

## CLSC Written Answer Sheet

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### 1. Which protocol used for multicast registration?

- PPP
- IGMP**
- VPN
- CGMP**
- LANE

Explanation: CGMP works with Internet Group Management Protocol (IGMP) messages to dynamically configure switch ports so that IP multicast traffic is forwarded only to those ports associated with IP multicast hosts. When a host wants to join an IP multicast group, it sends an IGMP join message specifying its MAC address and the IP multicast group it wants to join. The CGMP-capable router then builds a CGMP join message and multicasts the join message to the well-known address.

### 2. By default CGMP is \_\_\_\_\_

- Enabled
- Disabled**
- Passive
- Not installed

Explanation: By default, CGMP is disabled, and no multicast routers are configured CGMP works with Internet Group Management Protocol (IGMP) messages to dynamically configure switch ports so that IP multicast traffic is forwarded only to those ports associated with IP multicast hosts. When a host wants to join an IP multicast group, it sends an IGMP join message specifying its MAC address and the IP multicast group it wants to join. The CGMP-capable router then builds a CGMP join message and multicasts the join message to the well-known address.

### 3. To enable CGMP on a switch you would issue which command?

- Enable CGMP
- Set CGMP enable**
- Set CGMP active
- Set CGMP multicast address

Explanation: By default, CGMP is disabled, and no multicast routers are configured CGMP works with Internet Group Management Protocol (IGMP) messages to dynamically configure switch ports so that IP multicast traffic is forwarded only to those ports associated with IP multicast hosts. When a host wants to join an IP multicast group, it sends an IGMP join message specifying its MAC address and the IP multicast group it wants to join. The CGMP-capable router then builds a CGMP join message and multicasts the join message to the well-known address.

### 4. To display CGMP information about VLAN1 which command would you use?

- Show cgmp 1

- Show cgmp statistics 1**
- Show cgmp statistics vlan 1

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#### 5. Which Cisco devices would you manage with SPAN?

- Cisco 2501
- Cisco 2820**
- Cisco 3000**
- Cisco 7000

Explanation: The SwitchProbe™ (Switched Port Analyzer) gives superior network management and the ability to perform protocol analysis from a single location. The SwitchProbe (Switch Port Analyzer) provides the latest technology for monitoring switch-based networks and helps to reduce the cost of managing these networks. It is included with the Catalyst series switches.

#### 6. Which series of Cisco products can be used with a catalyst matrix to form a backplane with a 1.12gb capacity?

- Cisco 2500
- Cisco 3000**
- Cisco 5000
- Cisco 7000

Explanation: The Catalyst Matrix is used to stack up to eight (8) Cisco 3000 series switches together, it has the following features:

- 8 I/O Stack Ports using 50-pin SCSI-2 type connectors (one per port).
- 280Mbps per port (full duplex).
- 1.12Gbps total Catalyst Matrix capacity.
- The ability to move packets between switches.
- Round-robin output port arbitration.
- Each port operates independently and in parallel (except for multicast).
- Replicates multicast packets.
- No processor. Managed by the attached Catalyst 3000 units.
- Optional redundant Modules.
- Modules are hot swappable.
- Front access to field replaceable Modules.

#### 7. What is the bus capacity and total system memory of the 1900/2820 series switches?

- 500mbs / 1.5mb
- 1gbs / 3mb**
- 1.2gbs / 5mb
- 1.5gbs / 8mb
- it depends on the option boards installed

Explanation: The backplane architecture determines the forwarding rates attainable by the switch. Two critical elements are the capacity of the backplane bus and the mechanism for scheduling data transfer over it. The Catalyst 1900/2820 Ethernet switches use a 1-Gbps high capacity backplane bus. In addition, access to the bus is scheduled in a pipelined fashion so that no bandwidth is lost to arbitration delays. This enables the switch to implement wire-speed throughput on all its ports. The forwarding engine is implemented entirely in hardware, which, combined with a shared memory architecture, results in a true internally nonblocking switch.

8. What is the maximum distance for a 2820 with a multimode FDDI board installed in it?

- 500 meters
- 1km
- 2km**
- 5km
- there is no maximum distance

Explanation: the 2820 series switches multimode FDDI board can handle a ATM OC-3 155 Mbps UTP or multimode fiber modules for local or long-distance (up to 2Kms) connectivity, while the single mode fiber is capable of 15km (medium) to 40km (long) reach.

9. What is the maximum distance for a 2820 with a single mode FDDI board installed in it?

- 500m/2km
- 7/15km
- 15/40km**
- 21/50km

Explanation: the 2820 series switches may have a single FDDI option board installed, the multimode FDDI board is capable of 2km, while the OC-3 modules with medium reach (15Km) or long reach (40Km). This answer is correct per the Cisco™ website, however the book states the correct answer is 10km.

10. Which of the following are features of CWSI?

- Automatic Switch configuration
- Remote Monitoring (RMON) protocol analysis**
- Artificial intelligence monitoring software
- Graphical display for configuring, modifying and managing VLANs**
- Dial in option for Cisco TAC

Explanation: Cisco Works for Switched Internetworks is a complete management package. Its list of features include:

Graphical display of the physical devices and links in your network

Remote Monitoring (RMON) and protocol analysis, as well as troubleshooting of protocol-related problems

Graphical display of Asynchronous Transfer Mode (ATM) switches, physical links, permanent and switched virtual circuits, as well as performance monitoring of ATM switches and links and traffic analysis of RMON-enabled ATM links

End-station and user ID information and tracking database, as well as configuration information from Media Access Control-Virtual LAN (MAC-VLAN) mapping

Graphical display for configuring, modifying, and managing VLANs

Graphical representation of individual devices useable in configuring and monitoring chassis, port, and interface information

Oh by the way, you can't buy it anymore, but you'll still need to know about it for this exam. Its been replaced by the CiscoWorks 2000 software.

11. Which mode would your switch need to be in to create, modify and delete VLANs?

- VTP server**
- VTP client
- VTP transparent
- VTP master
- More than one of the above

Explanation: VTP server---In this mode, you can create, modify, and delete VLANs and specify other configuration parameters (such as VTP version) for the entire VTP domain. VTP servers advertise their VLAN configurations to other switches in the same VTP domain and synchronize their VLAN configurations with other switches based on advertisements received over trunk links. In VTP server mode, VLAN configurations are saved in nonvolatile memory. VTP server is the default mode.

VTP client---In this mode, VTP clients behave like VTP servers, but you cannot create, change, or delete VLANs on a VTP client. In VTP client mode, VLAN configurations are not saved in nonvolatile memory.

VTP transparent---In this mode, VTP transparent switches do not participate in VTP. A VTP transparent switch does not advertise its VLAN configuration and does not synchronize its VLAN configuration based on received advertisements. However, transparent switches do forward VTP advertisements that they receive from other switches. You can create, modify, and delete VLANs. In VTP transparent mode, VLAN configurations are saved in nonvolatile memory, but they are not advertised to other switches.

## 12. Which mode would configure your switch assuming you did not need to create, modify and delete VLANs?

- VTP server
- VTP client**
- VTP transparent
- VTP passive
- More than one of the above

Explanation: VTP server---In this mode, you can create, modify, and delete VLANs and specify other configuration parameters (such as VTP version) for the entire VTP domain. VTP servers advertise their VLAN configurations to other switches in the same VTP domain and synchronize their VLAN configurations with other switches based on advertisements received over trunk links. In VTP server mode, VLAN configurations are saved in nonvolatile memory. VTP server is the default mode.

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## 13. Which mode would your switch need to be in assuming it did not want to participate in the VTP protocol with other switches on the internetwork?

- VTP server
- VTP client
- VTP transparent**
- VTP passive
- More than one of the above

Explanation: VTP server---In this mode, you can create, modify, and delete VLANs and specify other configuration parameters (such as VTP version) for the entire VTP domain. VTP servers advertise their VLAN configurations to other switches in the same VTP domain and synchronize their VLAN configurations with other switches based on advertisements received over trunk links. In VTP server mode, VLAN configurations are saved in nonvolatile memory. VTP server is the default mode.

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14. Which command will set the VTP management domain to “cisco” on a vtp server?

- Set vtp domain cisco
- Vtp domain cisco**
- Set vtp-domain cisco
- Set domain cisco

Syntax: VTP DOMAIN DOMAIN-NAME

[http://www.cisco.com/univercd/cc/td/doc/product/lan/c2900xl/29\\_35sa6/eescg/mascvtp.htm#xtocid2203112](http://www.cisco.com/univercd/cc/td/doc/product/lan/c2900xl/29_35sa6/eescg/mascvtp.htm#xtocid2203112)

15. Which ATM components can have increased availability using SSRP?

- LECS**
- LEC
- LES**
- UNI
- BUS**

Explanation:

LANE relies on three servers: the LANE configuration server, the LANE server, and the BUS. If any one of these servers fails, the emulated LAN cannot fully function.

Cisco has developed a fault tolerance mechanism known as *simple server redundancy* that eliminates these single points of failure. Although this scheme is proprietary, no new protocol additions have been made to the LANE subsystems.

Simple server redundancy uses multiple LANE configuration servers and multiple broadcast-and-unknown and LANE servers. You can configure servers as backup servers, which will become active if a master server fails. The priority levels for the servers determine which servers have precedence.

16. To support the LECS redundancy scheme using SSRP, you must adhere to which of the following configuration rules.

- Each LECS must maintain the same database of ELANs. Therefore, you must maintain the same ELAN database across all the LECSs.
- A BUS cannot be a backup system for a LECS, or a LES because of the potential for system over load.**
- You must configure the LECS addresses in the LECS address table in the same order on each ATM switch in the network.
- All LECS should be similar systems, running the same software releases.
- When using SSRP with the Well Known Address, do not place two LECSs on the same ATM switch. If you place two LECs on the same ATM switch, only one LECS can register the Well Known Address with the ATM switch (through ILMI) and this can cause problems during initialization.

Explanation: There are no theoretical limits on the number of LECSs that can be configured using SSRP, however a recommended number is two (one primary plus one backup) or three LECSs (one primary plus two backups). Any more redundancy should be implemented only after very careful consideration because it will add a significant amount of complexity to the network. This added complexity can result in a substantial increase in the amount of time required to manage and troubleshoot such networks.

17. When a port reaches the broadcast storm control threshold what happens?

- The light for the offending port turns from red to green
- The port may be administratively disabled**
- The bridge may send an SNMP trap**
- The port is automatically changed to cut through forwarding

Explanation: the following are options on the broadcast control menu for a Cisco 2820 switch (but it should be similar for all models)

**Action upon exceeding broadcast threshold**--Define the action to take when the number of broadcast packets reaches the broadcast threshold. The bridge can block or ignore the broadcast storm. During blocking, the bridge drops all

broadcast packets received from a port when the rate of broadcast packets exceeds the broadcast threshold. The bridge begins forwarding again when the rate of broadcast packets received drops below the re-enable threshold. The broadcast rate is measured by the number of broadcast packets received from a port in 1 second.

**Generate alert when threshold exceeded**--Enable or disable the bridge to generate SNMP alerts (traps). When enabled, the bridge generates an SNMP trap to a management station if broadcast storm control is enabled and the broadcast threshold is exceeded on a port. The action the bridge takes on the port is independent from the generation of the trap. The bridge can generate a maximum of one broadcast control trap per port every 30 seconds.

**Broadcast threshold**--Set the broadcast threshold. This measurement is the number of packets per second arriving on a port. When this threshold is exceeded, the system blocks the forwarding of packets on the port and generates an SNMP alert, if configured to do so. The broadcast rate is the number of broadcast packets received from a port in 1 second. If the broadcast rate exceeds the specified threshold and broadcast storm control is enabled, the bridge can generate an alert or block broadcast packets received from the port. Valid values range from 10 to 14,400.

**Broadcast re-enable threshold**--Define when to automatically disable broadcast storm control. The system can continue to forward packets received from a blocked port only when the number of broadcast packets received from the port drops below this re-enable threshold. The re-enable threshold is relevant only if you choose to block broadcast forwarding to control broadcast storms. Valid values range from 10 to 14,400.

### 18. Identify the true statements regarding VLANs and spanning tree:

- Cisco VLANs support multiple spanning tree formats including IEEE 802.1D and 802.10
- With Cisco switches, all VLANs share a common spanning tree
- VLANs work at Layer 2 of the OSI model**
- Certain hosts called "DAS" may exist on two VLANs at the same time

Explanation: IEEE 802.1D is spanning tree, 802.10 is a trunking protocol which uses 802.1D. Each VLAN has its own spanning tree. A DAS is a "Dual Attached Station" which is a station attached to a FDDI network that has connections to both the outer and inner rings. While a DAS might participate in a VLAN, because it is a DAS does not mean that it is in a VLAN.

### 19. How many slots on a Catalyst 5500 series switch?

- 5
- 7
- 13**
- 15
- it depends on the chassis

Explanation: The Catalyst 5500 switch chassis has 13 slots. Slot 1 is for the Supervisor Engine II model which provides switching, local and remote management, and dual Fast Ethernet interfaces. Slot 2 contains an additional redundant Supervisor Engine II in case the first module fails.

A failure of the active Supervisor Engine II is detected by the standby module, which takes control of the Supervisor Engine II switching functions. If a redundant Supervisor Engine II is not required, slot 2 is available for any interface module.

### 20. Identify the true statements about the Catalyst 5500 series switches:

- The Catalyst 5500 has a 3.6-Gbps media-independent switch fabric and a 5-Gbps cell-switch fabric.**
- The Catalyst will load balance between supervisor boards, assuming both boards are the same model.
- The backplane provides the connection between power supplies, Supervisor Engine II, interface modules, and backbone module.**
- FDDI and ATM is available with a Supervisor III installed
- If you have a supervisor III installed in port 2, it will be used instead of the integrated supervisor II in slot 1.

Explanation: In addition to the correct answers above you should also be aware that the Catalyst 5500 3.6-Gbps media-independent fabric supports Ethernet, Fast Ethernet, FDDI/CDDI, ATM LAN Emulation, and RSM modules. In

addition the 5-Gbps cell-based fabric supports an ATM switch processor (ASP) module and ATM port adapter modules (PAMS).

The Cisco Catalyst 5000 series route switch module builds upon the Route Switch Processor (RSP) featured in Cisco's 7500 routing platform. The route switch module provides high-performance multilayer switching and routing services between switched Virtual LANs (VLANs), emulated LANs (ELANs) within an Asynchronous Transfer Mode (ATM) fabric, or across mixed media via an optional Versatile Interface Processor (VIP) and port adapters.

## 21. Which of the following are benefits of a switched internetwork?

- Ease of configuration
- Broadcast Control**
- Security**
- Redundancy**
- Management**
- High availability

*Explanation:*

*Broadcast control*---Just as switches isolate collision domains for attached hosts and only forward appropriate traffic out a particular port, VLANs refine this concept further and provide complete isolation between VLANs. A VLAN is a bridging domain, and all broadcast and multicast traffic is contained within it.

*Security*---VLANs provide security in two ways: High-security users can be grouped into a VLAN, possibly on the same physical segment, and no users outside of that VLAN can communicate with them. Because VLANs are logical groups that behave like physically separate entities, inter-VLAN communication is achieved through a router. When inter-VLAN communication occurs through a router, all the security and filtering functionality that routers traditionally provide can be used because routers are able to look at OSI Layer 3 information. In the case of nonroutable protocols, there can be no inter-VLAN communication. All communication must occur within the same VLAN.

*Performance*---The logical grouping of users allows, for example, an engineer making intensive use of a networked CAD/CAM station or testing a multicast application to be assigned to a VLAN that contains just that engineer and the servers he or she needs. The engineer's work does not affect the rest of the engineering group, which results in improved performance for the engineer (by being on a dedicated LAN) and improved performance for the rest of the engineering group (whose communications are not slowed down by the engineer's use of the network).

*Network management*---The logical grouping of users, divorced from their physical or geographic locations, allows easier network management. It is no longer necessary to pull cables to move a user from one network to another. Adds, moves, and changes are achieved by configuring a port into the appropriate VLAN. Expensive, time-consuming recabling to extend connectivity in a switched LAN environment is no longer necessary because network management can be used to logically assign a user from one VLAN to another.

## 22. Which of the following are ways to configure a VLAN?

- By Port**
- By session
- By Protocol**
- By User Defined Value**
- By Latency

*Explanation: By port*---Each port on the switch can support only one VLAN. With port-based VLANs, no Layer 3 address recognition takes place, so Internet Protocol (IP), Novell, and AppleTalk networks must share the same VLAN definition. All traffic within the VLAN is switched, and traffic between VLANs is routed (by an external router or by a router within the switch). This type of VLAN is also known as a *segment-based VLAN*.

*By protocol*---VLANs based on network addresses (that is, OSI Layer 3 addresses) can differentiate between different protocols, allowing the definition of VLANs to be made on a per-protocol basis. With network address-based VLANs, it will be possible to have a different virtual topology for each protocol, with each topology having its own set of rules, firewalls, and so forth. Routing between VLANs comes automatically, without the need for an external router or card. Network address-based VLANs will mean that a single port on a switch can support more than one VLAN. This type of VLAN is also known as a *virtual subnet VLAN*.

*By a user-defined value*---This type of VLAN is typically the most flexible, allowing VLANs to be defined based on the value of any field in a packet. For example, VLANs could be defined on a protocol basis or could be dependent on

a particular IPX or NetBIOS service. The simplest form of this type of VLAN is to group users according to their MAC addresses.

23. Which of the following list are examples of “in band” management?

- console
- telnet**
- asynchronous modem connection
- snmp**

Reason: In band management means management “through” the network, while out of band management is using methods not through the network (eg: Console and an Asynchronous Modem Connection)

24. Which statement(s) about a Cisco 7500 equipped with an RSP and with VIP controllers is true?

- The hardware can be configured to switch packets without per packet assistance from the VIP**
- Distributed Switching increases the load on the RSP
- Using an RSP in combination with VIP cards is only recommended for low speed interfaces such as 56k SMDS.

Reason: Distributed switching frees the RSP from per packet routing, since all subsequent packets are routed by the VIP controller based on the route cache. Using an RSP with VIP controllers enables very high performance since the RSP is primarily free from work by the VIP controllers.

Reference: Cisco IOS Switching Services, ISBN: 1-57870-053-1 pg: 39

25. You installed a Catalyst 2820 switch, connected a network device, and you turned the power on. How do you know that the network device is communicating the with the Catalyst switch.

- The connected port UTL LED is alternating green and amber
- The port FDUP LED is solid green
- The port STAT LED is flashing green/off**
- The port LED is rapidly flashing amber

26. Which one of the following is probable cause for FCS & alignment errors on a Catalyst 2820 switch ?

- The switch port and the attached device port are both configured for half-duplex mode
- The switch port and the attached device port are both configured for full-duplex mode
- The switch port is configured for full-duplex mode and the attached device port is configured for half-duplex mode**
- The switch port and the attached device port are both configured for full-duplex mode and the cable connecting them is within the guidelines

27. You know that you used a good cable to connect a good device to a working Catalyst 2820 or 1900 switch with 4 VLANs , but the device cannot communicate with another device in the network. What is the most likely cause?

- The 2 devices are connected to different ports on the same repeater
- The 2 devices are connected to the same VLAN in the same switch
- The 2 devices are connected to the same VLAN in the different switches
- The 2 devices are connected to the same VLAN in the same switch**



28. Which one of the following statements is true about a Catalyst switch firmware upgrade process?

- The switch upgrade might not respond to commands for a period of 15 seconds during the upgrade
- Turning the switch off and on during the upgrade process could corrupt the firmware**
- Forwarding of packets continues unaffected during the switch upgrade
- The switch might not respond to commands for a period as long as 30 seconds during the upgrade

29. Which one of the following statements is true about the Catalyst 2820 switch operation?

- When you upgrade the firmware for a Catalyst 2820 switch, the FDDI firmware gets automatically upgraded
- When you upgrade the firmware for a Catalyst 2820 switch, there is no need to upgrade the FDDI firmware
- When you upgrade the firmware for a Catalyst 2820 switch, it has no effect on the installed FDDI module firmware**
- When you upgrade the firmware for a Catalyst 2820 FDDI module, the Catalyst 2820 firmware gets automatically upgraded

30. Which one of the following is not an option for upgrading the Catalyst 2820 Switch or FDDI module firmware?

- TFTP client
- TFTP server
- Serial connection ( Kermit protocol )**
- Serial connection ( X modem protocol )

31. When connecting a 100base TX port of a Catalyst 2820 or 1900 switch to another switch or hub marked with an X, you must use:

- AUI-to-AUI cable
- Cross fiber module
- Straight through Category 5 UTP cable
- Crossover Category 5 cable**

32. Which is the correct command sequence to enable IP distributed switching and NetFlow switching on VIP Interfaces (Assuming you are using a Cisco 7507)?

- interface type slot/port-adapter/port  
ip route-cache [netflow | optimum]
  
- interface type slot/port-adapter/port  
ip route-cache netflow  
ip route-cache [distributed | optimum]
  
- interface type slot/port-adapter/port  
ip route-cache distributed  
ip route-cache [flow | optimum]**
  
- interface type slot/port-adapter/port  
ip route-cache distributed  
ip route-cache netflow

Reason:

Step 1. Specify the interface: `interface type slot / port-adapter / port`

Step 2. Enable VIP distributed switching of IP packets on the interface: `ip route-cache distributed`

Step 3. Specify either flow or optimum switching: `ip route-cache [flow | optimum]`

33. What is the command on a Cisco Switch which enables fast switching for the IP protocol

- \_\_\_\_\_

Answer: ip route-cache

Reference: Cisco IOS Switching Services, ISBN: 1-57870-053-1 pg: 19

34. True/False: You may specify both the maximum entries, and the expiration for the route cache.

- True  
 False

Reason: Using the "ipx route-cache max-size" and the "ipx route-cache inactivity-timeout" command you may specify the both the maximum size and the inactivity timeout for the route cache

Reference: Cisco IOS Switching Services, ISBN: 1-57870-053-1 pg: 19

35. Which type of switching would you use at an ISP to charge back customers based on bandwidth use?

- \_\_\_\_\_

Answer: Netflow

Reason: Netflow switching supports the ability to capture accounting statistics for a wide variety of purposes such as network analysis and planning, accounting, and billing.

Reference: Cisco IOS Switching Services, ISBN: 1-57870-053-1 pg: 31

36. Which of the following scenarios support NetFlow switching?

- ISL/VLAN  
 ATM  
 **IP encapsulated traffic**  
 Frame Relay with more than one input access control list on the interface  
 ATM LANE

Reason: NetFlow switching is supported on IP and IP-encapsulated traffic over all interface types and encapsulations, except for ISL/VLAN, ATM, Frame Relay interfaces (when more than one input access control list is used on the interface), and ATM LANE.

Reference: Cisco IOS Switching Services, ISBN: 1-57870-053-1 pg: 32

37. Which of the following things are considered a NetFlow network flow?

- Source ip address**  
 **Destination ip address**  
 Time to Live (TTL)  
 **Source port number**  
 **Destination port number**  
 Packet Latency  
 **Protocol type**  
 **Type of service**  
 **Input interface**  
 Output interface

Reference: Cisco IOS Switching Services, ISBN: 1-57870-053-1 pg: 33

38. Which are the two versions of the Netflow protocol

- 1,2
- 1,5**
- 2,5
- there is only one version of the netflow protocol

Reason: Version 1 was the initial release, version 5 was a later enhancement to add Border Gateway Protocol and flow sequence number. Version 2 through 4 were not released. NetFlow uses UDP datagrams, which a sequence number for sanity checking.

Reference: Cisco IOS Switching Services, ISBN: 1-57870-053-1 pg: 33

39. Which statement is the proper command to configure an interface on a Cisco 7500 series router.

- Interface type slot/port-adapter/port**
- Interface type slot/port
- Interface type port-adapter/slot/port
- Interface type port/slot

Reason: interface type slot/port-adapter/port on a Cisco 7500, use interface *type slot/port* on a Cisco 7200 series router.

Reference: Cisco IOS Switching Services, ISBN: 1-57870-053-1 pg: 38

40. Which command will display the NetFlow switching statistics for the IP protocol?

- \_\_\_\_\_

Answer: Show ip route flow

Reference: Cisco IOS Switching Services, ISBN: 1-57870-053-1 pg: 39

41. When should you use the command “ip route-cache same-interface”

- When you do not have a VIP card installed in the router
- On a partially meshed media such as Frame Relay**
- When you have multiple protocols configured on a single interface
- Whenever you get the “need for speed”

Reason: Although having fast switching on the same ip interface is generally not recommended (because it may interfere with redirection) it is useful when you have a partially meshed media such as frame relay.

42. Type the statement which disables fast switching for the IP protocol.

- \_\_\_\_\_

Answer: No ip route-cache

Reason: ip route-cache enables high speed route caching (typically enabled by default), no ip route-cache disables route caching.

43. What protocols must an interface be running to have fast switching enabled by default?

- Appletalk**
- Netbios
- IPX**
- IP**

Reason: Fast switching is enabled by default on all interfaces that support it. Appletalk, Banyan, DecNet, IPX, IOS CLNS, XNS all support fast switching.

44. Which statement(s) are true about Random Early Detection?

- Traffic is prioritized based on the type of service (TOS).**
- This feature is only available if you have a VIP card installed
- This feature is available on T3, OC-3, and ATM interfaces**
- This feature is available on any interface faster than 10mbps

Reason: Random Early Detection is designed for congestion avoidance. Traffic is prioritized based on Type of Service (TOS), and is only available on T3, OC-3, and ATM.

45. Which statement describes FIFO Queuing

- Packets are forwarded in the same order they arrive at the interface**
- Packets are forwarded based on an assigned priority. The administrator must create priority lists and groups to define rules for assigning packets to a priority queue
- Allocates a percentage of bandwidth for a specified traffic by creating protocol queue lists and custom queue lists.
- Provides automatic traffic priority management, low bandwidth sessions have priority over high priority sessions.

Reason: FIFO stands for First In, First Out.

46. Which statement describes Weighted Fair Queuing

- Packets are forwarded in the same order they arrive at the interface
- Packets are forwarded based on an assigned priority. The administrator must create priority lists and groups to define rules for assigning packets to a priority queue
- Allocates a percentage of bandwidth for a specified traffic by creating protocol queue lists and custom queue lists.
- Provides automatic traffic priority management, low bandwidth sessions have priority over high bandwidth sessions.**

Reason: Each session is assigned a weight, the higher the weight the lower the priority.

47. Which type of queuing is the default for a serial interface connected to a 56kbps circuit?

- Weighted Fair Queueing**
- Priority Queuing
- FIFO Queuing
- Custom Queuing

Reason: Weighted Fair Queueing is the default for all interfaces slower than 2.048mbps

48. Which statement describes Custom Queuing

- A. Packets are forwarded in the same order they arrive at the interface
- B. Packets are forwarded based on an assigned priority. The administrator must create priority lists and groups to define rules for assigning packets to a priority queue
- C. **Allocates a percentage of bandwidth for a specified traffic by creating protocol queue lists and custom queue lists.**

- D. Provides automatic traffic priority management, low bandwidth sessions have priority over high priority sessions.

Explanation: Custom queueing allows a fairness not provided with priority queueing. With custom queueing, you can control the interface's available bandwidth when it is unable to accommodate the aggregate traffic load. Associated with each output queue is a configurable byte count, which specifies how many bytes of data should be delivered from the current queue by the system before the system moves on to the next queue. When a particular queue is being processed, packets are sent until the number of bytes sent exceeds the queue byte count defined by the `queue-list queue byte-count` command

#### 49. Which statement describes Priority Queueing

- Packets are forwarded in the same order they arrive at the interface
- Packets are forwarded based on an assigned priority. The administrator must create priority lists and groups to define rules for assigning packets to a priority queue**
- Allocates a percentage of bandwidth for a specified traffic by creating protocol queue lists and custom queue lists.
- Provides automatic traffic priority management, low bandwidth sessions have priority over high priority sessions.

Explanation: Priority Queuing ensures that important traffic gets the fastest handling at each point where it is used. It was designed to give strict priority to important traffic. Priority queueing can flexibly prioritize according to network protocol (for example IP, IPX, or AppleTalk), incoming interface, packet size, source/destination address, and so on. Using Priority Queuing each packet is placed in one of four queues--High, Medium, Normal, or Low- based on an assigned priority. Packets that are not classified by this priority-list mechanism fall into the Normal queue. During transmission, the algorithm gives higher-priority queues absolute preferential treatment over low-priority queues. This is a simple and intuitive approach but can cause queuing delays that the higher-priority traffic might have experienced to be randomly transferred to the lower-priority traffic, increasing jitter on the lower-priority traffic. Higher-priority traffic can be rate limited to avoid this problem.

#### 50. Which command will enable NetFlow switching on a Cisco 7500?

- Protocol route-cache flow***
- No protocol route-cache*
- Protocol route-cache optimum*
- Protocol route-cache distributed*

Reason: *Protocol route-cache flow* enables NetFlow switching, *No protocol route-cache* enables process switching, *Protocol route-cache optimum* enables optimum switching, *Protocol route-cache distributed* enables distributed switching

#### 51. Which type of switching is the slowest?

- Optimum switching
- Distributed Switching
- Netflow Switching
- Process Switching**

Reason: Process switching is the slowest because it does not use a route cache. To enable process switching use the command "*no protocol route-cache*"

#### 52. Which type of switching cannot be used on a Cisco 7200 because it requires second generation VIP cards?

- Optimum switching
- Distributed Switching**
- Netflow Switching
- Process Switching

Reason: Distribute switching requires a second generation VIP line cards. To enable distributed switching use the command “*protocol route-cache distributed*”

53. True/False: The Cisco 7500 has an integrated Route/Switch Processor (RSP) which uses route caching to forward packets?

- TRUE
- FALSE

Reason: the Cisco 7500 has an integrated RSP which uses route caching to remember which port(s) a packet should be forwarded to.

54. True/False: The Cisco 7500 also uses Versatile Interface Processors (VIP), which are RISC based processors that hand all traffic up to the Route Switch Processor (RSP) to be forwarded?

- TRUE
- FALSE

Reason: the VIP card makes switching decisions locally using the route cache, thereby decreasing the load on the RSP.

55. Which term accurately describes distributed switching? (1)

- Putting high end routers on the core of the network, and workgroup switches on the distribution area
- Using a combination of workgroup switches on the core and distribution portions of the network
- Using Versatile Interface Processors to reduce load on the main Route Switch Processor**
- Using multiple Route Switch Processors to reduce load on the Versatile Interface Processors

Reason: Versatile interface processors make switching decisions locally based on the route cache received from the Route Switch Processor.

56. True/False: Multiple VIP cards can be installed in one router?

- TRUE
- FALSE

Reason: You can have multiple VIP cards in a single router to improve performance.

57. Which of the following can be used to make routing decisions

- Link speed**
- Media type
- Protocol**
- Distance**
- current load

Reason: A routing decisions can be based on a variety of information such as link speed, topological distance, and protocol.

58. How many routing tables must a router maintain?

- One master routing table for all protocols
- One for each protocol**
- One shared routing table for all protocols, then one individual routing table for each protocol
- One read/write master table, then one read only table for each protocol

Reason: A router maintains one separate routing table for each protocol on the router.

#### 59. Which of the following are Cisco basic switching paths?

- Process Switching**
- Fast Switching**
- Optimum Switching**
- Distributed Switching**
- NetFlow Switching**

Reason: Cisco supports Process Switching, Fast Switching, Optimum Switching, Distributed Switching and NetFlow switching.

#### 60. When statement describes Process Switching?

- Received packets are copied into the system buffer then the router looks up the layer 3 network address in the routing table and initializes the fast-switch cache.. The RSP computes the CRC.**
- The first packet is copied into packet memory and the destination network or host is found in the fast-switching cache. The interface processor computes the CRC.
- Enabled by default on a 7500. Similar to fast switching, however it must be disabled for debugging.
- Switching occurs on the VIP which maintains a copy of the routing cache, switch performance improves linearly with the number of VIP cards installed. Cannot be used on a Cisco 7200.
- Allows you to collect information about accounting, billing, and chargeback for network and application resource utilization.

#### 61. When statement describes Optimum Switching?

- Received packets are copied into the system buffer then the router looks up the layer 3 network address in the routing table and initializes the fast-switch cache.. The RSP computes the CRC.
- The first packet is copied into packet memory and the destination network or host is found in the fast-switching cache. The interface processor computes the CRC.
- Enabled by default on a 7500. Similar to fast switching, however it must be disabled for debugging.**
- Switching occurs on the VIP which maintains a copy of the routing cache, switch performance improves linearly with the number of VIP cards installed. Cannot be used on a Cisco 7200.
- Allows you to collect information about accounting, billing, and chargeback for network and application resource utilization.

#### 62. When statement describes Fast Switching?

- Received packets are copied into the system buffer then the router looks up the layer 3 network address in the routing table and initializes the fast-switch cache.. The RSP computes the CRC.
- The first packet is copied into packet memory and the destination network or host is found in the fast-switching cache. The interface processor computes the CRC.**
- Enabled by default on a 7500. Similar to fast switching, however it must be disabled for debugging.
- Switching occurs on the VIP which maintains a copy of the routing cache, switch performance improves linearly with the number of VIP cards installed. Cannot be used on a Cisco 7200.
- Allows you to collect information about accounting, billing, and chargeback for network and application resource utilization.

#### 63. When statement describes Netflow Switching?

- Received packets are copied into the system buffer then the router looks up the layer 3 network address in the routing table and initializes the fast-switch cache.. The RSP computes the CRC.
- The first packet is copied into packet memory and the destination network or host is found in the fast-switching cache. The interface processor computes the CRC.
- Enabled by default on a 7500. Similar to fast switching, however it must be disabled for debugging.
- Switching occurs on the VIP which maintains a copy of the routing cache, switch performance improves linearly with the number of VIP cards installed. Cannot be used on a Cisco 7200.
- Allows you to collect information about accounting, billing, and chargeback for network and application resource utilization.**

#### 64. What statement describes Distributed Switching?

- Received packets are copied into the system buffer then the router looks up the layer 3 network address in the routing table and initializes the fast-switch cache.. The RSP computes the CRC.
- The first packet is copied into packet memory and the destination network or host is found in the fast-switching cache. The interface processor computes the CRC.
- Enabled by default on a 7500. Similar to fast switching, however it must be disabled for debugging.
- Switching occurs on the VIP which maintains a copy of the routing cache, switch performance improves linearly with the number of VIP cards installed. Cannot be used on a Cisco 7200.**
- Allows you to collect information about accounting, billing, and chargeback for network and application resource utilization.

#### 65. Which ASIC on both line modules and the supervisor engine provides arbitration to the switching bus among ports and among lines?

- SAGE
- SAINT
- SAMBA**
- PHOENIX

#### 66. Which two applications need queuing? (2)

- Consistent utilization
- Video Conferencing**
- Lack of Buffers on hosts
- A congested network
- Bursty traffic**

#### 67. What is the purpose of VTP?

- Allows Virtual Terminal sessions
- Maps trunking ports together**
- A required protocol for all VLANs

#### 68. Type the command which displays supervisor modules that provides network interface information

- \_\_\_\_\_

Answer: [Sh module](#)

#### 69. True about RMON:

- Four groups: stats, history, alarm, event**
- Rmon's can be maintained with software such as CiscoWorks or TrafficDirector
- RMON is in EARL ASIC
- Will allow you to monitor/mirror traffic to another port



Explanation: SPAN will allow you to monitor/mirror traffic to another port, RMON is located in the NMP (network management processor).

70. Which statement is true regarding 802.10 VLANs:

- Defines multiple protocol data unit
- VLAN ID is required**
- Header includes clear header & protected header**
- Clear header replicates the source address contained in the MAC

71. Which switch processor uses system software that governs the general control of the hardware, its config and diagnostic routines:

- NCP
- NMP**
- MCP
- LCP

72. Which of the following are valid switch forwarding methods (3)

- Cut-through**
- Cut-through with Fast-forward
- Cut-through with frag free**
- Store and forward**
- Hybrid Store and forward

73. Which 5000 component is similar to a learning bridge

- LTL
- CBL
- Arbiter
- EARL**

74. Identify the two true statements regarding the Cisco supervisor engine options:

- C5500 uses only original supervisor engine
- Supervisor II supports 2 100mb links**
- Supervisor II is faster than Supervisor I
- Supervisor 2 Supports 1.2gb and 3.6gb backplane**

75. which two tasks should you perform to configure vlan and lan emulation

- configure vlan administrative parameters
- configure vtp ports**
- configure atm and lane**
- configure vlan ports

76. Which of the following statements are true?

- Demand nodes should always be placed as close as possible to their resource nodes**
- Resource nodes should be grouped together for optimum performance
- Demand nodes are always workstations
- Resource nodes should be placed on segments with other resource nodes

77. Which statements are true regarding the C3000

- 2 slots for modules
- 7 slots for modules**
- 160mbps to 560mbps

- 40mbps to 700mbps**

78. What Command assigns port 2/1 to VLAN 610

- \_\_\_\_\_

Answer: Set vlan 610 2/1

79. Set up a management domain

- Set vtp**
- Set domain
- Set managemetn
- Set client

80. How many 10base T ports on a 1912:

- 8
- 12**
- 20
- 48

81. True regarding serial connections through supervisor engine:

- Port is synchronous
- Use straight through cable to DTE
- Use straight through cable to DCE**
- DCE is DB25**

82. Transceiver has a max distance of 1.2 miles (2km):

- Multimode**
- Singlemode (ATM & FE)
- Singlemode FDDI
- CAT 5

83. Which command do you use to enable a LES and a LANE bus for the ELAN:

- Lane elane name
- Lane bus elan-name
- Lane les bus elan-name
- Lane les bus elan protocol name
- Lane server-bus elan-name**

84. Switch applications:

- Server cluster**
- Workstation cluster
- 10/100mbps workgroups**
- desktop manager

85. Which two rules are true for allocating resources

- Local resources should be placed nearest to those users which need them the most**
- global resources should be on their own dedicated segment to enable full 100mbps throughput**
- Two demand segments should not be configured to share one resource segment
- A five segment network with 4 demand nodes should be configured at the same speed that would make the switched network unnecessary

86. LANE multimode fiber module

- Source is a laser
- Source is a led**
- Max distance is 2km**
- Max distance is 10km

87. Out of bound management examples:

- console**
- telnet
- asynchronous modem connection**
- snmp

88. Correct order of steps for tracing frame through 5000

1. bus arbiter issues a grant which signals SAINT ASIC to initiate data transfer
  2. Ethernet port receives buffer, checks FCS
  3. SAINT ASIC ports request to bus arbiter to transfer frame
  4. A frame is transferred across switch backplane
- 3214
  - 4123
  - 2314**
  - 1324

89. Describe half duplex

- Can transmit both directions at the same time
- Each station has a full send and receive channel
- Similar to a one way bridge**
- It uses time division to determine which computer gets priority

90. Which of the following switches has full supervisor redundancy with a supervisor II installed?

- 5000
- 5007
- 5500**

91. Allocating resource rules

- Resource nodes should be grouped together in workgroups away from demand node traffic
- Demand nodes should be located as close to their primary resource nodes as possible**
- Demand nodes should always have their own dedicated segments

\*Note: According to Cisco if you have 3 demand segments accessing 1 resource segment it is the same as having them all in the same collision domain.

92. Which two statements are true regarding APART?

- Disabling apart increases throughput**
- After disabling apart earl ceases to provide packet forwarding
- After disabling apart earl continues to provide packet forwarding**
- Disabling apart decreases throughput

93. Which vlan technology is a standard protocol on a catalyst 5000 that allows you to map trunking protocols together to create an integrated vlan implementation across a user defined management domain

- Isl
- Lane
- Vtp
- Vtam

94. Which statements are true regarding vlan trunk protocol?

- Vtp information can be distributed to all stations throughout the network including servers, routers, and switches that participate as a vlan configurator**
- VTP provides static reporting for added vlans across the network
- VTP provides a manual mapping scheme going across mixed media backbones
- VTP provides auto intelligence for configuring switches across the network**

95. What is the correct order for tracing a frames progress through a catalyst 5000?

1. the bus arbiter issues a grant to local arbiter which at the appropriate time which at the appropriate time notifies the –saint asic to initiate data transfer
2. the ethernet port fully receives buffers and checks the frame fcs
3. the saint asic posts a request to the bus arbiter to transmit the frame across the switching bus
4. the frame is transmitted across the switching backplane all ports receive the frame and store it in their input buffers

- 1234
- 2314**
- 3142
- 4321

96. Which statements are true regarding the store and forward switching methods?

- In store and forward switching the switch receives the full frame before beginning to transmit it.**
- The switch checks the destination address as soon as it receives the header and begins to forward the frame immediately
- Latency through the switch varies with frame length**
- Latency remains constant regardless of frame length

97. Which two statements are true regarding out of band management

- works in conjunction with ppp**
- works in conjunction with slip**
- the out of band management features can be used to provide telnet access to a catalyst switch CLI
- out of bands management can be used to establish snmp management sessions on an snmp management platform

98. which command displays the supervisor module that provides network interface information

- show arp
- show int
- show module**
- show netstat

99. which two statements are true regarding lan emulation components

- the bus is responsible for handling both broadcasts and multicasts**
- the bus registers and resolves all mac address to atm addresses using the lane emulation address resolution protocol

- when a device on the elan has data to send to another device on the elan the sending requests the atm address of the destination from the bus
- the les manages the stations that make up the elan**

100. how to use the port priority menu

- it is used to setup stp priorities for each port
- it is used to view and change stp path associated with each port
- use it to setup stp priorities for each port**
- use it to setup and change the stp path associate with each port

101. Which two statements are true regarding the password on a catalyst 3000?

- the switch must have the same password as the stack
- must have a different password than the stack**
- you can delete the password by pressing the sys-req button on the back panel during boot**
- you can delete the 3000 password by pressing esc+del

102. Once a LEC has established the ATM address of another LEC (via the LES) using an LE\_ARP what type of VCC is used to contract the LEC?

- Point to point control direct VCC
- Point to multipoint control distribute VCC
- Point to point data direct VCC**

Explanation: Once a client has joined and ELAN and built its LE\_ARP cache, it can establish a VCC to the desired destination and trasmit packets to that ATM address using a bidirectional point to point data direct VCC.

103. When a client first joints an ELAN, it must build a ATM address to Ethernet MAC address table. In which order do the following steps occur?  
 A. LEC sends LE\_ARP to LES (Point to Point VCC)  
 B. The LES forwards the response (point to multipoint control distribute) to the LEC  
 C. LES forwards LE\_ARP to all clients on ELAN (point to multipoint control distribute VCC)  
 D. Any client which recognizes the MAC address responds

- \_\_\_\_\_

Answer: A,C,D,B

104. which command do you use to enable a lec lane emulation client for the first elan?

- lane client ethernet vlan number elan-name**
- enable lec vlan number elan-name
- lane ethernet vlan# elan-name
- enable ethernet lec vlan number elan-name

Explanation: To enable a LANE client for the first emulated LAN, enter the command “lane client ethernet [elan-name1]”

105. which two statements are true regarding the supervisor engine

- the supervisor engine must be installed in slot 4
- the supervisor engine contains the network management process**
- the supervisor engine is the main system process in the switch**
- the supervisor engine contains a layer 3 switching engine

106. which two commands allow you to overwrite or erase the switch parameters

- set**
- show
- clear**
- erase

107. which switching mode eliminates the chances of forwarding collision fragments?

- Store and forward**
- Fast forward
- fragmentation free
- Fast forward
- Fast frag and forward

108. Which two statements are true regarding the 2820

- Two high speed expansion slots**
- Four high speed expansion slots
- Supports shared memory architecture with a 3mb packet buffer**
- Up to 8 vlans allowing ports to be grouped together

109. Which ASIC is on the supervisor III engine and is a gigabit bridge used to create the crossbar fabric?

- Phoenix**
- Sage
- Saint
- Samba

110. Which catalyst 5000 switch components is similar to the function of a learning bridge or content addressable memory

- Ltl
- Cbl
- Arbiter
- Earl**

111. Which two statements regarding 802.10 vlans are true? (2)

- The 802.10 said identifies traffic as belonging to a particular vlan
- the 6 byte said allows for 4.29 billion distinct lans**
- the 802.10 said field is used as a vlan id**
- the fddi 802.10 said are associated by the catalyst 5000 ethernet vlan's to create multiple broadcast domains

112. which transceiver type has a maximum distance of 1.2 miles between stations?

- Multimode**
- Single mode atm fe
- Single mode Fddi
- Category 5

113. Which two statements are true regarding frame tagging (2)
- Frame tagging is a technique used to identify frames based on user defined offsets
  - Frame tagging assigns a unique user id to each frame**
  - A filtering table is developed for each switch
  - A unique identifier is placed in each frame as it is forwarded through the switching fabric**
114. Which two statements regarding demand and resource nodes are true?
- Demand nodes include client applications and terminal services**
  - Resource nodes include personal computers and workstations
  - Network traffic occurs primarily between demand and resource nodes**
  - Network traffic occurs mainly between resource and resource nodes
115. Which two statements are true regarding cat 5000 switch leds
- Leds flash during startup and turn green once initialization is complete**
  - An orange light can indicate a problem on some modules**
  - A purple led indicates failure
  - Leds flashing during startup indicate a lan failure
116. Which switch processor primarily communicates information between nmp and the line module communication processors distributed on the catalyst 5000 line modules.
- Ncp
  - Nmp
  - Mcp**
  - Lcp
117. Which two statements are true regarding the lane single mode fiber module?
- The optical source is a laser**
  - The optical source is a led
  - The maximum distance is 2km
  - The maximum span is 10km**
118. What are the two types of atm addresses?
- Icd**
  - Pop
  - Mcp
  - Dcc**
  - Nfp
119. Which catalyst 5000 product has full supervisor redundancy with a supervisor ii installed
- 5000
  - 5002
  - 5200
  - 5500**
120. which statement(s) are true regarding the embedded rmon agent
- the embedded rmon mib supports 4 groups: the statistics, history, alarm, and event group**
  - rmon lets you monitor traffic from across a vlan to a single port for analysis
  - rmon solutions which include vlan director, traffic director, cisco view deliver a management system for growing switch networks**
  - the rmon is contained in the earl asic

Explanation: The RMON mib supports 4 groups which are statistics, history, alarms and event group. SPAN (Switched Port Analyzer) lets you monitor traffic from across a VLAN to a single port for analysis. Rmon solutions such as vlan director, traffic director, and cisco view deliver a management system for a growing switched network, the RMON functionality is contained in the NMP (Network Management Processor)

121. which two statements are true regarding configuring fddi port parameters

- the menu for fddi configuration will be available only if you have the fddi module installed**
- to display the fddi port configuration press F on the main menu
- the ring status is show at the right of the menu indicates if the module has attached to the ring
- the status has three possible states operation, non-operational, pending**

122. which two statements regarding remote resources are true?

- Remote conversation takes place between a demand node and resource node located in different collision domains**
- A remote conversation takes place between a demand node and resource node located in the same collision domain
- The measurement of throughput in a remote conversation is determined by the amount of transactions which can take place**
- A switch with multiple segments enables multiple remote conversations between nodes in the same collision domain

123. Which two are switch applications?

- Server cluster**
- Workstation switch cluster
- 10/100 workgroups**
- desktop manager

124. which command sets up a management domain?

- Set vtp**
- Set domain
- Set management
- Set client

1) What are the conditions of a password a catalyist 3000?

You can only change the password from the console

ESC-DEL to clear

The password must be at least 6 digits

**Must be the same as the catalyist stack**

Notes from CLSC Exam:

1. There was a long question about VTP
  2. There was a long question about queuing methods?  
Allocated based on messages and conditions was one of the choices
  3. There was a long question about FDDI port parameters? The choices were Menu, Status, Options
  4. There was a long question about Frame Tagging
  5. There was a long question about ATM Addresses? The choices were ICD, POP, NCP, DCC, NFP
- There was a long question about Cut-through techniques? The choices were: store & forward, fast forward, store & free, fast frag & free.