores the configuration of a router or switch by default?

A. RAM
B. ROM
C. NVRAM
D. flash

Correct Answer: C
Section:
Explanation:
NVRAM (Non-Volatile Random Access Memory) is the default storage location for the startup configuration file of a Cisco router or switch.expand_more Here's why:
Non-Volatility: NVRAM retains its contents even when the device loses power.expand_more This is essential for storing the startup configuration, which contains critical settings like interface configurations, routing protocols, and passwords.
Read/Write Capability: Unlike ROM, NVRAM allows you to both read and write data. This makes it possible to modify the configuration and save the changes into NVRAM as the startup configuration.
Other Memory Types and Their Functions:
RAM (Random Access Memory): RAM is volatile memory, meaning it loses its contents when the device is powered off.expand_more It's used to store the running configuration (currently active configuration), routing tables, and other temporary data required for the device's operation.
ROM (Read-Only Memory): ROM is non-volatile and stores the bootstrap program used to initiate the boot process of the device.expand_more It's not modifiable by the user.expand_more
Flash: Flash memory is also non-volatile.expand_more It's primarily used to store the Cisco IOS image (operating system) and can also store backup configuration files and other data.

QUESTION 20
Which two commands identify the serial number of a Cisco router? (Choose two.)

A. show run
B. show inventory
C. show environment
D. show version
E. show archive

Correct Answer: B, D
Section:
Explanation:
The commands that can be used to identify the serial number of a Cisco router are show inventory and show version. The show inventory command provides detailed information about the hardware inventory, including the serial numbers of the device and its components1. The show version command displays the router's configuration, including the version of the operating system, the last reboot reason, and the hardware serial number, which is listed as the ''Processor board ID'' in the command output2. These commands are essential for network administrators to document and manage network equipment.
Topic 3, Cisco IOS Software Operation

QUESTION 21
Which two commands set the configuration register value? (Choose two.)

A. rommon>confreg 0x2102
B. router(config)#confreg 0x2102

C. rommon>config-register 0x2102
D. router(config)#configuration-register 0x2102
E. router(config)#config-register 0x2102

Correct Answer: A, E
Section:
Explanation:
The configuration register on Cisco routers and switches controls specific bootup behaviors. Here's how to modify it:
1. In ROMmon Mode:
rommon>confreg 0x2102 : This command is used when the device is in ROMmon mode (a basic operating system loaded when the full Cisco IOS cannot be found). ROMmon offers limited functionality and is often used for troubleshooting or password recovery.
2. In Global Configuration Mode:
router(config)#config-register 0x2102 : This command is used from within the Cisco IOS itself when you have normal access to the router. You would enter privileged EXEC mode and then global configuration mode to use it.
Importance of Configuration Register Settings:
The most common reasons to modify the configuration register are:
Password Recovery: Setting the configuration register to 0x2142 tells the router to ignore the startup configuration (stored in NVRAM), allowing you to bypass password protection.
Changing Boot Behavior: Settings can control the boot sequence, such as specifying where the Cisco IOS image should be loaded from.
Cisco Configuration Register: https://www.cisco.com/c/en/us/support/docs/routers/10000-series-routers/50421-config-register-use.html
Understanding the Configuration Register (Cisco): https://networklessons.com/cisco/ccna-routing-switching-icnd1-100-105/configuration-register-cisco-ios

QUESTION 22
Which two statements about Telnet and SSH are true? (Choose two.)

A. SSH is a protocol that provides a secure remote access connection to network devices.
B. SSH uses the well-known TCP port 23 for its communication.
C. A Telnet network management connection is dropped when a router reboots.
D. Telnet is a protocol that provides a secure remote access connection to network devices.
E. Telnet is preferred over SSH for security reasons.

Correct Answer: A, C
Section:
Explanation:
A . Correct. SSH, or Secure Shell, is indeed a protocol that provides a secure remote access connection to network devices. It encrypts the data to ensure secure transmission over insecure networks like the internet1.
C . Correct. Telnet connections are not secure and are terminated when a router reboots. This is because Telnet does not have any mechanism to maintain the connection in case of network interruptions or device reboots1.
B, D, and E are incorrect because: B. SSH uses TCP port 22 by default, not port 23, which is used by Telnet1. D . Telnet does not provide a secure connection; it transmits data in plain text, which can be intercepted easily1. E. SSH is preferred over Telnet for security reasons because it provides encrypted connections and authentication mechanisms, which Telnet does not1.
Reference := 1: GeeksforGeeks - Difference between SSH and Telnet 2: phoenixNAP - Telnet vs. SSH: How Is SSH Different From Telnet? 3: Guru99 - Telnet vs SSH -- Difference Between Them 4: Difference Between - Difference Between Telnet and SSH

QUESTION 23
Which address facilitates the routing of packets over an IP network?

A. physical
B. transport
C. network
D. MAC

Correct Answer: C

Section:
Explanation:
The address that facilitates the routing of packets over an IP network is the network address. In the context of IP networking, this refers to the IP address, which is used to identify each host on a network and to determine the best path for data packets to travel from their source to their destination. Routers use IP addresses to make decisions about where to forward packets so that they reach the correct destination. The network layer of the OSI model, where IP operates, is responsible for this routing process123.
The other options listed do not facilitate routing in the same way:
Physical (A) and MAC (D) addresses are used at the data link layer to deliver packets on the same local network.
Transport (B) refers to the transport layer, which is responsible for end-to-end communication and data flow control but does not route packets over an IP network.

QUESTION 24
Which two IPv4 addresses can be assigned to a host computer? (Choose two.)

A. 255.255.255.255
B. 10.1.1.20
C. 0.0.0.0
D. 192.168.10.15
E. 292.10.3.4

Correct Answer: B, D
Section:
Explanation:
IPv4 addresses consist of four octets, each ranging from 0 to 255. The addresses are used to uniquely identify devices on a network.
A . 255.255.255.255 is reserved for broadcast messages to all hosts on the local network, so it cannot be assigned to a single host.
B . 10.1.1.20 falls within the range of private IP addresses (10.0.0.0 to 10.255.255.255) and can be assigned to a host within a private network.
C . 0.0.0.0 is used to denote an unknown or non-applicable target address, often used as a default route, and cannot be assigned to a host.
D . 192.168.10.15 is also within the range of private IP addresses (192.168.0.0 to 192.168.255.255) and can be assigned to a host within a private network.
E . 292.10.3.4 is not a valid IPv4 address because the first octet exceeds the maximum value of 255.
IPv4 Addressing
Valid IP Address
IP Address Validation

QUESTION 25
What are two components of a WAN connection? (Choose two.)

A. CSU/DSU
B. router
C. bridge
D. hub
E. switch

Correct Answer: A, B
Section:
Explanation:
A Wide Area Network (WAN) connection typically involves several components that work together to enable data communication over large distances. Two key components of a WAN connection are:
CSU/DSU (Channel Service Unit/Data Service Unit): This device acts as a gateway between the local area network (LAN) and the WAN.It converts the digital signals used in the LAN to the signals used in the WAN, which are often analog12.
Router: A router is used to connect multiple networks together and direct data traffic.In the context of a WAN, routers are responsible for determining the best path for data to travel across the network12.

QUESTION 26
Which device is a DTE device?

A. CSU/DSU
B. router
C. cable modem
D. DSL modem

Correct Answer: B
Section:
Explanation:
A DTE (Data Terminal Equipment) device is an end instrument that converts user information into signals or reconverts received signals. In the context of networking, a router can be considered a DTE device because it is typically at the user end of a user-network interface and serves as a data source or destination.It communicates with the data circuit-terminating equipment (DCE), such as a modem, to send and receive data across the network345.

QUESTION 27
Which layer of the OSI model defines how data is formatted for transmission and how access to the physical media is controlled?

A. presentation
B. data link
C. network
D. transport

Correct Answer: B
Section:
Explanation:
Thedata link layerof the OSI model, which is Layer 2, defines how data is formatted for transmission and controls access to the physical media. This layer is responsible for the node-to-node delivery of data and handles error detection and correction from the physical layer. It also manages the way data packets are sent over the network, including the framing, addressing, and flow control.The data link layer ensures that messages are delivered to the proper device on a LAN using hardware addresses (MAC addresses) and translates messages from the network layer into bits for the physical layer to transmit
Topic 2, Cisco Equipment and Related Hardware

QUESTION 28
Which command shows the status of power supplies and sensor temperatures?

A. show hardware
B. show module
C. show environment
D. show diag

Correct Answer: C
Section:
Explanation:
The show environment command in Cisco devices is used to display the status of the system's environment, including power supplies and sensor temperatures. This command provides a comprehensive overview of the environmental conditions affecting the device, such as temperature readings and power supply status.
Option A, show hardware, is not specific to power supplies and sensor temperatures. Option B, show module, displays information about the network modules installed in the device but not the environmental conditions.
Option D, show diag, is used for diagnostic purposes and does not specifically provide the status of power supplies and sensor temperatures.
Therefore, the correct answer is C, show environment, which is the command that specifically shows the status of power supplies and sensor temperatures in Cisco devices12.
Cisco Community discussions on power supply details1.

Cisco documentation on Environmental Monitoring and Power Management2.

QUESTION 29
What are two standard fiber-optic connectors? (Choose two.)

A. Lucent
B. rollover
C. subscriber
D. multidimension
E. crossover

Correct Answer: A, C
Section:
Explanation:
Two standard fiber-optic connectors are Lucent Connectors (LC) and Subscriber Connectors (SC). The Lucent Connector, commonly referred to as LC, was developed by Lucent Technologies and is characterized by its small form factor with a 1.25mm ferrule. It is widely used in high-density applications due to its compact size and square shape1. The Subscriber Connector, or SC, is known for its push-pull latching mechanism and uses a 2.5mm ferrule. It is a square-shaped, duplex connector that has been a dominant fiber optic connector for decades due to its performance and reliability12.

QUESTION 30
To which value is the configuration register changed to bypass the loading of the startup configuration when performing a password recovery on a Cisco device?

A. 0x2102
B. 0x2112
C. 0x2122
D. 0x2142

Correct Answer: D
Section:
Explanation:
The configuration register on Cisco devices controls how the device boots up. By changing the configuration register to 0x2142, you instruct the router to bypass the startup configuration file stored in NVRAM. This is crucial in the password recovery process because the passwords are stored in this configuration file.
Procedure for Password Recovery:
1. Break the boot sequence: Power cycle the router (turn off/on). During the boot process, send a 'Break' signal to get into ROMmon mode.
2. Change the configuration register: In ROMmon mode, type confreg 0x2142 and reload the router.
3. Boot without startup-config: The router will boot up, ignoring the saved startup configuration, allowing you to enter privileged EXEC mode without a password.
4. Change the password: Access configuration mode (configure terminal), and change the passwords as needed (enable password, enable secret, etc.).
5. Reset the configuration register: Set the configuration register back to its original value (usually 0x2102).
6. Save changes: Save the new configuration with copy running-config startup-config.

QUESTION 31
What are two ways Telnet and SSH function? (Choose two.)

A. SSH is a protocol that provides a secure remote access connection to network devices.
B. Telnet is a protocol that provides a secure remote access connection to network devices.
C. SSH uses the well-known TCP port 23 for its communication.
D. Telnet is preferred over SSH for security reasons.
E. A Telnet network management connection is dropped when a router reboots.

Correct Answer: A, E
Section:
Explanation:
* A. SSH...secure remote access: This is correct. SSH (Secure Shell) is designed specifically for secure remote access. It utilizes strong encryption to protect data transmissions, including login credentials and commands.
* B. Telnet...secure remote access: This is incorrect. Telnet is inherently insecure as it transmits all data, including sensitive passwords, in cleartext.
* C. SSH uses...TCP port 23: This is incorrect. SSH uses TCP port 22 by default, while Telnet uses TCP port 23.
* D. Telnet preferred...security reasons: This is incorrect. SSH is vastly preferred over Telnet due to its strong security features.
* E. Telnet connection...router reboots: This is correct. Telnet connections are not persistent, so a router reboot disrupts them. This re-enforces their lack of suitability for critical management tasks.
Key Points:
* Security: SSH is the recommended protocol for remote access to network devices due to its strong encryption and authentication mechanisms.
* Persistence: Telnet connections are temporary and get disrupted on events like router reboots.

QUESTION 32
What is the Windows-based program that executes the ping command to test network connectivity?

A. cmd
B. Find
C. Start
D. ipconfig

Correct Answer: A
Section:
Explanation:
The cmd program, also known as the Command Prompt, is the primary command-line interface in Windows. It allows you to execute various commands, including the ping command, to perform network testing and troubleshooting.
Here's how to use ping in the Command Prompt:
Open the Command Prompt: Search for 'cmd' in the Windows Start Menu or use the Run dialog (Windows key + R) and type 'cmd'.
Type the ping command: Enter ping followed by a space and then either the IP address or hostname you want to test. For instance: ping 8.8.8.8 or ping www.google.com.
Press Enter: The Command Prompt will send ping requests and display the results.
Why other options are incorrect:
Find: The Find utility in Windows is used to search for files and folders based on their content or attributes.
Start: The Start Menu in Windows provides access to programs, settings, and power options.
ipconfig: The ipconfig command is used to display network configuration information but doesn't directly execute the ping command.
Windows Command Prompt (cmd): https://en.wikipedia.org/wiki/Cmd.exe
Ping command: https://en.wikipedia.org/wiki/Ping_(networking_utility)

QUESTION 33
Which type of port on a laptop is used to connect to an Ethernet port on a Cisco switch?

A. DVI
B. RJ-11
C. DB-9
D. RJ-45

Correct Answer: D
Section:
Explanation:

RJ-45 is the standard connector used for Ethernet networks. Here's why it's the correct answer:
Compatibility: Ethernet ports on both laptops and Cisco switches use RJ-45 connectors. This makes RJ-45 cables ideal for direct connections between these devices.
Appearance: RJ-45 ports are rectangular and slightly larger than typical phone jacks (RJ-11). They have eight metal pins inside.
Why other options are incorrect:
DVI: DVI ports are used for video connections between computers and displays.
RJ-11: RJ-11 ports are primarily associated with analog phone lines and are smaller than RJ-45.
DB-9: DB-9 connectors were traditionally used for serial connections on older computers and peripherals.

QUESTION 34
Which type of Cisco console cable is used to connect a laptop to the console port on a Cisco router?

A. straight-through
B. fiber
C. crossover
D. rollover

Correct Answer: D
Section:
Explanation:
Rollover cables are specifically designed for connecting to the console ports on Cisco routers and switches. Here's why they are the right choice:
Pinout: Rollover cables have a reversed pinout compared to standard Ethernet cables. This matches the console port's wiring, allowing for configuration access.
Appearance: Rollover cables are often light blue in color to help distinguish them from standard Ethernet cables.
USB Adapter: Many modern laptops may not have a direct serial port. In this case, a rollover cable with a USB-to-serial adapter is used.
Why other options are incorrect:
Straight-through: Used for connecting unlike devices (e.g., switch to computer). They won't have the correct wiring for console connections.
Fiber: Used for high-speed, long-distance networks. Console ports use a serial-based connection, not fiber optics.
Crossover: Used to connect similar devices (e.g., switch to switch). The pinout is not the same as what a console port requires.

QUESTION 35
What are two purposes of a USB thumb drive? (Choose two.)

A. to save the system log
B. to copy configuration files to and from a PC
C. to save router hardware information
D. to copy IOS images to and from a PC
E. to increase system memory size

Correct Answer: B, D
Section:
Explanation:
USB thumb drives (also called flash drives) serve several practical purposes in networking:
File Transfer: They are excellent for transferring Cisco router or switch configuration files between the device and a PC. This allows you to back up configurations, easily restore configurations, or work with them offline.
IOS Image Storage: USB thumb drives are convenient for storing and transferring Cisco IOS images, especially when you need to upgrade or recover network devices.
Why other options are incorrect:
to save the system log: While you might temporarily store log files on a USB drive, routers and switches generally utilize internal memory or a remote syslog server for logging purposes.
to save router hardware information: Hardware inventory information obtained from commands like show inventory is often copied and pasted to text files, which can then be stored on a USB drive. However, the drive itself doesn't directly save or store this hardware information.
to increase system memory: USB drives are not designed to act as additional system memory (RAM) for a router or switch.

QUESTION 36
What is the fastest way to recover a software version that supports a USB flash port on a Cisco device?

A. tftp command
B. xmodem transfer command
C. copy command with USB memory
D. copy tftp flash: command

Correct Answer: C
Section:
Explanation:
The fastest way to recover a software version on a Cisco device that supports a USB flash port is by using thecopy command with USB memory. This method allows for the direct transfer of the Cisco IOS image from a USB flash drive to the device's memory. It is significantly faster than using TFTP or Xmodem, which are slower due to network speed limitations and the inherent slowness of the Xmodem protocol, respectively.By using a USB flash drive, you can bypass these limitations and achieve a quicker recovery process

QUESTION 37
What does Cisco use for Return Materials Authorization tracking of field-replaceable parts?

A. product number
B. serial number
C. RMA number
D. FRU number

Correct Answer: C
Section:
Explanation:
RMA (Return Materials Authorization) is a tracking number that is assigned to a product that is being returned to the manufacturer for repair or replacement. The RMA number allows the manufacturer to track the progress of the return and ensure that the product is returned to the correct customer.

QUESTION 38
An Ethernet interface is up and the line protocol is down. What are two possible causes? (Choose two.)

A. There is a speed or duplex mismatch with the remote device.
B. There is a Layer 2 mismatch in the encapsulation type.
C. The Ethernet interface has been manually disabled.
D. Keepalives are not being received by the local device.
E. The Ethernet cable might not be attached properly.

Correct Answer: A, B
Section:
Explanation:
While the initial answers focused on the most common causes, here's why the other options could also contribute to an interface being stuck in the 'up/down' state:
A . Speed or Duplex Mismatch: Devices on either end of an Ethernet connection need to use compatible speed (e.g., 100 Mbps, 1 Gbps) and duplex (full-duplex or half-duplex) settings. Mismatches can prevent the line protocol from coming up even if the physical link is established.
B . Layer 2 Mismatch in Encapsulation Type: Some protocols used on Ethernet networks, like ISL and 802.1Q, have specific encapsulation requirements. If devices on each end aren't using the same encapsulation type, the line protocol will likely remain down.
C . The Ethernet Interface Has Been Manually Disabled: Correct! Administrators can put an interface in a shutdown state using commands like shutdown. This brings down the line protocol even if the physical connection is good.

D . Keepalives Are Not Being Received by the Local Device: While less likely to be the sole cause, issues with keepalive mechanisms used in some routing protocols could potentially lead to the line protocol going down. If the local device expects keepalives and doesn't receive them, it might assume a connectivity problem and affect the interface status.
E . The Ethernet Cable Might Not Be Attached Properly: While a disconnected or faulty cable would usually make the interface down/down, it's possible in some scenarios for a partially connected or damaged cable to result in a link being detected (Layer 1 up) but with errors preventing the line protocol (Layer 2) from initializing.
Troubleshooting network issues often involves considering multiple factors and testing different possibilities. The 'up/down' status gives important clues but might have several potential root causes.

QUESTION 39
From the enable mode, which command loads the configuration during the password recovery process on a Cisco router?

A. load_helper
B. configure terminal
C. copy running-config startup-config
D. copy startup-config running-config

Correct Answer: D
Section:
Explanation:
The copy startup-config running-config command is used during the password recovery process on a Cisco router to load the saved configuration into the device's active running configuration. Here's why this is the correct choice:
Password Recovery Context: Password recovery often involves booting into ROMmon mode and changing the configuration register to bypass the normal boot process. This leaves the device with a blank running configuration.
Restoring Configuration: The copy startup-config running-config command copies the stored configuration (startup-config) from NVRAM into the running-config, which is used by the router for its operations.
Why other options are incorrect:
load_helper: While the load_helper command sometimes appears in password recovery procedures, it's typically used for older models and may not be necessary for all Cisco routers.
configure terminal: This command simply enters global configuration mode. It doesn't directly load a configuration.
copy running-config startup-config: This command saves the active running configuration into NVRAM as the startup-config. It's the reverse of what you need for password recovery.

QUESTION 40
Which command initiates the copying of a Cisco IOS image to a Cisco device?

A. copy tftp nvram
B. copy tftp flash
C. copy flash tftp
D. copy xmodem flash

Correct Answer: B
Section:
Explanation:
The copy tftp flash command is used to download a Cisco IOS image from a TFTP (Trivial File Transfer Protocol) server and store it in the Flash memory of the Cisco device. Here's the breakdown of the command:
copy: Indicates a file transfer operation.
tftp: Specifies the use of the TFTP protocol.
flash: Specifies the destination as the flash memory of the Cisco device.
Why other options are incorrect:
copy tftp nvram: This would attempt to copy a file from a TFTP server to the NVRAM of the device. NVRAM is typically not the desired location for storing IOS images.
copy flash tftp: This command would copy a file from the local flash memory to a TFTP server (uploading).
copy xmodem flash: This would use the XMODEM protocol for the transfer, which is slower and less reliable than TFTP for Cisco IOS images.
https://en.wikipedia.org/wiki/Trivial_File_Transfer_Protocol