ACRC Answers

1) Which four systems best show how "conversations" may be determined for queuing and priority purposes? (choose 4)
   - ❑ **Source/destination MAC - address**
   - ❑ **Source/destination network – address**
   - ❑ LLC header information
   - ❑ **Frame Relay value**
   - ❑ TCP sequence
   - ❑ IP option
   - ❑ **Source/destination port socket number**

2) Which is true about summary-type LSAs?
   - ❑ Generated by ASBRs
   - ❑ **Includes summarized address that represent networks within an area**
   - ❑ Includes network addresses that exist within an area
   - ❑ **G**enerated by designated router about a network link

Explanation: In OSPF, an ABR will advertise addresses that describe how to reach networks (routes) from one area into another area. *Route summarization* is the consolidation of these advertised addresses. This feature causes a single summary route to be advertised to other areas by an ABR, thereby representing multiple routes in a single statement. This has several benefits, but the primary one is a reduction in the size of routing tables.
If the network numbers in an area are assigned in such a way that they are contiguous, you can configure the ABR to advertise a summary route that covers all the individual networks within the area that fall into the range specified by the summary route.

3) Type command that enables compression on an interface. Using the predictor compression algorithm. (Assuming you are already in interface configuration mode)
   - ❑ _____

Answer: compress predictor
Note: this command only works on interfaces running PPP

4) Verify networks supported by a given OSPF process
   - ❑ **show ip ospf PID**
   - ❑ show ip ospf protocols
   - ❑ show ip ospf route
   - ❑ show ip ospf data base

Explanation:
Routerl#show ip ospf ?
  <1-4294967295>   Process ID number
  border-routers   Border and Boundary Router Information

database   Database summary
interface   Interface information
neighbor   Neighbor list
request-list   Link state request list
retransmission-list Link state retransmission list
summary-address   Summary-address redistribution Information
virtual-links   Virtual link information
<cr>

5) What's the difference between totally stubby and stub areas?

- ❑ Totally stubby is non proprietary
- ❑ **Totally stubby accept interarea default routes**
- ❑ Stub areas accept only interarea routes
- ❑ Stub areas allow only interarea summary addresses

Explanation: If an area is configured as totally stubby, only the default summary link is propagated into the area by the ABR. It is important to note that an ASBR cannot be part of a totally stubby area, nor can redistribution of routes from other protocols take place in this area.

6) Which criteria does a standard access-list use? (2)

- ❑ Full IP address only
- ❑ **Source IP address + wildcard mask**
- ❑ **IP address or hostname**
- ❑ Domain name
- ❑ User account
- ❑ MAC address or IP address

7) What does the following access list do?
access-list 9 permit 220.88.99.0 line vty 0 4

- ❑ Permit only station 222.88.99.0
- ❑ Permit only network 222.88.99.0 on port 0 or 4
- ❑ Permit only network 222.88.99.0 on any port
- ❑ No console access granted from network 220.88.99.0
- ❑ **This access list is invalid**

8) OSPF routers exchange link-state databases during which state?

- ❑ Exchange state
- ❑ **Exstart state**
- ❑ Initial state
- ❑ Full state

Explanation: After the DR and BDR have been elected, the routers are considered to be in the EXSTART state, in this state they are ready to discover the link state information about the internetwork and create their link-state databases. The process used to discover routers is called the "exchange protocol, and is perfromed to get the routers to a Full state of communcation.

9) When configuring dialer information. Which statement is correct with respect to the dialer group value in the dialer list configuration?

- ❑ **Values of the dialer-group and dialer-list must match**
- ❑ Values of the dialer-group and dialer-list must be different
- ❑ Values of the dialer-group and dialer-list can match or differ
- ❑ If you set a value for the dialer-group you must not set a value in the dialer-list

10) Which is a True statement regarding OSPF? (2)

- ❑ **Converge faster than RIP, flood immediately and compute parallel**
- ❑ OSPF only 15 hops
- ❑ OSPF broadcasts fully routing tables every 30 sec
- ❑ **OSPF only uses multicast for link state protocol updates**

11) Configure IPX SAP update interval to 10 min

- ❑ _____

Answer: From interface configuration mode type "ipx sap-interval 10"

12) Cisco default point to point protocol?

- ❑ PPP
- ❑ **HDLC**
- ❑ LAPB
- ❑ IETF

13) What is ABR responsible for?

- ❑ Connecting OSPF and EIGRP networks
- ❑ **Connecting multiple OSPF areas**
- ❑ Connecting multiple DR
- ❑ Connecting OSPF and RIP networks

14) Which statement regarding ISDN is true

- ❑ Protocols with Q = concepts terminology general methods
- ❑ **Protocols with Q = switch and signalling**
- ❑ Protocols with I = switch and signalling
- ❑ Protocols with E = concepts terminology general methods

Explanation: A quick review of ISDN standards:
E Series deals with telephone network standards
I series deals with concepts, terminology and interfaces
Q series deals with switching

15) True regarding RIP 1? (choose 2)

- ❑ classless
- ❑ **classful**
- ❑ have subnet mask field
- ❑ **does not have subnet mask field**

16) True about EIGRP for IPX

- ❑ 15 hop
- ❑ **Incremental updates for LAN**
- ❑ **Uses delay and bandwidth**
- ❑ **Uses reliability and load**

17) True about EIGRP (choose 4)

- ❑ **Copies of all neighbor routing table**
- ❑ **Forwards broadcast to discover EIGRP on a network**
- ❑ Regularly distributes its full routing table to all neighbors
- ❑ **Router maintains one routing table for each network protocol IP IPX AppleTalk**
- ❑ Adjacency exist between master router (MR) in each domain
- ❑ **Provides support for other netlayer protocol IP IPX AppleTalk**

18) What is multilink PPP?

- ❑ Enable PSTN connection
- ❑ **The ability to increase bandwidth between two sites bundling**
- ❑ The ability to secondary link if first fails
- ❑ The ability to configure DDR such as physical interface are separate

19) How many listed pieces of information are required for a router to route anything?

- ❑ Encrypt key
- ❑ **Destination address**
- ❑ Possible routes
- ❑ **Best route**
- ❑ Verify the route is current

Answer: Hey you may not agree with this, but these are key concepts in the Cisco™ ACRC course.

20) Verify legacy DDR connection over ISDN switch

- ❑ debug isdn
- ❑ **debug q921**
- ❑ debug dialer
- ❑ debug connection

21) OSPF routers can route when they are in which state?

- ❑ Exchange State
- ❑ Exstart State
- ❑ Init State
- ❑ **Full State**

22) How many class C addresses can be summarized by the following route ospf summarization entry?
network 209.76.12.0 0.0.7.255 area 10

- ❑ 4
- ❑ **8**
- ❑ 16
- ❑ 20
- ❑ 32
- ❑ 64

Explanation: Using a route mask of 0.0.7.255 you use 3 bits of the third octect, leaving 5 bits. 2^5 power is 32, so you can accurately summarize 32 networks with a route mask of 0.0.7.255.

23) True regarding RIP version 2? (choose 2)

- ❑ **classless**
- ❑ classful
- ❑ **have subnet mask field**

❑ does not have subnet mask field

24) Which of the following are valid line encodings for both an E1 and T1 link?
❑ **Ami**
❑ Hbd3
❑ B8zs

Explanation: To specify the line encoding method for an E1 link, or for the DS1 link for T1, use the **linecode** controller command.
For E1: **linecode {ami | hbd3}**
For T1: **linecode {ami | b8zs}**
ami - Specifies for alternate mark inversion (AMI) encoding.
hbd3 - For E1 only. Specifies HBD3 encoding.
b8zs - For T1 only. Specifies binary 8-zero substitution (b8zs) encoding. The b8zs encoding setting is required for ATM traffic.

25) Which of the following are valid T1 framing formats? (2)
❑ CRC
❑ CRC4
❑ **SF**
❑ **ESF**

Explanation: To specify the type of framing on an E1 link, or for a DS1 link on T1, use the **framing** controller configuration command.
For E1: **framing {crc4 | no-crc4} [australia]**
For T1: **framing {sf | esf}**

26) Which command will configure the clock source on a DS1 link to take the clock source from the RX and use it on the TX?
❑ Clock source line
❑ Clock source internal
❑ **Clock source loop-timed**
❑ None of the above

To configure the clock source of a DS1 link, use the **clock source** controller configuration command.
clock source {line | internal | loop-timed}
Syntax Description:
line - Specifies that the DS1 link uses the recovered clock. The line value is the default clock source used when the MFT is installed.
Internal - Specifies that the DS1 link uses the internal clock. The internal value is the default clock source used when the DVM is installed.
Loop-timed - Specifies that the T1/E1 controller will take the clock from the Rx (line) and use it for Tx. This setting decouples the controller clock from the system-wide clock set with the **network-clock-select** command. The loop-timed clock enables the digital voice module (DVM) to connect to a PBX and to connect the Multiflex Trunk (MFT) to a central office when both the PBX and the central office function as DCE clock sources. This situation assumes that the PBX also takes the clocking from the central office thereby synchronizing the clocks on the DVM and the MFT.

27) 1 way to check why line protocol Frame Relay is down, is to check for timing problems with myseq & myseen keepalive events, command to show:
❑ **debug serial interface**
❑ show interface serial
❑ show frame relay lmi
❑ debug frame-relay pvc

28) What is the true statement about embedded RMON Agent & SwitchProbe functions in Catalyst software

- ❑ SPAN is option of switch Probe function
- ❑ functions use all RMON groups as well as RMON2
- ❑ **function of switch probe offers an in-band link to network manager**
- ❑ RFC 1757 RMON groups supported are statistics, events, history & alarms
- ❑ Functions can monitor segment as long as they use 10BaseT or 100BaseT

29) Why would a EIGRP router not make a connection to a neighbor router:

- ❑ **No update packets have been sent**
- ❑ DUAL is not started on both routers
- ❑ there is no successor to neighbor router
- ❑ A feasible successor has not been established yet.

Explanation: The best way to attack this problem is by process of elimination, since you probably know that DUAL finite state machine embodies the decision process for all route computations. It tracks all routes advertised by all neighbors. The distance information, known as a metric, is used by DUAL to select efficient loop-free paths. DUAL selects routes to be inserted into a routing table based on feasible successors. A successor is a neighboring router used for packet forwarding that has a least cost path to a destination that is guaranteed not to be part of a routing loop. In other words, if dual ain't enabled, neither is EIGRP so that answer is wrong. Also you can probably deduce that neighbor routers don't need successors to be placed in the routing table. Actually if a route becomes unreachable, and DUAL determined their isn't a successor when it originally computed the route, a recomputation must occur which eliminates the route. This leaves "No Update packets have been sent" as the best choice.

30) Which of the following protocols would you use to establish and maintain full duplex data streams between sockets in a Appletalk network.

- ❑ ASP
- ❑ **ADSP**
- ❑ PAP
- ❑ AFP

Explanation: AppleTalk Data Stream Protocol (ADSP) establishes and maintains full-duplex data streams between two sockets in a AppleTalk network. ADSP is a reliable protocol in that it guarantees that data bytes are delivered in the same order as sent and that they are not duplicated. ADSP numbers each data byte to keep track of the individual elements of the data stream. ADSP also specifies a flow-control mechanism. The destination can essentially slow source transmissions by reducing the size of its advertised receive window. ADSP also provides an out-of-band control message mechanism.
Attention packets are used as the vehicle for moving out-of-band control messages between two AppleTalk entities. These packets use a separate sequence number stream to differentiate them from normal ADSP data packets. ADSP is a session layer protocol.

31) Which Appletalk protocol is used to establish and maintain sessions between clients and servers?

- ❑ **ASP**
- ❑ ADSP
- ❑ PAP
- ❑ AFP

Explanation: The AppleTalk Session Protocol (ASP) establishes and maintains sessions (logical conversations) between an AppleTalk client and a server. ASP is considered a session layer protocol.

32) Which of the following protocols is a connection oriented protocol that establishes connections between clients and servers?

- ❑ ASP
- ❑ ADSP
- ❑ **PAP**
- ❑ AFP

Explanation: AppleTalk's Printer Access Protocol (PAP) is a connection-oriented protocol that establishes and maintains connections between clients and servers. (Use of the term printer in this protocol's title is part of its legacy though it has no relevance to the current implementation.) PAP is considered a session layer protocol

33) Which Appletalk protocol is used to help clients share files across a network?

- ❑ ASP
- ❑ ADSP
- ❑ PAP
- ❑ **AFP**

Explanation: The AppleTalk Filing Protocol (AFP) helps clients share server files across a network. The Appletalk Filing Protocol maps to the Application and Presentation layers of the OSI model.

34) Which of the following Appletalk protocols are part of AppleTalk's transport layer?

- ❑ **RTMP**
- ❑ AFP
- ❑ **AURP**
- ❑ ASP

Explanation: AppleTalk's transport layer is implemented by several protocols: Routing Table Maintenance Protocol (RTMP), AppleTalk Update-Based Routing Protocol (AURP), AppleTalk Echo Protocol (AEP), AppleTalk Transaction Protocol (ATP), and Name Binding Protocol (NBP).

35) AppleTalk's primary network-layer protocol is the _____

- ❑ AARP
- ❑ RTMP
- ❑ ZIP
- ❑ **DDP**
- ❑ NBP

Explanation: AppleTalk's primary network-layer protocol is the Datagram Delivery Protocol (DDP). DDP provides connectionless service between network sockets. Sockets can be assigned either statically or dynamically.

36) Which of the following are valid Phase II Appletalk Addresses?

- ❑ 10.1.1.1
- ❑ 10.1.1
- ❑ **10.1**
- ❑ 10

Explanation: AppleTalk addresses, which are administered by the DDP, consist of two components: a 16-bit network number and an 8-bit node number. The two components are usually written as decimal numbers, separated by a period (for example, 10.1 means network 10, node 1). When an 8-bit socket identifying a particular process is added to the network number and node number, a unique process on a network is specified.

37) Which protocol used to tunnel Appletalk packets through a non appletalk network?

- ❑ RTMP
- ❑ ZIP
- ❑ **AURP**
- ❑ ATP

Explanation: AppleTalk Update-Based Routing Protocol (AURP) allows a network administrator to connect two or more AppleTalk internetworks through a foreign network (such as Transmission Control Protocol/Internet Protocol [TCP/IP]) to form an AppleTalk wide-area network (WAN). The connection is called a tunnel, which functions as a single, virtual data link between the AppleTalk internetwork.
AURP uses the principle of split horizons to limit the propagation of routing updates. For that reason, an exterior router sends routing information about only the networks that comprise its local network to other exterior routers connected to the tunnel. Remember that split horizons states that it is never useful to send information about a route back in the direction from which the information came)

38) Which of the following is true about a Appletalk Node?

- ❑ **A node can belong to a single zone**
- ❑ A node can belong to multiple zones
- ❑ A node can belong to multiple zones as long as it is a server

Explanation: Zones are defined by the AppleTalk network manager during the router configuration process. Every node in an AppleTalk network belongs to a single specific zone. However Appletalk phase II implements the concept of an extended network which can have multiple zones. Nodes on extended networks can belong to any single zone associated with the extended network.

39) Which Appletalk protocol is a transport protocol which is transmitted reliably?

- ❑ ARTP
- ❑ AARP
- ❑ **ATP**
- ❑ ZIP

ATP is suitable for transaction-based applications such as those found in banks or retail stores. ATP transactions consist of requests (from clients) and replies (from servers). Each request/reply pair has a particular transaction ID. Transactions occur between two socket clients. ATP uses exactly once (XO) and at-least-once (ALO) transactions. XO transactions are used in situations where performing the transaction more than once would be unacceptable. Banking transactions are examples of transactions that, if performed more than once, would result in invalid data. ATP is capable of most important transport-layer functions, including data acknowledgment and retransmission, packet sequencing, and fragmentation and reassembly. ATP limits message segmentation to 8 packets, and ATP packets cannot contain more than 578 data bytes.

40) Which protocol is used to associate an Appletalk address with a particular media address?

- ❑ NBP
- ❑ **AARP**
- ❑ FLAP
- ❑ ZIP

Explanation: The AppleTalk Address Resolution Protocol (AARP) is used to associate AppleTalk addresses with particular media addresses. AARP associates protocol addresses with hardware addresses. When either AppleTalk or any other protocol stack must send a packet to another network node, the protocol address is passed to AARP. AARP checks its address cache to see if the relationship between the protocol and the hardware address is already known. If so, that relationship is passed up to the inquiring protocol stack. If not, AARP sends a broadcast or multicast message inquiring about the hardware address for the protocol address in question. If the broadcast reaches a node with the specified protocol address, that node replies with its hardware address. This information is passed up to the inquiring protocol stack, which uses the hardware address in communications with that node.

41) Select the correct order for Appletalk node address assignment
1. Conflicting address sends a conflict message indicating a problem
2. Node chooses a new address
3. Chooses its first network address
4. Chooses a network protocol
5. Checks to see if a network address is in use
❑ _____

Answer: 4, 3, 5, 1, 2
Explanation: To ensure minimal network administrator overhead, AppleTalk node addresses are assigned dynamically. When a Macintosh running AppleTalk starts up, it chooses a protocol (network-layer) address and checks to see whether that address is currently in use. If not, the new node has successfully assigned itself an address. If the address is currently in use, the node with the conflicting address sends a message indicating a problem, and the new node chooses another address and repeats the process

42) Which of the following are valid Appletalk Link Layer protocols? (1)
❑ ADSP, ZIP, ASP
❑ TDSP, TASP, PAP, NBP
❑ **ELAP, LLAP, TLAP, FLAP**
❑ NBP, ADSP, ZIP, PAP

Explanation: Apple refers to AppleTalk over Ethernet as EtherTalk, to AppleTalk over Token Ring as TokenTalk, and to AppleTalk over FDDI as FDDITalk. The link-layer protocols that support AppleTalk over these media are EtherTalk Link Access Protocol (ELAP), LocalTalk Link Access Protocol (LLAP), TokenTalk Link Access Protocol (TLAP), and FDDITalk Link Access Protocol (FLAP). For more information about the technical characteristics of Ethernet, Token Ring, and FDDI

43) What is the maximum transmission rate and node count of a local talk network?
❑ **230.4 kbps / 32 nodes**
❑ 512 kbps / 64 nodes
❑ 1 mbps / 128 nodes
❑ 10 mbps / 256 nodes

Explanation: LocalTalk is Apple's proprietary media-access system. It is based on contention access, bus topology, and baseband signaling, and runs on shielded twisted-pair media at 230.4 kbps.
The physical interface is EIA/TIA-422 (formerly RS-422), a balanced electrical interface supported by EIA/TIA-449 (formerly RS-449). LocalTalk segments can span up to 300 meters and support a maximum of 32 nodes.

44) Which Appletalk protocol is used to establish and maintain routing tables?
❑ ZIP
❑ NBP
❑ **RTMP**
❑ AURP

Explanation: The protocol that establishes and maintains AppleTalk routing tables is called the Routing Table Maintenance Protocol (RTMP). RTMP routing tables contain an entry for each network that a datagram can reach. Each entry includes the router port that leads to the destination network, the node ID of the next router to receive the packet, the distance in hops to the destination network, and the current state of the entry (good, suspect, or bad). Periodic exchange of routing tables allows the routers in an internetwork to ensure that they supply current and consistent information.

45) Which protocol is the Appletalk counterpart to TCP/IP's DNS server?

- ❑ RTMP
- ❑ **NBP**
- ❑ ASP
- ❑ AURP

Explanation: AppleTalk's Name Binding Protocol (NBP) associates AppleTalk names (expressed as network-visible entities or NVEs) with addresses. An NVE is an AppleTalk network-addressable service, such as a socket. NVEs are associated with one or more entity names and attribute lists. Entity names are character strings such as printer@net1, while attribute lists specify NVE characteristics.

46) What term is used to describe the following table:

Marketing

Accounting

Engineering

- ❑ ZIP
- ❑ **ZIT**
- ❑ ZONE MAP
- ❑ ZONE LIST

Explanation: ZIP maintains network number to zone name mappings in zone information tables (ZITs). ZITs are stored in routers, which are the primary users of ZIP, but end nodes use ZIP during the startup process to choose their zone and to acquire internetwork zone information. ZIP uses RTMP routing tables to keep up with network topology changes. When ZIP finds a routing table entry that is not in the ZIT, it creates a new ZIT entry.

47) How many hosts/networks are available in the netmask 255.255.192.0

- ❑ 192 subnets / 255 hosts
- ❑ 192 subnets / 192 hosts
- ❑ 4 Subnets / 16382 hosts
- ❑ **2 Subnets / 16382 hosts**

48) How many hosts/subnets are available in the netmask 255.255.255.240

- ❑ 16 subnets / 32 hosts
- ❑ **14 subnets /14 hosts**
- ❑ 32 subnets / 14 hosts
- ❑ 32 subnets / 16 hosts

49) What is the purpose of a poison sap?

- ❑ To flush the entire sap table
- ❑ A poison sap is a type of IPX/RIP update
- ❑ **To remove a single entry from a sap table**
- ❑ There is no such thing as a poison sap

50) What command will show all interfaces with IPX configured?

- ❑ Show interfaces ipx
- ❑ **Show ipx interfaces**
- ❑ Display ipx
- ❑ Show protocol ipx

51) What command will display all the IPX servers learned?

- ❑ _____

52) Identify the true statements about EIGRP (2)

- ❑ EIGRP supports areas
- ❑ **EIGRP supports VLSMs**
- ❑ EIGRP requires considerably more configuration than IGRP
- ❑ EIGRP keeps all protocols in one table
- ❑ **EIGRP only sends notifications to the systems that are affected by a change**

53) What command will display all the IPX routes on a router?

- ❑ _____

54) Which Cisco keyword(s) describes the 802.3 frame format(s)?

- ❑ ARPA
- ❑ **NOVELL-ETHER**
- ❑ SNAP
- ❑ HDLC
- ❑ SAP

55) What IOS features solve the problem of large routing tables? (2)

- ❑ Compression
- ❑ **Route summarization**
- ❑ **Incremental updates**
- ❑ Access Lists
- ❑ Priority queuing
- ❑ Bridging

Note: In some cases access lists can be used to filter, routing updates and prevent larger routing tables. But route summarization and incremental update are definitely the best answers.

56) What command will show all frame relay map assignments currently configured?

- ❑ Show frame-relay lmi
- ❑ **Show frame-relay map**
- ❑ Show frame-relay interface
- ❑ Show frame-relay dlci

57) What is the SAP type for a IPX file server?

- ❑ _____

58) Identify the proper order poison sap handling?

[A] When the one-minute timer expires, and if the router hasn't received a new good metric for the service, the service is removed from the table

[B] The router marks the entry as poisoned and sets a one-minute timer.

[C] The router receives a poison SAP.

[D] The router immediately generates a poison SAP packet for this service out all other interfaces.

- ❑ DCBA
- ❑ BDCA
- ❑ **CBDA**
- ❑ ABCD

59) How does a Cisco router pick the server to include in a Get Nearest Server response?

- ❑ The server with the lowest MAC address is selected
- ❑ **The server of the requested type with the lowest hopcount is considered the "nearest" server.**
- ❑ The server with the least amount of CPU utilization is selected
- ❑ The server is randomly selected from the server SAP table

60) Identify the valid IPX address(es)

- ❑ 1.00.1000.de78
- ❑ **10000.1010.1000.303F**
- ❑ 1001.1001.1010
- ❑ **3cf.1003.0103.3030**

Explanation: IPX networks are 32 bits (4 bytes) which means they can have up to 8 digits. IPX host addresses are 48 bits (6 bytes) which means they can have up to 12 digits. IPX host addresses are usually based on the MAC address, and are written ####.####.####, leading zeros may be omitted.

61) What is the maximum hop count of a IPX RIP packet?

- ❑ _____

Answer: 15

62) What is the SAP type for an IPX print server?

- ❑ _____

Answer: 7

63) How many hosts/subnetworks are available in the netmask 255.255.255.224 assuming you don't use the zero subnet.

- ❑ **6 subnets / 30 hosts**
- ❑ 29 subnets / 16 hosts
- ❑ 24 subnets / 24 hosts
- ❑ 12 subnets / 32 hosts

Explanation: A lot of people get confused because this doesn't have an ip address, so here is how to solve this problem: All of the other host/subnet combinations are invalid, even if they were possible they could not possibly be done using a 27bit netmask.

64) Which command would you use to determine if the "bad hop count" is incrementing on routers running IPX? (when spanning tree is disabled)

- ❑ Debug ipx
- ❑ Debug ipx loop
- ❑ Show ipx interfaces

- **Show ipx traffic**

65) If your network uses RIP, but not all interfaces require RIP, how do you prevent distribution of routes without using access lists? (1)
- Default Routes
- **Passive interface**
- Static routes
- Routing update Filter

66) Which 2 statements regarding the following configuration are true:
router eigrp 110
Network 2.0.0.0
Network 3.0.0.0
- **Line 1 defines EIGRP as a routing process**
- Line 2 defines EIGRP as a routing process
- **Line 2 causes all interfaces connected to send information about 2.0.0.0**
- All networks supporting EIGRP should be listed in each EIGRP router

67) What command enables IPX on a router?
- _____

Answer: Ipx routing

68) How many class C's can be summarized with the route 176.12.172.0/20
- 4
- 8
- **16**
- 20
- 32
- 64

69) Identify the two true statements regarding the command:
source-bridge transparent 20 23 1 4
- **Virtual SRB Ring is defined as Ring 20**
- **Pseudo ring 23 is the transparent domain**
- The 1 will remove the this Virtual interface from the Spanning Tree

70) You have just completed an upgrade to the Cisco IOS version 10.3 , access control lists work exactly how you had them setup prior to the upgrade. You now add two additional access lists using the new functionality of the 10.3 operating system, you then are forced to perform a downgrade of the IOS version back to the previous version. What happens to the new Access list entries?
- **Original access list entries will work, two new ones will be misinterpreted**
- Original access list entries will be corrupt and will not work
- All access lists will work as expected

71) Identify the valid network/broadcast address range for the ip address 198.168.1.65/26 (1)
- 192.168.1.0/192.168.1.32
- 192.168.1.32/192.168.1.63

- **192.168.1.64/192.168.1.127**
- 192.168.1.96/192.168.0.223

Explanation: A prefix of /26 equals a netmask of 255.255.255.192 which gives you 2 networks with 62 hosts each. You get the network addresses of 64, 128, with the broadcast addresses of 127 and 191 respectively.

72) Which of the following scenarios requires BGP routing (2):
- Need to make decision based on source and destination of internal traffic within an AS
- **Connections to different Internet Service Providers**
- **Security Concerns require that you must filter all but three networks from the Internet**
- The ISP you connect to uses BGP

73) How would you control SAP traffic across a WAN link? (1)
- Disable GNS on some netware servers
- Increase the SPX watchdog
- **USE EIGRP for SAP updates**

74) List three options on IP extended access lists which are not found on standard access lists? (3)
- **Session layer information**
- Host name
- **Destination IP**
- **Application port #**
- User login name
- Source network ip
- Source host IP

75) Approximately how much address space is wasted by using a netmask 255.255.224.0?
- 10%
- **25%**
- 50%
- 75%

76) Which statement about EIGRP is True? (4)
- **Keeps copies of its neighbors tables**
- Uses forward broadcasts to discover routers
- Adjacencies exist between (MR) master routers
- **Eigrp provides support for other network layer protocols such as IPX & IP**
- **EIGRP keeps 1 table per protocol**
- **EIGRP does not make periodic updates**

77) Which problems are associate with a high number of routers in a single OSPF area: (2)
- **Excess LSA traffic**
- **Frequent table recalculation**
- Frequent Adjacencies table recalculation
- More reachability errors

78) When should you use a null interface instead of an access list? (1)

- ❑ When an access list does not provide the necessary functionality
- ❑ You want to use host names rather than IP addresses
- ❑ **You have a need to conserve CPU resources**
- ❑ You cannot filter non-routable protocols

79) Which two address ranges are private:
- ❑ 192.167.0
- ❑ **172.16.0.0**
- ❑ 172.68.0.0
- ❑ **192.168.0.0**

80) As IPX networks grow what becomes important? (2)
- ❑ **Broadcasts**
- ❑ Limitations of IPX
- ❑ **Non-routable netware protocols**
- ❑ IPX 16 hop limit

Explanation: IPX does not have an inherent limits such as hop count limit, instead RIP has a hop count limit of 16 hops (if you use NLSP instead of RIP then IPX has virtually no reachability limits)

81) Actions which increase congestion: (3)
- ❑ **Adjusting preset timers**
- ❑ **Increasing buffers on router**
- ❑ **Increasing buffers on server**
- ❑ Filtering broadcasts
- ❑ Filtering users and applications

82) Identify the true statement about IPX ticks
- ❑ In IOS 9.21 and later IPX ticks are used like a hop metric
- ❑ **In IOS 9.21 and later IPX ticks are used as a bandwidth metric**
- ❑ To set the tick delay use the command "ipx delay #ticks"
- ❑ To set the tick delay use the command "ipx tick-delay #ticks"

83) Which command would you use to display the routing info. Field data of Token ring frames passing through the router?
- ❑ _____

Answer: debug rif or show rif

84) Which command to specify encapsulation to carry traffic through an IP tunnel?
- ❑ _____

Answer: tunnel mode GRE IP
Explanation: full syntax is "tunnel mode {aurp|cayman|dvmrp|eon|gre ip | nos}"

85) Type the command to show status and parameters on all IPX interfaces:
- ❑ _____

Answer: show ipx interface

86) What address range is the ip address 191.168.1.1
- ❑ Class A
- ❑ **Class B**
- ❑ Class C
- ❑ This is not a classful address

87) Which of these three statements regarding OSPF are true (3)
- ❑ **Can span +15 hops**
- ❑ Sends full routing table on updates
- ❑ **Path can be based on throughput**
- ❑ **LSA updates are multicast**
- ❑ Effectively replaces RTMP, IPX, RIP, and IP RIP

88) When redistribution is configured, minimize the chance of selecting sub optimal paths?
- ❑ Priority queue
- ❑ **Passive interface**
- ❑ **Access-lists**
- ❑ Default route

89) Which queue method provides automated allocation to all net traffic based on messages and conversations:
- ❑ custom queueing
- ❑ FIFO
- ❑ priority queuing
- ❑ **weighted fair queuing**

90) OSPF is better than RIP in large networks because:
- ❑ It uses less RAM on the router
- ❑ **Virtually no reachability limits**
- ❑ Less complex than RIP
- ❑ **Supports VLSMs**

91) Essay: What is an ABR responsible for?
- ❑ _____

Answer: Connecting multiple OSPF areas

92) Type the command that will set bridge 4 to use source routing bridging from ring 22 to ring 33:
- ❑ _____

Answer: Source-bridge 22 4 33
Explanation: the syntax for creating a bridge between two token rings then you should use the syntax:
source-bridge *local-ring bridge-number target-ring*

93) Which of the following is true about non-routable protocols: (1)
- ❑ no FCS in the header
- ❑ **No network layer addressing**
- ❑ Use broadcasts to determine best route
- ❑ Should not be used with WAN links

94) What is the command which verifies OSPF interfaces are configured in the proper areas and displays all the adjacent neighbor names:
- ❑ _____

Answer: Show ip OSPF interface

95) Which two statements are true about the following configuration:
Interface Ethernet 0
Ip address 148.19.1.77 255.255.255.0
Ip helper-address 148.19.90.255
- ❑ Host 148.19.90.255 is a backup router for 148.19.1.77
- ❑ **Bootp requests on interface ethernet0 will be forwarded to network 148.19.90.0**
- ❑ All non routable protocol traffic will be forwarded to network 148.19.90.0
- ❑ **Netbios broadcasts from net 148.19.90.0 will be sent as directed broadcasts to 148.19.90.0**

Reason: A helper address only forwards eight UDP services: TFTP (69), DNS (53), Time (37), NetBIOS name service (137), NetBIOS datagram service (138), BOOTP/DHCP (67), BootP/DHCP client (68), and TACAS (49).

96) What are the mandatory commands to configure OSPF?
- ❑ Router ospf; network address-mask area-id
- ❑ Router ospf pid; network adddress-mask area-id
- ❑ **Router ospf PID; network-address wildcard-mask area area-id**

97) What command would you enter to show all known IPX servers regardless of the interface they were learned from.
- ❑ _____

Answer: Show ipx servers

98) If IP RIP routing is configured on a router but not all interfaces are attached to rip networks what can you use to prevent all rip routing updates being sent through selected interfaces without using access-lists?
- ❑ **Passive interface**
- ❑ Default routes
- ❑ Static routes
- ❑ Route update filtering

99) Order of transmission in priority queuing
- ❑ **Higher priority queues are emptied before lower priority queues**
- ❑ All queues use a round robin method to effect
- ❑ Time-division

100) OSPF Configuration
(It had many similar Example Configurations)
router ospf pid 100
network 10.1.1.1
network 192.213.0.0 0.0.255.255 0.0.0.0
network 128.213.1.1 0.0.0.0 23

What is wrong with this configuration?

- ❑ the netmask specified is not in the proper format
- ❑ **The word "area" is missing from the network statements**
- ❑ The area of 23 is invalid
- ❑ **The word "pid" should not be present in the router ospf statement**
- ❑ The statement 128.213.1.1 0.0.0.0 is not valid

101) What is the enable password used for?

- ❑ To allow the current session to login to the router
- ❑ To allow the current session to connect to the router
- ❑ **To allow the current session to reconfigure the router**

102) Type the full the command to display access list 101?:

- ❑ _____

Answer: show ip access-list 101
Answer: show access-list 101
Explanation: Either answer is correct

103) What is wrong with the following ip extended access list configuration?
(1)

Access-list 22 permit ip 120.33.44.55 0.0.0.255 0.0.0.0 255.255.255.255

- ❑ Destination mask specifies a broadcast
- ❑ The source mask is illegal
- ❑ The mask for both destination and source are the wrong ip address class
- ❑ **The access list number is incorrect**
- ❑ There are too many parameters on the access list line.

104) Which of the following is included in an ospf link state database?

- ❑ Information about a routers directly networks collective links
- ❑ **Information about an entire internetwork topology**
- ❑ Information about a routers directly connected neighbors (Adjacencies database)
- ❑ Information about the best path a router can use

Reason: OSPF maintains three databases: ADJACENCIES DATABASE, TOPOLOGY DATABASE, and ROUTING TABLE. The link state database shows the internetwork topology, and all routers within an area have identical link-state databases.

105) What is the command to show EIGRP routing tables?

- ❑ _____

Answer for the exam: show ip route eigrp
However show ip eigrp topology is also correct (though don't use it on the exam since the show ip route eigrp is the one used in ACRC book)

106)   How can a single IP represent many?
- ❑ Default routes
- ❑ Static routes
- ❑ **Route summarization**
- ❑ Route expansion

107)   Besides viewing routing tables verify a router is using the best path to forward packets on network:
- ❑ _____

Answer: Traceroute

108)   Bridge types and characteristics
- ❑ **Store and forward – does not forward error**
- ❑ Store and forward – low overhead
- ❑ Cut through – does not forward errors
- ❑ **Cut through – low overhead**

109)   Which two of the following statements regarding these sample configuration are true
Router eigrp 99
Network 2.0.0.0
Network 3.0.0.0

- ❑ The AS 99 is invalid
- ❑ **The eigrp process is running in autonomous system 99**
- ❑ The network statements are missing the netmask statement
- ❑ **The network 2.0.0.0 is including in autonomous system 99**

110)   Which of the following statements regarding these sample configuration are true?
Router eigrp100
Network 10.0.0.0
Network 11.0.0.0

- ❑ **Line 1 defines eigrp as an ip routing process**
- ❑ The number following first line indicates the routing process ID
- ❑ Line 2 causes all interfaces connected to the network to send enhanced igrp updates to the other eigrp routers
- ❑ **All networks supporting eigrp should be listed in each eigrp router**

Explanation: The number following the EIGRP router statement is the autonomous system number. All networks supporting eigrp should be listed in each eigrp router --because EIGRP establishes neighbor relationships by multicasting Hello packets during startup -- neighbors Ack to originating router.
The first line describes autonomous system #100.

111)   Which two responses explain why ospf is better than rip in a large network? (2)
- ❑ **Ospf has virtually no reachability limits**
- ❑ Ospf is Less complex rip
- ❑ Ospf has fewer tables to manage

❑ **Ospf selects that best path using a metric that is based on bandwidth**

112) How do you allocate more bandwidth to a specific protocol's traffic using custom queueing
- ❑ Use the Priority-list command
- ❑ Use the set-queue-priority command

Actually neither of these choices have correct answer specified in ACRC manual
Queue-list list-no queue queue-no byte-count byte-count-no.

113) Which 3 statements are true regarding the following configuration lines
(3)

Access list 800 deny aa bb 01
Access list 800 permit -1 –1
Ethernet 0
Access group 800 in

- ❑ **this is a standard ipx access filter**
- ❑ this is an extended ipx access filter
- ❑ the –1 is wildcard matching a packet type
- ❑ **the bb entry refers to the network bb protocol 01**
- ❑ traffic from aa to bb will not be filtered on interface ethernet0
- ❑ **traffic from aa to bb will be filtered on interface ethernet0**

114) which routing protocol supports multiple network layer routed protocols.
- ❑ OSPF
- ❑ RIP 1
- ❑ RIP 2
- ❑ **EIGRP**

115) Type the command to display the routing information field data of token ring frames passing through the router?
- ❑ _____

Answer: Debug rif
show rif is also possible

116) You want to configure to an interface access list that filters all traffic except for stations on network 133.22.0.0. Which of the following access lists will accomplish this task?
- ❑ Access list 1 deny all except 133.22.0.0
- ❑ Access-list 1 permit 133.22.0.0
- ❑ **Access-list 1 permit 133.22.0.0 0.0.255.255**
- ❑ Access-list 1 permit 0.0.0.0 133.22.0.0
- ❑ Access-list 1 permit 133.22.255.255

117) Type the command which will setup the bridge to use source route briding from ring 22 to ring 33
- ❑ _____

118) **Which of the following exhibits show the correct OSPF configuration?**

- ❑ #Example A:
  Router ospf 100
  Network 10.0.0.0
  Network 209.76.25.0
- ❑ Example B:
  Router ospf pid 100
  Network 10.0.0.0
  Network 209.76.25.0
- ❑ Example C:
  Router ospf 100
  Network 10.0.0.0 area 10
  Network 209.76.25.0 area 10
- ❑ **Example D:**
  Router ospf 100
  Network 10.0.0.0 0.0.0.255 area 10
  Network 209.76.25.0 0.255.255.255 area 10

119) **Which two statements concerning source route bridging are true?**

- ❑ Source station first sends an address recognized broadcast to see which ring the dest. Resides on
- ❑ **To obtain routes from remote stations the source sends an all routes or a single route explorer frame**
- ❑ **Destination end stations reverse the direction of the source frame that located it, sending it back along the same path**
- ❑ The source station always waits for all responses to select the path with the fewest bridges

120) **If you need to verify that a specific routed was selected as the designated router and what timer intervals were configured what show command could you use?**

- ❑ _____

121) **What two possible problems can occur when a large number of routers operating in a single ospf area?**

- ❑ **Excess lsa traffic**
- ❑ **Frequent table recalculation**
- ❑ Frequent adjacies recalculation
- ❑ More Reachability errors

122) **What type of configuration is used when implementing a null interface?**

- ❑ **A static route**
- ❑ A access-list
- ❑ A serial interface
- ❑ A virtual terminal

123) **Which two of the following conditions require the use of BGP to connect to an ISP**

- ❑ Need to make routing decisions based on the source destination of internet traffic from within a remote AS
- ❑ **Identical connections have been setup to separate ISP's for load balancing and redundancy**
- ❑ **Security concerns require that all traffic from the internet is filtered except for three networks**
- ❑ The isp you connect to uses BGP

124) Type the complete command to specify the encapsulation to carry traffic through a GRE ip tunnel?

- ❑ _____

Answer: Tunnel mode gre ip
Explanation: to configure a tunnel, enter configuration edit mode and type "interface tunnel 0" then to set the mode type "tunnel mode type" where type is one of the following: AURP, Cayman, dvmrp, eon, gre, ipip, iptalk, nos. Generic Route Encapsulation Protocol (GRE) is the default.

125) What command to you use to determine which eigrp routers have adjacencies with each other

- ❑ _____

Answer: Show ip eigrp neighbors

126) Which cisco feature solves convergence metric reachability problems?

- ❑ Compression over wans
- ❑ **Route summararization**
- ❑ Incremental updates
- ❑ **Scalable protocol support**

127) You have decided to use private addresses, which statements are true regarding implementation considerations?

- ❑ Routers that connect to external networks should be setup with the appropriate packet forwarding filters at the local end of link in order to prevent the leaking of private ip addresses
- ❑ Routers that connect to external networks should be setup with the appropriate packet forwarding filters at both ends of the link.
- ❑ You should filter any private address networks from inbound routing information in order to prevent ambiguous routing situations
- ❑ **You should filter any private address networks from outbound routing information in order to prevent ambiguous routing situations**

128) Router r1 uses a subnet mask of 255.255.255.0 and sits on a boundary of area 0 and area 1 based on the sample router configuration:
Router ospf 76
Network 145.12.32.0 0.0.15.255 area 1
Network 145.12.96.0 0.0.15.255 area 0
Area 0 range 145.12.96.0 255.255.224.0
Area 1 range 145.12.32.0 255.255.224.0

- ❑ **An interface on this router with the address 145.12.32.124 is in area 1**
- ❑ All networks within the range 145.12.64.0 to 145.12.95.0 will be summarized from area 0 into area 1
- ❑ **All networks within the range 145.12.32.0 to 145.12.63.0 will be summarized from area 1 into area 0**

- ❏ Area 0 can act as a stub or transit area for routes including networks in the range 145.12.96.0 to 255.255.224.0
- ❏ The effect of the 4th line is reduce the number of route table entries

129) Which three statements are true regarding the sample configuration:
Interface BVI 30
Ip address 1.2.3.4 255.255.255.0
Bridge IRB
Bridge 30 route ip

- ❏ **This is an integrated routing and bridging configuration**
- ❏ Line 1 creates a virtual routed interface to represent bridge group 30
- ❏ Line 3 specifies that the irb protocol will be bridged
- ❏ **Line 4 enables the bvi to accept and route ip packets for bridge group 30**
- ❏ **Line 2 specifies an ip address for a bridged interface**

Explanation: Use the **interface bvi** interface configuration command to create the bridge-group virtual interface (BVI) that represents the specified bridge group to the routed world and links the corresponding bridge group to the other routed interfaces
Line 5 creates the virtual routed interface, since until line 5 is entered the interface will not route IP. The IRB protocol is both routed and bridged.

130) What is the effect of the following priority configuration command?
Priority-list 4 default low
- ❏ All protocols defined on the current interface will be set to low priority
- ❏ Traffic to the default router on the remote network receives low priority queuing
- ❏ Each queue defined in priority list 4 receives low (20) number of buffers by default
- ❏ **Packets meeting no other priority list conditions are assigned to queue which has low priority**

131) To minimize the amount of routing information an internal ospf router receives and manages what area type should you use?
- ❏ External area
- ❏ Backbone area
- ❏ **Stub area**
- ❏ Totally stubby area

132) How do you allocate more bandwidth to a protocols traffic using custom queuing
- ❏ Use the set-queue-priority command
- ❏ **Increase the byte count of a queue**
- ❏ Modify the round robin polling register
- ❏ Assign the protocol to use a queue with a lower number
- ❏ Assign the protocol to use a queue with a higher number

133) Which statements best show how conversation is determined for queueing and priority purposes?
- ❏ **Source destination MAC address**
- ❏ **Source destination network address**
- ❏ LLC header information
- ❏ **Frame dlci value**
- ❏ TCP sequence and acknowledgement numbers
- ❏ IP options and information

- **Source destination port or socket numbers**
- **Qos/Tos Values**

134) Type the command that will display priority queuing information
- _____

Answer: show queueing or show queueing priority

135) Which four statements concerning bridge type and characteriscs are true?
(4)
- Transparent bridging is define as the IEEE 802.1d standard
- Translating bridges are necessary when the end nodes use different operating systems
- **Concurrent routing and bridging moves traffic in a device between routed interfaces or between bridge interfaces never a routed bridge**
- **Source route bridging was development for use of token ring**
- **Source route station placed a MAC address of default router in each frame header**
- **Source route translational bridging commonly connects ethernet and token ring LANs**

136) Which two defaults are true regarding a variable length subnet mask?
- **The vlsm allows more hierarchical levels within an addressing plan**
- Companies are locked in implementing in a single subnet with a nic number in their entire network
- **There is a greater capability to use route summarization**
- RIP1 network support multiple subnet networks per network address

137) Mandatory commands to configure ospf are:
- Router ospf process id network address route card area area-id
- Router ospf network-address wildcard area area-id
- Router ospf area-id network-address wildcard-address network area
- Router ospf network address
- **Router ospf process id network-address wildcard-mask area area-id**

138) Which of the three following are scalable routing protocols? (3)
- **Ospf**
- Appletalk
- Ipx
- **Nlsp**
- **Eigrp**
- Tcp/ip

139) Which two addresses can be summarized into the address 152.25.16.0/20
- 152.25.17.0/24 , 152.25.65.0/24
- 152.25.31.0/24, 152.25.32.0/24
- **152.25.17.0/24, 152.25.31.0/24**

140) which two statements about the following configuration are true?
Source-bridge transparent 20 23 1 4
- **Virtual ring is defined as 20**
- **Psuedo ring #23 establishes the transparent domain**
- The 1 will remove this bridge from the spanning tree root contention
- 4 is the speed of the interface

141) Which two of the following indicate a need for queueing (2)

- ❑ congestion due to inadequate bandwidth
- ❑ **video conferencing**
- ❑ peak network traffic causes application errors
- ❑ a lack of buffers is causing the router to drop packets
- ❑ **Congestion occurs when bursty traffic exceeds wan link capacity**

142) You are asked to interconnect networks that can use different routing protocols, one network uses igrp one uses eigrp, you connect the networks using redistribution at the boundary routers. If the routers were to receive route information from the igrp and ospf networks, what is the protocol it would select the route from.

- ❑ Igrp because its hybrid
- ❑ **Igrp has a better administrative distance**
- ❑ Ospf because it has a better seed metric
- ❑ Ospf because it is a link state protocol

143) Where must the ip helper address statement be placed?

- ❑ On all interfaces which are to receive local broadcasts
- ❑ On the serial interfaces you wish to reduce broadcast traffic on
- ❑ **On interfaces that are to receive client broadcasts which need to be forwarded**
- ❑ **On interfaces that support non routable protocols which need to be forwarded**

144) Which of the following will reduce the amount of routing information sent across a serial link (1)

- ❑ **Configure static entries in routing table**
- ❑ Configure dial on demand routing
- ❑ Prioritize traffic
- ❑ Implement queuing on the router

145) What is the effect of the following configuration commands?
Access-list 9 permit 220.88.99.0 line vty 0 4
access class 9 in

- ❑ Only stations on network 220.88.99.0 can have access to the system console
- ❑ All stations on network 220.88.99.0 can establish sessions on virtual ports 0 through 4
- ❑ All stations on network 220.88.99.0 will be allowed to establish virtual sessions on any port
- ❑ No console access will be granted to any stations from network 220.88.99.0
- ❑ **This is an invalid list**

146) You would like enable IPX watchdog. Which command shows you how to do that?

- ❑ Ipx spoof
- ❑ Watchdog spoof
- ❑ Ipx route cache
- ❑ Route-cache
- ❑ **Ipx watchdog-spoof**
- ❑ Ipx spoof

147) Which statement is true for non-routable protocols such as Netbios, LAT, and MOP

- ❑ No datalink address
- ❑ Not associated with any media type
- ❑ **Cannot be routed because they have no network layer address**
- ❑ They are never used over wan links

148) Which of the following will configure static route to the network 209.76.25.0 out interface ethernet 0?

- ❑ **Ip route 209.76.25.0 255.255.255.0 ethernet0 10**
- ❑ Route ip 209.76.25.0 netmask 255.255.255.0
- ❑ Ip route 209.76.25.0 255.255.255.0 interface ethernet0 10

149) What is the command to show all access lists?:

- ❑ _____

Answer: show access-list

150) Enable SPX spoofing

- ❑ _____

Answer: ipx spx-spoof

151) Which queue method provides automated allocation to all net traffic based on messages and conversations: custom queueing, FIFO, priority queuing**,**

- ❑ _____

Answer: weighted fair queuing

152) At what level of the network heirachy are reliability and availability most important?

- ❑ **Core**
- ❑ Distribution
- ❑ Access
- ❑ Campus

153) What is the proper order of transmission in priority queuing?

- ❑ **Higher priority queues are empited before lower priority queues**
- ❑ All queues use a round robin method to effect
- ❑ Time-division sequenced