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QUESTION NO: 1
Which protocol used with Windows NT/95 is routable in its native operation?

A. WINS
B. Host
C. NetBEUI
D. NetBIOS
E. LMHosts

Answer: A
Explanation: WINS (Windows Internet Naming Service) is used to convert NetBOIS names into IP addresses. WINS is routable in its native operation.

QUESTION NO: 2
To identify abnormal network performance or to plan for network expansion, engineers often measure the network activity over period of time to establish a normal performance profile.

What is this profile called?

Answer: baselining profile
Explanation: To compare abnormal network performance or to plan for network expansion, use the baselining profile.

QUESTION NO: 3
Which key network management area is not one of the ISO-defined functional areas of network management?

A. Fault management
B. Security management
C. Accounting management
D. Quality of service management
E. Configuration and name management

Answer: D
Explanation: The ISO has defined five key functional areas of network management: fault management, accounting management, configuration management, performance management, and security management.

QUESTION NO: 4
Which type of device is commonly used to check STP, UTP, 10BaseT, and coax for near-end crosstalk, authentication, and noise?

A. Cable tester
B. Breakout box
C. Volt-ohm meter
D. Protocol analyzer
E. Digital Multimeter

Answer: A
Explanation: Cable testers give users access to the physical-layer information on various cable types. These testers can test and report cable conditions including near-end crosstalk (NEXT, attenuation and noise.

QUESTION NO: 5
Which command checks for routing packets in a network that use TCP/IP within a Windows NT/95 environment?

A. Debug icmp
B. Debug eigrp
C. Debug IP rip
D. Debug igrp events
E. Debug IP igrp transactions

Answer: C
Explanation: The debug ip rip command displays information about RIP routing transactions, such as routing tables updates sent and received on an interface.

QUESTION NO: 6
You want to escalate a network problem to Cisco Service and Support. Which comprehensive method should you use in a Cisco IOS software (Release 11.0 or later) to gather facts?

A. A priority 4 call level dialog
B. The **slow version** command
C. The **show tech-support** command
D. The **case management update** command

E. Remote access using telnet to an auditory port

Answer: C
Explanation: Several of the commands of interest to Cisco's Technical Assistance Center (TAC) have been combined so that they are obtained when you enter a single privileged command show tech-support.

QUESTION NO: 7
Which CCO resource can provide World wide web-based access to the list of field replaceable units (FRUF index) if you want to provide for spare parts?

A. Cisco NetSYS
B. CCO Bug Toolkit
C. CCO Documentation
D. CCO Configuration Tool
E. CCO Troubleshooting Engine

Answer: C
Explanation: CCO Documentation is an interactive library of technical product information. This information includes the Cisco product catalog. These products include field replaceable units.

QUESTION NO: 8
What is the primary function of the Cisco NetSYS tools?

A. Initial network design for VLANs
B. LAN and WAN protocol imitation
C. Stress testing on SNMP network
D. Network simulation and modeling
E. Reconfiguration or redesigning documentation

Answer: D
Explanation: Netsys is an offline tool. It is a complex program that imports Cisco device configuration and then creates a model based on the configurations. The program is used to model changes to a network before they are actually implemented.

QUESTION NO: 9

Which CCO resource can provide World Wide web-based access to major code upgrades and maintenance releases of Cisco software products?

A. CCO marketplace
B. The Software center
C. CCO documentation
D. The configuration agent
E. Image authentication support center

Answer: B
Explanation: The CCO Software Center is the new version of the of the Software Library service that lets you obtain upgrades and learn more about Cisco's broad and growing range of software products.

QUESTION NO: 10
On the output of the Cisco IOS show controllers token command, what are the two main types of software errors that an internal controller can count?

A. Signal loss or wire fault
B. Isolating and non-isolating
C. Single ring or multi-ring errors
D. Internal error or external error between the station and its NAUN or its downstream neighbor

Answer: B
Explanation: Token ring devices keep track of two types of soft errors: isolating soft errors and non-isolating soft errors.

QUESTION NO: 11
Which type of protocol requires an application to request retransmission of missing or corrupt packets?

A. Host-to-host
B. Connection-oriented
C. Client/server
D. Connectionless
E. Quality-of-service oriented

Answer: B

Explanation: A connection-orientated protocol ensures that packets are in order and manages timeout counters. The connection-orientated protocol also requests retransmission of missing packets

QUESTION NO: 12
What is the advantage of a connectionless protocol?

A. Speed
B. Security
C. Nobusiness
D. No need for upper layer connection

Answer: A
Explanation: A connectionless data transfer is efficient, is simple to implement, and has relatively low demands for network traffic.

QUESTION NO: 13
Click the task button.

When troubleshooting isdn BRI router problems, the Cisco IOS debug commands provide an ongoing display that includes a captured flow of packet fields. Selecting the task button will show a table with several Cisco IOS debug commands and a list of output information.

Drag and drop the correct information that is included in the output of each command.

Note: A command may be used more than once or not at all.

Cisco IOS Command	Output Information Includes This
debug bri	place here
debug isdn q921	place here
debug isdn q931	place here
debug ppp authentication	place here
debug ppp negotiation	place here
debug dialer	place here

Exchange of LCP options (e.g., magic number)

Layer 2 info [e.g LAPD access on the D channel]

Layer 3 info [e.g setup/teardown of connections]

Layer 1 info [e.g is call enabling B channels]

Password information [e.g CHAP exchanges]

Session Layer info [e.g point to point unicast calls]

Interesting packets trigger the ISDN call [e.g IP]

Answer:

Cisco IOS Command	Output Information Includes This
debug bri	Layer 1 info [e.g is call enabling B channels]
debug isdn q921	Layer 2 info [e.g LAPD access on the D channel]
debug isdn q931	Layer 3 info [e.g setup/teardown of connections]
debug ppp authentication	Password information [e.g CHAP exchanges]
debug ppp negotiation	Session Layer info [e.g point to point unicast calls]
debug dialer	Interesting packets trigger the ISDN call [e.g IP]

Exchange of LCP options (e.g., magic number)

Layer 2 info [e.g LAPD access on the D channel]

Layer 3 info [e.g setup/teardown of connections]

Layer 1 info [e.g is call enabling B channels]

Password information [e.g CHAP exchanges]

Session Layer info [e.g point to point unicast calls]

Interesting packets trigger the ISDN call [e.g IP]

Explanation:
The **debug bri** command debugs Layer 1.
The **debug isdn q921** command debugs Layer 2
The **debug isdn q931** command debugs Layer 3
The **debug ppp authentication** command debugs password information.

The **debug ppp negotiation** debugs Session layer info.
The **debug dialer** command display debugging information about the packets received on a dialer interface. This includes packets that trigger the ISDN call.

QUESTION NO: 14
What is the purpose of the debug IP icmp command?

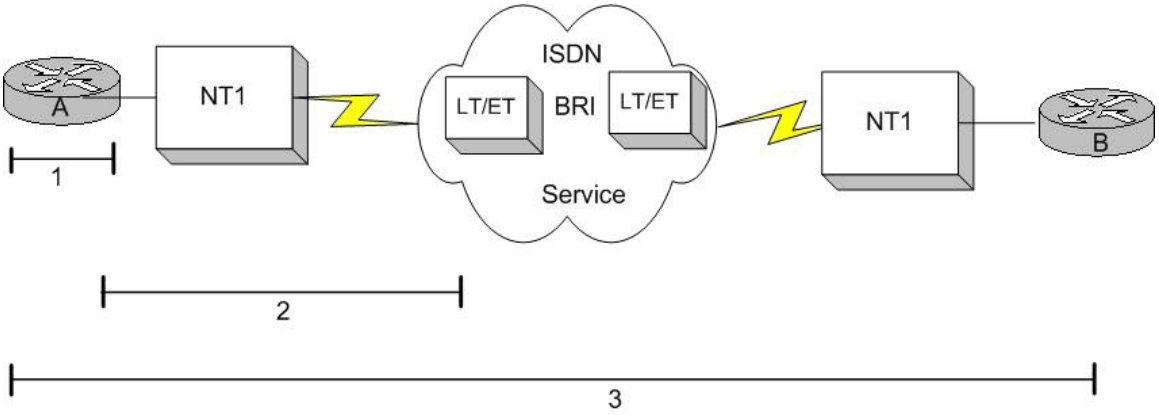
A. To send ICMP requests to all neighboring routers
B. To display a verbose explanation of ICMP ping results
C. To check if the trace process is using UDP time to live
D. To troubleshoot problems with the ICMP protocol stack
E. To check if the router is sending or receiving ICMP messages

Answer: E
Explanation: The debug ip icmp command helps you determine whether the router is sending or receiving ICMP messages, such are redirect or network unreachable messages.

QUESTION NO: 15
When checking for ISDN events in a log or debug filter, you can configure the router to indicate how long after the system rebooted that the events occurred. Which Cisco IOS command configures for this feature?

Answer: service timestamps {log | debug} uptime [msec]
Explanation: The service timestamp debug uptime command logs times with the debug output by using the system clock.

QUESTION NO: 16
Click the exhibit button.



Cisco IOS software provides several debug commands to help you troubleshoot ISDN BRI layers2 and 3. by selecting the exhibit button, you will see a diagram of an end-to-end ISDN BRI network.
Which two ISDN protocol-related Cisco IOS debug commands are used for troubleshooting? First enter the command for layer 2 debug, the portion of the network illustrated as 2 in the diagram, then enter the command for layer 3 debug, the portion of the network illustrated as 2 in the diagram.
Note: Do not abbreviate commands. Separate commands with a single space.

Answer:
debug isdn q921
debug isdn q931

Explanation: The **debug isdn q921** command debugs Layer 2 and the **debug isdn q931** debugs Layer 3. Make sure you remember the space between the commands. Please note, you will NOT be provided with a list of commands on this exam.

QUESTION NO: 17
Which Cisco IOS command provides the quickest summary indication of the three ISDN layers?

A. show isdn status
B. show tech-support
C. debug isdn-summary
D. show controller bri
E. show interface bri n

Answer: A
Explanation: The **show isdn status** command displays information about which ISDN switch is used and the status of Layer 1, 2, and 3 for BRI calls.

QUESTION NO: 18
You have initiated an action plan to resolve a network problem, but the network continues to perform poorly. What should your next action be in order to resolve the problem?

A. Gather additional facts to see if the action plan was incomplete
B. Evaluate the underlying assumptions and problem definition for validity
C. Iterate the process and, as required, undo the changes that did not work
D. Repeat the process and modify additional variables until a solution is reached.
E. Reconsider the possibility that there are other interworking complications from other devices

Answer: C
Explanation: If your action plan does not resolve the problem, you must repeat the problem solving process. It is important that you remove any changes that did not work. If you do not do this there is a possibility that you will create and even bigger problem.

QUESTION NO: 19
What does a switched VLAN correspond to in the VLAN routing paradigm?

A. Bridge group
B. Router interface
C. ISL trunk identifier
D. Single-routed subnet
E. Spanning-tree branch

Answer: D
Explanation: A switched VLAN domain corresponds to a routed subnet/network number. In other words it corresponds to a single-routed subnet.

QUESTION NO: 20
Click the exhibit button.

```
DLC:------DLC Header-------

DLC:
DLC: Frame 1 arrived at 15:05:33:389, frame size is 62 (003E hex) bytes
DLC: AC: Frame priority 0, Reservation priority 0, Monitor count 0
DLC: FC: LLC frame PCF attention code: None
```

```
DLC: FS: Addr recognized indicators: 00, Frame copied indicators: 00
DLC: Destination = Station Cisco A05903
DLC: Source = Station IBM 0AE591
DLC:

LLC: LLC Header
LLC:
LLC: DSAP = AA, SSAP = AA, command, Unnumbered frame, UI
LLC:

SNAP: SNAP Header
SNAP:
SNAP: Type = 0800 (IP)
SNAP:
```

This is a sample of a LAN protocol analyzer capture. What does SNAP mean in the exhibit packet?

A. Subnetwork access protocol
B. Super non-applicable protocol
C. Serial network access protocol
D. Substrata network access point
E. Second node alternative protocol

Answer: A
Explanation: SNAP stands for Subnetwork Access Protocol. In order to use a SNAP header DSAP and SAP need to be set to AA.

QUESTION NO: 21
Which four statements about the ping ipx command in Cisco IOS software are true? (Choose Four)

A. The command works on Cisco IOS software Release 8.2 or later
B. The command was part of Cisco's IOS software before a ping command was developed by Novell
C. The command default is to operate like Novell's IPXPING NLM conforming to the NLSP 3.0 specification.
D. With the privileged form of the command, a higher repeat count than 5 (the default) can be specified.
E. Many of the command's return characters are comparable to those used with a ping in the IP protocol stack

Answer: A, B, D, E

Explanation: The ping ipx command works only on Cisco IOS release 8.2 or later. By default, the ping ipx command sends Cisco proprietary pings. Novell IPX devices do not respond to this command but this can be changed

QUESTION NO: 22
Which statement about the embedded RMON agent and SwitchProbe functions in Catalyst software is true?

A. SPAN is an option of the SwitchProbe function.
B. The functions use all RMON groups as well as RMON2
C. The function of SwitchProbe offers an in-band link to the network manager
D. RFC 1757 RMON groups supported are statistics, events, history, and alarms
E. The functions can monitor segments as long they use 10BaseT or 100BaseT (Fast Ethernet)

Answer: D
Explanation: RFC 1757 defines RMON. The Catalyst 5000 family supports 4 type of services: Statistics, History, Alarms and Events.

QUESTION NO: 23
With a single switching bus on the Catalyst 5000, what process controls how packets access the backplane as they transfer to destinations on the switch?

A. A crossbar operation controls blocked packets
B. Memory buffers prevent oversubscription to the bus
C. Application-specific integrated circuits (ASICs) perform bus arbitration
D. Address recognition determines if access will be cut-through or store-and-forward
E. A network master control processor checks its management table for packet priorities.

Answer: C
Explanation: The Catalyst 5000 uses single switching bus architecture, the simplest type of bus for switching up to 10 Gbps. Application-specific integrated circuits (ASIC) on the bus and on the port arbitrate how to access the backplane and control the destination of packet transfers.

QUESTION NO: 24
Which Catalyst 5000 command is comparable to the router's Cisco IOS software command, show running-config?

Answer: show config
Explanation: The show config command is comparable to the Cisco IOS show running-config command.

QUESTION NO: 25
Click the exhibit button.

```
IPX: --------IPX Header---------
IPX:
IPX: Checksum = FFFF
IPX: Length = 224
IPX: Transport control = 00
IPX: 0000. . . . = Reserved
IPX: . . . . 0000 = Hopcount
IPX: Packet type = 0 (Novell)
IPX:
IPX: Dest network Node = 1000.FFFFFFFFFFFF Socket = 1106 (SAP)
IPX: Source Network Node = 1000.02.60.8C.C2.SC.79, Socket=1106 (SAP)
```

This is a sample of a LAN protocol analyzer capture for IPX. Which two troubleshooting facts can be derived from the exhibited packet? (Choose Two)

A. This is a broadcast packet
B. This is a Novell-ether frame
C. This frame uses the SNAP format
D. The IPX portion is a connection-oriented protocol.
E. This portion of the frame is a network layer protocol.

Answer: A, E
Explanation: This LAN protocol analyzer illustrated two points. First, as the destination includes FFFFFFFFFFFF in its address this indicates that it is a broadcast packet. The other point is that this portion of the frame is at the network layer.

QUESTION NO: 26
IP routing often uses a table that shows the correspondence between network and LAN hardware addresses. When troubleshooting, you want to check if hosts are in this table or if there are any duplicate routes.

Which Cisco IOS command should you use?

A. show ip arp
B. show ip hosts
C. show ip routes
D. show ip interface
E. show ip addresses

Answer: A
Explanation: The show ip arp command displays the entries in the ARP cache of the router. This includes the host IP address and MAC address.

QUESTION NO: 27
In contrast to shared Ethernet, switch Ethernet on Catalyst switch does which two? (Choose Two)

A. Provides greater access to bandwidth
B. Connects directly to end users or other switches
C. Uses software to set up and maintain a filtering database
D. Has fewer utilities, which makes management more difficult
E. Is usually limited to a maximum of 16 ports and eight spanning trees
F. Associates a MAC source address with a set od ports for transmission

Answer: A, B
Explanation: Switched Ethernet on a Catalyst has a number of advantages over shared Ethernet. Two of these advantages are greater bandwidth access and direct connection to users and other switches.

QUESTION NO: 28
In Frame Relay, there is a configured association between a DLCI and another protocol, for example, an IP address. Which command displays information about this association?

A. show frame-relay
B. show frame-relay map
C. show frame relay dlci
D. show frame-relay counters
E. show interface [*number*] dlci

Answer: B
Explanation: You use show frame-relay map command to troubleshoot the current DLCI to Layer 3 map entries and to check information about the connections. Output includes end-to-end information about the mapping of the locally significant DLCI to the far-end destination.

QUESTION NO: 29

The privileged ping command is Cisco IOS software for TCP/IP allows you to check for MTU, set data patterns, set a source address, and record the route used. Which subcommand in privileged ping lets you select these features?

A. Verbose
B. Identify IP as the selected pig protocol
C. Set each feature individually as promoted
D. Yes to the prompt for extended commands
E. Yes to support IP header option commands

Answer: D
Explanation: Identifying IP as the selected ping protocol in the privileged mode for TCP/IP, allows you to check for MTU, set data patterns, set a source address, and record the route used.

QUESTION NO: 30
BRI layer 1 activation on the S/T interface (whereby Layer 1 is up) occurs immediately after_____.

A. The NT sends frames with the A-bit = 0
B. The TE becomes active with a 7E signal
C. A synchronized exchange of S and T bits
D. The line code violations set synchronization
E. The TE and NT synchronize and NT sends A = 1

Answer: E
Explanation: The startup activation has a 5 step process. BRI Layer 1 is up after the TE and NT synchronize and NT sends A = 1.

QUESTION NO: 31
The Cisco router can augment VLAN operation on Catalyst switches by performing VLAN translation. Which protocol pair is an example of this VLAN translation?

A. HSRP to/from HDLC
B. IEEE 802.3 to/from ethernet Raw
C. IEEE 802.1Q LANs to/from IEEE 802.10 FDDI
D. Apple Talk Phase II tunneled to/from EIGRP
E. Inter-Switch Link Protocol to/from VLAN Trunking Protocol

Answer: C
Explanation: Cisco routers can use IEEE 802.1Q LANs to/from IEEE 802.10 FDDI translation to augment VLAN operation on Catalyst switches by performing VLAN translation.

QUESTION NO: 32
Which Cisco IOS command should you use to get the initial facts about a router's system hardware, to see how long the system has been up, and to find out the general situation that caused the last system boot-up?

A. show start
B. show version
C. show processes
D. show configuration
E. show system details

Answer: B
Explanation: You use the show version EXEC command to display the configuration of the system hardware, the software version, the names and sources of the configuration and how long the system has been up.

QUESTION NO: 33
When you troubleshoot PPP CHAP authentication for ISDN BRI, check to make sure that the password and router name configured on the local router is _____ to the password and TE name on the remote router.
Note: Use a single word answer.

Answer: identical
Explanation: When you troubleshoot CHAP authentication you must make sure that: the passwords configured on both the local and remote TEs are identical and the router name of the remote TE that you configure on the local network is identical to the remote TE name.

QUESTION NO: 34
Which four statements about the inter-switch link (ISL) specification are true? (Choose Four)

A. ISL adds an extra 30 bytes to the frame
B. ISL is for point-to-point connections only
C. ISL can support token ring as well as Fast Ethernet

D. ISL replaces the original LAN frame FCS with its own CRC.
E. ISL adds or removes its frame tagging and FCS fields for traffic between VLAN capable Cisco products

Answer: A, B, C, E
Explanation: ISL does not replace the originally LAN frame FCS with its own CRC. Rather ISL encapsulates the original frame within its tag.

QUESTION NO: 35
What are four reasons for proper handling of Cisco troubleshooting tools? (Choose Four)

A. You need to know the impact of tools on router performance
B. You need to know the most selective focused use of the tools
C. You need to know how to minimize the impact of tools on other processes.
D. You need to know the MIB items of the tool to interwork with network management.
E. You need to know how to stop the tool operation when you finish troubleshooting

Answer: A, B, C, E
Explanation: There are many reason for the proper handling of Cisco troubleshooting tools. One of the reasons is not that you need to know the MIB items of the tool to interwork with network management.

QUESTION NO: 36
A VTP domain is a group of one or more interconnected devices that share the same VTP domain name. Which statement about a router within a VTP domain is true?

A. It can be a VTP server or client
B. It can participate in switch-oriented VTP
C. It can create, modify, or delete VTP VLANs
D. It can be transparent (forward messages) for VTP
E. It can initiate and advertise domain change messages

Answer: D
Explanation: A router within a VTP domain can be transparent (forward messages) for VTP.

QUESTION NO: 37
Which process assesses the destination and source of traffic given knowledge about network condition?

A. Routing
B. Interface
C. Best path
D. Switching
E. Open shortest path

Answer: A
Explanation: Routing is the process of finding a path to a destination host. Routing is very complex in large networks because of the many potential intermediate destinations a packet might traverse before reaching its destination host.

QUESTION NO: 38
When troubleshooting an ISDN call, which trigger do you check to determine what initiated the BRI call?

A. TE active with TE
B. PPP negotiation initiated
C. Q.921 and Q.931 activation
D. NT sync acknowledgement with A = 1
E. DDR with a dial string to a destination

Answer: E
Explanation: To determine what initiated a BRI call, you need to check the DDR with a dial string to a destination trigger.

QUESTION NO: 39
When troubleshooting, how can you ensure the problems are not with the domain name system (DNS)?

A. By examining the routing table entries
B. By examining the router's configuration
C. By using IP addresses rather than names
D. By checking for obsolete address resolution entries
E. By using ping or trace to verify its communication path

Answer: C
Explanation: DNS resolves host names to IP addresses. If you want to ensure that the problem is not with the DNS then you should try to connect to the device by using the IP address rather than the host/domain name.

QUESTION NO: 40
Which command reports the discovery of new zones?

A. debug apple zip
B. debug apple errors
C. debug apple routing
D. show apple interfaces
E. debug apple getzonelist

Answer: A
Explanation: The debug apple zip command reports significant Zone Information Protocol (ZIP) events such as the discovery of new zones and zone list queries.

QUESTION NO: 41
With the Catalyst 5000 switched port analyzer, what is identified by the destination module/port identifier?

A. The destination of ISL packets on another switch
B. The port mirrors traffic to a protocol analyzer
C. The destination of ISL packets on an outbound port
D. The destination for a spanning-tree BPDU to the root bridge
E. The destination portion of a MAC source/destination address pair

Answer: B
Explanation: SPAN is the Catalyst 5000 series switched port analyzer function on a Catalyst switch. When you use SPAN, the flow of data from a source and destination port is mirrored to the port designated at the SPAN port.

QUESTION NO: 42
Why is process switching relatively slow when tracing the process of packet flow in a router as the Cisco 7000 series routers?

A. There are delays from building the routing table in the RSP.
B. There are delays from striping layer 3 packet headers in the SSP.
C. It must interrupt the RSP for the time is takes to copy the packet from the SP to the RSP.

D. It must interrupt the RSP for the time it takes to copy the packet from the RSP to the SP.
E. There are delays checking to learn if there is already an entry in the silicon switch cache.

Answer: C
Explanation: Process switching is relatively slow as it is necessary to interrupt the RP for the length of time it takes to copy the packet from the SP to the RP.

QUESTION NO: 43
What does the ipx ping-default Novell command do?

A. It changes the ping format to Cisco's Novell tunneling
B. It sets the nondefault ping to correspond to Novell's NLSP specification
C. It adds a framing correspondence for Novell encapsulations on an interface
D. It assigns the ping target address for IPX when it is tunneled over an IP network
E. It sets the address that is advertised by NLSP and IPXWAN on all router interfaces

Answer: B
Explanation: The ipx ping-default novell command changes Cisco's ipx ping to the new Novell ping. Novell pings conform to the definition in the Novell Netware Link Service Protocol (NLSP) spefication.

QUESTION NO: 44
Which privileged Cisco IOS command can you use to obtain a comprehensive output of a router's condition that can be sent to your tech support engineer?

A. show all
B. show fireware
C. show controllers
D. show tech-support
E. show running-config

Answer: D
Explanation: Several of the commands of interest to Cisco's Technical Assistance Center (TAC) have been combined so that they are obtained when you enter a single privileged command show tech-support.

QUESTION NO: 45

Which step follows isolating a problem to a specific device such as a router or switch?

A. Trying to isolate the problem within the specific device
B. Swapping out the router or switch and observe the result
C. Running diagnostics on interfaces and reload all software
D. Applying all patches and upgrade all software to current release levels
E. Doing a search on the CCO Troubleshooting Engine and CCIE Forum

Answer: A
Explanation: Before any action can be taken it is best to narrow your work down small as possible. In general this will mean trying to isolate the problem within the specific device.

QUESTION NO: 46
The performance on VLANs is often slow or unreliable. Which aspect of the network is NOT a possible cause to check when you troubleshoot?

A. Collisions occurring in the switched ethernet domain
B. Bad adapter in a client or server system in the VLAN
C. Incorrect or inconsistent ethernet settings for half- or full- duplex
D. Cabling connection problems, such as RJ-45 cable improperly attached
E. Cable distance exceeded, such as 100BaseT with 200-meter segment length

Answer: A
Explanation: As it is impossible for collisions to occur in a switched ethernet domain thus this could not be the caused for slow unreliable performance on VLANs.

QUESTION NO: 47
The show ipx traffic command shows the bad hop count increasing. Which problem is a likely source of these symptoms?

A. There is a back-door bridge between segments
B. Routes are unpredictably appearing and disappearing
C. Error recovery is beyond 15 hops with redundant links
D. Nonroutable protocols could reach remote destinations
E. There is decreasing routing throughput at NetWare file server PCs

Answer: A

Explanation: If the show ipx traffic command shows a bad hop count this usually indicates that there is a back-door bridge between segments.

QUESTION NO: 48
Click the exhibit button.

```
DLC: -------DLC Header-------
DLC:
DLC: Frame 2 arrived at 14:53:37:6592 frame size is 60(D03C hex) bytes
DLC: Destination = FF FF FF FF FF FF
DLC: Source = Station Cisco 01 56 AB
DLC: Ethertype = 0806 (ARP)
DLC:

ARP: --------ARP/RARP frame-------
ARP:
ARP: Hardware type = (10MB ETHERNET)
ARP: Protocol type = 0800 (IP)
ARP: Length of hardware address = 6bytes
ARP: length of protocol address = 4bytes
ARP: Opcode I (ARP Request)
ARP: Sender's hardware address = Cisco 0156AB
ARP: Sender's protocol address = [144.251.100.204]
ARP: Target hardware address = 00 00 00 00 00 00
ARP: Target protocol address = [144.251.100.100]
```

This sample of a LAN protocol analyzer capture. Which troubleshooting fact can be derived from the exhibited packet?

A. This is an ISO1 frame type
B. The data link layer uses the SNAP format
C. This frame uses IP as the network layer protocol
D. The purpose of this frame is for route selection
E. This frame uses a connection-oriented communication
F. The purpose is to find the ethernet address of 144.251.100.100
G. The purpose is to find the ethernet address of 144.251.100.204

Answer: F
Explanation: The purpose of RARP is to learn the ethernet address for a particular hardware address. It this case the purpose is to find the ethernet address of 144.251.100.100.

QUESTION NO: 49
Which command displays the flow of IP packets transmitted between local and remote hosts?

A. show ip access
B. debug ip packet
C. show ip buffers
D. debug ip traffic
E. show ip transmitted

Answer: B
Explanation: The debug ip packet command displays general IP debugging information and IP security option transactions. You can use this command to analyze messages traveling between local and remote hosts when troubleshooting and end-to-end connection problem.

QUESTION NO: 50
What should you do if you are checking the frame relay PVCs and only the local DLCI.0 or DLCI.1023 can come up?

A. Check if the DLCI usage should be switched rather than local
B. Try to reconfigure so that DLCI 0 is used for the Cisco LMI DLCI
C. Check if FECN or BECN indicate congestion in the provider facility
D. Contact the service provider and state you have no data-passing DLCIs
E. Contact the service provider and state that you are having problems with the LMI

Answer: E
Explanation: Contact your service provider and state that you are having problems with the LMI, if you are checking the frame relay PVCs and only the local DLCI.0 or DLCI.1023 will come up.

QUESTION NO: 51
For troubleshooting completed copper cables, one important problem to check for is incorrect cable type. What would you check for this problem?

A. That the cable is category 5 if you want to use it for ethernet
B. The number of pins on one side of the RJ-45 cable connector
C. That the distance limitation does not exceed the length of the cable
D. If one side of the cable is transmit only, while the other side is transmit/receive

E. The RJ-45 connector at both ends to determine if it is crossover or straight-through

Answer: E
Explanation: One of the first things to check when troubleshooting cables is the cable type. You can check the RJ-45 connector at both ends of a cable to determine if it is crossover or straight through.

QUESTION NO: 52
What is the purpose of the debug arp command?

A. To display the ARP cache contents
B. To show the flow of active routing packets
C. To send an ARP request to all attached routing neighbors
D. To determine if the router is sending and receiving ARP requests/relies
E. To place a new list of IP/hardware addresses for all hosts on attached segments into the router's ARP cache

Answer: D
Explanation: The debus arp command checks whether the router is sending and receiving Area Resolution Protocol (ARP) requests and replies.

QUESTION NO: 53
Click the exhibit button.

```
DDP: -------DDP Header -------
DDP:
DDP: Hop Count = 0
DDP: Length = 119
DDP: Checksum = 396A (correct)
DDP: Destination network number = 0
DDP: Destination node = 225
DDP: Destination socket = 1(RTMP)
DDP: Source network number = 1140
DDP: Source node = 100
DDP: Source socket = 1 (RTMP)
DDP: DDP protocol type = 1 (RTMP data)
DDP:
```

This is a sample of a LAN protocol analyzer capture. Which troubleshooting fact can be derived from the exhibited packet?

A. The transport layer protocol is DDP
B. This is a connection-oriented protocol
C. This protocol utilizes IP as a transport
D. The frame type is ethernet 802.3 with LLC
E. This is a DecNet Discovery Protocol packet
F. This is a Apple Talk routing information packet

Answer: F
Explanation: AppleTalk's primary network-later protocol is Datagram Delivery Protocol (DDP). DDP provides connectionless services between network sockets.

QUESTION NO: 54
You are troubleshooting a Novell IPX network. In particular you want to examine the status of an interface used for Novell IPX connections on a Cisco 2500 router. You connect to the router, login and enter enable mode. What command should you use to confirm the status of this interface?

A. `show ipx route`
B. `show ipx status`
C. `show ipx traffic`
D. `show ipx interface`

Answer: D
Explanation: The **show ipx interfaces** command lists the IPX interfaces, and for each interface it shows the status, address, encapsulation, and many other IPX-related parameters and configurations.

Incorrect Answers
A: The **show ipx route** command is used to display the value set for the default IPX routes.
B: There is no such command.
C: The **show ipx traffic** command displays information about the number and type of Internetwork Packet Exchange (IPX) packets sent and received.

QUESTION NO: 55
The CSE on an escalation of a trouble ticket asks for output from show stack and a core dump. What is most likely situation involved in this trouble ticket?

A. Requesting optional information
B. Requesting general information
C. Troubleshooting a crash or hung system
D. Isolating partial loss of system function
E. Diagnosing lost data or performance problems

Answer: C
Explanation: When a router crashes, it can be very useful to obtain a full copy of the memory imae (core dump) to analyze the cause of the crash. In addition, when a Cisco router encounters a set of conditions it has not been programmed to handle (for example a hung system) it generates a stack trace that can be displayed with the show stack command.

QUESTION NO: 56
What should you inspect to check for an indicator of an active link state on a Catalyst port?

A. Port link LED on the switching module
B. Port link OK LED on the link integrity module
C. Status LED on the network management processor
D. Switch link load LED on the supervisor engine module
E. Solid green LED on for the port's route switch module

Answer: A
Explanation: To determine if there is an active link stat on a Catalyst port you should check the Port link LED on the switching module.

QUESTION NO: 57
You want to see how long it has been since the counters have been cleared so that the count can renew. You must check for a line in the output of the _____ command.

A. show counters
B. show interface
C. clear counters
D. show controller
E. show cdp counter

Answer: B

Explanation: To see how long it has been since the counters have been cleared so that the counter can renew, check for a line in the show interface command.

QUESTION NO: 58
On the Frame Relay DTE/DCE, which configuration element will the router autosense so you can troubleshoot?

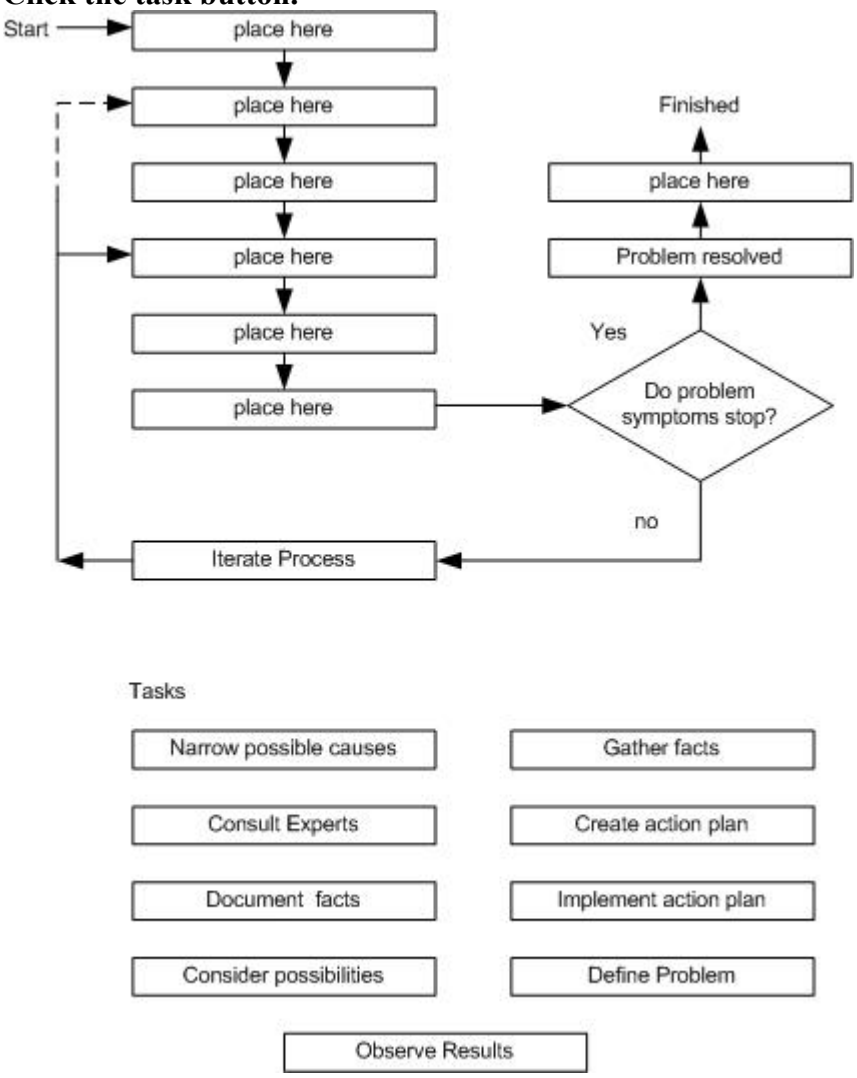
A. LMI type
B. Destination DLCI
C. Hardware interface
D. Keepalive increments
E. Layer 2 encapsulation

Answer: A
Explanation: Routers will autosense an LMI type on the Frame Relay DTE/DCE.

QUESTION NO: 59
By default, the Catalyst switch software sends error messages to the console terminal. If system messages are redirected to another destination, which command would you use to check for error messages?

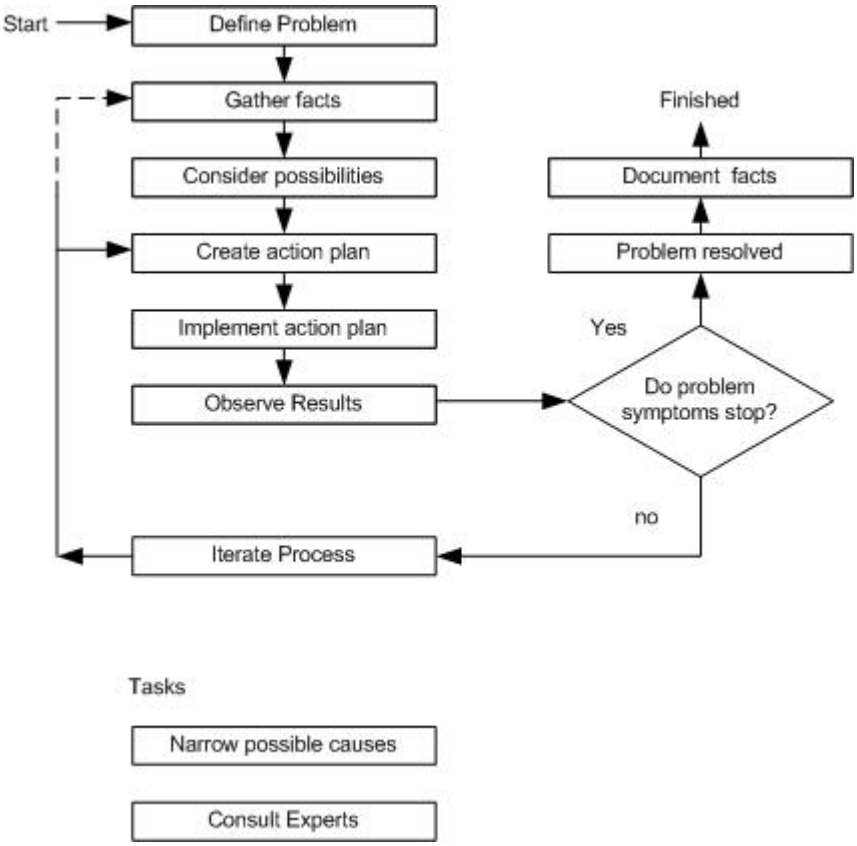
Answer: show log
Explanation: To display the messages that are logged in the buffer, use the EXEC command show logging. The first message displayed is the oldest message in the buffer.

QUESTION NO: 60
Click the task button.



There are many techniques for systematic troubleshooting, and ABC company offers a problem-solving model. Selecting the Task button will show a diagram of the flow of steps in the ABC Company model. Drag and drop the correct steps in the diagram into their proper location in the flow.
Note: Some of the steps will not be used.

Answer:



Explanation: Cisco states that it is not necessary to use there troubleshooting model rather it is more important that you use a methodical model that is applied the same each time it is used.

QUESTION NO: 61
Where are the graphical user interface applications found for the high end of the tools in troubleshooting and managing Catalyst switches?

A. CWSI
B. NetSYS
C. CiscoView
D. VlanDirector
E. Traffic Director

Answer: A
Explanation: CWSI (CiscoWorks Switched Internetworks) is a collection of applications, with a graphical fronted—GUI, for the management of Cisco Catalyst switches.

QUESTION NO: 62
When troubleshooting a connectionless protocol it is usually helpful to check if there are problems indicated by _____.

A. Sequence numbers
B. Flow control and Windows size
C. Connection-oriented upper layer
D. The unplanned transmission of data
E. Multiple retransmission of data segments

Answer: C
Explanation: When troubleshooting connectionless data transfer, look for problems where data is not acknowledge, where errors in the data are not reported to the sender, where data may arrive our of order (because it is not sequence – sequence number), and where there is no flow control.

QUESTION NO: 63
When troubleshooting a connection-oriented protocol, a key symptom to look for is _____.

A. Upper-layer connectionless traffic
B. The IP layer-three Datagram framing
C. Multiple retransmission of data segments.
D. Data packets in a stream arriving out of order.
E. Errors in data not reported back to the sender

Answer: C
Explanation: When troubleshooting connection-orientated protocols, check whether there are multiple retransmissions of segments of data.

QUESTION NO: 64
On the output of the Cisco IOS show interface token ring command, a large number of transitions from up to down or vice versa can indicate a problem on the ring. If transitions come from a growing number of interface resets, what is a likely cause?

A. A lobe cable failure on the ring
B. The multicast group address in transition
C. A station on the ring transmitting beacon frames

D. The ring speed set incorrectly (16 Mbps or 4Mbps)
E. The clash between an active monitor and a backup monitor

Answer: A
Explanation: A lobe cable failure on the ring will cause transitions to come from a growing number of interface resets.

QUESTION NO: 65
What does the customer support engineer (CSE) who handles a trouble ticket consider to deliver service?

A. The details of the warranty and service contact
B. The type of problem and the priority level of the call
C. An assessment of the severity of the network degradation
D. The equipment involved and the amount of network downtime
E. The amount of possible problem facts received to focus troubleshooting efforts

Answer: A, B; C; D
Explanation: When delivering service related to trouble tickets, the Customer Support Engineer (CSE), will consider the following:
• The details of the warranty and service contact.
• The type of problem and the priority level of the call.
• An assessment of the severity of the network degradation.
• The equipment involved and the amount of network downtime.

QUESTION NO: 66
Which type of device is commonly used to measure attenuation and return loss for wavelengths such as 850nm, 1300 nm and 1550nm?

A. Volt-ohm meter
B. Digital Multimeter
C. Optical Multimeter
D. Fiber-optic cable tester
E. Time domain reflectometer (TDR)

Answer: D
Explanation: A fiber-optic cable tester is commonly used to measure attenuation (signal loss) and return loss for wavelengths.

QUESTION NO: 67
Which type of device is commonly used to locate opens, shorts, crimps, links, sharp bends, impedance mismatches, and other defects in cables?

A. Digital Multimeter
B. Optical Multimeter
C. Cable defectometer
D. Fiber-optic cable tester
E. Time domain reflectometer (TDR)

Answer: E
Explanation: TDR devices can quickly locate opens, crimps, kinks, sharp bends, impedance mismatches, and other defects in metallic cables.

QUESTION NO: 68
In a Windows NT/95 networking environment, what is the most likely cause of a browsing problem?

A. An IP access list is misconfigured
B. The network neighborhood is down
C. The LMHosts file has been corrupted
D. A time to live has expired during WINS update processing
E. Several NT systems are set up as master browsers and send inconsistent updates

Answer: E
Explanation: Browsing problems can occur when several Windows NT devices are set up as master browsers and send inconsistent updates.

QUESTION NO: 69
Which type of device is used periodically to record, interpret, and display how a communication protocol operates in a particular network architecture?

A. Network monitor
B. Protocol analyzer
C. Digital Multimeter
D. Packet coder/decoder

Answer: B
Explanation: A protocol analyzer records, interprets, and analyzes how a communication protocol operates in particular network architecture.

QUESTION NO: 70
What is the first thing to be determined as an action plan for troubleshooting Windows NT/95 TCP/IP networks?

A. If the local host configuration is correct
B. If the NT server configuration is correct
C. If the resolution of WINS to p is correct
D. If the alternative connection with active IP works
E. If there are problems with the router configuration

Answer: A
Explanation: The first step in troubleshooting a Windows NT/95 networks is to check the host configuration.

QUESTION NO: 71
Where is the output of debug and system error messages sent by default?

A. Output is written to a Syslog server
B. Output is sent to the console terminal
C. Output goes to the remote console if logging is off
D. Output configuration requires a TFTP server to write files
E. Error logging automatically invokes debug output to the designated TFTP server

Answer: B
Explanation: By default, the outputs of debug and system error messages are sent to the console terminal.

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QUESTION NO: 72
Which error logging method produces the lowest overhead?

A. Log on alert only
B. Logging to the console
C. Logging to a Syslog server
D. Logging to an internal buffer
E. Logging to the remote console

Answer: D
Explanation: Error logging can cause a great deal of network overhead. So much overhead that it can even interfere with network traffic. It is often necessary to limit this impact. Logging to an internal buffer produces the lowest overhead.

QUESTION NO: 73
One common problem area with Novell IPX networking invokes the configuration of incompatible encapsulation types. What is the Cisco IOS term used as the equivalent to Novell 802.3 raw (called ETHERNET_802.3 in NetWare)?

A. iso1
B. SNAP
C. ARPA
D. Novell-ether
E. Novell-802.3

Answer: D
Explanation: One problem that can occur on a Novell segment/network is an encapsulation mismatch. Mismatches are likely to occur as Cisco and Novell use different terms for the same encapsulation types. The Cisco equivalent to ETHERNET_802.3 is novell-ether.

QUESTION NO: 74
While you are using the problem diagnostics of a Cisco IOS debug command, which type of switching does the router use?

A. Fast switch
B. Silicon switch
C. Process switching
D. Optimum switching
E. Autonomous switching

Answer: C
Explanation: A debug command uses process switching and interrupts the faster switching types for these data flows.

QUESTION NO: 75
Which troubleshooting process step involves a set of symptoms and associated causes?

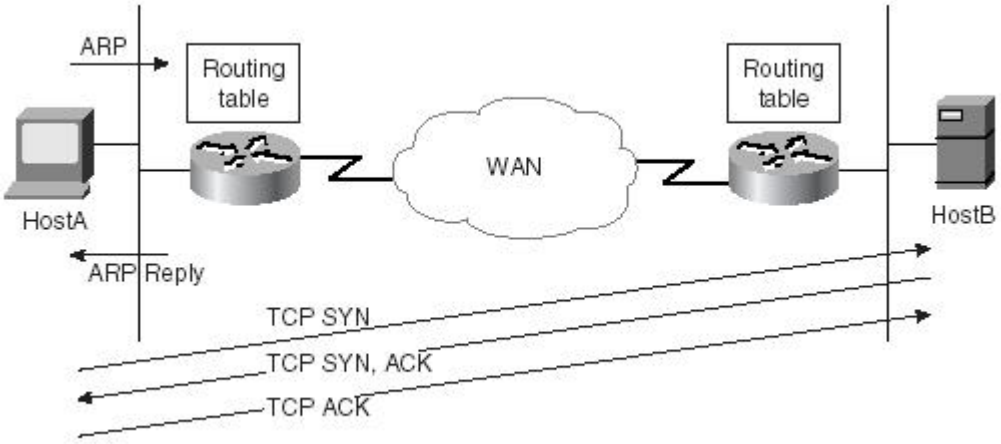
A. Defining the problem
B. Verifying information
C. Logging the trouble ticket
D. Getting approval for the action plan
E. Isolating the problem to the device level

Answer: A
Explanation: When analyzing an internetwork problem, make a clear problem statement by defining the problem in terms of a set of symptoms and associated causes.

QUESTION NO: 76
A host wants to initiate a session in the TCP connection sequence or wants to acknowledge that it has received an initiation request. Which packet type does it send?

A. SYN packet
B. ARP packet
C. Synchro packet
D. TCP ACK packet
E. ARPA initiate packet

Answer: C
Explanation: A TCP connection is made by a three-way handshake using a SYN, ACK, SYN sequence.



Note: The first host initiates a connection by sending a packet with the initial sequence number (X) and SYN bit set to indicate a connection request. The second host receives the SYN, records the sequence number X, and replies by acknowledging the SYN (with an ACK = X + 1).

Reference: Internet Protocols
http://www.cisco.com/univercd/cc/td/doc/cisintwk/ito_doc/ip.htm

QUESTION NO: 77
Which Cisco IOS command keeps track of when debug elements occurred and the duration of time between events?

A. Debug all
B. Access list
C. Debug events
D. Terminal monitor
E. Service timestamps

Answer: E
Explanation: For troubleshooting, Cisco engineers recommend that you use the Cisco IOS service timestamps command. This command puts a timestamp on a debug or log message that can provide valuable information about the debug elements occurred and the duration of time between events.

QUESTION NO: 78
Which problem is likely to cause an inability to see zones or services outside a given router's own network?

A. Phase1/phase2 incompatibility
B. Incorrect AppleTalk encapsulation
C. Clients not configure with a default gateway
D. Too many zones configured for a single network
E. Disagreement about cable ranges and zone names

Answer: A
Explanation: Phase1/Phase2 incompatibility is likely to cause inability to see zones or services outside a given router's own network.

QUESTION NO: 79
What is the purpose of VLAN Trunking Protocol (VTP)?

A. To propagate global VLAN information
B. To set trunk priority levels for adjacent switches
C. To make sure that there is a trunk or VLAN1 operating
D. To adjust VLAN inter-switch links for parallel load sharing
E. To map the noncontiguous switch fabric across the global VLAN

Answer: A
Explanation: VTP keeps track of VLAN changes and multicast periodic advertisements to communicate with other switches in the network. VTP provides globally consistent VLAN configuration information for the VTP domain.

QUESTION NO: 80
A host wants to initiate a session in the Novell connection sequence. What must the host do before the client can send NCP requests to log in to a server?

A. Receive a RIP reply
B. Receive a GNS reply
C. Broadcast a SAP GNS request
D. Send a RIP request to find a route
E. First C, then B, then D, then A
F. First D, then C, then A, then B

Answer: E

Explanation: The Netware Connection sequence is: GNS request, GNS reply, RIP request, RIP reply, NCP request, and GNS reply.

QUESTION NO: 81
You want to access network protocol addresses you can use with Telnet and ping. Which command should you use to see information about Cisco devices across a data link?

A. show interfaces detail
B. debug ip packet detail
C. show controller detail
D. show ip protocol details
E. show cdp neighbors detail

Answer: E
Explanation: The show cdp neighbors detail command is used to see information about Cisco devices across a data link.

QUESTION NO: 82
When checking that the switch and router are consistently configured for VLANs, what use of VLAN ID 1 do Cisco engineers typically recommend?

A. Has the maximum transmission unit of 4352
B. Is configured for concurrent routing and bridging
C. Is used for management and troubleshooting only
D. Uses an ID that is identical to the default SAID value
E. Spans a network diameter of no more than eight devices

Answer: C
Explanation: Cisco engineers recommend that VLAN ID 1 be reserved for management and troubleshooting only.

QUESTION NO: 83
In a Cisco IOS command show interface serial, one status field to check is the interface resets. Which situation is NOT a cause for a complete interface reset?

A. A problem with the synchronous clocking signal
B. A problem with the Frame Relay switch or DSU/CSU
C. A hardware problem with the router interface or cable interface counters cleared with the clear interface command
D. Packets queued for transmission not being sent for several seconds
E. A router restarting the interface due to persistent line protocol down

Answer: C
Explanation: It is not a cause for a complete interface reset if interface counters clear with the clear interface command. In this situation the hardware should be replaced.

QUESTION NO: 84
The CSE on an escalation of a trouble ticket asks for output from show interface and show protocol. What is the most likely situation (or situations) involved in this trouble ticket?

A. Troubleshooting a crash or hung systems
B. Diagnosing lost data or performance problems
C. Isolating partial loss of system function
D. Either A or C above
E. Either B or C above

Answer: E
Explanation: A CSE will ask for output from show interface and show protocol in situations involving diagnosing lost data or performance problems, or isolating partial loss of system function.

QUESTION NO: 85
Which two options are used by basic LAN switching? (Choose Two)

A. IEEE 802.1D
B. IEEE 802.10
C. Multicast OSPF
D. Spanning-tree bridging
E. VLAN Trunking Protocol (VTP)
F. Multiprotocol over ARB (MPOA)

Answer: A, E
Explanation: IEEE 802.1D and VLAN Trunking Protocol (VTP) are options used by basic LAN switching.

QUESTION NO: 86
The output from the Cisco IOS show buffers command has a count of overruns or underruns. Where in the router, is the problem cause most likely to be?

A. The processor
B. The router bus
C. Shared NVRAM
D. The route processor
E. The interface hardware

Answer: E
Explanation: A router having a count of over-runs or under-runs usually indicates that there is a problem with the interface hardware.

Note: Underruns occur when the transmitter on an interface has been running faster than the router can handle.

QUESTION NO: 87
You want to observe the spanning-tree port state such as disabled, blocking, listening, learning, forwarding, and so forth. Which Catalyst 5000 command should you use?

A. Show port
B. Show span
C. Show spantree
D. Show config spanning
E. Show spanning-tree port

Answer: C
Explanation: You use the show spantree command to display spanning-tree information for a VLAN including the spanning-tree port state (disabled, inactive, not-connected, blockading, listening, learning, forwarding and bridging).

QUESTION NO: 88
How can you reduce spanning-tree protocol BPDU traffic during extended periods of instability for VLANs?

A. By making the router the root bridge
B. By changing the router to VTP server mode
C. By setting forward delay and max-age timers to maximum values
D. By combining all the VLAN spanning trees into a single spanning tree
E. By changing the spanning-tree protocol encapsulation from IEEE to DEC

Answer: C
Explanation: During extended periods of instability for VLANs to reduce BPDU traffic by setting the forward delay and max age to their maximum values. This forces ports to wait for the correct topology information.

QUESTION NO: 89
Which four Cisco IOS commands are used to check for data link protocol characteristics? (Choose Four)

A. Ping
B. Show interface
C. Clear counters
D. Show controller
E. Show cdp neighbor

Answer: B, C, D, E
Explanation: All of these commands (show interface, clear counters, show controllers, and show cdp neighbor) all provide results that relate to the data link.

QUESTION NO: 90
What are four ways to handle the debug tool in Cisco IOS software? (Choose Four)

A. Reduce the scope of the debug by checking events
B. Turn off the debug after you finish with your diagnostics
C. Use debug as a thorough monitor to check the network
D. Be aware of debug's processing switching implications
E. Limit the impact of debug checking by using access lists

Answer: A, B, D, E
Explanation: Four ways to handle the debug tool in Cisco IOS software: reduce the scope of the debug by checking events, turn off the debug after you finish with your diagnostics, be aware of debug's processing switching implications, and limit the impact of debug checking by using access lists.

QUESTION NO: 91
Catalyst 5000 troubleshooting begins with the Catalyst 5000 module located in the top slot of the chassis. What does this slot contain?

A. Ping and Telnet utilities in the route switch module (RSM)
B. Three Fats Ethernet ports that an connect to other systems
C. Console and network ports in the supervisor engine module
D. Interface module with LEDs to indicate errors and load factor
E. Embedded RMON, SwitchProbe, and switched Port Analyzer (SPAN)

Answer: C
Explanation: Catalyst 5000 troubleshooting begins with the supervisor engine module. The Catalyst 5000 switch requires a supervisor engine module in the top slot of the chassis.

QUESTION NO: 92
Certain IP data is being unintentionally filtered by one or more router interfaces. What is a likely source of the problem?

A. IP RIP filters
B. The IP access list
C. Foreign protocol conflicts with IP
D. Incomplete routing table entries
E. Buffer sizes configured too small

Answer: B
Explanation: Great care must be taken when applying an IP access list. If the IP access list is not configured properly certain IP data may be unintentionally filtered by one of more router interfaces.

QUESTION NO: 93
For troubleshooting the Catalyst 5000 ISL, one important problem to check for is inter-switch mismatches. Which command checks a module/port to display the trunking status, VLAN active status, and VLANs that can use the link?

A. show span
B. show vlans status
C. show vtp domain info

D. show [*module/port*]
E. show trunk [*module/port*]

Answer: E
Explanation: The **show trunk [module/port]** command checks a module/port, and displays the trunking status, VLAN active status, and VLANs that can use the link.

QUESTION NO: 94
What is the router sometimes called because it can run Spanning-Tree Protocol and operate as an aggregation point for inter-VLAN routing between multiple VLAN switches?

A. netflow switch
B. router-on-a-stick
C. inter-VLAN engine
D. inter-switch link (ISL)
E. route switch processor

Answer: B
Explanation: There are a number of ways VLANs can be configured to communicate with each other. One method is a single trunk link. This method involves creating a trunk link on a switch and then using a frame-tagging protocol on the router. Cisco has termed this router-on-a-stick.

QUESTION NO: 95
In the output of the Cisco 108 IOS show IPX traffic command, what does an incrementing count in the format errors counter usually mean?

A. An unknown server type requested by a host
B. A hardware problem on the network interface card
C. An encapsulation type mismatched on one or more hosts
D. A corrupted header in the packets that encountered a bad hop count
E. A request from hosts for a packet encapsulation that the router cannot support

Answer: C
Explanation: The format error field shows the number of bad packets discarded. Includes IPX packets received in an encapsulation for which this interface is not configured.

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QUESTION NO: 96
Which problem is the likely reason that certain TCP/IP protocol services are available but not others?

A. A default gateway is not set
B. The extended IP access list is misconfigured
C. The routers are misconfigured with duplicate addresses
D. There are two separate networks with the same address
E. The IP subnet mask configuration on a router is incorrect

Answer: B
Explanation: If certain TCP/IP protocol services are available, but not others, the extended IP access list may be not properly configured.

QUESTION NO: 97
When troubleshooting the Layer 1 ISDN S/T interface on an RJ-45 cable, you should check for physical damage to the cable or bad connectors. Which pins are the key pins used for ISDN signal connections?

A. Pins 1, 2, 3, and 4
B. Pins 2, 4, 6, and 7
C. Pins 3, 4, 5, and 6
D. Pins 3, 6, 8, and 12
E. Pins 1, 2, 7, and 8

Answer: C
Explanation: Pins 3, 4, 5, and 6 are the key pins used for ISDN. When troubleshooting, make sure that your cable and connector are correct for BRI.

QUESTION NO: 98
What is the source of a common Novell network problem referred to as configuration mismatch?

A. Cisco routers are not supporting Novell proprietary frame types.
B. NetWare servers on the same network use different frame types.
C. There is decrease routing throughput at NetWare file server PCs.
D. Inconsistent frame types are used by the IPX clients and servers.
E. Servers or routers have assigned different network addresses to a common network.

Answer: D
Explanation: Configuration mismatch refers to a common mistake made in NetWare networks where the external network number assigned on a server or router does not agree with the external network number for the servers or routers on that same segment.

QUESTION NO: 99
Switching is _____ because it can move packets, frames, or cells from buffer to buffer with simpler determination of traffic source and destinations.

A. Not performed in routers
B. Affected by lower latency than routing
C. Part of a protocol's best path decision
D. Moving data to its ultimate destination
E. Able to use more intensive processing

Answer: B
Explanation: Switching is more affected by lower latency than routing because it can move packets, frames, or cells from buffer to buffer with simpler determination of traffic source and destinations.

QUESTION NO: 100
When you see the LEDs flash during the Catalyst 5000 power-up sequence, what is indicated?

A. The power-up sequence is under way and not yet completed
B. One or more modules are not correctly inserted into their slots
C. One or more fan, power supply, or supervisor clock is disabled.
D. The network management autodiscovery process is under way
E. The traffic testing process of an interface loopback has not yet completed.

Answer: A
Explanation: LEDs flash during startup and turn green when a successful initialization is completed.

QUESTION NO: 101
A Catalyst physical port that is a trunk can be several spanning trees. On this shared topology, loops in one spanning tree _____.

A. Are segmented from the other spanning trees
B. Do not have any impact on the other spanning trees
C. Can have a media load impact on the other spanning trees
D. Use a Time to live mechanism to put an end to loop pollution
E. Can be isolated from the other spanning trees with root port settings

Answer: C
Explanation: Loops in one spanning tree may affect other spanning trees if they share a topology.

QUESTION NO: 102
Frame relay troubleshooting can obtain pertinent fact from the output of the Cisco IOS command show interface IOS command show interface serial. Selecting the exhibit button will show screen capture of this command.
Which capture letter identifies the command output line that confirms the interface is up, that Carrier Detect present?
Note: Answer is a single letter.

Answer: dcd=up
Explanation: The carrier transitions indicators counts the number of times that the Data Carrier Detect (DCD) signal has changed status. If transitions are present then the interface is up.

QUESTION NO: 103
The ISDN BRI physical frame is 48 bits in length. At 4000 frames per second, it provides 192 Kbps. Which four statements about the use of this bandwidth are true? (Choose Four)

A. The 2B+D occupies the entire frame.
B. B channels are 64Kbps and the D channel is 16Kbps.
C. Some bits of the ISDN BRI frame are used for synchronization and collision avoidance.
D. On the local loop, full-duplex logical channels coexist using time-division multiplexing.
E. The A bit of the ISDN BRI frame is used during line startup to indicate physical layer activation.

Answer: B, C, D, E
Explanation: The 2B+D does not occupy the entire frame as there are some overhead bits.

QUESTION NO: 104
Which statement about VLANs that are set up using a router's Cisco IOS software is FALSE?

A. For IP, configure the IP address on the main interface
B. For a VIP card, configure the media type Mil on the main interface
C. For each VLAN, specify with a Catalyst Fats Ethernet link, use ISL encapsulation
D. For Novell IPX, the same IPX network number must be used on the VLAN

Answer: A
Explanation: When configuring a VLAN you are suppose to remove the IP address from the physical interface. The IP address should be configured on the subinterfaces.

QUESTION NO: 105
Exhibit:

A. Serial 1 is up, line procotol is down
B. Hardware is MCI serial
C. Internetr Address is 131.108.174.47, subnet mask is 255.255.255.0
D. MUT 1500bytes, BW 1544KBIT, dly 2000usce, rely 246/255, load 1/255
E. Encapsulation FRAME-RELAY, loopback not set, keepalive set (10 sec)
F. LMI enq sent 2, LMI stat recvd 0, LMI upd recvd 0, DTE LMI down
G. LMI enq recvd 266, LMI stat sent 264, LMI upd sent 0H LMI DLCI 1023 LMI
H. type s Cisco frame relay DTE
I. Last input 0:00:04, output 0:00:02, output hang never
J. Last clearing of "show interface" counters 0:44:32
K. Output queue 0/40, 0 drops, inout queue 0/25, 0 drops
L. Five minute input rate 0 bits/sec, 0 packets/sec
M. Five minute output rate 0 bits/sec, 0 packets/sec
N. 307 packets input, 6615 bytes, 0 no buffer
O. Received 0 broadcasts, 0 runts, 0 giants
P. 0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
Q. 0 input packets output, 3810 bytes, 0 underruns
R. 766 packet output, 3810 bytes, 0 underruns
S. 0 output errors, 0 collisions, 2 interface resets, 0 restarts
T. 178 earner transitions

When troubleshooting Frame Relay, pertinent facts can be obtained from the output of the Cisco IOS command show interface serial. Selecting the exhibit button displays a screen capture of this command. Which capital letter identifies the command output line that most accurately reflects the stability of the frame reply provider's facility-that is, the number of times that DCD has changed state?
Note: answer is a single answer.

Answer: T
Explanation: The carrier transitions indicators counts the number of times that the Data Carrier Detect (DCD) signal has changed status. If transitions are present then the interface is up.

QUESTION NO: 106
What is the cause of incorrect interpretations of Q.931 exchanges sent between a Cisco router and an ISDN switch?

A. CHAP is used on the router, but PAP is used on the switch.
B. Argument is incorrect for the command ISDN switch-type
C. Information element 0x05 for debug isdn q931 setup is incorrect
D. TE makes a call at 56Kbps, but TE announces a call at 64Kbps
E. ITU-T 1.450 specifications is not fully implemented on the router.

Answer: B
Explanation: The incorrect interpretations of Q.931 exchanges sent between a Cisco router and an ISDN switch can be caused by the argument being incorrect for the command ISDN switch-type.

QUESTION NO: 107
What risk do you face when configuring a VTP server off line and then connecting it to the network?

A. It may not get root bridge or destinated bridge information.
B. It may revert to client mode once you enable online access.
C. It may destabilize the spanning tree as it attempts to become root bridge
D. It may ignore the config revision numbers incremented on other VTP servers.
E. It may cause inconsistency by advertising an inaccurate revision of the domain.

Answer: E
Explanation: Do not configure VTP servers offline. When you configure a VTP server offline and then connect it to the network, you run the risk of an inconsistency when the server presents a VTP advert revision that does not accurately reflect the domain. Other switches that come online may use the inaccurate VTP information, and VLANs on the network may disappear.

QUESTION NO: 108
What is the comparable term Cisco IOS uses when referring to the frame type that Novell calls ETHERNET_802.3?

A. Sap
B. ARPA
C. Novell_E2
D. Ethernet_II
E. Novell_ether
F. Novell 802.3 raw
G. SNAP_Novell
H. Ethernet_SNAP

Answer: E
Explanation: The Cisco equivalent to ETHERNET_802.3 is novell-ether.

QUESTION NO: 109
You are troubleshooting problems on a Catalyst 5000 trunk and you notice that there is a disagreement about the VLANs configured to use the trunk. What can you do?

A. Remove all the VLANs set for the trunk
B. Reload the active VLAN configuration settings
C. First clear the affected port, then bring it back up
D. Explicitly set the trunk for the VLANs to be on
E. Set or clear VLANs on both sides on the link so values do not match.

Answer: D
Explanation: You can explicitly set the trunk for the VLANs to be on, if you notice that there is a disagreement about the VLANs configured on a Catalyst 5000 trunk.

QUESTION NO: 110
When my Catalyst 5000 power-up self-test runs, it checks for LEDs, memory (ROM, PROM, and DRAM), and _____. (Choose Two)

A. ERAL
B. NMP/MCP data integrity
C. address recognition logic
D. head-of-the-line blocking
E. spanning-tree configuration
F. link module communication process

Answer: A, C
Explanation: Self-diagnostics at startup occur during the power-up self-test, which checks the switch internal hardware components. These self-test include EARL and address recognition logic.

QUESTION NO: 111
Which four Cisco sales run the Cisco Discovery Protocol (CDP)? (Choose Four)

A. routers
B. bridges
C. workgroup switches
D. communication servers
E. BPX and MGX WAN switches

Answer: A, B, C, D
Explanation: CDP is a media and protocol-independent protocol that runs on all Cisco-manufactured equipment including routers, bridges, access servers, and switches.

QUESTION NO: 112
What are four tactical objectives you should try to achieve when implementing your plan (Choose Four)?

A. keep track of exactly what you are testing
B. test as many variables as possible at the same time
C. maintain a fill-bade to a know previous network states
D. limit the troubleshooting impact to other network users
E. minimize the extent or duration of possible security lapses

Answer: A, C, D, E
Explanation: As your are implementing your action plan you should ensure you keep track of exactly what you are testing, limit the troubleshooting impact to other network users, minimize the extent or duration of possible security lapses, and maintain a fall back plan to know previous network states.

QUESTION NO: 113
What four statements are true about the spanning-tree forward delay value that you can check with a Catalyst 5000 show command? (Choose four)

A. All the default values are obtained from the root bridge.
B. All switch ports must use the values learned from the root bridge.
C. The delay value can be set on the root bridge as a forward delay argument.
D. The delay is how much time the port should spend in listening or learning mode
E. The delay can be abbreviated on a switch's slot/port by setting the port fast feature

Answer: A, B, D, E
Explanation: The delay value cannot be set on the root bridge as a forward delay argument.

QUESTION NO: 114
The Cisco IOS software logging commands enable message logging to various destinations. Which setting or settings are default?

A. logging console
B. logging on and logging buffered
C. logging monitor to terminal monitor.
D. logging IP address to a syslog server
E. logging off except for normal bus significant condition messages

Answer: A
Explanation: The default location got Cisco IOS software logging command default destination is the logging console.

QUESTION NO: 115
Since upgrading a router from an old Cisco IOS version to the latest version, you have noticed a few of your NetWare 2.X IPX clients on a serverless segment having problems connecting to their servers.

A. Enable GNS on the Cisco router.
B. Turn off GNS on the Novell server.
C. Enable old style Novell broadcasts.
D. Issue the IPX gns-round-robin command
E. Increase the IPX gns-rcsponse-delay time on the Cisco router

Answer: E
Explanation: You will need to manually increase the GNS response delay to compensate for a client that has a very slow processor and network card, causing it to miss the quick response from the router.

QUESTION NO: 116
What is the purpose of Cisco's port-fast and uplink-fast modes of spanning-tree operation?

A. To listen to requests for last learning.
B. To act as a preforwarding mode on LANs.
C. To set up the port as a fast root bridge or uplink to the root bridge.
D. To disable any show Spanning-Tree Protocol operations administratively.
E. To change the port rapidly to forwarding state for special LAN or dialup traffic.

Answer: E
Explanation: PortFast and UplinkFast are used to change a port from the listening state to forwarding state. In addition, convergence is quicker.

QUESTION NO: 117
What is the function of the Cisco IOS exception `dump ip_address` **command?**

A. To dump logging traps to a syslog server.
B. To direct router exceptions to SNMP manager.
C. To identify the server that will receive error messages.
D. To set up the router for dump core if and when the next crash occurs.
E. To send the memory image of the router immediately to TFTP server.

Answer: D
Explanation: The exception dump command sets up the router to obtain a core dump if and when the next crash occurs.

QUESTION NO: 118
For troubleshooting cables, which test eliminates uncertainties about cable breaks, cable plants, and punch down conditions?

A. Replace the cable run with an external cable known to be good.
B. Replace the network adapter card at the user device end and retest.
C. Check the cable length, impedance, and continuity with a network monitor.
D. Change the ports used on the switch and determine if the problem goes away.
E. Visually inspect the cable connections, the adapter card/interface port, and the punchdown block termination.

Answer: A
Explanation: To eliminates uncertainties about cable breaks, cable plants, and punch down conditions you should replace the cable run with an external cable known to be good.

QUESTION NO: 119
Which protocol(s) is/are NOT connection-oriented?

A. TCP using ARP
B. TCP using SYN
C. TCP/IP Internet Protocol
D. Novell NCP, RIP, SAP, and GNS.
E. AppleTalk RTMP, ZIP, NBP and ATP.

Answer: C
Explanation: TCP/IP's Internet Protocol is a connectionless protocol.

QUESTION NO: 120
What are the allowed encapsulation modes on the output of the Cisco IOS show interface ATM command?

A. VC, VPI, or VCI
B. AAL5, PVC, or SVC
C. SNAP, NSAP, or SAP
D. AAL5, AAL4, or AAL1
E. AAL4, AAL5 or LANE

Answer: B
Explanation: When you use the show interface atm command the allowable encapsulation modes are: AAL5, PVC, or SVC.

QUESTION NO: 121
In AppleTalk the encapsulation of a DDP packet failed or the AppleTalk ARP failed. The output of the Cisco IOS show AppleTalk traffic command indicates this by incrementing the count for _____.

A. Unknown errors.
B. Checksum.
C. Bad packet.
D. MacIP failure.
E. Encapsulation failed.

Answer: E
Explanation: The encapsulation failed field indicates the number of packets the router could not send because encapsulation failed. This can happen because encapsulation of the DDP packet failed (best) or because AARP address resolution failed.

Reference: Internetwork Troubleshooting by Laura Chappel, Page 367

QUESTION NO: 122
On an Ethernet Interface, you should investigate any indication that there are has been more than one runt per million bytes received. What is a runt?

A. A packet that is smaller than 1518 bytes in length.
B. A packet that is smaller than the MTU of 1500 bytes.
C. A fragmentary packet of 64 bytes caused by collisions.
D. A framing error caused by the back-off process in CSMA-CD.
E. A packet that is smaller than the medium's minimum packet size?

Answer: E
Explanation: A runt is a packet that is smaller than the medium's minimum packet size.

QUESTION NO: 123
Where are special process like debug packet filtering, sending error log entries to a syslog server, and SNMP processing accomplished?

A. Route switch processor
B. Netflow error processor
C. Silicon switch processor
D. Automomous switch processor
E. The CxBus Diagnostic

Answer: A

Explanation: Debugging, syslog maintenance, access lists, and other special process that act on a packets require functioning of the route processor.

QUESTION NO: 124
The CSE on an escalation of a trouble ticket asks for output from show memory and show process. What is the most likely situation (or situations) involved in this trouble ticket?

A. Troubleshooting a crash or hung systems
B. Isolating partial loss of system function
C. Diagnosing lost data or performance problems
D. Either B or C above
E. Either A or C above

Answer: C
Explanation: A CSE will ask for output from show interface and show protocol in situations involving diagnosing lost data or performance problems, or isolating partial loss of system function.

QUESTION NO: 125
What can a Versatile Interface Processor (VIP) on the Cisco 7500 series routes accomplish?

A. Perform silicon switching.
B. Perform autonomous switching.
C. Adjust its optimim switch cache.
D. Cache routing information from the RSP.
E. Perform a route lookup for the first packet.

Answer: D
Explanation: The Cisco 7500 series use a Versatile Interface Processor (VIP) to cache routing information from the RSP.

QUESTION NO: 126
Users report that they can access some IP hosts on a local and remote segment but not others. What is the likely source of the problem?

A. Route failure.
B. Overloaded hosts.

C. Network utilization too high.
D. Access list misconfiguration.
E. Misconfigured router interface.

Answer: D
Explanation: One of the first things to check when use are experiencing accessing IP hosts is the access list. Specifically you are looking for any misconfiguration.

QUESTION NO: 127
What is the possible cause of a host being unable to access offnet hosts through a router?

A. No default gateway is specified on the host.
B. Bridging is operating in parallel with routing.
C. A router between the hosts uses a different frame type.
D. The local host and another station have the same network addresses.
E. Incompatible link types are between the host and the remote network.

Answer: A
Explanation: If a host is unable to access offnet hosts through a router there are 3 possible problems: no default gateway is specified on the host, misconfigured subnet mask on local host and routers between the hosts is down

QUESTION NO: 128
In contrast to shared switch, switched Ethernet on a Catalyst switch does which two? (Choose two)

A. Provides greater access to bandwidth.
B. Connections directly to end users or other switches.
C. Uses software to set up and maintain filtering database.
D. Has fewer utilities, which makes management more difficult.
E. Is usually limited to a maximum of 16 ports and eight spanning trees.
F. Associate a MAC source address with a set of ports for transmission

Answer: A, B
Explanation: A switched Ethernet interface on a Catalyst switch provides greater access to bandwidth as compared with a hub. It can connect directly to end users or other switches.

QUESTION NO: 129
For troubleshooting fiber-optic cables, one important problem to check for is asymmetric connectivity. What is the problem?

A. One side of a data link is straight-through, while the other is crossover.
B. One side of cable pair fails, but the other side of the cable forwards frames.
C. One side of the cable is transmit only, while the other side is transmit/receive.
D. One side interface is multimode, while the other side is single mode fiber.
E. One side terminate in a half-duplex port, while the other side terminates as full duplex.

Answer: B
Explanation: With fiber-optic asymmetric connectivity is when one side of the cable pair fails, but the other side of the cable forwards frames.

QUESTION NO: 131
Which external system(s) can be integrated into the layer chassis Catalyst 5500 switch?

A. Network feature card
B. A LightStream (LS) 1010 AIM switch
C. A route switch module (RSM on a Cisco 4500)
D. A, B, and C
E. B and C

Answer: E
Explanation: A number of external systems can be integrated into the Catalyst 5500 switch. These external systems include: a LightStream and a RSM.

QUESTION NO: 132
You are debugging ISDN layer2. What is a service access point identifier (SAPI) in the output to look for when you troubleshoot call control?

A. SAPI-1
B. SAPI-0
C. SAPI-64
D. SAPI-921
E. SAPI-931

Answer: C
Explanation: The service access point identifier (SAPI) defines the message point. SAPI 64 is used for call control.

Reference: http://www.cisco.com/go/packet/isdn/

QUESTION NO: 133
When you look at the output of debug isdn q931. The reason a call is cleared or a call setup filled may be indicated in the output preceded by the string___?

A. cause i=
B. RY<INFO0
C. DISCONNECT pd=
D. RELEASE_COMP pd =
E. HOST_DISCONNECT_ACK

Answer: A
Explanation: The reason a call is cleared or a call setup fails may be indicated in the output preceding "cause i=". Cause information from Cisco routers is usually "normal call clearing" 0x8090.

QUESTION NO: 134
When you look at the output of debug isdn q931, which two call reference flags ("callref= "value) for a given distinguishes source side from destination side? (Choose Two).

A. An S (for source) or a D (for destination), prefix
B. The flat value in bit 8 of the call reference octet
C. The value of the bearer information element 0x7E
D. Originator and other side subscriper line message types.
E. The 0x3 A service profile ID (SPED) if used in North America.
F. A most significant call reference bit value of 0 for source and 1 for destination.

Answer: B, F
Explanation: The call reference (CR) flags that distinguish source side form destination side are: a most significant call reference bit value of 0 for source and 1 for destination and the flat value in bit 8 of the call reference octet.

QUESTION NO: 135
In the output of the Cisco 108 show IPX traffic command, what does an incrementing count in the format errors counters usually mean?

A. An unknown server type request by a host.
B. A hardware problem on the network interface card.
C. An encapsulation type mismatch on one or more hosts.
D. A corrupted header in the packets that encountered a bad hop count.
E. A request from hosts for a packet encapsulation that the router cannot support

Answer: C
Explanation: A format error occurs when a router receives an IPX packet with a different IPX encapsulation type than the router's interface, or when the length of the received packet is smaller than 30 bytes or larger than the interface Maximum Transmission Unit (MTU).

Reference: IPX, http://www.cisco.com/warp/public/458/32.html

QUESTION NO: 136
On the Frame Relay near- and far-end DTEs, which configuration element must match on the router and on the switch?

A. LML type
B. Destination DLCI
C. Hardware interface
D. Keepalive increments
E. Layer 2 encapsulation

Answer: E
Explanation: A key area to check is to determine whether the proper encapsulation has been set. Encapsulation must be configured consistently on both sides of the data link.

QUESTION NO: 137
What type of device is used periodically to revert, interpret, and display how a communication protocol operates in particular network architecture?

A. Network Monitor
B. Protocol Analyzer
C. Digital multimeter

D. Packer coder/decoder

Answer: B
Explanation: A protocol analyzer records, interrupts and analyzes how a communication protocol operates in a particular network architecture.

QUESTION NO: 138
Which type of device can be used continuously to track packets crossing a network for frames dropped, bad names, protocol errors, or illegal addresses?

A. packet driver
B. network monitor
C. digital multimeter
D. protocol analyzer
E. baseline MIB monitor

Answer: B
Explanation: Network monitors continuously track packets crossing a network, providing an accurate picture of network activity at any moment or a historical record of network activity over a period of time. This picture includes frames dropped, bad names, protocol errors and illegal addresses.

QUESTION NO: 139
Which two types of devices are commonly used to measure parameters such as AC/DC, current, resistance, capacitance, and cable connectivity? (Choose Two).

A. Cable tester
B. Breakout box.
C. Volt-ohm meter
D. Protocol analyzer
E. Digital multimeter

Answer: C, E
Explanation: Volt-olm meters and digital multimeter can both be used to measure AC/DC, current, resistance, capacitance, and cable connectivity.

QUESTION NO: 140
To check if IP is misconfigured on one or more routers in the network, you can determine if entries for these routers populate the routing table. Which command display entries in the routing table?

A. show ip arp
B. ping ip route
C. show ip route
D. show ip cache
E. show ip protocols

Answer: C
Explanation: The show ip route command displays the entries in the routing tables. You can use this command to determine whether routes appear in the routing table. This can help you determine whether IP routing is running and whether the routing protocol is misconfigured on one or several of the routers in the network.

QUESTION NO: 141
You have a new interface with problems on your AppleTalk network. Which command should you use to monitor neighbors becoming reachable or unreachable and interfaces going up or down?

A. show apple rtmp
B. show cdp neighbor
C. debug apple events
D. debug apple traffic
E. show apple neighbors
F. show apple neighbors detail

Answer: C
Explanation: The debug apple events command displays information about AppleTalk special events, neighbors becoming reachable or unreachable, and interfaces going up or down.

QUESTION NO: 142
When checking why the line protocol Frame Relay is down, check for possible problems with myseq and myseen keepalive events, which commands show you this?

A. show interface serial
B. show frame-relay lmi
C. debug frame-relay pvc
D. debug serial interface

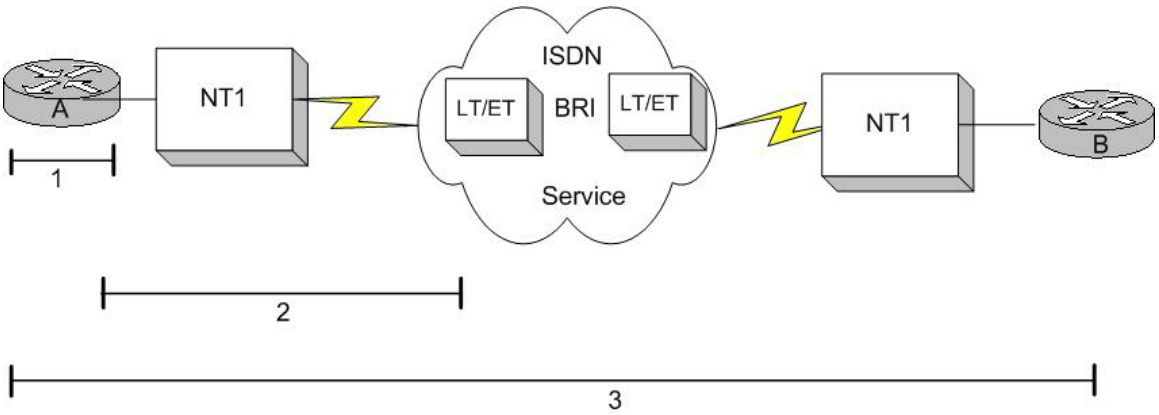
E. debug frame-relay events

Answer: D
Explanation: You can use the debug serial interface command to isolate a timing problem as the cause of a connection failed. The debug serial interface command output includes information about mineseq and mineseen keepalive events.

QUESTION NO: 143
What is the name of the Cisco product that collects RMON information from Catalyst switches so that engineers can analyze network patterns, project long-term trends, and set up proactive alarms to help troubleshoot problems?

Answer: Traffic Director
Explanation: RMON (Remote Monitoring) is one of the best baselining and troubleshooting tools in switched environments. TrafficDirector provides a united view of the switched network, including trunk links and switch ports.

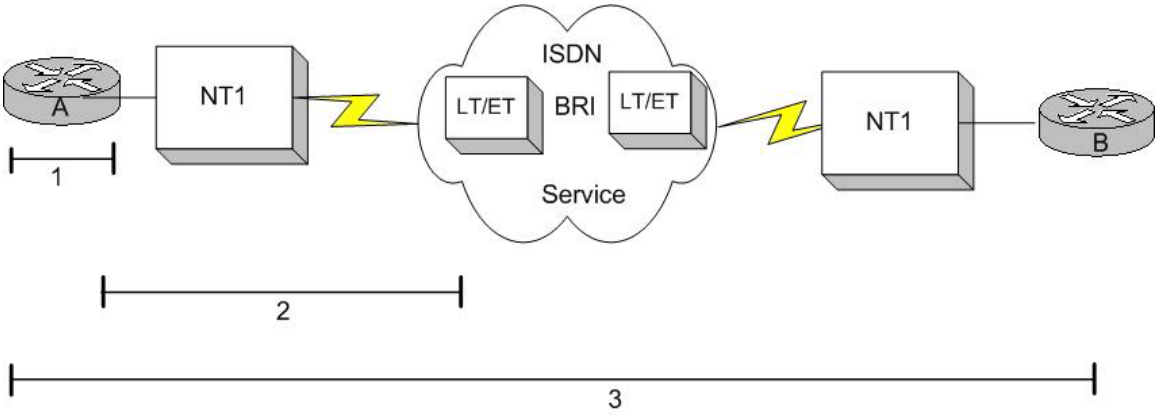
QUESTION NO: 144
Exhibit:



Cisco IOS software provides several diagnostic commands to help you troubleshoot ISDN BRI from a local router to a remote router. In the exhibit you will see a diagram of an end-to-end ISDN BRI network. Which Cisco show command is used for the portion of the network illustrated as 1 in the diagram?

Answer: show controllers bri
Explanation: The show controllers bri command displays information about the BRI controllers, including activation status on Layer 1.

QUESTION NO: 145
Exhibit:



Cisco IOS software provides several diagnostic commands to help you troubleshoot ISDN BRI from a local router to a remote router. In the exhibit you will see a diagram of an end-to-end ISDN BRI network. Which Cisco show command is used for the portion of the network illustrated as 3 in the diagram?

Answer: show isdn status
Explanation: The show isdn status command displays information about which ISDN switch is used and the status of Later 1, 2, and 3 for BRI calls.

QUESTION NO: 146
Which Catalyst 5000 command is comparable to the router's Cisco IOS software command, show span?

Answer: show span
Explanation: You use the show span command to display information about the Catalyst 5000 series port analyzer function setting.

QUESTION NO: 147
Exhibit

A. TCP:----TCP header----
B. TCP:
C. TCP:Source port= 1339
D. TCP:Destination port = 73 (Telnet)
E. TCP: Initial sequence number =0

F. TCP: Data offset =20 bytes
G. TCP: Flags =02
H. TCP:..0..=(No urgent pointer)
I. TCP:...0...=(No acknowlegement)
J. TCP:.. ..0..=(No push)
K. TCP:.. ..0..=(No reset)
L. TCP:.. ... 1.=SYN
M. Windows = 512
N. Checksum =E43E
O. No TCP options

One of the fields in the exhibit indicates available buffer for incoming data.
Enter your answer as a letter that identifies the correct field.

Answer: M
Explanation: The window field is the size of the sender's receive window (that is, buffer space available for incoming data).

QUESTION NO: 148
Exhibit:

```
Exhibit M1C4310B ""
default_width 6.2in
text {DLC: -----DLC Header -----
DLC:
DLC: Frame 2 arrived at 14:53:37:6592; frame size is 60 (003C hex) bytes
DLC: Destination = FF FF FF FF FF FF
DLC: Source = Station Cisco 01 56 A8
DLC: Ethertype = 0806 (ARP)
DLC:

ARP: --------ARP/RARP frame-------
ARP:
ARP: Hardware type = (10MB ETHERNET)
ARP: Protocol type = 0800 (IP)
ARP: Length of hardware address = 6bytes
ARP: length of protocol address = 4bytes
ARP: Opcode I (ARP Request)
ARP: Sender's hardware address = Cisco 0156A8
ARP: Sender's protocol address = [144.251.100.204]
ARP: Target hardware address = 00 00 00 00 00 00
ARP: Target protocol address = [144.251.100.100]
```

Your trainee studies the LAN protocol analyzer capture shown in the exhibit. She is curious about troubleshooting information that can be derived from the packet shown in the exhibit. What could you tell her?

A. This is an iso1 frame type.
B. The data-link layer uses the SNAP format.
C. The purpose of this frame is for route selection.
D. This frame uses IP as the network layer protocol
E. This frame uses a connection-oriented communication.
F. The purpose is to find the Ethernet address of 144.251.100.100.
G. The purpose is to find the Ethernet address of 144.251.100.204

Answer: F
Explanation: An IP device with IP address 144.251.100.204 (source protocol address) is searching for the MAC address (Ethernet address) of the IP device with IP address 144.251.100.100 (target protocol address).

Note: This is an Ethernet II (Cisco ARPA) frame, Ethernet data link broadcast, carrying ARP (Request).

Incorrect Answers
A: This is an Ethernet II (ARPA) frame, not an iso1 frame.
B: This is an Ethernet II (ARPA) frame, not a SNAP frame.
C: This is ARP/RARP frame. It is used for IP to MAC addressing resolution, not routing.
D: Ethernet data link broadcast is used, not IP.
E: The communication is not connection-oriented. We are only not higher than layer of the OSI model.
G: 144.251.100.294 is the source address, not the target address.

Question NO: 149
Which command allows you to check to see if the router is receiving ARP requests and sending ARP replies?

A. debug arp
B. debug ip arp
C. debug ip arp events
D. debug ip arp packets

Answer: A
Explanation:
Use the debug arp privileged EXEC command to display information on Address Resolution Protocol (ARP) transactions.

Incorrect Answers:
B, C, D: There are no such commands.

Question NO: 150
Two routers are being learned on a router from two different IP routing protocols. However, the protocol selected on the router is running on a slower interface.

Which command should you use so that the protocol being run on the faster interface is more preferred?

A. ip cost
B. distance
C. ip distance
D. default-metric
E. distribute-list

Answer: D
Explanation: Because metrics for different protocols cannot be directly compared, you must specify the default metric in order to designate the cost of the redistributed route used in RIP updates. All routes that are redistributed will use the default metric.

Reference: RIP and OSPF Redistribution
http://www.cisco.com/univercd/cc/td/doc/cisintwk/ics/cs001.htm

Question NO: 151
You have issued the command to display LMI type. The display includes the following
-

```
LMI enq sent 2, LMI stat recvd 0, LMI upd recvd 0, DTE LMI up
LMI enq recvd 0, LMI stat sent 0, LMI upd sent 0
LMI DLCI 0 LMI type is (output omitted) frame relay DTE
```

Which LMI type is used on this interface?

A. IETF
B. IEEE
C. Q933
D. Cisco

Answer: C
Explanation: LMI type Q933 must use DLCI 0.

Note: Only three LMI types can currently be used. These are ANSI T1.617, Cisco, and ITU-T Q.933.
The syntax of the command that sets the lmi type is:
frame-relay lmi-type {**ansi** | **cisco** | **q933a**}

Reference: Configuring Frame Relay
http://www.cisco.com/univercd/cc/td/doc/product/software/ios121/121cgcr/wan_c/wcdfrely.htm

Incorrect Answers
A, B: IETF or IEEE ore not valid LMI types.
D: DLCI 0 is not used for LMI type Cisco.

Question NO: 152
Which command displays the LMI DLCI number used on a Frame Relay interface?

A. show interfaces
B. show frame-relay lmi
C. show frame-relay pvc
D. show frame-relay dlci

Answer: C

Explanation: The **show frame-relay pvc** command displays PVC statistics. The output also includes the LMI DLCI number.

Sample output:
TestKing#**show frame-relay pvc**
PVC Statistics for interface Serial0 (Frame Relay DTE)
dlci = 145, dlci USAGE = LOCAL, PVC STATUS = ACTIVE, INTERFACE = Serial0
<Etc – rest of output deleted>

Incorrect Answers
A: The **show interfaces command** is too general to be used for this purpose.
B: The **show frame-relay lmi** command displays LMI statistics. However, the output does not include any LMI DLCI number.
D: There is no such command.

Question NO: 153

You have diagnosed a Frame Relay issue as a flapping link. Which two problems could cause this condition? (Choose two.)

A. faulty cable
B. improperly configured keepalives
C. mismatched encapsulation types
D. improperly configured IP addresses

Answer: A, C
Explanation: Link flapping refers to losing and re-gaining link.
A: Link flapping can be an indication of a physical error (A), for example a faulty cable.
C: Trunking changes the formatting of the packet. The ports need to be in agreement as to what format they are using on the link or they will not understand each other. Mismatched encapsulation types can cause link flapping.

Note: Typical causes of link flapping on a switch port include:
- Speed/duplex mismatch
- Faulty cable/loose connector
- Faulty NIC or other end station problem
- Faulty switch port
- Other misconfiguration

Reference: Troubleshooting Switch Port Problems
http://www.cisco.com/warp/public/473/53.shtml

Question NO: 154
Exhibit

```
*June 16 11:23:14.041: BRO:1 PPP: Phase is AUTHENTICATING, by both
*June 16 11:23:14.045: BRO:1 CHAP: O CHALLENGE id 57 len 28 from "isdn2-6"
*June 16 11:23:14.057: BRO:1 CHAP: I CHALLENGE id 57 len 28 from "isdn2-7"
*June 16 11:23:14.065: BRO:1 CHAP: O RESPONSE id 57 len 28 from "isdn2-6"
*June 16 11:23:14.089: BRO:1 CHAP: I FAILURE id 57 len 25 msg is "MD/DES
compare"
*June 16 11:23:14.097: BRO:1 LCP: I TERMREQ [Open] id 64 len 4
*June 16 11:23:14.101: BRO:1 LCP: O TERMACK [Open] id 64 len 4
```

Which statement is true about the debug ppp negotiation shown in the exhibit?

A. This shows the debug information for PPP PAP authentication.

B. The local router sent out the termination request to disconnect the link.
C. You should check to see if the passwords on the two sides are identical for this authentication to succeed.
D. Only the remote router is trying to authenticate the local router, the local router does not request authentication to the peer.

Answer: C
Explanation: The exhibit shows a PPP authentication attempt, which uses a three-way handshake with CHAP. The threeway handshake fails however. The PPP partners does not agree on the password.

Incorrect Answers
A: CHAP is used not PAP.
B: This is a PPP authentication using CHAP, not a termination request issued by the local router.
D: The local router is not involved in the authentication process.

Question NO: 155
Users are reporting that they're not able to browse the Internet. What step might you take to determine that the clients are resolving the correct address from the DNS server?

A. ping the DNS server
B. run a trace route to the DNS server
C. browse to the IP address of the web server
D. release and renew the DHCP address on the client

Answer: C
Explanation: If it is possible to browse the web servery by IP address and not by host name, we would know that we have a name resolution problem.

Incorrect Answers
A: Pinging the DNS server only checks if the DNS is reachable, not whether the client has the correct name resolution configuration.
B: A trace route to the DNS server will only check if the DNS server is reachable (and which route was used), not whether the client has the correct name resolution configuration.
D: Renewing the IP configuration on the client would not helpin this scenario.

Question NO: 156
With VLAN translation, a Catalyst 5000 can forward frames between which pair of protocols?

A. ISL to VTP
B. HSRP to HDLC
C. Fast Ethernet to 802.10 FDDI
D. ARPA encapsulation to SNAP

Answer: C
Explanation: VLAN translation is able to work between Fast Ethernet and 802.10 FDDI

Reference: Catalyst 5000, Product Overview
http://www.cisco.com/univercd/cc/td/doc/product/lan/cat5000/rel_2_1/sccrc5k/prodover.htm

Incorrect Answers
A: VLAN Trunk Protocol (VTP) is not an encapsulation protocol.
B, D: VTP requires a protocol type (Ethernet, FDDI, or Token Ring) to be configured for each VLAN

Question NO: 157
Which two statements about VTP domains are true? (Choose two.)

A. A switch can support up to 1024 VTP domains.
B. Many switches can be in the same VTP domain.
C. A VLAN can participate in up to 16 VTP domains.
D. VLAN configurations remain consistent within a VTP domain.

Answer: B, D
Explanation:
B: A VTP domain is made up of one or more interconnected switches that share the same VTP domain name.
D: When you make a change to the VLAN configuration on a VTP server, the change is propagated to all switches in the VTP domain.

Reference: Configuring VTP
http://www.cisco.com/univercd/cc/td/doc/product/lan/cat5000/rel_6_1/config/vtp.htm

Incorrect Answers
A: A switch can be configured to be in one and only one VTP domain.
C: A VTP domain is a VLAN management domain. A VLAN cannot participate in several VTP domains.

Question NO: 158

After a minor router configuration change, users complain that they are not getting any email from the Internet, yet they can still browse the Web. What is the likely cause of the problem?

A. IP RIP filters
B. IP access list is misconfigured
C. IPX encapsulation conflicts with IP
D. Buffer size are configured too small.
E. EIGRP is not configured on the WAN interface.

Answer: B
Explanation: Web browsing traffic, but not email traffic, is passing the router. It seems that the router is blocking SMTP (and/or POP) traffic. IP Access lists can be used to block or allow traffic based on the IP protocol. We must make sure the the IP Access lists does not block SMTP traffic.

Reference: Configuring IP Access Lists
http://www.cisco.com/warp/public/707/confaccesslists.html

Question NO: 159
What are three possible causes of slow performance on a VLAN in a switched network? (Choose three.)

A. no default route configured on the router
B. incorrect VTP domain defined on a switch
C. malfunctioning network adapter in a device
D. duplex mismatch with devices on switch ports
E. incorrect cable between a device and the switch port

Answer: A, C, D
Explanation: Lack of default route, malfunctioning network adapter, or duplex mismatch could decrease performance.

Incorrect Answers
B: An incorrectly configured VTP domain would stop the traffic, not reduce it.
E: An incorrect cable would allow no traffic.

Question NO: 160
How can a network administrator control designation of the spanning-tree root bridge in a switched network?

A. by raising the bridge

B. by lowering the bridge priorirty on the desired switch
C. by enabling uplink-fast on the ports of the desired switch
D. by setting a lower MAC address on the designated switch.

Answer: B
Explanation: The switch with the highest bridge priority (the lowest numerical priority value) is elected as the root switch.

Reference: Configuring Spanning Tree
http://www.cisco.com/univercd/cc/td/doc/product/lan/cat5000/rel_5_2/config/spantree.htm

Question NO: 161
Which Catalyst 5000 command displays the spanning-tree status of a switch port?

A. show span
B. show port
C. show spantree
D. show port spanning-tree
E. show spanning-tree port

Answer: C
Explanation: Use the **show spantree** command to display spanning tree information for a VLAN or port.
Syntax:
show spantree [vlan | mod/port] [active]

Question NO: 162
Your Microsoft Exchange email administrator calls to tell you that she can no longer browse the email server through Network Neighborhood on her Windows NT workstation. What might be the cause of the problem?

A. The WINS server is down.
B. The Browse Master has gone down.
C. The Internet Firewall is blocking access.
D. The email server was moved to a different IP subnet.

Answer: A

Explanation: Windows NT uses WINS for name resolution. A WINS server which is down could prevent the NT workstation from browsing resources on the network. This is the most likely problem in this scenario.

Incorrect Answers
B: A Browse Master that goes down might slow down browsing, but would not prevent name resolution from functioning.
C: The internet firewall is not applied when browsing local resources.
D: Moving a server to a different subnet could make it inaccessible if the IP configuration is not adjusted. So this could cause the problem described in the scenario. However, there are no reports on that the E-mail server is not functioning. The most likely problem is a name resolution problem.

Question NO: 163
You recently implemented interVLAN routing using an external router on your existing switched network. Now you have many users complaining that they are NOT able to browse the Internet.

What is the most likely cause of the problem?

A. The user's switch ports have portfast disabled.
B. Many users are using Category 3 patch cables.
C. The router has introduced a spanning-tree loop.
D. The VLAN configuration does not match on both sides of the trunk.

Answer: D
Explanation:.The VLAN configuration on both sides of the trunk must match each other.

Reference: Using Portfast and Other Commands to Fix Workstation Startup Connectivity Delays
http://www.cisco.com/warp/public/473/12.html

Incorrect Answers
A: Portfast only helps to decrease the link startup time. Portfast could resolve the problem in this scenario.
B: Usage of Category 3 patch would not cause this problem.
C: A spanning-tree loop would degrade overall performance, not the performance of a group users.
D: A VLAN configuration error would cause problems to all users, not a subset of the users.

Question NO: 164
What are two primary features of switches that are missing in bridges? (Choose two.)

A. high-capacity bus
B. hardware-based ASICs

C. spanning trees support
D. support for multiple Layer 2 protocols
E. reduction in the size of collision domains

Answer: B, E
Explanation:
B: Application-specific integrated circuits (ASICs) enabled the construction of switches.
E: A bridge is used to join network segments. A switch can be used to connect end nodes as well. Typicall, a switch has more ports and more attached devices. Each bridge port and each switch port is a single collision domain. So a switch reduces the size of collision domains compared to a bridge due to the number of ports.

Incorrect Answers
A: Bridges can use the same bus as switches.
C: Routers, not switches, use the spanning tree algorithm.
D: Bridges are switches supports about the same number of Layer 2 protocols.

Question NO: 165
Users on the network can reach hosts on certain networks through the router but not hosts on other networks. You have determined that the local host is configured properly.

What is a possible cause of this problem?

A. The local router is down.
B. The remote host is down.
C. There is a misconfigured access list.
D. There is no default gateway on the local host.

Answer: C
Explanation: A misconfigued access list could prevent the client from access some networks.

Reference: Configuring IP Access Lists
http://www.cisco.com/warp/public/707/confaccesslists.html

Incorrect Answers
A: The local router cannot be down since we are able to access hosts on some remote networks.
B: The problem is not reachability of a single host. Some networks are not reachable.
D: We know that the router can be reached since we can reach some remote networks. The default gateway is correctly configured on the local host.

Question NO: 166
Exhibit

```
Router#(config-if)interface fastethernet 1/1.4
ip address 92.68.120.40 255.255.255.0
ipx network abc123
encapsulation isl 5
bridge-group 50
```

Based on the router configuration commands shown in the exhibit, which statement is true?

A. IPX uses SAP encapsulation
B. The router is being configured for a trunk interface.
C. The router is connected to a switch whose address is 92.68.120.40
D. The switch uses 802.1Q trunking on the port connected to the router.

Answer: B
Explanation: The **encapsulation isl 5** command indicates that ISL will be used. ISL operates in a point-to-point environment: a trunk interface is being configured.

Reference: Cisco, Configuring Routing between VLANs with ISL Encapsulation
http://www.cisco.com/univercd/cc/td/doc/product/software/ios113ed/113ed_cr/switch_c/xcisl.htm

Incorrect Answers
A: There is no **encapsulation sap** command being used.
C: The IP address 92.68.120.40 does not apply to a remote switch. It is the IP address of the interface that is being configured.
D: The **encapsulation isl 5** command indicates that ISL will be used, not 802.1Q.

Question NO: 167
Which command line option to the `show spantree` command shows how often the root bridge sends BPDUs?

A. bpdu time
B. hello time
C. root max age
D. heartbeat interval

Answer: B

Explanation: The **spanning-tree [vlan stp-list] hello-time *seconds*** command is used to specify the interval between hello BPDUs.

Reference: Managing Switches
http://www.cisco.com/univercd/cc/td/doc/product/lan/c2900xl/29_35xu/scg/kiconfig.htm

Question NO: 168
What does P in a trace output mean?

A. The port is unreachable.
B. The PSTN is unreachable.
C. The packet is unreachable.
D. The protocol is unreachable.

Answer: D
Explanation: The question applies to the output of the traceroute command. A **P** denotes that a protocol is unreachable.

Note: Traceroute Output Display Characters

Character	Description
*	The probe timed out.
?	Unknown packet type.
A	Administratively unreachable. Usually, this output means that an access list is blocking traffic.
H	Host unreachable.
N	Network unreachable.
P	Protocol unreachable.
Q	Source quench.
U	Port unreachable.

Reference: Troubleshooting
http://www.cisco.com/univercd/cc/td/doc/product/lan/c3550/1216ea1/3550scg/swtrbl.htm

Question NO: 169
How do hosts choose their initial sequence numbers during TCP connection establishment?

A. Both hosts start at sequence 1.
B. Both hosts start at sequence 1024.
C. Host A starts at sequence 1 and host B starts at 1+1.
D. Both hosts start at a randomly chosen sequence number.

Answer: C
Explanation: The first host (Host A) initiates a connection by sending a packet with the initial sequence number (X) and SYN bit set to indicate a connection request. The second host (Host B) receives the SYN, records the sequence number X, and replies by acknowledging the SYN (with an ACK = X + 1).

Reference: Internet Protocols
http://www.cisco.com/univercd/cc/td/doc/cisintwk/ito_doc/ip.htm

Question NO: 170
Which two low cost tools can be used to determine cable continuity? (Choose two.)

A. TDR
B. OTDR
C. volt-ohm meter
D. digital-multi meter
E. protocol analyzer

Answer: C, D
Explanation: Volt-ohm meters and digital multimeters are at the lower end of the spectrum of cable-testing tools. These devices measure parameters such as AC and DC voltage, current, resistance, capacitance, and cable continuity. They are used to check physical connectivity.

Reference: Troubleshooting Tools
http://www.cisco.com/univercd/cc/td/doc/cisintwk/itg_v1/tr1902.htm

Question NO: 171
Which command copies `debug` messages to your current terminal display?

A. logging monitor
B. logging terminal

C. terminal monitor
D. monitor terminal

Answer: C
Explanation: The **terminal monitor** command copies debug command output and system error messages to the current terminal as well as to the console terminal.

Question NO: 172
A Novell client learns about a server. Which packet does it send to learn a route to the server?

A. IPX request
B. RIP request
C. SAP request
D. GNS request

Answer: D
Explanation: A GNS (Get Nearest Server) request is a request packet sent by a client on an IPX network to locate the nearest active server of a particular type. An IPX network client issues a GNS request to solicit either a direct response from a connected server or a response from a router that tells it where on the internetwork the service can be located. GNS is part of the IPX SAP.

Question NO: 173
You are dealing with a complex problem related to compatibility with multiple vendors' products. Which online tool should you use to find a solution to this problem?

A. Case Query Tool
B. Cisco Open Forum
C. Cisco Stack Decoder
D. Troubleshooting Assistent

Answer: A
Explanation: To get assistance on this complex compatibility problem the Case Query Tool should be used. Every time you open a technical support case online, the Cisco TAC Case Open tool's "recommendation" feature gives you a customized list of solutions selected by TAC engineers. Simply fill out three drop-down fields describing your situation, and the Case Open tool instantly displays links to documents and tools that may resolve your issue right away.

Incorrect Answers
B: The Open Forum is not the best way to find solution to complex problems.
C: The Stack Decoder is used to analyze and diagnose stack traces from Cisco router platforms.
D: There is no tool with this specific name.

Question NO: 174
Which tool can be used to find a cable that has been damaged but has NO opens or shorts?

A. TDR
B. network monitor
C. digital multimeter
D. protocol analyzer
E. CiscoWorks 2000

Answer: A
Explanation: TDRs are the most sophisticated cable testers. These devices can quickly locate open and short circuits, crimps, sharp bends, impedance mismatches, and other defects in metallic cables.

Reference: System Troubleshooting Guidelines
http://www.cisco.com/univercd/cc/td/doc/product/voice/ics7750/tblshoot/trouble.htm

Question NO: 175
Before an AppleTalk client attaches to a file server (or printer), it must locate the server. Which step in the AppleTalk connection sequence begins that process?

A. A Macintosh computer sends an ATP request to the local router.
B. A Macintosh computer sends an GetZoneList request to the local router.
C. A Macintosh computer sends an AFP broadcast request to the local router.
D. A Macintosh computer sends an NBP request to the local router.

Answer: A
Explanation: The ATP service allows exchanges between two socket clients in which one client requests the other to perform a particular task and to report the results. ATP binds the request and the response together to ensure the reliable exchange of request-response pairs.

Reference: Inside Macintosh: Networking, Chapter 6 - AppleTalk Transaction Protocol (ATP)

Incorrect Answers
B: GetZoneList request are used by routers to get zone information, not by client computers.
C: File services is provided by the AppleTalk Filing Protocol (AFP). It is not used for the initial communication.
D: Name Binding Protocol (NBP) request. For a new node we issue an NBP request to find any services it supports.

Question NO: 176
Which three actions can be tracked or tested by TrafficDirector software? (Choose three.)

A. testing wire plant
B. simulating network changes
C. monitoring netwok usage trends
D. isolating protocol-related problems
E. implementing proactive network alarms

Answer: C, D, E

Explanation: The TrafficDirector application lets you monitor and record information about network usage, events, and trends (C), and identify and isolate many fault conditions in data communication networks (D). Furthermore, it can be used to set limit conditions on network traffic and generating alarms if those limits are exceeded (E).

Reference: TrafficDirector Overview
http://www.cisco.com/univercd/cc/td/doc/product/rtrmgmt/sw_ntman/td_main/td_5_8/traf5_8/overview.htm

Incorrect Answers
A: The TrafficDirector is not used to test physical wires.
B: The TrafficDirector cannot be used to simulate network changes.

Question NO: 177
Pings to a Cisco 7513's loopback interface drop intermittently. Which two commands should you use in troubleshooting? (Choose two.)

A. show diag
B. show buffers
C. show version
D. show interface

Answer: A, B
Explanation:
A: The output of the show diag command displays hardware information for the router. The information can be used to troubleshoot the router.
B: You can identify a buffer leak using the show buffers command. A buffer leak could explain the behavior of the router.

Reference:
Incorrect Answers
C: The version of IOS is not an issue here.
D: No important information on the loopback interface would be gain by the **show interface** command..

Question NO: 178
Exhibit:

```
DeviceID: r6-2612
Entry address(es):
     IP address: 10.1.1.6
Platform: cisco 2612,  Capabilities: Router
Interface: Serial0/1,    Port ID (outgoing port): Serial0/1
Holdtime : 147 sec

Version :
Cisco Internetwork Operating System Software
IOS (tm) C2600 Software (C2600-JK95-M), Version 12.2(3), RELEASE SOFTWARE
(fc1)
Copyright (c) 1986-2001 by cisco Systems, Inc.
Compiled Wed 18-Jul-01 15:28 by pwade

advertisement version: 2
```

The exhibit illustrates the output of a command used to troubleshoot data-link targets. The last line in that display is:

```
advertisement version: 2
```

What is the meaning of this line?

A. RIP advertisement version
B. CDP advertisement version
C. Cisco IOS mirror release version
D. broadcast route summary version

Answer: B
Explanation: It is the version of CDP being used for CDP advertisements.

Reference: CDP Commands
http://www.cisco.com/univercd/cc/td/doc/product/software/ios121/121cgcr/fun_r/frprt3/frd3001b.htm

Question NO: 179
What is the Cisco Stack Decoder?

A. a tool to analyze a stack trace from a Cisco device
B. a tool used to analyze captured data from a protocol analyzer
C. a tool used to help the engineer set the proper size for buffer stacks
D. a tool that gives a graphic representation of the protocol stack of a network packet

Answer: A
Explanation: The Stack Decoder is used to analyze and diagnose stack traces from Cisco router platforms.

Reference: TAC Tools for Router and IOS Architecture Technologies
http://www.cisco.com/warp/public/63/tool_links.shtml

Question NO: 180
What should you do to minimize debug output?

A. apply an access list to contain the focus
B. apply service timestamps to sort messages
C. configure the router to run optimum switching
D. only debug packets when using this command

Answer: A
Explanation: Access lists can be used to minimize debug output by filtering on appropriate conditions.

Question NO: 181
Your network management group reports that TFTP sessions do not complete successfully. You verify that there is a good network layer path from client to server and back.

Which three general troubleshooting steps should you perform? (Choose three.)

A. check to see if data are arriving out of order
B. check to see if the TFTP requests are acknowledged
C. check to see if there are errors in the segment headers
D. check to see if the TCP sequence and acknowledgement numbers are aligned

Answer: A, B, C
Explanation: We could check if data is arriving out of order, if TFTP requests are acknowledge, or if there are errors in the segment headers.

Incorrect Answer:
D: TFTP is uses UDP, not TCP. TFTP is a connection-less protocol that does not use acknowledgements.

Reference: RFC783, THE TFTP PROTOCOL (REVISION 2)

Question NO: 182
Which three tasks can you perform in Cisco Software Center? (Choose three.)

A. search for software bugs in all available software platforms
B. get selected demonstration and beta distributions for Cisco's latest products
C. consult Software Upgrade Planners that collect and present product literature, release information, documentation, and release notes
D. use Software Checklists to ensure current availibility and compatibility of Cisco software products for your internetworking platforms

Answer: B, C, D
Explanation:
B: The Cisco Software Center offers selected demo and beta distributions for their latest products.
C: Software Upgrade Planners, available from the Cisco Software Center, collect and present product literature, release information, documentation and release notes, plus known defect information from Cisco's Bug Toolkit in a single comprehensive view.
D: Software Checklists, available from the Cisco Software Center, ensure the current availability and compatibility of Cisco software products for your internetworking platforms.

Reference: About the Software Center
http://www.cisco.com/public/sw-center/sw-aboutswc.shtml

Incorrect Answers

A: The CCO bug Toolkit would provide search functions for software bugs. However, the CCO bug Toolkit is only available for registered customers. It is not available from the Cisco Software Center.

Question NO: 183
What Cisco IOS command keeps track of when debug elements occurred and the duration of time between events?

A. debug all
B. access list
C. debug events
D. terminal monitor
E. service timestamps

Answer: E
Explanation: The service timestamps commands:

router(config)#**service timestamps debug datetime msec**
router(config)#**service timestamps log datetime msec**

add time stamps to debugs in the format MMM DD HH:MM:SS, indicating the date and time according to the system clock.

Reference: Important Information on Debug Commands
http://www.cisco.com/warp/public/793/access_dial/debug.html

Incorrect Answers
A: This command enables all debugging.
B, C: These are not valid IOS commands.
D: The **terminal monitor** command copies debug command output and system error messages to the current terminal as well as to the console terminal.

Question NO: 184
Exhibit

```
*Mar  7 10:01:42.389: ISDN BR0: TX ->  SETUP pd = 8  callref = 0x3F
*Mar  7 10:01:42.397:        Bearer Capability i = 0x8890
*Mar  7 10:01:42.405:        Channel ID i = 0x83
*Mar  7 10:01:42.409:        Keypad Facility i = '96665500'
*Mar  7 10:01:42.525: ISDN BR0: RX <-  SETUP_ACK pd = 8  callref = 0xBF
*Mar  7 10:01:42.533:        Channel ID i = 0x89.
*Mar  7 10:01:44.533: ISDN BR0: RX <-  CALL_PROC pd = 8  callref = 0xBF
*Mar  7 10:01:44.757: ISDN BR0: RX <-  ALERTING pd = 8  callref = 0xBF
*Mar  7 10:01:44.817: ISDN BR0: RX <-  CONNECT pd = 8  callref = 0xBF
*Mar  7 10:01:44.837: ISDN BR0: TX ->  CONNECT_ACK pd = 8  callref = 0x3F
```

Given the ISDN Q931 debug display in the exhibit, which two statements are true? (Choose two.)

A. This is one outgoing ISDN call from the router.
B. This call did not reach the final ISDN CONNECT state.
C. You should contact the service provider because the call reference ID is mismatched for this call.
D. The Bearer Capability field in the debug is one field of IEs. You can use it to determine which type of service is included in the call request.

Answer: A, D
Explanation:
A: The local router sets up a ISDN connection with a call request.
D: The *Bearer Capability i = 0x8890* indicates a 64k Digital request.

Reference: Troubleshooting ISDN BRI Layer 3 using the debug isdn q931 Command
http://www.cisco.com/warp/public/471/isdn_q931_ts.html

Incorrect Answers
The local router has received a CONNECT from the remote location, and sends a CONNECT_ACK to the the remove location. This implies that
B: The final ISDN CONNECT state is reached.
C: There is no call reference ID mismatch.

Question NO: 185
You are troubleshooting a network problem in a highly secured environment. Which statement is true about removing access list?

A. It will correct the network problem.
B. It makes the configuration of the router cleaner.
C. It removes the security that the list was meant to provide.
D. It improves the network performance because using access lists is a CPU-intensive process.

Answer: C
Explanation: Access list filters traffic. In this highly-secured network they are most likely used for implementing security. Removing it will remove the security it implements.

Question NO: 186
Which command displays the BRI 0 PPP status?

A. show ppp status
B. show interface bri 0
C. shop ppp negotiation
D. show ppp interface bri 0

Answer: B
Explanation: This commands works and it will display BRI 0 PPP status.

Reference:
Incorrect Answers
A, C, D: There are no such commands.

Question NO: 187
You are trying to resolve a network performance problem. Which three let you gather facts before taking action?

A. cable tester/protocol analyzer
B. network management systems
C. documented diagnostics commands
D. confirm your DHCP server configuration
E. review the entries in the hosts file on your server

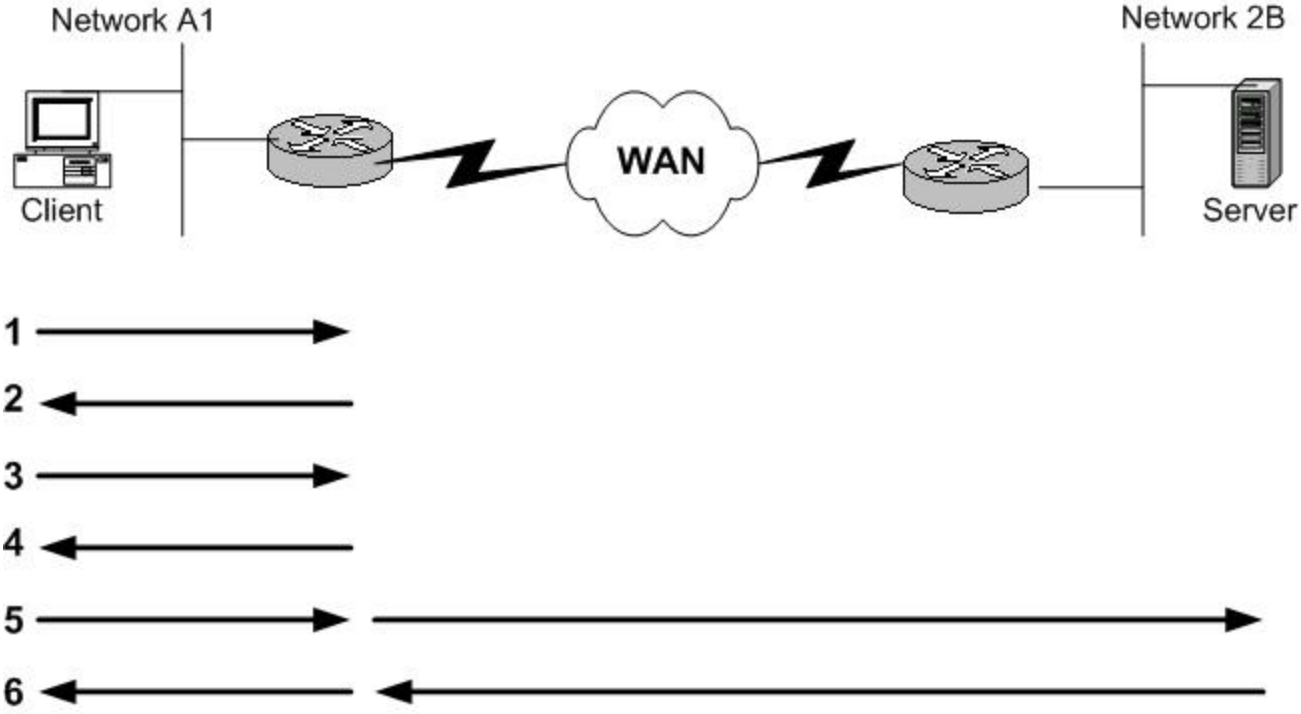
Answer: A, B, C
Explanation:
A: A protocol analyzer could be use to study network traffic.
B: Network management systems, such as System Monitor in Windows 2000, can be helpful in locating network performance issues.
C: IOS diagnostics commands can useful in gather network performance data.

Reference:

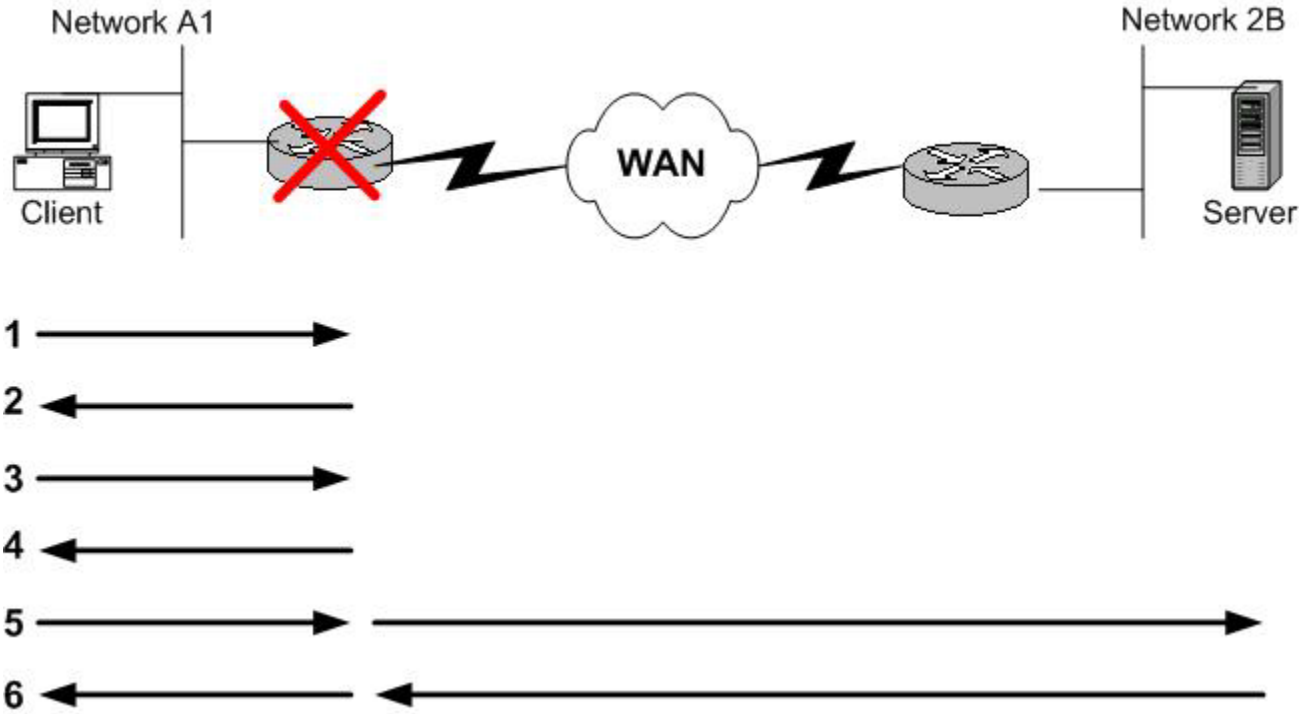
Incorrect Answers
D: The DHCP server does not impact network performance in any significant way.
E: The hosts file is used for name resolution.

Question NO: 188
Which device responds with a GNS Reply packet during a Novell connection sequence?

Click on the device that sends a GNS Reply packet during a Novell connection sequence.



Answer:



Explanation: When clients need a resource, they send an IPX broadcast packet called a GNS (Get Nearest Server) request so they can locate a NetWare server that provides the needed resource. The servers receive the GNS and check their SAP tables to locate a NetWare server that matches the specific request. Cisco routers build SAP tables as well, and can respond to GNS requests.
In more detail:
After the client requests issues a Nearest Server broadcast all servers respond (unicast), and the first server generally wins. If no server is on that cable then the router will reply. If the nearest server is on that cable the router will not reply.

Reference: Client and Server Handshaking
http://www.cisco.com/warp/public/473/111_28.html

Question NO: 189
What information is provided by the `show ppp multilink` command?

A. bundle name
B. bundle idle time ouot
C. bundle flapping record
D. bundle disconnect reason

Answer: A
Explanation: The show ppp multilink command displays information about the newly created multilink bundle which includes the bundle name.

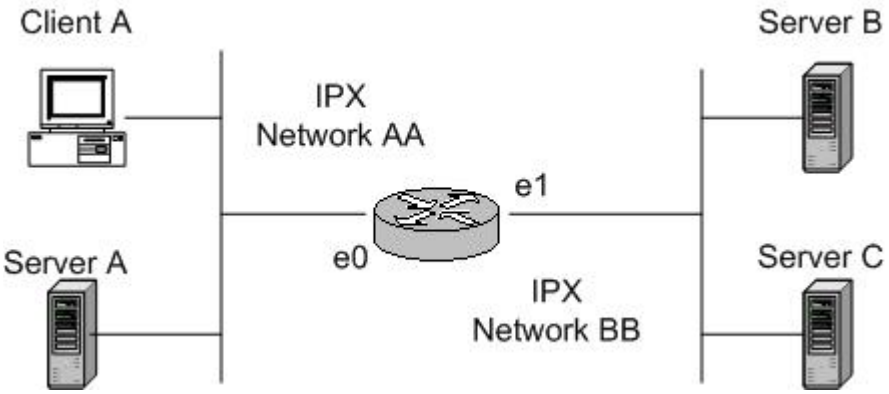
Question NO: 190
The Ethernet encapsulation type commonly known as "Ethernet v.2" and referred to by Novell as "Ethernet_II" correspons to which encapsulation type on Cisco routers?

A. sap
B. arpa
C. snap
D. novell-ether

Answer: B
Explanation: The Cisco use the name of ARPA for the encapsulation type that Novell denotes with Ethernet_II.

Reference: Understanding and Troubleshooting Common Novell IP and IPX Issues
http://www.cisco.com/warp/public/473/33.html

Question NO: 191
Exhibit



In the network shown in the exhibit, ClientA is able to login to ServerA but fails to access either ServerB or ServerC. What are two possible causes? (Choose two.)

A. IPX routing is disabled on the router.
B. The output-sap-filter is configured on the router's interface e1.

C. The GNS-output-filter is configured on the router's interface e0.
D. The RIP and SAP timer values configured on all servers are more than three minutes greater than that configured on the router.

Answer: A, D
Explanation:
A: IPX routing must be functioning in order to allow communication between the Novell networks.
D: If the Cisco routers are configured to send SAP updates, the RIP and SAP timers must be correctly configured.

Note: Novell servers periodically send clients information about the services they provide by broadcasting this information onto their connected local-area network (LAN) or wide-area network (WAN) interfaces. Routers are required to propagate SAP (Service Advertisement Protocol) updates through an IPX network so that all clients can see the service messages.

It is possible to reduce SAP traffic on Novell IPX networks by the following means:

- Filtering SAP updates through access lists.
- Configuring Cisco routers on Novell IPX networks to run Enhanced IGRP.
- Configuring Cisco routers on Novell IPX networks to send incremental SAP updates.

Reference: Reducing SAP Traffic in Novell IPX Networks
http://www.cisco.com/univercd/cc/td/doc/cisintwk/idg4/nd2018.htm

Incorrect Answers
B: SAP traffic from Server B and Server C would not flow in this direction, so this filter cannot be the problem..
C: A GNS (Get Nearest Server) request is only issued when the Novell client starts.

Question NO: 192
You do a no shutdown on the ISDN interface to start TEI. What is the first AI value you should see in debug isdn q921?

A. 0
B. 64
C. 127
D. 128

Answer: C
Explanation: The first AI value should be 127.

Note: The **debug isdn q921** command is very usefully when troubleshooting ISDN Layer 2 signaling problem. The **debug isdn q921** command displays data link layer (Layer 2) access procedures that are occurring at the router on the D-channel. This can indicate whether the problem lies with the NAS, the Telco switch or the line.

Reference: Troubleshooting BRI Layer 2
http://www.cisco.com/warp/public/129/bri-layer2.html

Question NO: 193
The Cisco IOS software logging options enable message logging to various destinations. What is the default setting?

A. logging to the buffer
B. logging to the console
C. logging monitor to terminal monitor
D. logging IP address to a syslog server
E. logging off except for normal but significant condition messages

Answer: B
Explanation: By default, logging is enabled on the console port.

Reference: Important Information on Debug Commands
http://www.cisco.com/warp/public/793/access_dial/debug.html

Incorrect Answers
A. C. D: By default, logging is enabled on the console port.
E: Logging is enabled at the console port.

Question NO: 194
Which two are troubleshooting targets for connection-oriented protocols? (Choose two.)

A. verify windows size
B. verify time-to-live fields
C. verify protocol numbers
D. verify acknowledgement numbers

Answer: A, D
Explanation:
A: Connection-oriented protocols use windows size for flow control.
D: Connection-oriented protocols use numbered acknowledgement.

Question NO: 195
What is the possible result of configuring a switch as a VTP server while offline and then connecting it to the network?

A. It will not learn the root
B. It will force all other switches into client mode.
C. It may advertise an inconsistent revision of the VTP domain.
D. It may disrupt the spanning tree by becoming the root bridge.

Answer: C?

Question NO: 196
You have resolved a problem. What next step is in accordance with the Cisco problem-solving model?

A. Gather facts about the problem.
B. Call TAC to have the case closed.
C. Document the changes that were made.
D. Try the same solution on another router to verify the fix.

Answer: C
Explanation: If the symptoms have disappeared and you are confident that the problem has been solved, you proceed to the next step: Report the problem as solved and document the results.

Incorrect Answers
A: This is an initial step.
B: Not all troubleshooting tasks are reported to the Technical Assistance Center (TAC).
D: It might not be possible to recreate the original problem on another router. Furthermore, problems are not always related to routers.

Question NO: 197
You want to determine if the network performance is normal. How could you achieve this goal?

A. Confirm that the Syslog server is receiving messages.
B. Compare the network performance to baseline statistics.
C. Ask users if the network seems to be performing slower then usual.
D. Evaluate the results of traceroute to the most geographically site on your network.

Answer: B
Explanation: The network performance should be compared to baseline statistics.

Note: Establishing network baseline is to make a recording of regular network activity over a period of time.

QUESTION NO: 198
You are required to implement an action plan. What should you think about during this process?

A. Document the topology of the network.
B. Inform users of the impact, as necessary.
C. Delete access lists on routers to isolate traffic.
D. Create troubleshooting steps as needed during the process.

Answer: D
Explanation: While implementing the action plan, perform each step carefully while test to see whether the symptom disappears.

Reference: Troubleshooting Overview
http://www.cisco.com/univercd/cc/td/doc/cisintwk/itg_v1/tr1901.htm

QUESTION NO: 199
You are setting up PPP on a serial link. You are concerned of looped-back networks. What does PPP use to detect loop-back links?

A. MTU
B. MRU
C. Magic number
D. Sequence number

Answer: C
Explanation: Magic Number support is available on all serial interfaces. When using PPP, PPP always attempts to negotiate for Magic Numbers, which are used to detect looped-back networks.

Reference: Understanding debug ppp negotiation Output
http://www.cisco.com/warp/public/471/debug_ppp_negotiation.html

QUESTION NO: 200
Exhibit
```
show interface bri0
```

You are configuring an ISDN BRI interface. You use the command shown in the exhibit and the output shows that the line is up and the line protocol is up (spoofing). What action should you take?

What should you do?

A. You check the physical layer to make sure you are using the correct cable for BRI interface.
B. You check the encapsulation keepalive settings. The interface is losing keepalives with the remote router.
C. You do nothing. This is normal for the DDR interface and the interface is ready for the interesting traffic to trigger dial.
D. You verify information with the Telco. It is possible that the Layer 2 SPIDs are not accepted by the ISDN switch, so the router keeps trying to send SPIDs.

Answer: C
Explanation: The ISDN BRI interface should be in an up/up (spoofing) stage as in this scenario. This would not guarantee that everything is working, but at least it is not indicating any error.

Note: If the interface was a down or standby state it would indicate an error If the interface is administratively down, then use the **no shutdown** command in interface configuration mode. If the interface is in standby state, then the dialer or BRI interface is a backup to a connection that is up.

Reference: ISDN BRI Troubleshooting Flowchart
http://www.cisco.com/warp/public/129/isdn_20602.html

QUESTION NO: 201
Exhibit:
```
RouterTestKing#debug isdn q931
```

*Mar 7 10:47:58.853: ISDN BRO: TX -> SETUP pd = 8 callref=0x56
*Mar 7 10:47:58.861: Bearer Capability i = 0x8890
*Mar 7 10:47:58.869: Channel ID i = 0x83
*Mar 7 10:47:58.873: Keypad Facility i = '96665500'
*Mar 7 10:47:58.985: ISDN BRO: RX <- SETUP_ACK pd = 8 callref = 0xD6
*Mar 7 10:47:58.993: Channel ID i = 0x89.
*Mar 7 10:48:00.965: ISDN BRO: RX <- CALL_PROC pd = 8 callref = 0Xd6
*Mar 7 10:48:01.025: ISDN BRO: RX <- DISCONNECT pd = 8 callref = 0xD6
*Mar 7 10:48:01.029: Cause i = 0x819B - Destination out of order
*Mar 7 10:48:01.057: ISDN BRO: TX -> RELEASE pd = 8 callref = 0x56

You are troubleshooting an ISDN interface. Your trainee studies the output but she gets confused. She asks you what fields are most important while troubleshooting an ISDN problem. (Choose two)

A. Cause ID
B. Channel ID
C. Keypad Facility
D. Call Reference ID
E. What is the disconnect signal flow direction, TX or RX?

Answer: A, D
Explanation: One effective method for troubleshooting ISDN Layer 3 is through usage of the **debug isdn q931** command.
A: The Cause ID shows the reason for a call rejection

*Mar 7 10:48:01.029: Cause i = 0x819B - Destination out of order

D: You must pay attention to the callref (call reference) number that is used on the messages that are sent back and forth between the router and the ISDN switch. This will allow you to analyze the distinct conversations that are occurring between the router and the switch regarding different calls.

*Mar 7 10:47:58.985: ISDN BRO: RX <- SETUP_ACK pd = 8 callref = 0xD6

QUESTION NO: 202
Exhibit:
*Mar 7 10:15:14.041: BRO: 1 PPP: Phase is AUTHENTICATING, by both
*Mar 7 10:15:14.045: BRO: 1 CHAP: O CHALLENGE id 57 len 28 from "isdn2-6"
*Mar 7 10:15:14.057: BRO: 1 CHAP: I CHALLENGE id 57 len from "isdn2-7"
*Mar 7 10:15:14.965: BRO: 1 CHAP: O RESPONSE id 57 len 28 from"isdn2-6"
*Mar 7 10:15:14.089: BRO: 1 CHAP: I FAILURE id 57 len 25 msg is *MD/DES compare"

```
*Mar 7 10:15:14.097: BRO: 1 LCP: I TERMREQ [Open] id 64 len 4
*Mar 7 10:15:14.101: BRO: 1 LCP: O TERMBACK [Open] id 64 len 4
```

You are setting a PPP connection. However, there are some problems. You issue the `debug ppp negotiation` **command to examine the ppp negotiation (see exhibit).**
What can be said about the ppp negotiation?

A. This shows the debug information for PPP PAP authentication.
B. This local router sent out the termination request to disconnect the link.
C. You should check to see if the passwords on the two sides are identical for this authentication to succeed.
D. Only the remote router is trying to authenticate the local router, the local router does not request authentication to the peer.

Answer: C
Explanation: CHAP use a three-way handshake. The handshake fail due password problem (see below). A likely cause of this problem is that a password has been misconfigured. Both sides must use identical passwords.

```
*Mar 7 10:15:14.089: BRO: 1 CHAP: I FAILURE id 57 len 25 msg is *MD/DES
compare"
```

Incorrect Answers
A: The output clearly shows that CHAP, not PAP, is used.
B: No termination request is send.
D: CHAP use a three-way handshake. Both sides must be authenticated.

QUESTION NO: 203
You are troubleshooting an AppleTalk network. You want to show new zones as they are discovered. Which command should you use?

A. `debug appletalk zip`
B. `debug appletalk arp`
C. `show appletalk zones`
D. `show appletalk neighbors`

Answer: A
Explanation: The **debug appletalk zip** (or **debug apple zip**) command is used to see information pertaining to the activities of the Zone Information Protocol (ZIP). The information displayed by this command includes significant events such as discovery of new zones and zone list queries.

Incorrect Answers
B: The **debug appletalk arp** (or **debug apple arp**) command enables debugging of the AARP. Use this command to investigate the cases in which the local router has trouble communicating with the other devices on the locally connected network (neighbors).
C: The **show appletalk zone** command is used to display all entries or specified entries in the zone information table. Furthermore, there is no **show appletalk zones** command.
D: The **show appletalk neighbors** command is used to display information about the AppleTalk routers that are directly connected to any of the networks to which this router is directly connected.

QUESTION NO: 204
Your trainee asks you how spanning tree works on a Catalyst 5000 switch. What should you tell him?

A. There can be one spanning tree for each port.
B. There can be one spanning tree for every VLAN.
C. Trunk ports support multiple spanning trees per VLAN.
D. Trunk ports support a maximum of 512 spanning trees.

Answer: B
Explanation: There will be one Spanning Tree per VLAN on a switch. The Spanning Tree corresponding to a particular VLAN is usually enabled on every port that is assigned to that VLAN.

Incorrect Answers
A: A port that is configured as a trunk port has as many Spanning Tree instances enabled on it as there are VLANs enabled on that particular trunk.
C: Each VLAN has a single spanning tree.
D: Up to 1000 VLANs are allowed on a Catalyst 5000 switch, but only up to 250 of those can be active on the local switch.

QUESTION NO: 205
Exhibit
```
show span
```

You issue the command shown in the exhibit on your Cisco Catalyst 5000 switch. What will be displayed?

A. The ISL trunks attached to the switch.
B. The designated root bridge and priority.
C. The spanning-tree settings on the switch.
D. The switch port being used by a packet analyzer.

Answer: C
Explanation: The **show span** command is used to display information about the current SPAN configuration:
Example output:

```
TestKing> (enable) show span
Status          : enabled
Admin Source    : Port 2/1
Oper Source     : Port 2/1
Destination     : Port 2/12
Direction       : transmit/receive
Incoming Packets: disabled
TestKing> (enable)
```

Incorrect Answers
A: Attached ISL trunks are not shown.
B: Designated root bridge is not displayed.
D: No information related to any packet analyzer is shown.

QUESTION NO: 206
You want to enable the portfast feature on the ports on your Catalyst 5000 switch. However, you should not enable this feature on all ports. On which ports should you disable the portfast feature? (Choose three)

A. Ports connected to hubs.
B. Ports connected to bridges.
C. Ports connected to servers.
D. Ports connected to routers.
E. Ports connected to switches.

Answer: A, D, E
Explanation: PortFast should be used *only* when connecting a single end station to a switch port. If you enable PortFast on a port connected to another networking device, such as hubs, switches and routers, you can create network loops.

Reference: Cisco, Configuring Spanning Tree PortFast, UplinkFast, and BackboneFast

QUESTION NO: 207
You plan to use the portfast feature on Catalyst 6000 switch. What should you take into consideration?

A. Portfast enables Layer 3 switching for IP traffic.

B. Portfast causes a port to start forwarding immediately.
C. Portfast increases the transmission rate for trunk ports.
D. Portfast sets the port to full-duplex mode for capable devices.

Answer: B
Explanation: The spanning tree PortFast feature causes a port to enter the spanning tree forwarding state immediately, bypassing the listening and learning states.

Reference: Cisco, Configuring Spanning Tree PortFast, UplinkFast, and BackboneFast

QUESTION NO: 208
Exhibit
```
show interface
```

You are required to examine a Catalyst 5000 switch that a trainee has configured. You issue the command shown in the exhibit. What will be displayed? (Choose two)

A. Ports that are in trunking mode
B. All interfaced defined on the RSM.
C. VLAN information of the SC0 interface.
D. The management IP address of the switch.
E. The spanning-three settings of switch ports.

Answer: C, D
Explanation: The **show interface** command is used to display operational characteristics and statistics for interfaces configured for the storage router.
C: VLAN information of the sc0 interface is shown (see sample output below)
D: The interface sc0 is an internal management interface that is connected to the switching fabric and participates in all of the functions of a normal switch port. The IP address of sc0 is show in the sample output below.

Sample Output:
```
ConsoleTestK> show interface

me1:flags=63<UP,BROADCAST,RUNNING>

        inet 0.0.0.0 netmask 255.0.0.0 broadcast 0.0.0.0

sl0:flags=51<UP,POINTOPOINT,RUNNING>

        slip 0.0.0.0 dest 0.0.0.0
```

```
sc0:flags=63<UP,BROADCAST,RUNNING>

        vlan 1 inet 171.69.199.168 netmask 255.255.255.0 broadcast 171.69.199.255

ConsoleTestK>
```

Incorrect Answers
A: The **show interface** command displays the status and statistics information about all of your router's interfaces. You cannot display a subset of interfaces based on their type.
B: All interfaces, not only interfaces defined on the RSM are displayed.
Note: A router Switch Module (RSM) is commonly used in Catalyst switches for the purpose of routing between VLANs.
E: The `show span` command is used for this purpose.

QUESTION NO: 209
You are considering the advantages and disadvantages of ISL. What is valid?

A. ISL does not support Token Ring.
B. ISL adds a 26-byte header to the frame.
C. ISL is for switch-to-switch connections only.
D. ISL trunk ports recalculate the original frame CRC.

Answer: D
Explanation: The original frame CRC is embedded in the ISL frame.

Incorrect Answers
A: ISL can very well be used for Token-Ring networking.
B: ISL adds a 30-byte header
C: Routers may also support ISL.

QUESTION NO: 210
You are troubleshooting a network for Testk Inc. You suspect that there are different devices that use the same IP address. How can you determine which duplicate IP addresses are in use? (Choose two)

A. `debug arp`
B. `show ip traffic`
C. `show ip protocol`
D. `show ip arp/clear arp-cache`

Answer: A, D

Explanation: In order to find the duplicate IP addresses we should study the MAC to IP address mapping.

A: The **debug arp** command is used to the to display information on Address Resolution Protocol (ARP) transactions.

Sample output:

```
RouterTK# debug arp
IP ARP: sent req src 172.16.22.7 0000.0c01.e117, dst 172.16.22.96
0000.0000.0000
IP ARP: rcvd rep src 172.16.22.96 0800.2010.b908, dst 172.16.22.7
IP ARP: rcvd req src 172.16.6.10 0000.0c00.6fa2, dst 172.16.6.62
```

D: The **show ip arp** command is used to display the Address Resolution Protocol (ARP) cache.

Sample output:

```
RouterTK# show ip arp
Protocol  Address Age(min)  Hardware Addr  Type   Interface
Internet  171.69.233.22     9    0000.0c59.f892 ARPA   Ethernet0/0
Internet  171.69.233.21     8    0000.0c07.ac00 ARPA   Ethernet0/0
Internet  171.69.233.19     -    0000.0c63.1300 ARPA   Ethernet0/0
```

Incorrect Answers

B: The **show ip traffic** is used to display statistics about IP traffic. It is not useful in this scenario.

C: The **show ip** commands display information about the configured and run-time IP parameters and IP routes. They can also show information about the status of the IP ARP cache and IP statistics. In particular, the **show ip protocol** command displays a summary of the configuration of each IP routing protocol.

QUESTION NO: 211

You are a network technician at TestKing Inc. You are required to troubleshoot a client TCP/IP connectivity problem. One client is unable to reach the mail host. You want to isolate the problem.

What would we the first step?

A. Run debug on the local host.
B. Ping other hosts in the network.
C. Check the local host configuration.
D. Telnet to other hosts in the network.

Answer: B

Explanation: As a first step check if the client can reach other nodes on the network. This step would help to isolate the problem.

QUESTION NO: 212
Exhibit
```
debug ip packet
```

Your trainee is troubleshooting a router. She issues the command shown in the exhibit. What type of information would be displayed? (Choose three)

A. CDP packets
B. Received packets
C. Forwarded packets
D. Generated packets
E. Fast-switched packets

Answer: B, C; D
Explanation: The **debug ip packet** command is used to display general IP debugging information and IP security option (IPSO) security transactions. IP debugging information includes packets received, generated, and forwarded.

Sample output:
```
RouterTestK# debug ip packet

IP: s=172.16.13.44 (Fddi0), d=10.125.254.1 (Serial2), g=172.16.16.2, forward
IP: s=172.16.1.57 (Ethernet4), d=10.36.125.2 (Serial2), g=172.16.16.2, forward
IP: s=172.16.1.6 (Ethernet4), d=255.255.255.255, rcvd 2
IP: s=172.16.1.55 (Ethernet4), d=172.16.2.42 (Fddi0), g=172.16.13.6, forward
```

QUESTION NO: 213
You are troubleshooting an Ethernet network segment. It contains four routers with the following IP addresses:

Router TK1: 203.43.37.9/26.
Router TK2: 203.43.37.62/26.
Router TK3: 203.43.37.65/26.
Router TK4: 203.44.37.67/26.

Which routers are able to communicate? (Choose two)

A. TK1 talks to TK2.
B. TK2 talks to TK3.
C. TK3 talks to TK1.
D. TK3 talks to TK4.

Answer: A, D
Explanation: The routers all have subnetted Class C network addresses. We examine the network by converting the network address to binary notation. The network address is marked with red.

Router	Decimal	1st octet	2nd octet	3rd octet	4rd octet
TK1:	203.43.37.9/26	11001011	00101011	00100101	00001001
TK2:	203.43.37.62/26	11001011	00101011	00100101	00111110
TK3:	203.43.37.65/26	11001011	00101011	00100101	01000001
TK4:	203.43.37.67/26	11001011	00101011	00100101	01000011

Routers in the same subnet are able to communicate.

A: We see that TK1 and TK2 are in the same subnet.
D: TK3 and TK4 are in the same subnet.

QUESTION NO: 214
You are required to troubleshoot a legacy Windows NT network. The local technician reports that the users are unable to browse the network neighborhood. What could be causing this problem? (Choose two)

A. Inaccurate routing entries in the LMHOSTS file.
B. Inaccurate resolution of non-IP entities into IP addresses.
C. Incomplete resolution of non-IP entities into IP addresses.
D. Incomplete configuration of IP entities to the IP routing table.

Answer: B, C
Explanation: Windows NT, contrary to Windows 2000/XP/.NET, use WINS for name resolution. WINS map NetBios names to IP addresses. Inaccurate or incomplete mappings of NetBIOS name to IP address could cause browsing problems.

Incorrect Answers
A: LMHOSTS files contain NetBIOS to IP addresses mappings. It does not contain routing entries.
D: Windows NT name resolution does not depend on routing entries.

QUESTION NO: 215
You are a network consultant and you are required to troubleshoot a network of a customer. The local technician reports that one host is malfunctioning. It sends simultaneous traffic unsystematically to random IP addresses through its default gateway – a Cisco router.

Now you want to examine additional number of entries on this router. Which command should you use?

A. `show ip arp`
B. `show ip route`
C. `show ip protocol`
D. `show ip interface`

Answer: A(?)
Explanation: The **show ip arp** command is used to display the Address Resolution Protocol (ARP) cache.

Incorrect Answers
B: The **show ip route** command is used to display IP routing table entries.
C: The **show ip protocol** command displays the parameters and current state of the active routing protocols.
D: The **show ip interface** command lists a summary of interface(s) IP information and status.

QUESTION NO: 216
You are required to troubleshoot a Cisco 5000 Catalyst switch. You suspect that the serial hardware has failed. With which command could you confirm it?

A. `show hardware serial`
B. `show serial hardware`
C. `show controllers serial`
D. `show serial controllers`

Answer: C
Explanation: The **show controllers serial** command is used to display information that is specific to the interface hardware.

Incorrect Answers
A, B, D: There are no such commands.

QUESTION NO: 217
You are troubleshooting a remote connection which is set up through your service provider. What could be eliminated before contacting the service provider? (Choose two)

A. Frame Relay network.
B. Segment between the local router and the CSU.

C. Segment between the remote router and the remote CSU.
D. Segment between the local CSU and the service provider's switch.
E. Segment between the remote CSU and the service provider's switch.

Answer: B, C
Explanation: First we should successfully complete the loopback testing on your local and remote segments. The service provider can not help fixing the local segments between your routers and the local CSU.

QUESTION NO: 218
Exhibit:

```
Serial 1 (out): StEnq, clock 20212769, myseq 206, mineseen
205, yourseen 136, DTE up
Serial 1 (in): Status, clock 20212764, myseq 206
RT IE 1, length 1, type 1
KA IE 3, length 2, yourseq 138, myseq 206
....
Serial 1 (out): StEnq, clock 20252760, myseq 210,mineseen
209, yourseen 144, DTE up
Serial 1 (in): Status, clock 20252764, myseq 210
RT IE 1, length 1, type 1
KA IE 3, length 2, yourseq 146, myseq 210
PVC IE 0x7, length 0x6, dlci 400, status 0, bw 56000
PVC IE 0x7, length 0x6, dlci 401, status 0, bw 56000
```

What can be said about the `(out): StEnq message` **shown in the exhibit?**

A. A PVC status enquiry sent by the router.
B. An LMI status enquiry sent by the router.
C. A PVC status enquiry sent by the switch.
D. An LMI status enquiry sent by the switch.

Answer: B
Explanation: This could be output of a **debug frame-relay lmi** command issued at a router. The first line describes the LMI request the router has sent to the switch.

Note 1: The **debug frame-relay lmi** command is used to display information on the local management interface (LMI) packets exchanged by the router and the Frame Relay service provider.

Note 2: StEnq stands for Status Enquiry.

```
Serial 1 (out): StEnq, clock 20212769, myseq 206, mineseen
205, yourseen 136, DTE up
```

Incorrect Answers
A, C: This is LMI exchange, not a PVC exchange.
D: It is send by the router, not by the switch.

QUESTION NO: 219
You want to study the status of FECN and BECN packets. What command should you use?

A. `show interface`
B. `show frame-relay pvc`
C. `show frame-relay lmi`
D. `show frame-relay fecn` and `show frame-relay becn`

Answer: B
Explanation: The **show frame-relay pvc** command is used to display statistics about permanent virtual circuits (PVCs) for Frame Relay interfaces. The output includes status of FECN and BECN packets.
Sample output:
RouterTestK# **show frame-relay pvc**

```
PVC Statistics for interface Serial2/1 (Frame Relay DTE)

                Active      Inactive      Deleted       Static
   Local         115            0            0            0
   Switched        0            0            0            0
   Unused          0            0            0            0

 DLCI = 100, DLCI USAGE = LOCAL, PVC STATUS = ACTIVE, INTERFACE = Serial2/1

   input pkts 12             output pkts 7            in bytes 4406
   out bytes 1366            dropped pkts 0           in FECN pkts 0
   in BECN pkts 0            out FECN pkts 0          out BECN pkts 0
   in DE pkts 0              out DE pkts 0
   out bcast pkts 7           out bcast bytes 1366
   pvc create time 1d04h, last time pvc status changed 00:30:32
```

Incorrect Answers
A: The **show interface** (or show interfaces) command is used to display statistics for all interfaces configured. The output does not include status on FECN and BECN packets however.
Sample output:

```
TestKing_Switch (enable) show interface
sl0: flags=51<UP,POINTOPOINT,RUNNING>
slip 0.0.0.0 dest 0.0.0.0
sc0: flags=63<UP,BROADCAST,RUNNING>
```

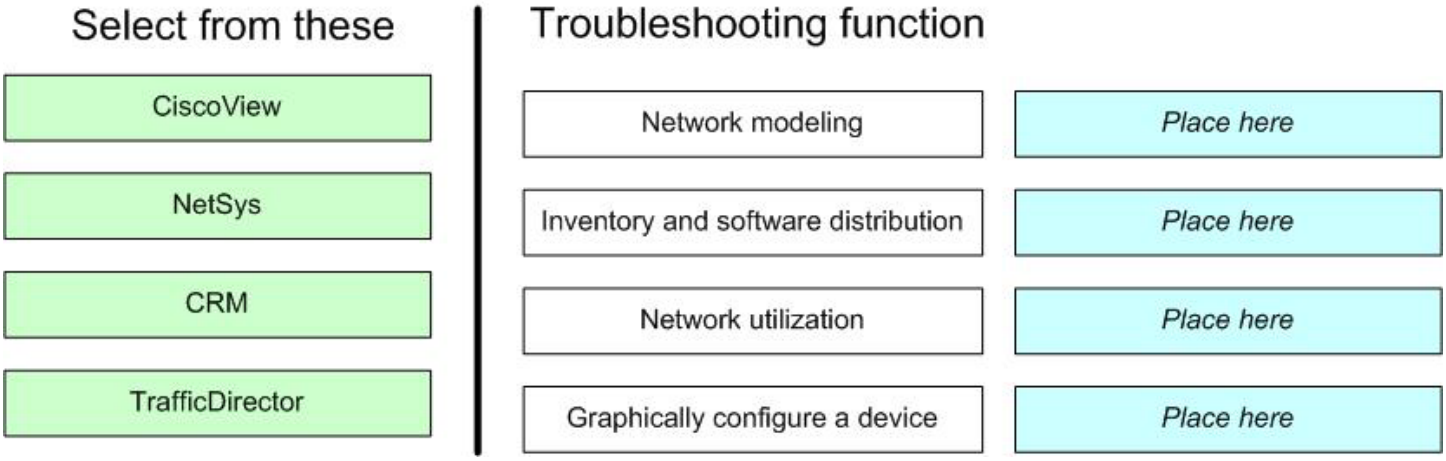
```
vlan 100 inet 144.251.100.111 netmask 255.255.255.0 broadcast 144.251.100.255
```

C: The **show frame-relay lmi** command displays statistics about the Local Management Interface (LMI), It does not display status of FECN and BECN packets however.
Sample output:

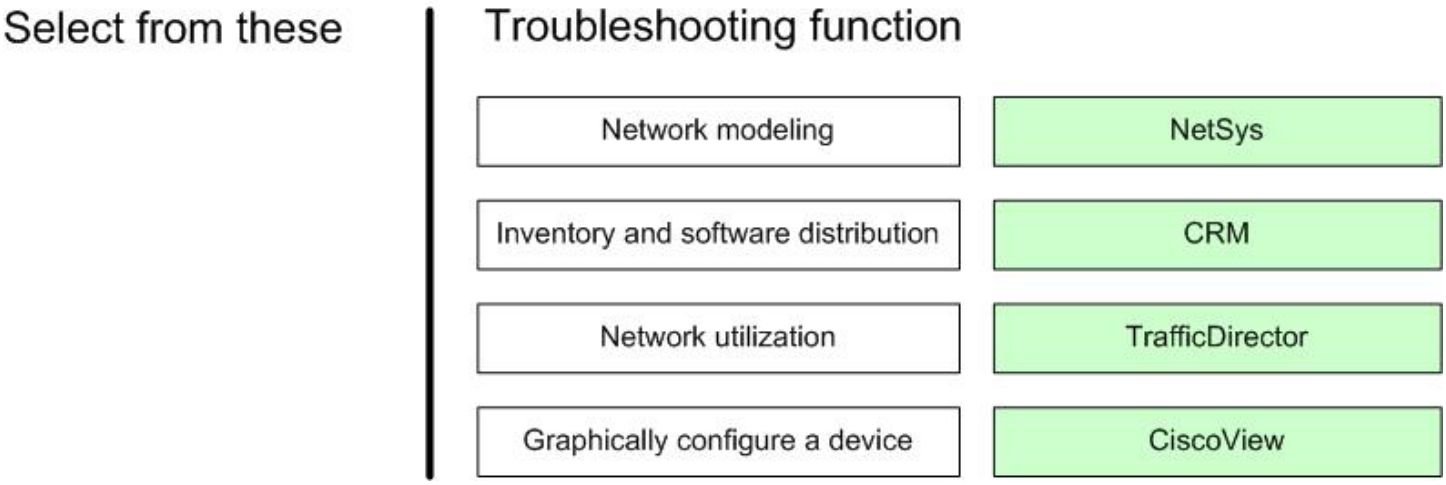
```
RouterTestK# show frame-relay lmi
LMI Statistics for interface Serial3 (Frame Relay NNI) LMI TYPE = CISCO
  Invalid Unnumbered info 0             Invalid Prot Disc 0
  Invalid dummy Call Ref 0              Invalid Msg Type 0
  Invalid Status Message 0              Invalid Lock Shift 0
  Invalid Information ID 0              Invalid Report IE Len 0
  Invalid Report Request 0              Invalid Keep IE Len 0
  Num Status Enq. Rcvd 11               Num Status msgs Sent 11
  Num Update Status Rcvd 0              Num St Enq. Timeouts 0
  Num Status Enq. Sent 10               Num Status msgs Rcvd 10
  Num Update Status Sent 0              Num Status Timeouts 0
```

D: There are no such commands.

QUESTION NO: 220
What troubleshooting usage can the following network management tools provide?



Answer:



Explanation:
Netsys is an offline tool. It is a complex program that imports Cisco device configuration and then creates a model based on the configurations. The program is used to model changes to a network before they are actually implemented.
Cisco Resource Mananger (CRM) is web-based and among its components there are four essential applications: Inventory Manager, Availability Manager, Syslog Analyzer, and Software Image Manager.
TrafficDirector obtains traffic information from embedded RMON agents.With this information about different segments, TrafficDirector can inform you of collision, error, utilization, and broadcast rates.
CiscoView provides real-time device level monitoring, fault management, and troubleshooting, with a Graphic User Interface.

QUESTION NO: 221
Your trainee is using the CCO (Cisco Connection Online) tool. Which troubleshooting tool can he use within CCO?

A. Cisco Technical Information Center (TIC) website.
B. Cisco Technical Assistance Center (TAC) website.
C. Cisco Center for Assisted Troubleshooting (CAT) website.
D. Cisco Internetworking Troubleshooting Center (ITC) website.

Answer: B
Explanation: You may contact Cisco TAC via telephone, facsimile, e-mail, or online from the Case Open page on CCO.

Note: CCO provides a suite of interactive web-based services that offer open access to Cisco's information, systems, resources, and personnel.

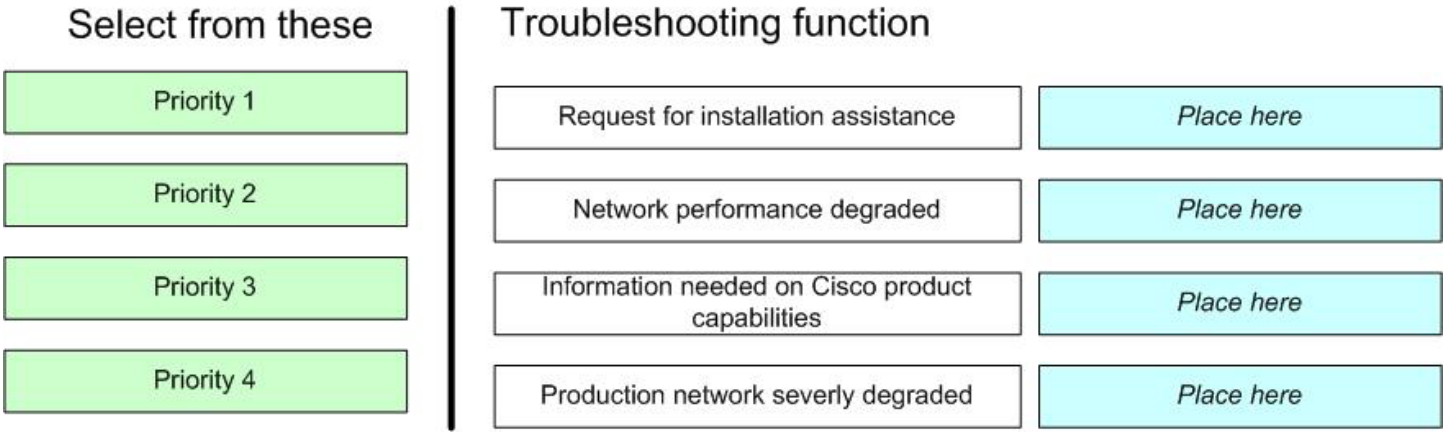
QUESTION NO: 222
You have acquired the CiscoWorks 2000 bundle. Which of the following applications are include in this bundle? (Choose two)

A. RMOM
B. NetView
C. VlanDirector
D. TrafficDirector
E. Cisco IOS software

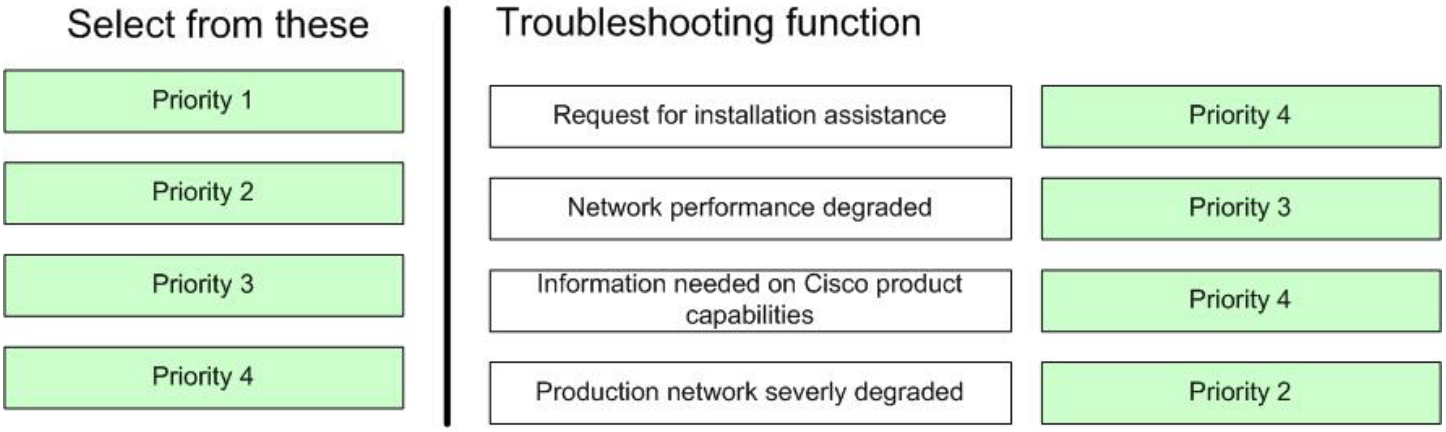
Answer: C, D
Explanation: CiscoWorks for Switched Internetworks (CWSI) is a suite of network management applications. CWSI applications enable you to configure, monitor, and manage a switched internetwork.:

- TrafficDirector
- VlanDirector
- AtmDirector
- CiscoView
- UserTracking

QUESTION NO: 223
Cisco has four Technical Assistance Center (TAC) priorities. Move the corresponding priority to the appropriate network impact.
You may have to use the same priority more than once. All priorities may hot have to be used.



Answer:



Explanation:

Priority 1: Production network is down, causing critical impact to business operations if service is not restored quickly.
Priority 2: Production network is severely degraded, impacting significant aspects of your business operations.
Priority 3: Network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
Priority 4—Customer requires information or assistance on Cisco product capabilities, installation, or configuration.

QUESTION NO: 224
Exhibit

```
RouterTestK# show vlan
```

What information is displayed for a specific VLAN when the command in the exhibit is used? (Select three.)

A. VLAN ID
B. VLAN name
C. VTP domain
D. The router subinterface for the VLAN.
E. Network address for each configured protocol.

Answer: A, B, D
Explanation: VLAN ID, VLAN name, and the router subinterfaces for the VLAN are included in the output of the **show vlan** command.
Sample output:

```
RouterTK# show vlan
VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
```

```
1    default                          active    Fa0/1, Fa0/2, Fa0/3, Fa0/4,
                                                Fa0/5, Fa0/6, Fa0/7, Fa0/8,
                                                Fa0/9, Fa0/10, Fa0/11, Fa0/12,
                                                Gi0/1, Gi0/2
100  Server-Farm                      active
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        1002   1003
100  enet  100100     1500  -      -      -        -    -        0      0
1002 fddi  101002     1500  -      -      -        -    -        1      1003
1003 tr    101003     1500  1005   0      -        -    srb      1      1002
1004 fdnet 101004     1500  -      -      1        ibm  -        0      0
1005 trnet 101005     1500  -      -      1        ibm  -        0      0
RouterTK #
```

Incorrect Answers
C: VTP domain is not displayed.
E: Network addresses for configured protocols are not displayed.

QUESTION NO: 225
You are the administrator of a network that contains both Cisco routers and Cisco switches. You now plan to deploy VLAN. What are valid statements concerning this deployment? (Choose three)

A. Routers do not support VTP.
B. A router must not become the root bridge device for a spanning tree.
C. If the router is bridging between VLANs, the spanning trees of the VLANs will merge.
D. The Spanning Tree Protocol encapsulation is the same through the router/switch network.

Answer: A, B, D
Explanation: These statements are correct.

Incorrect Answers
C: There is a separate spanning tree for each VLAN.

QUESTION NO: 226
You are required to troubleshoot external router connections to switches that support inter-VLAN routing. Which two steps you apply? (Choose two)

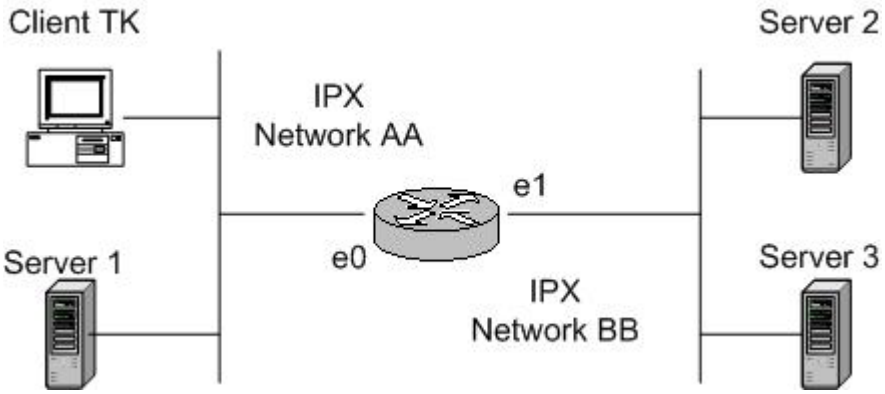
A. Verify that the correct media-type statement for each VLAN subinterface.
B. Verify that the subinterface for each VLAN has the correct IP address.
C. Ensure that the correct IP address is configured on the main interface.
D. Ensure that the full duplex setting on the main router interface matches that on the switch port.

Answer: B, D
Explanation:
B: Each subinterface must have a correct IP address. Each subinterface will correspond to one VLAN member of the trunk.
D: The main interface configuration commands that may be necessary on the Fast Ethernet interface are media-type and full-duplex. If you are troubleshooting a trunk connection between a router and a switch, it is best if you decide on the duplexing mode and do a manual configuration on both devices. Relying on the autosensing feature is usually discouraged.

Reference: Troubleshooting InterVLAN Routing on a Catalyst 5000 Switch with RSM
http://www.cisco.com/warp/public/473/56.html

Incorrect Answers
A: The media type should be set on the main interface, not on the subinterfaces.
C: If a Fast Ethernet interface is used for trunking purposes, it should not have any Layer 3 (OSI network layer) address or any bridging commands configured on the main interface. These types of commands must be appropriately entered on the subinterfaces. Each subinterface will correspond to one VLAN member of the trunk.

QUESTION NO: 227
Exhibit:



In the network shown in the exhibit, Client TK is able to logon to Server 1 but fails to access either Server 2 or Server 3. What are two possible causes? (Choose two)

A. Bridging is disabled on the router.
B. The input-sap-filter is configured on the router's interface e1.
C. IPX internal network number of Server A is CC and that of Server 2 is DD, and that of Server 3 is EE.
D. The router's interface e1 has an encapsulation SNAP while that of both Server B and Server C is ETHERNET_802.3.

Answer: B, D
Explanation:
B: SAP advertisements from Network BB might be blocked by a input-sap-filter configured on interface e1 on the router. The SAP advertisement would be prevented to reach Client TK.
D: The encapsulation type must match. If not, no IPX traffic will flow through e1.

Note: Novell servers periodically send clients information about the services they provide by broadcasting this information onto their connected local-area network (LAN) or wide-area network (WAN) interfaces. Routers are required to propagate SAP (Service Advertisement Protocol) updates through an IPX network so that all clients can see the service messages.

Incorrect Answers
A: Bridging is not necessary. Routing should be used.
C: The internal network numbers do not have to match. The router is able to route between the Novell networks.

QUESTION NO: 228
Exhibit
```
show ip traffic
```

You execute the command shown in the exhibit on your Cisco 2500 router. A lot of format errors are shown in the output. What could be the cause of these format errors?

A. There is a back-door bridge on the IPX network segment.
B. A duplex mismatch exists between the router and the switch.
C. A device on the IPX network is configured with the wrong network address.
D. A server is using ETHERNET_802.2 frame type, while the router is using ARPA encapsulation.

Answer: D

Explanation: Format Errors is the number of bad packets received (such as those with corrupted headers). A high number of format errors can be a sign of encapsulation mismatch on the local network.

QUESTION NO: 229
You are troubleshooting a connection between the central office and the remote office. You have problems connecting to the remote office. A junior technician at the remote office helps you and pings the central office from the remote office.
Now you want to examine the output of these pings. Which command should you use?

A. `show icmp traffic`
B. `show icmp ip ping`
C. `debug icmp ip ping`
D. `debug ip icmp traffic`

Answer: D
Explanation: The **debug ip icmp** command is used to display information on Internal Control Message Protocol (ICMP) transactions. PING use ICMP.

Incorrect Answers
A, B, C: There are no such commands.

QUESTION NO: 230
Exhibit:

```
Router_TestKing#ping
Protocol [ip]:
Target IP address: 192.168.40.1
Repeat count [5]:
Datagram size [100]:
Timeout in seconds [2]:
Extended commands [n]: y
```

You have entered the ping command. You now answer "y" at the Extended commands prompt. What is the next response you would have to enter?
To enter ping extended command mode, what response do you enter at the `extended commands` prompt of the `ping` command?

A. Yes
B. Verbose
C. Sweep range
D. Source address

E. Destination address

Answer: D
Explanation: You enter the source address (or interface)
Sample output:

```
Router_TestKing#ping
Protocol [ip]:
Target IP address: 192.168.40.1
Repeat count [5]:
Datagram size [100]:
Timeout in seconds [2]:
Extended commands [n]: y
Source address or interface: 172.16.23.2
Type of service [0]:
Set DF bit in IP header? [no]:
Validate reply data? [no]:
Data pattern [0xABCD]:
Loose, Strict, Record, Timestamp, Verbose[none]:
Sweep range of sizes [n]:
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 162.108.21.8, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 36/97/132 ms
Router_TestKing #
```

Reference: Using the Extended ping and Extended traceroute Commands
http://www.cisco.com/warp/public/105/ext_ping_trace.html

QUESTION NO: 231
You want to place timestamps on debug outputs and log messages. Which command should you use?

A. `show timestamps`
B. `display timestamps`
C. `logging timestamps`
D. `service timestamps`

Answer: D
Explanation: If you are interested to see a timestamp with each line of the debug output, you must load the timestamp service using the **service timestamps** command.

QUESTION NO: 232

Your trainee wants to troubleshoot the network with `debug` commands. However, she is concerned of the impact on the users of the network. She asks you when she should start the debug troubleshooting. What should you tell her? (Select two.)

A. When network traffic is low.
B. When there are fewer users.
C. When traffic is operating normally.
D. When the router is fast-switching mode.
E. When protocol baselines needs to be established.

Answer: A, B
Explanation: Debug commands lowers a router's performance substantially. They have to be used selectively, properly, and temporarily. The debug command should be used during periods when network traffic is low and fewer critical business applications are active, i.e. few users are online.

QUESTION NO: 233
You are examining a trace output. Your trainee asks you want the letter H stands for in these outputs. What should you tell him?

A. The host is unreachable.
B. The next-hop is unreachable.
C. The hardware is unreachable.
D. The HTTP protocol is unreachable.

Answer: A
Explanation: Trace (or traceroute) is the main tool for path discovery between IP nodes.

Note: In Cisco routers, the codes for a traceroute command reply are the following:

! -- success
* -- time out
N -- network unreachable
H -- host unreachable
P -- protocol unreachable
A -- admin denied
Q -- source quench received (congestion)
? -- unknown (any other ICMP message)

Reference: Using the traceroute Command on Operating Systems

http://www.cisco.com/warp/public/105/traceroute.shtml

QUESTION NO: 234
You are troubleshooting a network. You come to the conclusion that the network suffers from a Maximum Transmission Unit (MTU) problem. Now you want to use the extended ping utility to troubleshoot this problem further. Which two extended ping options should you use? (Select two.)

A. Data pattern
B. Type of Service
C. Sweep rage of sizes
D. MTU size of interface
E. Set DF bit in IP header

Answer: C, E
Explanation:
C: The **Sweep range of sizes** option allows you to vary the size of the packets. This can be useful when troubleshooting a MTU problem.

E: The **Set DF bit in IP header** option specifies whether or not the Don't Fragment (DF) bit is set on the ping packet. This is useful for checking the MTU along the path to a destination.

Reference: Using the Extended ping and Extended traceroute Commands
http://www.cisco.com/warp/public/105/ext_ping_trace.html

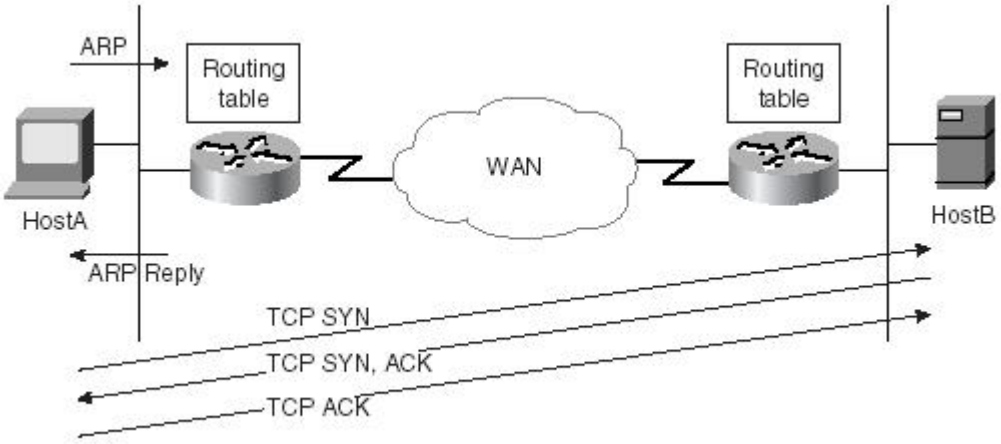
Incorrect Answers
A: Different data patterns are used to troubleshoot framing errors and clocking problems on serial lines.
B: TOS is not useful here.
D: There is no such option.

QUESTION NO: 235
Your trainee is curious about the TCP connection sequence. Which connection sequence do TCP use?

A. Five-way SYN
B. Three-way SYN
C. Five-way handshake
D. Three-way handshake

Answer: D

Explanation: The TCP connection is established through a three-way handshake.



Incorrect Answers
A: Only a three-way handshake is used.
B: Only two SYNs are used.
C: Only a three-way handshake is used.

QUESTION NO: 236
Exhibit

```
Device ID: TestKing3
Entry address(es):
IP address: 192.168.68.18
CLNS address: 490001.1111.1111.1111.00
Appletalk address: 69.1
Platform: AGS, Capabilities: Router Trans-Bridge
Interface: Ethernet0, Port ID (outgoing port): Ethernet0
Holdtime : 141 sec

Version:
Cisco Internetwork Operating System Software
IOS ™ C2600 Software (C2600-JK95-M), Version
12.2(3), RELEASE SOFTWARE (fc1)
Copyright (c) 1986-2001 by cisco Systems, Inc.
Cimpiled Mon-Aug-15 12:13 by kwad

advertisement version: 2
```

Your trainee is troubleshooting data-link targets. She shows you the output of the command. She asks you if you know what command she has used to produce this output. Would command did she use?

A. `show cdp neighbor`
B. `show cdp neighbor detail`
C. `show interfaces serial 0/1`
D. `show interfaces serial 0/1 summary`

Answer: B
Explanation: Compared to the **show cdp neighbor** the **detail** keyword specifies that detailed information about neighboring Cisco products is shown. If you use the detail keyword, you will also see the IP address of your switch's neighbor.

Incorrect Answers
A: The **show cdp neighbor** command is used to display the VLAN Policy Server nearest neighbor on the network. The sample output (see below) does not match the exhibit.
Sample output:

```
Console_TK> show cdp neighbors

* - indicates vlan mismatch.

# - indicates duplex mismatch.

Port     Device-ID                      Port-ID                   Platform

-------- ------------------------------ ------------------------- ------------

3/5      002267619                      3/6 *                     WS-C5000

3/6      002267619                      3/5                       WS-C5000

Console_TK>
```

C, D: We want to troubleshoot the data-link targets, the neighbors, not the local interfaces.

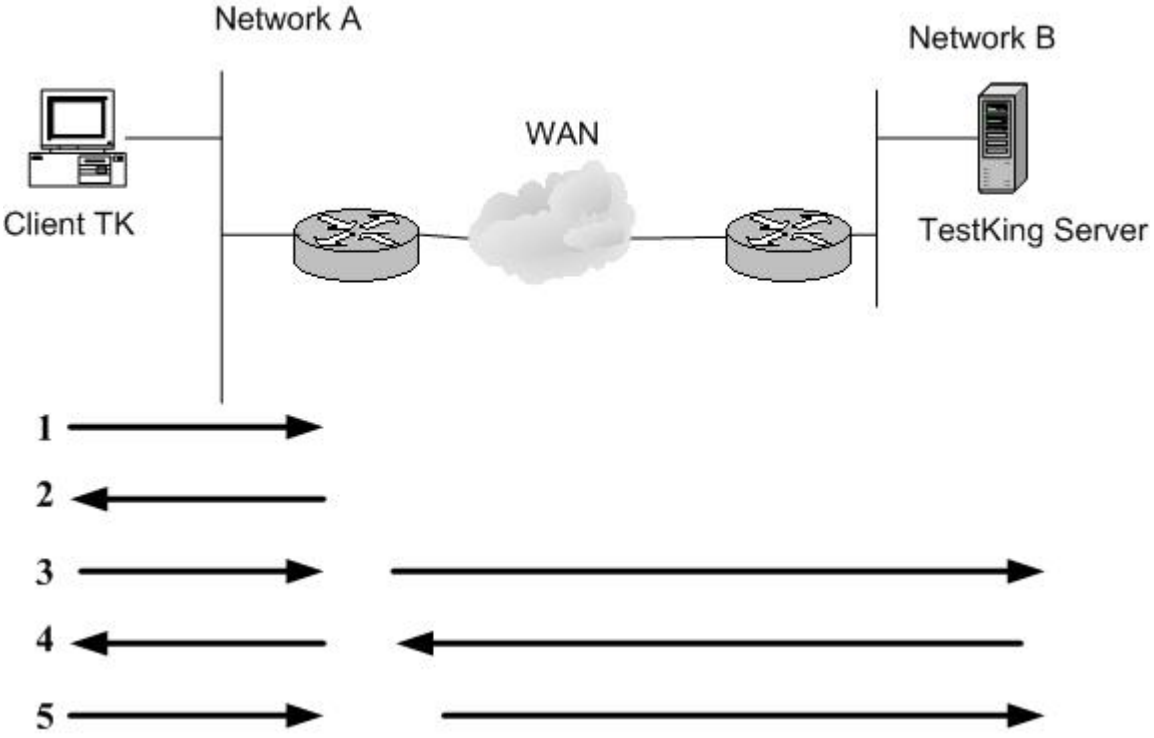
QUESTION NO: 237
You are troubleshooting a FTP problem at your network. User FTP sessions do not complete successfully. First you confirm that a functional network layer path exists between the client and the server. What should you verify next?

A. Routing topology
B. Retransmissions
C. Buffer underruns
D. Switching topology

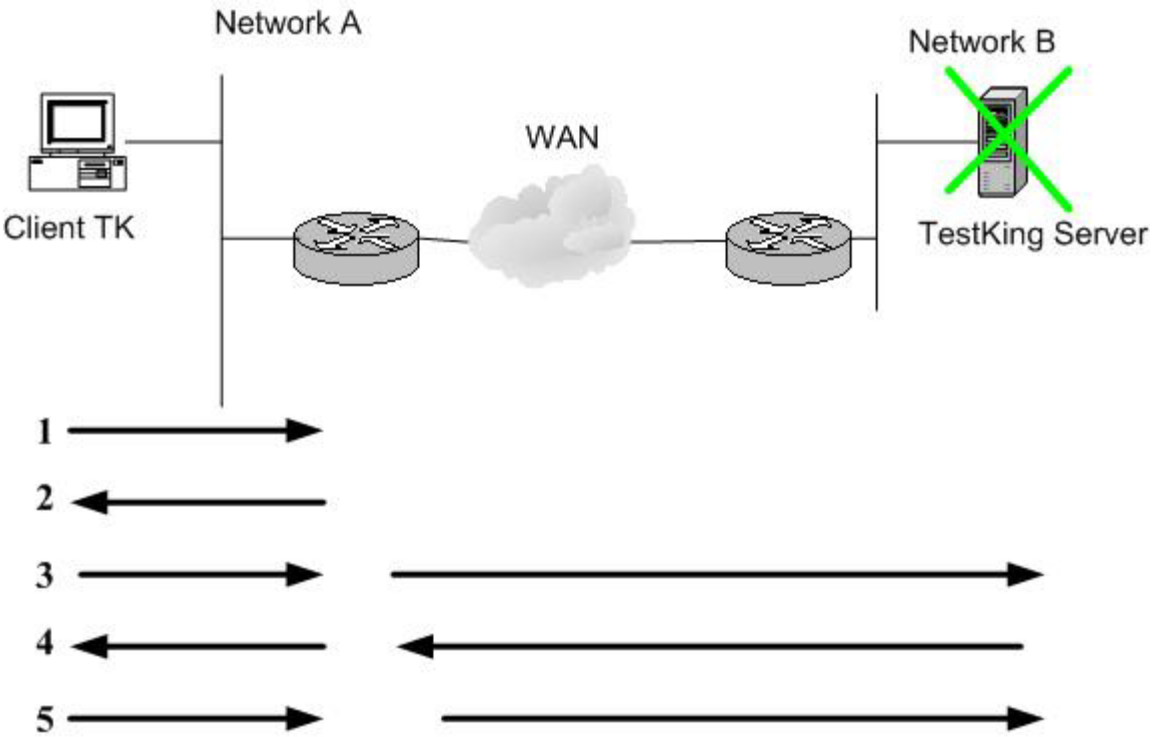
Answer: B
Explanation: We could verify if there are a high number of retransmissions. This would indicate a problem.

Incorrect Answers
A, D: We have already established network layer path. We do not need to verify routing or switching topology.
C: A buffer underrun error does not apply to this scenario.

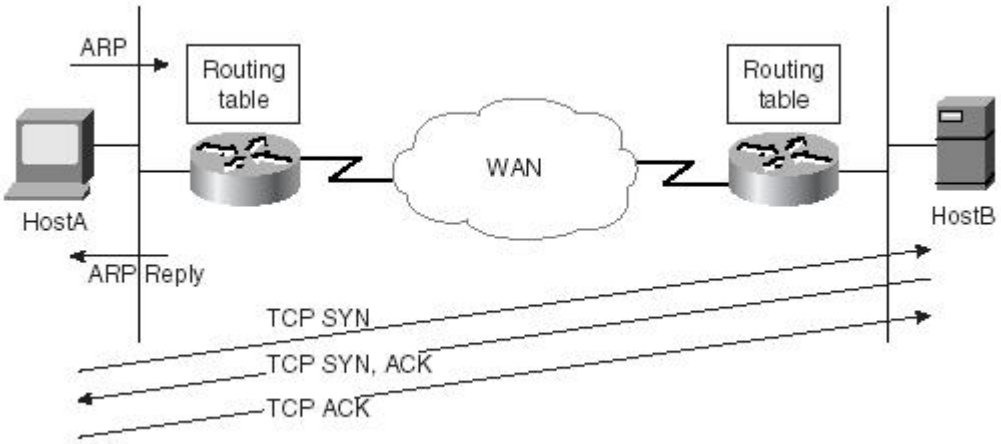
QUESTION NO: 238
Your trainee is curious about the TCP connection sequence. She wants you to show you which device sends a TCP SYN ACK packet during this process.
Indicate your answer in the picture below.



Answer:



Explanation: The TestKing server sends a TCP SYN ACK during the TCP connection sequence (see below)



QUESTION NO: 239
Your trainee knows that Cisco routers learn about IPX services through broadcasted advertisements. Which broadcasts do Cisco routers listen to in order to learn about the IPX services?

A. RIP
B. SAP
C. ARP

D. GNS

Answer: B
Explanation: Routers build and maintain IPX server tables by accepting SAP (Service Advertisement Protocol) broadcasts that are generated by other neighbor.