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**350-001**

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## **Please Read Carefully**

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**Note:**

Section A contains 228 questions.

Section B contains 6 questions.

The total number of questions is 234.

Each section starts with QUESTION NO :1. There are no missing questions.

**QUESTION NO: 1**

**Which of the following statements are true?**

- A. Load sharing of VLAN traffic over parallel ISL trunks is not possible.
- B. Load sharing of VLAN traffic over parallel ISL trunks is configurable on a per VLAN basis.
- C. Load sharing of VLAN traffic over parallel ISL trunks is configurable on a per packet basis.
- D. Load sharing of VLAN traffic over parallel ISL trunks is automatic.

**Answer: B**

**QUESTION NO: 2**

**You are a technician at TestKing. You tell your newly appointed TestKing trainee about EIGRP. Your trainee now wants to know what the term 'Feasibility Condition' means in EIGRP.**

**What would your reply be?**

- A. The Feasible Distance must be equal to one.
- B. The Feasible Distance must be higher than one.
- C. The Reported Distance must be equal to Feasible Distance.
- D. The Reported Distance must be higher than Feasible Distance.
- E. The Reported Distance must be lower than Feasible Distance.

**Answer: E**

**Explanation:**

Feasible Condition is met when the receiving router has a Feasible Distance (FD) to a particular network and it receives an update from a neighbor with a lower advertised or Reported Distance (RD) to that network. The neighbor then becomes a Feasible Successor (FS) for that route because it is one hop closer to the destination network. There may be a number of Feasible Successors in a meshed network environment.

The RD for a neighbor to reach a particular network must always be less than the FD for the local router to reach that same network. In this way EIGRP avoids routing loops. This is why routes that have RD larger than the FD are not entered into the Topology table.

**Reference:**

Ravi Malhotra, *IP Routing*, Chapter 4: Enhanced Interior Gateway Routing Protocol (EIGRP), O'Reilly Press, January 2002 (ISBN 0-596-00275-0)

**QUESTION NO: 3**

**You are the network administrator at TestKing. The TestKing network is running OSPF demand circuit across an ISDN link.**

**With regard to this circuit, which of the following statements are true? Select Two**

- A. OSPF demand circuit requires network type non-broadcast.
- B. OSPF demand circuit will not trigger the link if an OSPF interface goes down.
- C. The calling router must be network type point-to-point.
- D. OSPF demand circuit will bring up the link if the topology of the network changes.

**Answer: C, D**

Point-to-Point or Point-To-Multipoint

Using the OSPF demand circuit options, which suppresses Hello and LSA refresh functions, OSPF can establish a demand link to form an adjacency and perform initial database synchronization. The adjacency remains active even after Layer 2 of the demand circuit goes down.

Unlike the OSPF demand circuit feature, flooding reduction is usually configured on leased lines. Flooding reduction uses same technique as demand circuits to suppress the periodic LSA refresh.

When an OSPF demand circuit is configured on a link, the periodic OSPF Hellos are suppressed. Periodic Hellos are suppressed only on a point-to-point and point-to-multipoint network type. On any other network type, OSPF Hellos are still sent over the interface.

There are only two scenarios where the periodic LSA refresh occurs when using the OSPF demand circuit feature:

- If there is a change in network topology
- If there is a router in the OSPF domain that can not understand demand circuits

In the first case, not much can be done to stop the LSA refresh because the router has to send the new LSA information to update the neighbor about the topology change.

[http://www.cisco.com/en/US/tech/tk365/tk480/technologies\\_tech\\_note09186a0080094a8f.shtml](http://www.cisco.com/en/US/tech/tk365/tk480/technologies_tech_note09186a0080094a8f.shtml)

**QUESTION NO: 4**

You are a technician at TestKing. The TestKing network is a PIMv2 Sparse Mode network. Your newly appointed TestKing trainee wants to know what is used to calculate the “incoming interface” for a (\*, G) mroute entry on this network.

What would your reply be?

- A. The address of the Mapping Agent.
- B. The address of a directory connected member of group “G”.
- C. The address of the currently active Rendezvous Point for group “G”.
- D. The address of the PIM neighbor that send the PIM (\*, G) Join message.
- E. The address of the PIM neighbor that send the PIM (\*, G) Hello message.

**Answer: C**

**Reference:**

CCIE Professional Development Routing TCP/IP Volume II by Jeff Doyle and Jennifer De Haven Carroll. Page 492.

**QUESTION NO: 5**

You are the network administrator at TestKing. You configure a VLAN Access Control List with the entries shown in the following exhibit:

**Existing ACEs in the VACL:**

```
set security acl ip Control_Access permit host 10.1.1.100
set security acl ip Control_Access deny 10.1.1.0 255.255.255.0
set security acl ip Control_Access permit host 172.16.84.99
set security acl ip Control_Access deny 172.16.84.0 255.255.255.128
```

**Additional ACEs to the VACL:**

```
set security acl ip Control_Access permit host 172.16.82.3
set security acl ip Control_Access deny host 172.17.10.44
set security acl ip Control_Access permit host 192.168.99.150
set security acl ip Control_Access deny host 192.168.250.1
```

How many total mask value entries are required in the Ternary Content Addressable Memory (TCAM) table?

- A. 2
- B. 3

- C. 4
- D. 6
- E. 8

**Answer: B**

Ternary CAM (TCAM) is a hardware piece of memory designed for rapid table lookups by the ACL engine on the PFC and PFC2. The ACL engine performs ACL lookups based on packets passing through the switch's hardware. The result of the ACL engine lookup into the TCAM determines how the switch handles a packet. For example, the packet might be permitted or denied. The TCAM has a limited number of entries that are populated with mask values and pattern values. For a detailed discussion on TCAM refer the link below.

Link to the white paper. Sub topic Ternary CAM.

**Reference:**

[http://www.cisco.com/en/US/products/hw/switches/ps708/products\\_white\\_paper09186a00800c9470.shtml](http://www.cisco.com/en/US/products/hw/switches/ps708/products_white_paper09186a00800c9470.shtml)

**QUESTION NO: 6**

**You are the network administrator at TestKing. The TestKing network has a Catalyst 6500 with a Supervisor IA with a MSFC. For some reason, the MSFC has lost its boot image. The device is now in Rommon. You want to load c6msfc-boot-mz.121-7a-E1-bin.**

**What method can you use?**

- A. Xmodem
- B. FTP
- C. TFTP
- D. SNMP
- E. FLASH

**Answer: A****Explanation:**

The Catalyst 6000 Supervisor I and II modules have an onboard Flash file system that can handle several image files. In addition to this Flash, they also have a PCMCIA Flash slot. These Supervisors run their software from RAM and do not need their Flash system once correctly booted up. If an image is then corrupted or deleted, the standard upgrade procedure is always possible as long as the Supervisor is running a valid image. If the Supervisor is not booting up because there is no valid image to boot from the ROMmon, you will have to use the recovery procedure.

1. Booting from a PCMCIA Flash Card
2. Console Download using Xmodem

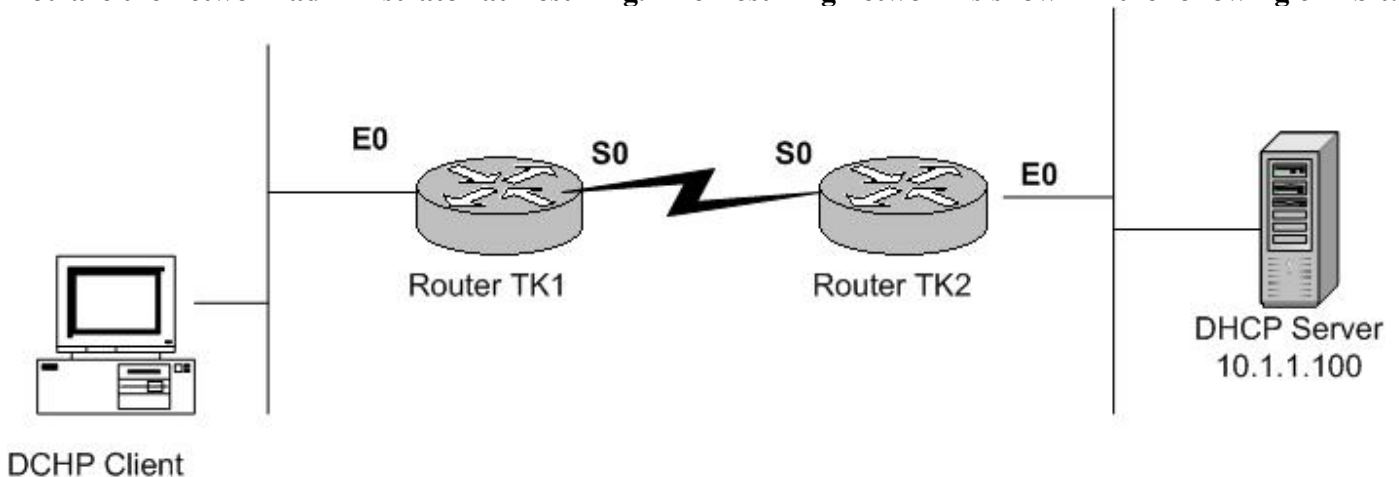
In this situation option 2 is the only choice, since the MSFC has lost its boot image. Refer to the link below for a detailed discussion of recovery procedures for Catalyst Switches.

**Reference:**

[http://www.cisco.com/en/US/products/hw/switches/ps663/products\\_tech\\_note09186a00800949c3.shtml#cat6k](http://www.cisco.com/en/US/products/hw/switches/ps663/products_tech_note09186a00800949c3.shtml#cat6k)

**QUESTION NO: 7**

**You are the network administrator at TestKing. The TestKing network is shown in the following exhibit:**



**Your newly appointed TestKing trainee wants to know what the minimum configuration would be required for the DHCP client to acquire a DHCP address upon boot.**

**What would your reply be?**

- A. Enable the command "ip helper-address 10.1.1.100" under the S0 interface on Router TK2.
- B. Enable the command "ip helper-address 10.1.1.100" under the S0 interface on Router TK1.
- C. Enable the command "ip helper-address 10.1.1.100" under the E0 interface on Router TK1.
- D. Enable the command "ip helper-address 255.255.255.255" under the E0 interface on Router TK1.
- E. Enable the command "ip helper-address 255.255.255.255" under the S0 interface on Router TK2.

**Answer: C**

**QUESTION NO: 8**



**With respect to the operation of Unidirectional Link Detection, which of the following statements are true? (Choose all that apply.)**

- A. It negotiates the Unidirectional Link Detection link state during physical signaling.
- B. Both devices on the link do not need to support Unidirectional Link Detection.
- C. It works by exchanging protocol packets between the neighboring devices.
- D. It performs tasks that autonegotiation cannot perform.

**Answer: C, D**

**Reference:**

<http://www.cisco.com/warp/public/473/77.html>

**QUESTION NO: 9**

You are the network administrator at TestKing. You are troubleshooting a problem with the serial0 interface on one of the TestKing routers. When the interface is brought up, it works for a short time before it goes down. You issue the show interface command. The output from the command is shown in the following exhibit:

```
r1#sh in
Serial0 is up, line protocol is up
Hardware is HD64570
MTU 1500 bytes, BW 1544 Kbit, DLY 20000, rely 255/255, load 1/255
Encapsulation FRAME-RELAY, loopback not set, keepalive set (35 sec)
LMI enq sent 7, LMI stat recvd 7, LMI upd recvd 0, DTE LMI up
LMI enq recvd 0, LMI stat sent 0, LMI upd sent 0
LMI DLCI 0 LMI type is ANSI Annex D frame relay DTE
FR SVC disabled, LAPF stat down
Broadcast queue 0/64, broadcasts sent/dropped 2/0, interface broadcast 0
Last input 00:00:30, output 00:00:30, output hang never
Last clearing of "show interface" counters never
Queuing strategy: fifo
Output queue 0/40, 0 drops; input queue 0/75, 0 drops
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  1 packets input, 24 bytes, 0 no buffer
  Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
  4 packets output, 608 bytes, 0 underruns
  0 output errors, 0 collisions, 4 interface resets
  0 output buffer failures, 0 output buffers swapped out
  2 carrier transitions
  DCD=up DSR=up DTR=up RTS=up CTS=up
Serial 0/2 is down, line protocol is down
Hardware is HD64570
Internet address is 172.16.1.2/24
MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec, rely 255/255, load 1/255
Encapsulation FRAME-RELAY
Serial 0/3 is down, line protocol is down
Hardware is HD64570
Internet address is 171.16.2.1/24
MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec, rely 255/255, load 1/255
Encapsulation FRAME-RELAY
```

**What is the probable cause of this problem?**

- A. The encapsulation type is set to Frame-Relay.
- B. The Frame-Relay lmi-type is set incorrectly.
- C. Too many sub-interfaces are exceeding IDB limits.
- D. The DCD not set correctly for a Frame-Relay circuit.
- E. Keepalives are not set correctly on both ends.

**Answer: B**

**Explanation:**

While troubleshooting Serial line problems, show interface serial command comes handy. A CCIE candidate should know what to look for, and where to look for, to make quick deductions as to what is causing the problem. In this case the counters for LMI sent is increasing while the counters for LMI rcvd is still 0. This clearly indicates a case of misconfigured LMI type.

For a detailed discussion on how to troubleshoot serial lines, refer the link below.

[http://www.cisco.com/univercd/cc/td/doc/cisintwk/itg\\_v1/tr1915.htm#xtocid195571](http://www.cisco.com/univercd/cc/td/doc/cisintwk/itg_v1/tr1915.htm#xtocid195571)

**QUESTION NO: 10**

**You are the network administrator at TestKing. TestKing has an ATM network. Which of the following statements are with regard to Traffic contract, Traffic shaping, and Traffic policing in the TestKing network?**

- A. Traffic contract, Traffic shaping, and Traffic policing are parameters of PNNI set during PNNI configuration.
- B. Traffic contract, Traffic shaping, and Traffic policing are QoS features.
- C. Traffic contract, Traffic shaping, and Traffic policing are types of SVCs.
- D. Traffic contract, Traffic shaping, and Traffic policing are types of PVCs.
- E. Traffic contract, Traffic shaping, and Traffic policing are used to control traffic flows.

**Answer: B**

Traffic Shaping, Policing, and Contract are all forms of QoS.

**QUESTION NO: 11**

**Study the Exhibits below carefully:**

**The following exhibit is an illustration of the output from an ASBR:**

```
ASBBR#show ip ospf database external

      OSPF Router with ID (5.5.5.5) (Process ID 10)

          Type-5 AS External Link States

LS age: 15
Options: (No TOS-capability, DC)
LS Type: AS External Link
Link State ID: 100.10.1.0 (External Network Number)
Advertising Router: 5.5.5.5
LS Seq Number: 80000002
Checksum: 0x513
Length: 36
Network Mask: /24
    Metric Type: 1 (Comparable directly to link state metric)
    TOS: 0
    Metric: 20
    Forward Address: 0.0.0.0
    External Route Tag: 0
```

**And this exhibit is an illustration from a router in the network:**

```
RouterTK1#show ip ospf border-routers

OSPF Process 10 internal Routing Table

Codes: i-intra-area route, I-Inter-area route

15.5.5.5(2) via 30.0.0.1, Serial0/0, ASBR, Area0, SPF 4
```

**If the newly appointed TestKing trainee is to ask you what is the metric for subnet 100.100.1.0/24 on Router TK1. What would you reply?**

- A. 1
- B. 8
- C. 16
- D. 20
- E. 22

**Answer: E**

20 + 2, 20 from Metric (external), and 2 from Inter-area.

**QUESTION NO: 12**

**The CEO of TestKing.com wants to know from you why TestKing should implement traffic shaping. What would your reply be? (Choose all that apply.)**

- A. To regulate and thus control the average queue size by indicating when transmission of packets should be halted temporarily.
- B. To control access to available bandwidth on the network.
- C. To define Layer 3 aggregate or granular bandwidth rate limits.
- D. To control the maximum rate of traffic on an interface.
- E. To ensure that traffic conforms to the policies established for it.

**Answer: B, E**

**Explanation:**

The primary reasons to use traffic shaping are to control access to available bandwidth, to ensure that traffic conforms to specific policies, and to regulate the flow of traffic in order to avoid congestion.

**Reference:**

[http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4224/sw\\_config/traffic.htm](http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4224/sw_config/traffic.htm)

**QUESTION NO: 13**

**You are the network administrator at TestKing. The TestKing network is a bridged network running IEEE 802.1d spanning tree. Which of the following parameters will a bridge take from the root bridge?**

- A. Maxage
- B. Hello time
- C. Forwarding delay
- D. All of the above
- E. None of the above

**Answer: D**

**Explanation:** A, B and C are all located in the BPDU which each switch gets from the root bridge.

**QUESTION NO: 14**

**Which of the following statements regarding the use of SPAN on a Catalyst 6500, is not valid?**

- A. With SPAN an entire VLAN can be configured to be the source.
- B. If the source port is configured as a trunk port, the traffic on the destination port will also be tagged, irrespective of the configuration on the destination port.

- C. In any active SPAN session, the destination port will not participate in Spanning Tree.
- D. It is possible to configure SPAN to have a Gigabit port as the destination port.
- E. In one SPAN session it is possible to monitor multiple ports that do not belong to the same VLAN.

**Answer: B**

**Explanation:**

A destination port (also called a *monitor port*) is a switch port where SPAN sends packets for analysis. If the trunking mode of a SPAN destination port is "on" or "nonegotiate" during SPAN session configuration, the SPAN packets forwarded by the destination port have the encapsulation as specified by the trunk type; however, the destination port stops trunking, and the **show trunk** command reflects the trunking status for the port prior to SPAN session configuration.

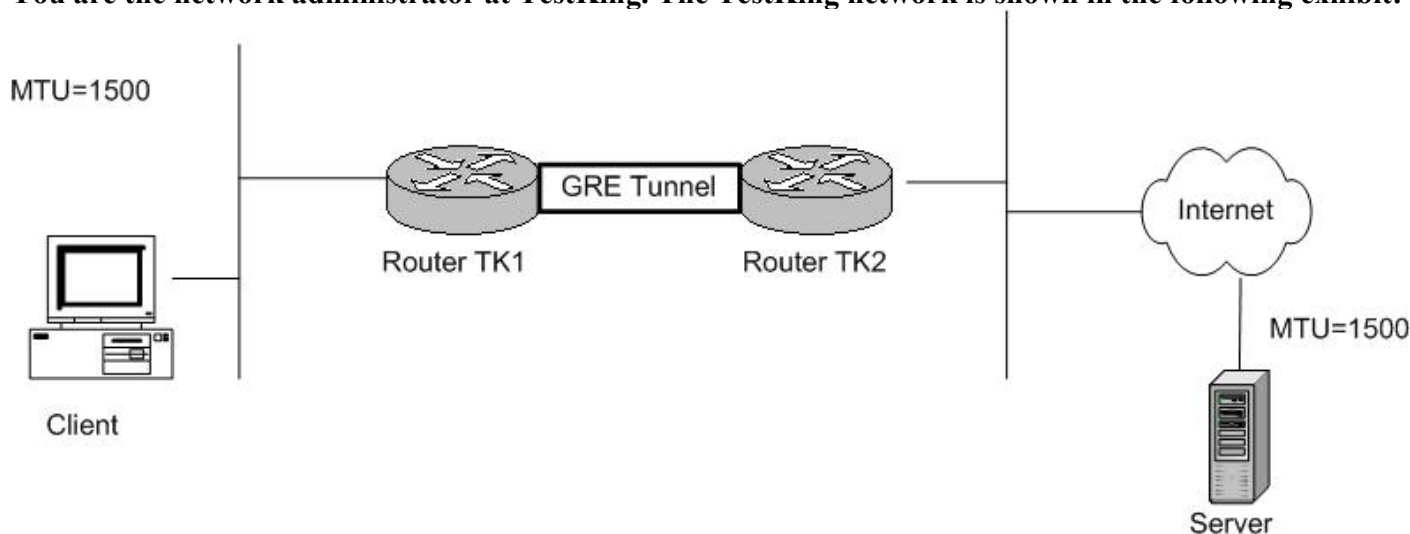
For a detailed discussion on SPAN and RSPAN refer the link below.

**Reference:**

[http://www.cisco.com/univercd/cc/td/doc/product/lan/cat6000/sw\\_6\\_3/config\\_gd/span.htm](http://www.cisco.com/univercd/cc/td/doc/product/lan/cat6000/sw_6_3/config_gd/span.htm)

**QUESTION NO: 15**

You are the network administrator at TestKing. The TestKing network is shown in the following exhibit:



The Client can communicate with the Server through the GRE tunnel. It is also able to receive small files, but encounters problems as soon as it attempts to download or transfer large web pages and large files.

The output of a "debug ip icmp" command on Router TK2 displays "frag.needed on DF unreachable" on the server.

How can this problem be solved? (Choose all that apply.)

- A. Check to see whether filtering between Router TK2 and the server takes place as it could block ICMP messages.  
If so, change the filter rule to allow ICMP
- B. Increase the IP MTU on the tunnel interfaces to 1500.
- C. Make all "ip unreachable" on all interfaces reachable on Router TK2.
- D. Decrease the physical interface MTU between the tunnel end points to less than 1476 bytes.
- E. If the physical link between Router TK1 and Router TK2 is able to support a MTU size greater than 1524 bytes, then increase the interface MTU between the tunnel end points to match 1524.

**Answer: A, E**

**Explanation:**

Refer to "Why Can't I Browse the Internet when Using a GRE Tunnel?"

<http://www.cisco.com/warp/public/105/56.html>

#### QUESTION NO: 16

You are a technician at TestKing. Your newly appointed TestKing trainee wants to know which command switches a SONET APS protected circuit over the back-up circuit.

What would your reply be?

- A. `aps force atm circuit-.number`
- B. `aps auto circuit-number`
- C. `aps force circuit-number`
- D. `redundancy force-failover`
- E. `aps back-up circuit.-number`

**Answer: A**

A is the correct command syntax.

For details and functionality of any command make use of the link below. CCO login required.

**Reference:**

<http://www.cisco.com/cgi-bin/Support/Cmdlookup/ios-command-lookup.pl?type=reference&query=no+login+&paging=25&counter=0&release=123&su=Submit>

**QUESTION NO: 17**

**Which of the following is NOT a BGP attribute?**

- A. Origin
- B. Weight
- C. Local\_pref
- D. Community
- E. Cluster\_list

**Answer: B**

I am not sure that weight is an attribute. It is set using the set weight command yet in Internet routing Architectures page 116 (I believe) it does not show weight as an attribute.

**Table 5-2. Attribute Type Codes**

ORIGIN Well-known mandatory, Type code 1 RFC 1771

LOCAL\_PREF Well-Known discretionary, Type code 5 RFC 1771

COMMUNITY Optional transitive, Type 8 RFC 1997

CLUSTER\_LIST Optional nontransitive, Type code 10 RFC 1966

Prefer the path with the largest weight. (Weight is a Cisco proprietary parameter, local to the router) pg 149  
The difference is that the weight parameter is local to the router and is not exchanged between routers, even internal to an AS. The **weight** parameter influences routes received from different providers by the same router (for example, one router with multiple connections to two or more providers). The **weight** parameter has a higher precedence than any other BGP attribute; it is used as a proprietary switch to determine route preference. Internet routing Architectures page 159

As you can see it is kind of confusing. I am not sure if I would go with community list answer as it is listed but the weight is not listed yet it is referred to as a "higher precedence than any other BGP attribute"



**QUESTION NO: 18**

**You are a technician at TestKing. Your newly appointed TestKing trainee wants to know what sub-field is NOT part of the Frame Control Field when working with the IEEE 802.11b Wireless LAN specifications.**

**What would your reply be?**

- A. Duration
- B. Power Management
- C. Order
- D. Wired Equivalent Privacy
- E. None of the above

**Answer: A**

Duration is not a part of the FCF

**QUESTION NO: 19**

**You are a network technician at TestKing. You have just configured a switch to support MultiLayer Switching (MLS) as well as Access Control Lists on the MLS-Route Processor to block all FTP traffic destined to the Internet.**

**What flow mask will you use to create each shortcut?**

- A. Destination flow mask.
- B. Full flow mask.
- C. Application flow mask.
- D. Destination-Source flow mask-
- E. No flow masks necessary.

**Answer: B**

**Explanation:**

The three types of IP MLS modes are destination-ip, destination-source-ip, and full-flow-ip. Destination-ip mode, the default, is in use when no access list is applied to the router's MLS-enabled interface. Source-destination-ip mode is in use when a standard access list is applied, and full-flow-ip is in effect for an extended access list.

To Block FTP traffic we require an extended access-list, which acts on layer 3 as well as layer 4 information in a packet.

**Reference:**

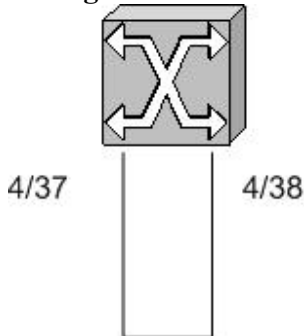
<http://www.cisco.com/warp/public/473/13.html#flowchart>

Refer Section 7. Do the flowmasks agree on the MLS-RP and MLS-SE?

**QUESTION NO: 20**

You are the network administrator at TestKing. The TestKing network consists of only one switch port, 4/37 which is being looped to port 4/38. The network is shown in the following exhibit:

All links are 10/100  
Configuration is default



Which of the following statements is true?

- A. Port 4/38 will be blocking.
- B. Both ports will be forwarding.
- C. Port 4/37 will be blocking.
- D. Both ports will communicate.
- E. Port 4/38 will keep vacillating between listening and learning.

**Answer: A**

Port priority is based on lowest priority, and lowest port number.

**QUESTION NO: 21**

You are a technician at TestKing. You are implementing NAT (Network Address Translation) on the TestKing network. Your newly appointed TestKing trainee wants to know what NAT provides.

What would your reply be?

- A. Dynamic network address translation using a pool of IP addresses.
- B. Destination based address translation using either route map or extended access-list.
- C. Dynamic translation for DNS "A" and "PTR" queries.

- D. Inside and outside source static network translation that allows overlapping network address spaces on the inside and the outside.
- E. All of the above.

**Answer: E**

**QUESTION NO: 22**

**With regard to FTP, which of the following statements are true?**

- A. FTP always uses one TCP session for control and data.
- B. With passive mode FTP, both the control and data TCP sessions are initiated from the client.
- C. With active mode FTP, the server used the "PORT" command to tell the client on which port it wished to send the data.
- D. FTP uses TCP port 20 for the data session and TCP port 21 for the control session.
- E. FTP uses TCP port 20 for the control session and TCP port 21 for the data session.

**Answer: B, D**

**Explanation:**

In FTP active mode the client (not the server) uses the PORT command to tell the server on which port it expects the server to send the data. Statement D and E are too general. FTP behaves differently in active and passive modes of operation. For a detailed discussion on FTP refer the link below.

**Reference:**

[http://www.cisco.com/warp/public/759/ipj\\_2-3/ipj\\_2-3\\_oneb.html](http://www.cisco.com/warp/public/759/ipj_2-3/ipj_2-3_oneb.html)

**QUESTION NO: 23**

**You are the network administrator at TestKing. You want to map a static IP route to a backup link. You want the static route to become active only if the same route is not available via a dynamic routing protocol.**

**What must you do to accomplish this goal?**

- A. Configure the static route with a lower administrative distance than the dynamic protocol.
- B. Configure the static route with a higher administrative distance than the dynamic protocol.
- C. Configure the static route with a lower metric than the dynamic protocol.
- D. Configure the static route with the **floating-static** keyword.

**Answer: B**

With a higher administrative distance, the dynamic routing protocol will always be the preferred route.

**Reference:**

<http://www.cisco.com/univercd/cc/td/doc/cisintwk/ics/es002.htm#xtocid1902134>

**QUESTION NO: 24**

**You are a technician at TestKing. The TestKing network includes a Token Ring network. Your newly appointed TestKing trainee wants to know how Layer 3 IP Multicast addresses are mapped to Layer 2 Token Ring MAC addresses.**

**What would your reply be? (Choose all that apply.)**

- A. All IP Multicast addresses are mapped to broadcast MAC address FFFF.FFFF.FFFF.
- B. All IP Multicast addresses are mapped to network MAC address 0000.0000.0000.
- C. All IP Multicast addresses are mapped to Functional Address C000.0004.0000.
- D. All IP Multicast addresses are mapped to MAC addresses using the same method as is used in Ethernet networks.

**Answer: C, D**

See RFC 1469, IP Multicast over Token-Ring Local Area Networks

Also see [http://www.cisco.com/en/US/tech/tk331/tk660/technologies\\_tech\\_note09186a008012811e.shtml](http://www.cisco.com/en/US/tech/tk331/tk660/technologies_tech_note09186a008012811e.shtml)

**QUESTION NO: 25**

**You are a technician at TestKing. You tell your newly appointed TestKing trainee about the length of the netmask of a route, the administrative distance and the metric that routers use to decide which interface to forward a packet out of. Your trainee wants to know what the router uses first when it makes the routing decision.**

**What would your reply be?**

- A. The length of the netmask of a route.
- B. The administrative distance.
- C. The metric.
- D. None of the above.

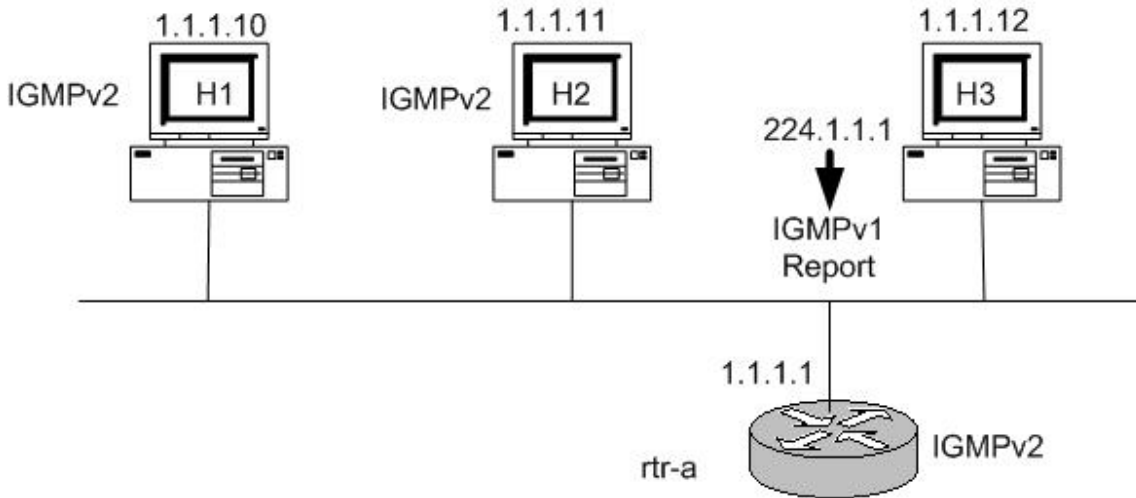
*350 - 001*

**Answer: A**

Most specific match is always used first.

**QUESTION NO: 26**

You are the network administrator at TestKing. The TestKing network is shown in the following exhibit:



H1 and H2 are both IGMPv2 speakers and are also members of group 224.1.1.1. H3 is an IGMPv1 speaker. H3 sends an IGMPv1 Membership Report to join group 224.1.1.1.

What will happen?

- A. The router rtr-a will do nothing, since there are already members of group 224.1.1.1 on the subnet.
- B. The router rtr-a will ignore all IGMPv2 Leave messages while the IGMPv1 host is a member of group 224.1.1.1.
- C. The router rtr-a will stop sending IGMPv2 Group-Specific queries in response to IGMPv1 Leaves received on this subnet for groups 224.1.1.1, while the IGMPv1 hosts is a member of group 224.1.1.1.
- D. The router rtr-a will ignore the IGMPv1 Membership Report because router rtr-a is an IGMPv2 speaker and IGMPv1 are not compatible.

**Answer: B**

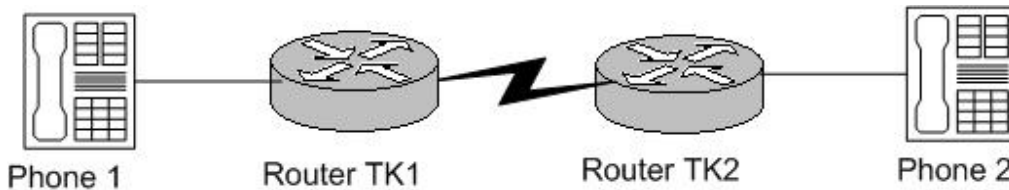
With IGMP v1 and v2 on the same network, routers will revert to v1.

**Reference:**

CCIE Professional Development Routing TCP/IP Volume II by Jeff Doyle and Jennifer De Haven Carroll. Page 414.

**QUESTION NO: 27**

You are the network administrator at TestKing. The TestKing network is shown in the following exhibit:



You want to configure Router TK1 to allow a VoIP call from Phone 1 to Phone 2.

Which configuration commands must you issue on Router TK1?

- A. `dial-peer voice 3 voip`  
`destination-pattern 7330408`  
`session target 10.10.10.1`
- B. `dial-peer voice 7330408 voip`  
`destination-number 3`  
`session target ip 10.10.10.1`
- C. `dial-peer voice 3 voip`  
`destination-pattern ipv4: 10.10.10.1`  
`session target voice`
- D. `dial-peer voice 3 voip`  
`destination-pattern 7330408`  
`session target ipv4: 10.10.10.1`

**Answer: D**

D is the correct syntax.

#### QUESTION NO: 28

You are the network administrator at TestKing. The TestKing network has an ISL trunk link between a local host and a remote host. The trunk mode on the local host is set to auto. However, the ISL trunk never comes up.

What is the probable cause of this problem? (Choose all that apply.)

- A. The trunk mode on the remote end is set to on.
- B. The trunk mode on the remote end is set to off.
- C. The trunk mode on the remote end is set to auto.
- D. The trunk mode on the remote end is set to desirable.
- E. The trunk mode on the remote end is set to nonegotiate.

**Answer: B, C**

The trunk mode can be: auto, Desirable, On, nonegotiate, and Off.

- B: Off:** ISL is not allowed on this port regardless of the mode configured on the other end.
- C: auto:** the port listens for Dynamic Trunking Protocol (DTP) frames from the remote device. Auto does not propagate any intent to become a trunk; it is solely dependent on the remote device to make the trunking decision. Thus, if both ends are set to Auto, no trunking will occur.

**Incorrect Answers:**

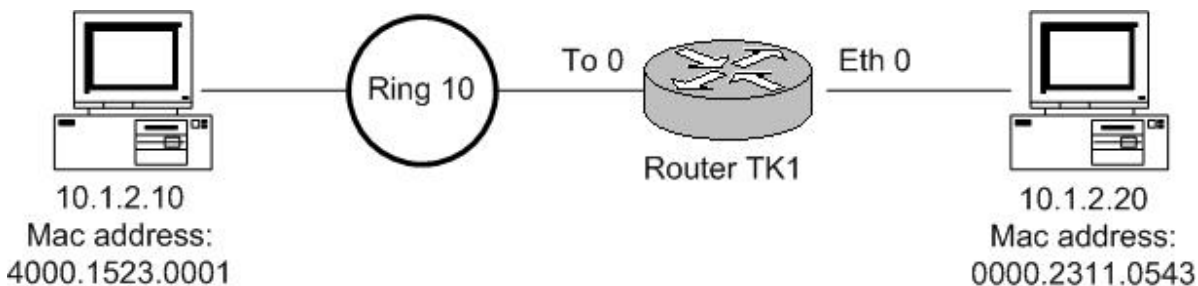
- A: On:** DTP is spoken to the neighboring switch. On automatically enables ISL trunking on its port, regardless of the state of its neighboring switch. It remains an ISL trunk unless it receives an ISL packet that explicitly disables the ISL trunk. The Cisco TAC recommends that desirable trunking mode be configured on the ports.
- D: Desirable:** DTP is spoken to the neighboring switch. Desirable communicates to the neighboring switch that it is capable of being an ISL trunk, and would like the neighboring switch to also be an ISL trunk.
- E: nonegotiate:** DTP is not spoken to the neighboring switch. nonegotiate automatically enables ISL trunking on its port, regardless of the state of its neighboring switch.

**Reference:**

[http://www.cisco.com/warp/public/793/lan\\_switching/2.html](http://www.cisco.com/warp/public/793/lan_switching/2.html)

**QUESTION NO: 29**

You are the network administrator at TestKing. The TestKing network is shown in the following exhibit:



You perform the following configuration on Router TK1:

```

no ip routing
!
source-bridge ring-group 100
source-bridge transparent 100 150 1 1
!
interface Ethernet 0
no ip address
bridge-group 1
  
```



```

!
InterfaceToken ring 0
no ip address
source-bridge 10 1 100
source-bridge spanning
!
bridge 1 protocol ieee
bridge 1 bitswap-layer3-addresses

```

**which ring numbers would frames originating from the Ethernet device contain when observed on the Token Ring?**

- A. Ring 10, Ring 2, and Ring 150.
- B. Ring 150, Ring 100, and Ring 2.
- C. Ring 100, Ring 150, and Ring 10.
- D. Ring 10, and Ring 2.
- E. Ring 2, and Ring 150.

**Answer: C**

**Explanation:** Configuring SR/TLB involves the configuration of SRB and transparent bridging. An additional command ties in the SRB domain with the transparent bridged domain:

**source-bridge transparent ring-group pseudo-ring bridge-number tb-group**

The arguments are as follows:

*ring-group* - The virtual ring group number created with the source-bridge ring-group command.

*pseudo-ring* - A virtual ring group number created for the transparent bridge group. The Token Ring side sends frames to this ring number to reach the host in the transparent bridge side.

*bridge-number* - A bridge number is assigned for the bridge between the virtual ring group and the pseudo ring.

*tb-group* - The transparent bridge group number configured with the bridge-group command.

**Reference:**

[http://www.informit.com/isapi/product\\_id~{5779D41E-3110-4228-BEA8-965182EF3011}/element\\_id~{87AF55FC-39FC-4347-81CC-F83DB20DB1D2}/st~{D7876506-1D0A-4E7E-ABC9-EE82E540D178}/session\\_id~{5A8B4170-A0F4-4160-B712-93C705EEEE57}/content/articlex.asp](http://www.informit.com/isapi/product_id~{5779D41E-3110-4228-BEA8-965182EF3011}/element_id~{87AF55FC-39FC-4347-81CC-F83DB20DB1D2}/st~{D7876506-1D0A-4E7E-ABC9-EE82E540D178}/session_id~{5A8B4170-A0F4-4160-B712-93C705EEEE57}/content/articlex.asp)

**QUESTION NO: 30**

You are the network administrator at TestKing. You want to advertise the network 190.72.27.0/27 to an EBGp peer.

What command should you use?

- A. network 190.72.27.0 mask 255.255.225.0
- B. network 190.72.27.0 mask 255.255.255.224
- C. network 190.72.27.0 mask 255.255.225.240
- D. network 190.72.27.0 mask 0.0.0.31.

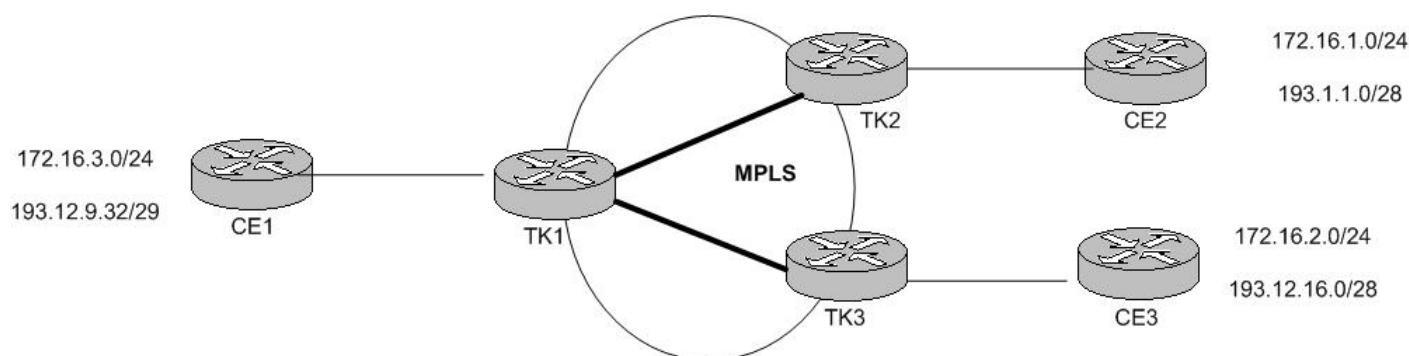
**Answer: B**

**Explanation:**

The correct syntax is: `network ip-address mask subnet-mask` where *ip-address* is the network address and *subnet-mask* is the subnet mask. In this case the network address is 190.72.27.0. The subnet mask is a 27 bit subnet mask (11111111.11111111.11111111.11100000) which equates to 255.255.255.224.

**QUESTION NO: 31**

You are the network administrator at TestKing. The TestKing network is a MPLS network. The network is shown in the following exhibit:



Which subnets would be in the same Forwarding Equivalence Class (FEC) on Router TK1?

- A. 172.16.3.0/24 and 192.1.1.0/28
- B. 172.16.1.0/24, 172.16.2.0/24, and 172.16.3.0/24
- C. 172.16.1.0/24 and 193.1.1.0/28
- D. 172.16.1.0/24 and 172.16.2.0/24

**Answer: C**

**Explanation:** Both networks in answer C are along the same path, so they would both be in the same FEC.

**Reference:**

For a better understanding of MPLS TE and FEC go through the (white paper link) below.

[http://www.cisco.com/warp/public/cc/pd/iosw/prodlit/mwglp\\_wp.htm](http://www.cisco.com/warp/public/cc/pd/iosw/prodlit/mwglp_wp.htm)

**QUESTION NO: 32**

**You are a technician at TestKing. Your newly appointed TestKing trainee wants to know what the accepted maximum one-way latency allowed by the ITU for most voice applications is.**

**What would your reply be?**

- A. 300 milliseconds
- B. 12 seconds
- C. 150 milliseconds
- D. 30 milliseconds
- E. 15 milliseconds

**Answer: C**

**Explanation:** 150 ms is the recommended maximum delay.

**QUESTION NO: 33**

**What is necessary for ATM switched Virtual Circuits to function properly?**

- A. QoS type set to CBR+.
- B. Signalling and ILMI PVC's.
- C. ARP server.
- D. None of the above.

**Answer: B**

**Explanation:** Signaling along the path, and an ILMI PVC are required for an SVC.

**QUESTION NO: 34**

**Which of the following carries MPLS traffic engineering routing information?**

- A. MP-BGP
- B. BGP MEDs
- C. OSPF Opaque LSAs or IS-IS TLVs
- D. RTP or RTCP packets
- E. None of the above.

**Answer: C**

**Explanation:**

OSPF Opaque LSA provides a generalized mechanism for OSPF to carry additional information. The new information can be used directly by OSPF or indirectly by other applications, which use OSPF to distribute information. This document defines how to use opaque LSA to carry additional information for traffic engineering

**Reference:**

<http://www.watersprings.org/links/mlr/id/draft-yeung-ospf-traffic-00.txt>

**QUESTION NO: 35**

**You are a technician at TestKing. Your newly appointed TestKing trainee wants to know what type of EIGRP packets have the Init flag embedded.**

**What would your reply be?**

- A. Hello
- B. Query
- C. Reply
- D. Update
- E. Ack
- F. None of the above

**Answer: D**

**Explanation:**

The init flag is not in the hello packet.

In EIGRP header there is an 8-bit flag value. The rightmost bit is init.

Which when set to 0x00000001 indicates that the enclosed route entries are the first in a new neighbor relationship.

Also the route entries are carried in update packet not hello packet.

**Reference:** Jeff Doyle Pg364,

Note:

```
Router# debug eigrp packet
EIGRP: Sending HELLO on Ethernet0/1
      AS 109, Flags 0x0, Seq 0, Ack 0
EIGRP: Sending HELLO on Ethernet0/1
      AS 109, Flags 0x0, Seq 0, Ack 0
EIGRP: Sending HELLO on Ethernet0/1
      AS 109, Flags 0x0, Seq 0, Ack 0
EIGRP: Received UPDATE on Ethernet0/1 from 192.195.78.24,
      AS 109, Flags 0x1, Seq 1, Ack 0
EIGRP: Sending HELLO/ACK on Ethernet0/1 to 192.195.78.24,
      AS 109, Flags 0x0, Seq 0, Ack 1
EIGRP: Sending HELLO/ACK on Ethernet0/1 to 192.195.78.24,
      AS 109, Flags 0x0, Seq 0, Ack 1
EIGRP: Received UPDATE on Ethernet0/1 from 192.195.78.24,
      AS 109, Flags 0x0, Seq 2, Ack 0
```

**QUESTION NO: 36**

**Which of the following terminal types of ISDN is used by an AT&T 5ESS NI1 switch?**

- A. Terminal type A.
- B. Terminal type B.
- C. Terminal type C.
- D. None of the above.
- E. All of the above.

**Answer: A**

**Explanation:**

Switch Hardware: 5ESS; Software Variant: National (All NIs)

Cisco IOS configuration command: **isdn switchtype basic-ni**

Terminal Type = A

Two B-channels for voice and data

Two Directory numbers, assigned by service provider

Two SPIDs are required, assigned by service provider; format will vary

Can have directory number 1 hunt to directory number 2, it does cost a little extra money

**Reference:**

<http://www.cisco.com/warp/public/129/10.html>

**QUESTION NO: 37**

**You are a trainee technician at TestKing. Your supervisor shows you the following output:**

```
4700a>show version
Cisco Internetwork Operating System Software
IOS (tm) 4500 Software (C4500-JS-M), Version 12.1(7), RELEASE SOFTWARE (fc1)
Copyright (c) 1986-2001 by cisco Systems, Inc.
Compiled Thu 22-Feb-01 16:47 by kellyhw
Image text-base: 0x60008958, data-base: 0x60F96000

ROM: System Bootstrap, Version 5.2(7b) [mkamson 7b], RELEASE SOFTWARE (fc1)
BOOTFLASH: 4500 Software (C4500-BOOT-M), Version 11.2(14)P, RELEASE SOFTWARE
(fc1)

4700a uptime is 2 weeks, 4 days, 23 hours, 58 minutes
System returned to ROM by power-on
System image file is "flash:c4500-js-mz. 121-7.bin"

cisco 4500 (R4K) processor (revision 0x00) with 32768K/4096K bytes of memory.
Processor board ID 02152969
R4600 CPU at 100 Mhz. Implementation 32, Rev 2.0
G.703/E1 software, Version 1.0.
Bridging software-
X.25 software, Version 3.0.0.
SuperLAT software (copyright 1990 by Meridian Technology Corp).
TN3270 Emulation software
1 FastEthernet/IEEE 802.3 interface(s)
1 ATM network interface(s)
128K bytes of non-volatile configuration memory.
16384K bytes of processor board System flash (Read/Write)
4096K bytes of processor board Boot flash (Read/Write)

Configuration register is 0x2102
```

**Your supervisor wants to know which IOS Feature Set is loaded on the router.**

**What would your reply be?**

- A. Enterprise SNASw Plus
- B. IP
- C. IP/IPX/AT/DEC
- D. Enterprise Plus
- E. IP Plus IPSec 56

**Answer: D**

**Explanation:**

Software Naming Conventions for IOS - Features

p- service provider

m- rmon

z- zip compressed

j- enterprise plus

y- reduced ip

d - desktop subset

o3- firewall with ssh

56i- IPSec with 56bit encryption

Reference: CCO login required.

[http://www.cisco.com/warp/customer/432/features.html#select\\_s](http://www.cisco.com/warp/customer/432/features.html#select_s)

**QUESTION NO: 38**

**What are the usual problems that one can expect to result in clocking problems on a serial line? (Choose all that apply.)**

- A. Several cables connected together in a row.
- B. Impedance mismatching.
- C. Improper DSU configuration.
- D. Too much -db gain on the serial line.
- E. Improper CSU configuration.

**Answer: A, C, E**

**Explanation:**

ACE are all possible causes for clocking problems.

**QUESTION NO: 39**

**You are the network administrator at TestKing. On the TEstKing network there is a point-to-point ISDN link between two routers called TestKing A and B respectively. You want TestKing A to be able to dial TestKing B, but not vice versa.**

**What can you use to prevent TestKing B from dialing to TestKing A?**

- A. Use an IP access-list with the access-group command on the interface.
- B. Remove the dial string from TestKing B.
- C. Use similar IP addresses on both sides of the link.
- D. Use the **no-dial** keyword on the interface.

E. No need to take action.

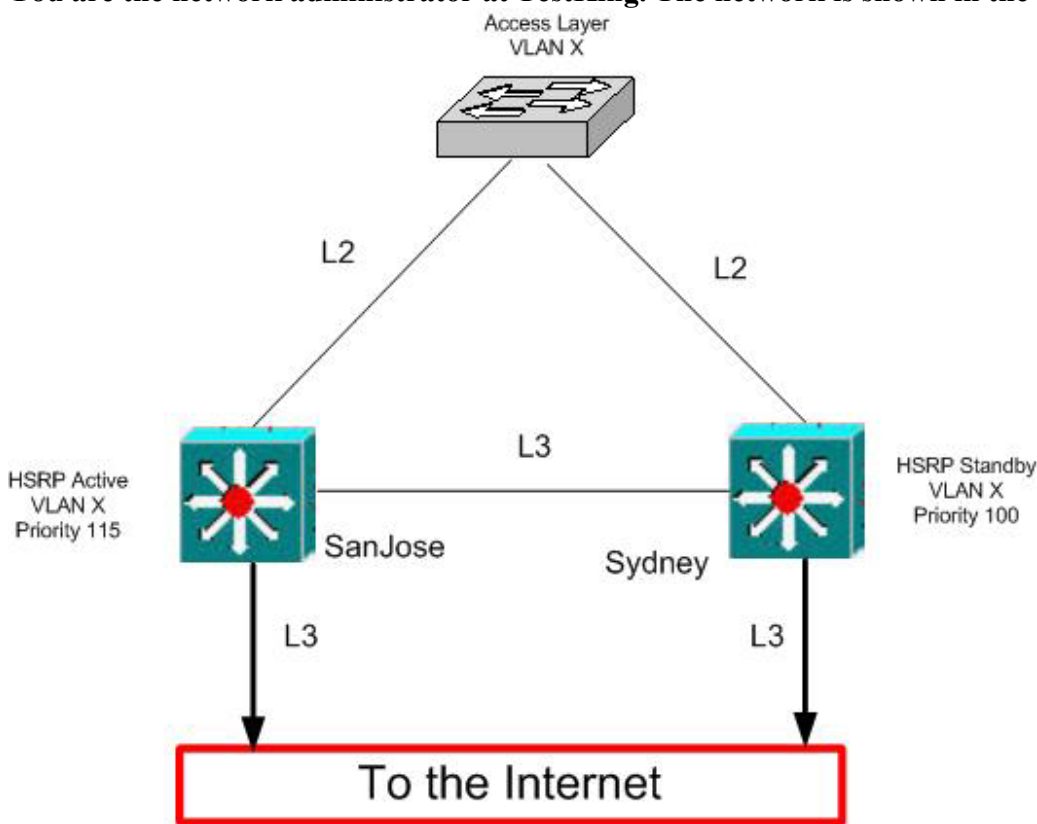
**Answer: B**

**Explanation:**

Without a dial-string, the router will never be able to initiate a call. D is not a valid command.

**QUESTION NO: 40**

You are the network administrator at TestKing. The network is shown in the following exhibit:



TestKing users assigned to VLAN X in the Access Layer switch complain that they cannot access the Internet. Your investigations indicate that the two L3 links in the SanJose switch has failed.

What command should you issue to resolve this problem?

- A. Standby track
- B. Standby timer
- C. Standby authentication.



- D. Standby use-bia.
- E. Standby preempt.

**Answer: A**

**Explanation:**

Interface tracking allows you to specify another interface on the router for the HSRP process to monitor in order to alter the HSRP priority for a given group.

If the specified interface's line protocol goes down, the HSRP priority of this router is reduced, allowing another HSRP router with higher priority can become active.

**Reference:**

<http://www.cisco.com/univercd/cc/td/doc/cisintwk/ics/cs009.htm>

**QUESTION NO: 41**

**You are the network administrator at TestKing. OSPF is implemented to the TestKing network. Your assistant has configured a binding between an interface and an area. He then defined the interface as passive.**

**What is the effect this configuration?**

- A. OSPF will accept the routing updates from neighbors.
- B. OSPF will form all the available adjacencies out of that interface
- C. OSPF will not insert any of the learned routes in the local routing table.
- D. OSPF will not form any adjacency out of that interface.
- E. None of the above.

**Answer: D**

**Explanation:**

With passive-interface, an adjacency will never occur out of that interface, as no hello packets are exchanged out of a passive interface.

**QUESTION NO: 42**

**You are a technician at TestKing. You inform your newly appointed TestKing trainee about the OSI Reference Model and the ATM Reference Model. Your Trainee is curious about the ATM layers. Which of the following three are ATM layers? (Select three.)**

- A. ATM layer.
- B. ATM adaptation layer (AAL).
- C. Generic Flow Control (GFC) layer.

D. Physical layer.

**Answer: A, B, D**

**Explanation:**

GFC is not a layer of the ATM model.

**QUESTION NO: 43**

**You are the network administrator at TestKing. You perform the following configuration:**

```
priority-list 1 protocol ip medium list 102
priority-list 1 protocol ip normal list 103
priority-list 1 protocol ip low list 104
priority-list 1 default low
```

```
access-list 101 permit ip any any precedence critical
access-list 102 permit ip any any precedence flash
access-list 103 permit ip any any precedence immediate
access-list 104 permit ip any any precedence priority
```

**Your TestKing trainee wants to know in which queue will a packet tagged with IP Precedence value of 4 will go.**

**What would your reply be?**

- A. Low
- B. Normal
- C. Medium
- D. High
- E. None of the above.

**Answer: A**

**Explanation:**

4 = Flash Override. which is not specified in the priority-list, so it will be handled by the default queue.

**QUESTION NO: 44**

**With regard to VLAN Trunk Protocol (VTP) pruning, which of the following statements are true?**

- A. VTP pruning only affects traffic from VLANs that are pruning eligible.

- B. By default, VLAN 1 is pruning eligible.
- C. Pruning eligibility is determined by the amount of ports assigned to a VLAN.
- D. VTP pruning is a way to detect the removal of a VLAN within a VTP domain.

**Answer: A**

**Explanation:**

VTP pruning enhances network bandwidth use by reducing unnecessary flooded traffic, such as broadcast, multicast, unknown, and flooded unicast packets. VTP pruning increases available bandwidth by restricting flooded traffic to those trunk links that the traffic must use to access the appropriate network devices. By default, VTP pruning is disabled. VTP pruning does not prune traffic from VLANs that are pruning-ineligible. VLAN 1 is always pruning-ineligible; traffic from VLAN 1 cannot be pruned.

**Reference:**

[http://www.cisco.com/univercd/cc/td/doc/product/lan/cat5000/rel\\_4\\_2/config/vlans.htm#xtocid79802](http://www.cisco.com/univercd/cc/td/doc/product/lan/cat5000/rel_4_2/config/vlans.htm#xtocid79802)

**QUESTION NO: 45**

**You are the network administrator at TestKing. You have configured Router TKA, Router TKB, and Router TKC to run IGRP over Frame Relay connections. No subinterfaces are used. You have configured a single IP subnet on all the Frame Relay interfaces. Router TKA can see Router TKB and Router TKC, but Router TKB cannot see Router TKC. Likewise, Router TKC cannot see Router TKB.**

**What is the probable cause of this problem?**

- A. Router TKA is missing frame maps.
- B. Router TKB and Router TKC are not performing frame map updates.
- C. Split-horizon is enabled on Router TKA.
- D. Split-horizon is disabled on Router TKA.

**Answer: C**

**Explanation:**

Without subinterfaces, split-horizon goes into effect, and all routes learned from the Serial interface will not be advertised out of that interface.

**QUESTION NO: 46**

**You are a technician at TestKing. Your newly appointed TestKing trainee wants to know what the purpose of the CSNP and the PSNP packets in IS-IS are.**

**What would your reply be?**

- A. PSNP are used to acknowledge the receipt or to request the retransmission of the latest version of an LSP while the CSNP are used for synchronizing the LS Database on adjacent neighbors.
- B. CSNP are used to acknowledge the receipt or to request the retransmission of the latest version of an LSP while the PSNP are used for synchronizing the LS Database on adjacent neighbors.
- C. PSNP are used to acknowledge the receipt of the latest version of an LSP while the CSNP are used to synchronize the LS Database of adjacent neighbors or to request the retransmission of an LSP.
- D. CSNP are used to acknowledge the receipt of the latest version of an LSP while the PSNP are used to synchronize the LS Database of adjacent neighbors or to request the retransmission of an LSP.

**Answer: A**

**Explanation:**

CSNP (Complete Sequence Number PDU) is sent by the DR to maintain DB synchronization. PSNP (Partial Sequence Number PDU) are used to acknowledge or request one or more LSPs.

**QUESTION NO: 47**

**You are the network administrator at TestKing. The TestKing network supports a number of remote access users. A network access server (NAS) is configured to use TACACS+ to provide user authentication for these users. The NAS gets an ERROR in response to an authentication request.**

**What could be the cause of this problem? (Choose all that apply.)**

- A. The TACACS+ service is not running on the server.
- B. The user name and user password combination is incorrect.
- C. The username does not exist in the TACACS+ user database.
- D. The NAS TACACS+ server key does not match that on the server.
- E. The TACACS+ server is unreachable by the NAS.

**Answer: A, D, E**

**Explanation:**

A FAIL response is significantly different from an ERROR. A FAIL means that the user has not met the criteria contained in the applicable authentication database to be successfully authenticated. Authentication ends with a FAIL response. An ERROR means that the security server has not responded to an authentication query.

Because of this, no authentication has been attempted. Only when an ERROR is detected will AAA select the next authentication method defined in the authentication method list.

**Reference:**

[http://www.cisco.com/univercd/cc/td/doc/product/software/ios121/121cgcr/secur\\_c/scprt1/scdaaa.htm](http://www.cisco.com/univercd/cc/td/doc/product/software/ios121/121cgcr/secur_c/scprt1/scdaaa.htm)

**QUESTION NO: 48**

You are the network administrator at TestKing. The TestKing network contains four Routers named TK1, TK2, TK3, and TK4. All four routers are connected to a hub via Ethernet interfaces. All four routers have a basic OSPF configuration of a network statement for the Ethernet network. During routine maintenance, you issue the `show ip ospf neighbor` command on Router TK2. The output from the `show ip ospf neighbor` command shows 2WAY/DROTHER for its neighbor, Router TK3.

What conclusions can you draw from this output? (Choose all that apply.)

- A. Router TK2 is the DR or BDR.
- B. Router TK3 is not a DR or BDR.
- C. Router TK2 – Router TK3 adjacency is not yet FULL.
- D. Router TK2 is not the DR.
- E. Router TK4 is the DR.

**Answer: B, D**

**Explanation:**

**B, D:** 2WAY/DROTHER means that the two routers are neither the DR nor the BDR.

Incorrect Answers:

**A, C:** 2WAY/DROTHER means that the two routers are neither the DR nor the BDR.

**E:** Either Router TK1 or Router TK4 is the DR. We cannot be sure which one it is.

**QUESTION NO: 49**

You are the network administrator at TestKing. You purchase a new Catalyst switch for the TestKing network. You decide to download the latest supervisor image. You connect the switch to the corporate Catalyst switch on the TestKing network through the supervisor gigabit ports. The supervisor gigabit ports on both switches are in VLAN 100. VLAN 100 only exists on the two supervisor ports and only one router exists in that VLAN. After a short while, TestKing users complain that they cannot connect to the network.

What is the cause of this problem?

You did not issue the

- A. You did not issue the `clear cam dynamic` command before connecting to the corporate switch.
- B. You did not issue the `set spantree uplinkfast enable 1/1` command before connecting to the corporate switch.
- C. You did not issue the `set trunk 1/1 desirable isl` command before connecting to the corporate switch.
- D. You did not issue the `set vtp mode transparent` command before connecting to the corporate switch.
- E. You did not issue the `set port broadcast 1/1 25% unicast enable` command before connecting to the corporate switch.

**Answer: D**

**Explanation:**

In transparent mode, the switch will not participate in VTP, and it cannot override existing VTP settings.

**Reference:**

[http://www.cisco.com/warp/public/793/lan\\_switching/2.html](http://www.cisco.com/warp/public/793/lan_switching/2.html)

#### QUESTION NO: 50

You are a technician at TestKing. You need to configure a Catalyst 5000 switch urgently. However, only the previous TestKing administrator knows the password. The previous TestKing administrator has left the company. You know that the switch will use a factory-installed password for the first 30 seconds after booting.

What is the password?

- A. The string "cisco".
- B. The string "Cisco".
- C. The string "CISCO".
- D. CTRL-SHIFT-P
- E. The string "". **Enter Key**

**Answer: E**

**Explanation:**

Password recovery in Cat 5000 switch is performed in the following way. Power cycle the switch. Hit the Enter key during the first 30 sec. The switch will allow you to get into the enable mode. You will have 60 seconds to change the password and save the configuration change made during this period.

**QUESTION NO: 51**

**You are the new network administrator at TestKing. The TestKing network consists of 192.168.292.0/24 servers. TestKing has recently deployed a new e-commerce web farm and used multicasting teamed servers to maintain a heartbeat between redundant pairs.**

**You have been tasked to minimize security risks, and thus decided that TestKing needs each pair of servers capable of seeing multicast/broadcast traffic from their default gateway as well as from each other.**

**What mechanism for the server ports will best accomplish this task?**

- A. Span Ports.
- B. Insulated Ports.
- C. Community Ports.
- D. Isolated Ports.
- E. Promiscuous Ports.
- F. Teamed Ports.

**Answer: C**

**Explanation:**

Private VLANs provide Layer-2 isolation between ports within the same private VLAN on the Catalyst 6000 family switches. Ports belonging to a private VLAN are associated with a common set of supporting VLANs that are used to create the private VLAN structure.

There are three types of private VLAN ports: promiscuous, isolated, and community.

A promiscuous port communicates with all other private VLAN ports and is the port used to communicate with devices such as routers, LocalDirector, backup servers, and administrative workstations.

An isolated port has complete Layer 2 separation from other ports within the same private VLAN with the exception of the promiscuous port.

Community ports communicate among themselves and with their promiscuous ports. These ports are isolated at Layer 2 from all other ports in other communities or isolated ports within their private VLAN.

**QUESTION NO: 52**

**Which of the following EIGRP packets are sent via a reliable mechanism? (Choose all that apply.)**

- A. Hello
- B. Query
- C. Reply
- D. Update
- E. Ack

F. None of the above

**Answer: B, C, D**

**Explanation:**

EIGRP reliable packets are: update, query and reply. EIGRP unreliable packets are: hello and ack.

**Reference:** Cisco BSCN version 1.0 study guide, pages 6-18.

**QUESTION NO: 53**

**Which of the following protocols do not need to have their own router ID reachable by other routers and still have proper network connectivity? (Choose all that apply.)**

- A. EIGRP
- B. OSPF
- C. BGP
- D. LDP
- E. TDP
- F. None of the above.

**Answer: A, B, C**

**Explanation:**

LDP and TDP are not routing protocols.

**QUESTION NO: 54**

**Study the Exhibit below carefully:**



Queue 2

500	1500	500	500	1500
-----	------	-----	-----	------

Queue 1

500	1500	500	1500
-----	------	-----	------

Queue 0

1500	500	1500	500
------	-----	------	-----

Illustrated above is a snapshot of three queues. Queue 2 is a low-latency queue running in alternate-priority mode. The interface MTU is 1500. The queue weights are as follows: 1 for Queue 2, 2 for Queue 1 and 1 for Queue 0.

Assume that all the default counters are currently zero (0) and Queue 2 will be serviced first, how many packets will be left in Queue 2 after both of the other queues have had their initial pass?

- A. 0
- B. 1
- C. 3
- D. 100
- E. none of the above

**Answer: B**

**Explanation: MTU is 1500.**

**Weight of 1 for Queue 0 => 1500 bytes will be dequeued in first serv**

**Weight of 2 for Queue 1 =>  $1500 + (2-1) * 512 = 2012$  bytes will be dequeued per serv**

**Weight of 1 for Queue 2=> 1500 bytes will be dequeued in first serv**

Another minor detail (which does not have any impact on the outcome of the question) is that the packets are not numbered. We assume that the dequeuing operation is being done from left packet first to right.----->

Sequence of de queuing operation...

**Q 2 first (500 byte) and second (1500 byte) packet offloaded.**

Deficit  $1500 - 2000 = -500$

Q 1 first (500 byte) second (1500 byte) third (500 byte packet offloaded

Deficit  $2012 - 500 = -498$

**Q 2  $1500 - 500 = 1000$  bytes can be off loaded third (500 byte and four (500 byte ) packet are removed. last packet 1500 byte still remains.**

Q 0 first (1500 byte) packet is off loaded.

Q 2 is being served after both the other queues have had their initial pass.

How many packets remain in Q 2 after first run is what the question is asking.

The answer is 1 and not 0

#### QUESTION NO: 55

Transparent bridges have the ability to forward, flood, or drop frames based upon entries in the bridge table, which can either be added or removed dynamically. Which of the following statements regarding bridge table entries are valid? (Choose all that apply.)

- A. Decreasing the bridge table aging time would reduce flooding.
- B. Increasing the bridge table aging time would reduce flooding.
- C. Bridge table entries are learned by way of examining the source MAC address of each frame.
- D. Bridge table entries are learned by examining destination MAC addresses.
- E. Always make sure that the aging time is less than the aggregate time for detection and recalculation of the spanning tree.

**Answer: B, C**

#### **Explanation:**

Basic fundamental behind TB is to learn the network topology by means of storing the source mac address of a packet, and the corresponding interface from which the packet came on the network. This information is stored in the bridge table. To keep the bridge table small and manageable entries are deleted after a specified period of time, known as *bridge table aging time*. Once an entry is removed from the bridge table, and a packet arrives for which the information is no longer there in the bridge table, the packet will be flooded out of all interfaces except the interface on which it was received.

An increase in the bridge table aging time will reduce flooding.

#### QUESTION NO: 56

You are a network technician at TestKing. Your newly appointed TestKing trainee wants to know which of the following events will result in EIGRP neighbor relationship to be restarted.

What would your reply be? (Select two).

- A. Issuing the **clear ip route** command.
- B. Receiving an update packet from an unknown, recently established neighbor.
- C. Clearing the IP cache.
- D. Receiving an update packet with **Init flag** set from a known, already established neighbor relationship.
- E. Clearing the IP EIGRP neighbor relationship.

F. Issuing the **traceroute** command

**Answer: D, E**

**Explanation:**

D as well as E will result in EIGRP relationship to be restarted.

The reason for D: If a router receives an update packet with the init flag set it clearly implies that this packet is the first after a new neighbor relationship has been established.

The reason for E: If we clear the IP EIGRP neighbor relationship it will automatically result in EIGRP neighbor relationship to be restarted.

**QUESTION NO: 57**

**You are a technician at TestKing. Your newly appointed TestKing trainee wants to know which of the following protocols is NOT associated with the Signaling System No. 7.**

**What would your reply be?**

- A. TCAP
- B. MTP
- C. ISUP
- D. SIP
- E. SCCP

**Answer: D**

**Explanation:**

Only SIP is not associated with SS7.

**QUESTION NO: 58**

**Which of the following authentication protocols will be disabled if the IOS global configuration command `aaa new-model` is applied? (Choose all that apply.)**

- A. TACACS
- B. Radius
- C. Extended TACACS (XTACACS)
- D. TACACS+
- E. Kerberos
- F. None of the above.

**Answer: A, C**

**Explanation:**

aaa new-model disables old commands.

**QUESTION NO: 59**

**Which mechanism will be the best choice to prioritize any audio and video clips that are served by a web server over the static content such as text and graphics as integral parts of http flow?**

- A. LLC
- B. CBWFQ
- C. FRF .8
- D. NBAR
- E. LFI
- F. BRI

**Answer: D**

**Explanation:**

Network-Based Application Recognition (NBAR) solves this problem by adding intelligent network classification to network infrastructures. NBAR is a new classification engine that recognizes a wide variety of applications; including web-based and other difficult-to-classify protocols that utilize dynamic TCP/UDP port assignments. When an application is recognized and classified by NBAR, a network can invoke services for that specific application. NBAR ensures that network bandwidth is used efficiently by working with QoS features.

**Reference:**

<http://www.cisco.com/univercd/cc/td/doc/product/software/ios121/121newft/121limit/121e/121e2/nbar2e.htm>

**QUESTION NO: 60**

**You are the network administrator at TestKing.com. Your newly appointed TestKing trainee wants to know in which of the following the LAPD protocol is formally specified.**

**What would your reply be?**

- A. ITU-T T.30
- B. ITU-T T.261
- C. ITU-T Q.920

- D. ITU-T T-31
- E. ITU-T Q-931

**Answer: C**

**Explanation:**

The LAPD protocol is formally specified in ITU-T Q.920 and ITU-T Q.921.

#### QUESTION NO: 61

**You are the network administrator at TestKing. During routine maintenance, you issue the show interface command on one of the routers in the TestKing network. The output from the show interface command is shown in the following exhibit:**

```
RouterTestK# show interface serial 0/0
Serial 0 is up, line protocol down (disabled)
Hardware is CD2430 is sync mode
Internet address is 26.0.0.6/8
MTU 1500 bytes, BW 128 Kbit, DLY 20000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation FRAME-RELAY, loopback not set
Keepalive not set
FR SVC disabled, LAPF state down
Broadcast queue 0/64, broadcasts sent/dropped 37/0, interface broadcasts 37
Last input 00:00:01, output 00:00:20, output hang never
Last clearing of "show interface" counters 00:16:16
Queueing strategy: dual fifo
Output queue: high size/max/dropped 0/200/0
Output queue: 0/100, 0 drops; input queue 0/75, 0 drops
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
    39 packets input, 2995 bytes, 0 no buffer
    Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    39 packets output, 2975 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets
    0 output buffer failures, 0 output buffers swapped out
    0 carrier transitions
DCD=up DSR=up DTR=up CTS=up
```

**What can you conclude from this output?**

**This serial interface:**

- A. The Serial0/0 interface is operating properly.
- B. The Serial0/0 interface needs to be enabled with the no shut down command.
- C. The Serial0/0 interface is not working properly due to telco service problems.
- D. The Serial0/0 interface is using the wrong protocol.
- E. A loop exists in the circuit.

**Answer: C**

**Explanation:**

The line: **Serial 0 is up, line protocol is down (disabled)** indicates a telephone company service problem or a CSU/DSU hardware problem.

**Reference:**

[http://www.cisco.com/en/US/products/hw/voiceapp/ps967/products\\_administration\\_guide\\_chapter09186a00801946a3.html#1057773](http://www.cisco.com/en/US/products/hw/voiceapp/ps967/products_administration_guide_chapter09186a00801946a3.html#1057773)

**QUESTION NO: 62**

**With regard to TCP headers, what flag tells the receiver to pass the data to the receiving application?**

- A. ACK
- B. SYN
- C. SND
- D. PSH
- E. REQ

**Answer: D**

**Explanation:**

A PSH message tells the receiver to PUSH the data to the application.

**QUESTION NO: 63**

**You are the network administrator at TestKing. The TestKing network contains two routers: Routers TK1 and TK2. Both Router TK1 and Router TK2 are running BGP in the same Autonomous System. Routes from Router TK2 show up in the BGP table on Router TK1, but not as routes.**

**What could be the cause of this problem?**

- A. Synchronization is off.
- B. The BGP peers are down.

- C. Next-hop-self is disabled on Router TK1.
- D. Router TK1 is not receiving the same routes via an internal protocol.

**Answer: D**

**Explanation:**

BGP Synchronization says: "If your autonomous system is passing traffic from another AS to a third AS, BGP should not advertise a route before all routers in your AS have learned about the route via IGP."

**QUESTION NO: 64**

**Administratively scoped multicast addresses are similar to reserved Private IP address ranges (RFC 1918). They are Class D addresses that are designated for use on intranets.**

**What is the range of administratively scoped multicast addresses?**

- A. 224.0.0.0 – 224.255.255.255
- B. 225.0.0.0 – 225.255.255.255
- C. 232.0.0.0 – 232.255.255.255
- D. 239.0.0.0 – 239.255.255.255
- E. 240.0.0.0 – 254.255.255.255.

**Answer: D**

**Explanation:**

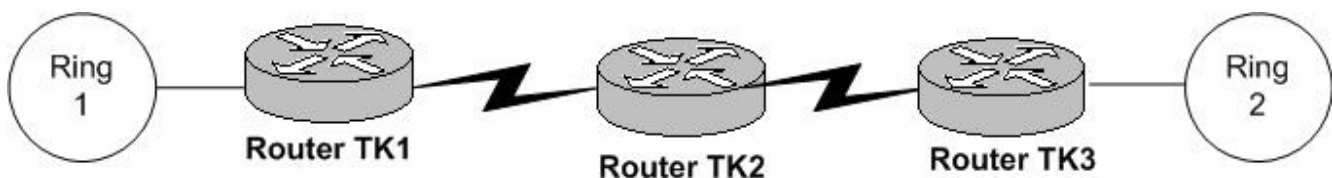
The administratively scoped IPv4 multicast address space is defined to be the range 239.0.0.0 to 239.255.255.255.

**Reference:**

RFC 2365 - <http://www.faqs.org/rfcs/rfc2365.html>

**QUESTION NO: 65**

**You are the network administrator at TestKing. The TestKing network includes three routers: Router TK1, Router TK2 and Router TK3. The network is shown in the following exhibit:**



There are DLSW+ peers between Router TK1 and Router TK2, as well as between Router TK2 and Router TK3. Router TK1 uses virtual ring number 50, while Router TK2 and Router TK3 use virtual ring number 100. TestKing users on Ring 1 complain that they cannot reach hosts on Ring 2.

What could be the cause of this problem?

- A. The **dlsw bridge-group** command on Router TK3 does not match the virtual ring number.
- B. Router TK2 and Router TK3 cannot have the same virtual ring number.
- C. Router TK1 must have a virtual ring number of 100.
- D. None of the above.

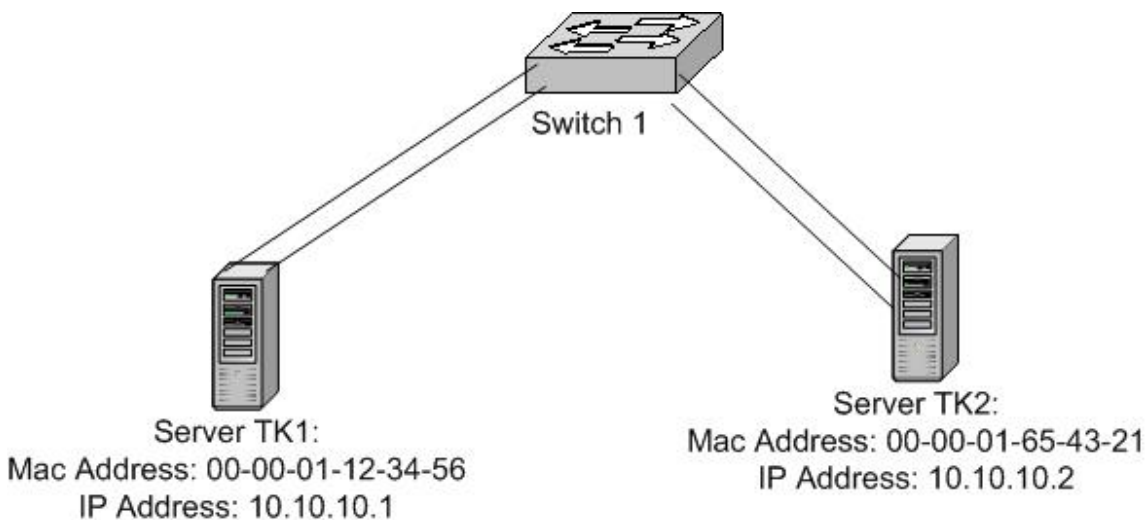
**Answer: C**

**Explanation:**

DLSW requires a single virtual-ring.

#### QUESTION NO: 66

You are the network administrator at TestKing. A network segment contains two servers named Server TK1 and Server TK2. Both servers are connected to Switch1 by means of Etherchannels. The network segment is shown in the following exhibit:



With regard to this network, which of the following statements are true?

- A. Both channels should be given the same channel-id.
- B. Load balancing of traffic between two servers will not work.



- C. Spanning Tree needs to be disabled on the VLAN for the channel to come up.
- D. Channeling to a server is not supported.
- E. None of the above.

**Answer: B**

**Explanation:**

**Note:** Ether Channel can be used between switches, servers and routers.

**QUESTION NO: 67**

**You are a technician at TestKing. Your newly appointed TestKing trainee wants to know what protocol On-Demand Routing relies on.**

**What would your reply be?**

- A. RIP
- B. PPP
- C. CDP
- D. UDP
- E. TCP/IP

**Answer: C**

**Explanation:**

ODR is based on CDP.

**QUESTION NO: 68**

**You are the network administrator at TestKing. You are troubleshooting a network problem. You want to trace the route to a Unix workstation that you want to reach through the Internet. However, Traceroute does not work. Currently, there is an inbound access-list applied to the serial interface on Router 1. An entry in the access-list states "access-list 101 permit tcp any any".**

**What access-list entry may you need to be added to the access-list in order to get traceroute to work?**

- A. access-list 101 permit udp any any
- B. access-list 101 permit icmp any any time-exceeded  
access-list 101 permit icmp any any port-unreachable
- C. access-list 101 permit icmp any any time-exceeded  
access-list 101 permit icmp any any net-unreachable

- D. `access-list 101 permit icmp any any echo`  
`access-list 101 permit icmp any any net-unreachable`
- E. `access-list 101 permit udp any any`  
`access-list 101 permit icmp any any protocol-unreachable`

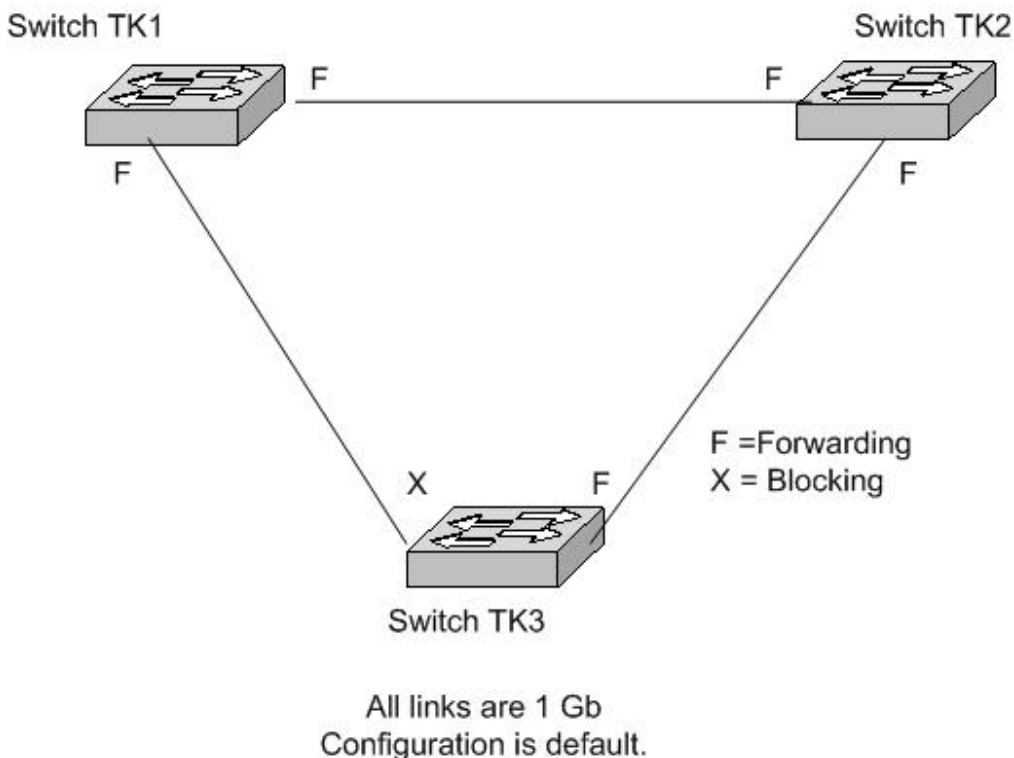
**Answer: B**

**Explanation:**

This is an example of CBAC. Keep in mind that port-unreachable and time-exceeded are ICMP messages that Cisco traceroute uses

**QUESTION NO: 69**

You are the network administrator at TestKing. The TestKing network is shown in the following exhibit:



You issue the `set spantree root 1` command on Switch TK1.

Which of the following is true of this network?

- A. No other switch in the network will be able to become root as long as Switch TK1 remains up and running in this topology.
- B. Switch TK1 will change its Spanning Tree priority to become the root for Vlan 1, only.

- C. The port that used to be blocking on Switch TK3 will be changed to forwarding.
- D. The link between Switch TK1 and Switch TK2 will remain forwarding even during the reconvergence of the Spanning Tree domain.

**Answer: B, C, D**

**Explanation:**

The syntax specified only makes TK1 root for Vlan 1.

**QUESTION NO: 70**

**You are the network administrator at TestKing. You are performing routine maintenance on a Router TestK. Router TestK is configured as shown in the following exhibit:**

```
RouterTestK#sh policy-map inter s4/0
```

```
Serial4/0
```

```
Service-policy output: SHAPE (1865)
```

```
Class-map: gold (match-all) (1866/2)
```

```
0 packets, 0 bytes
```

```
1 minute offered rate 0 bps, drop rate 0 bps
```

```
Match: ip dscp 10 12 15 (1868)
```

```
Traffic Shaping
```

Target Rate	Byte Limit	Sustain bits/int	Excess bits/int	Interval (ms)	Increment (bytes)	Adapt (active)
1024000	3200	12800	12800	25	3299	-

Queue Depth	Packets	Bytes	Packets	Bytes
		Delayed	Delayed	Active
0	0	0	0	no

```
Weighted Fair Queueing
```

```
Output Queue: Conversation 265
```

```
Bandwidth 50% Max Threshold 64 (packets)
```

```
(pkts matched/bytes matched) 0/0
```

```
(pkts discards/bytes discards/tail drops) 0/0/0
```

```
Router configuration:
```

```
ip cef
```

```
class-map match-all gold
```

```
match ip dscp 10 12 14
```

```
class-map match-all bronze
```

```
match ip dscp 26 28 30
```

```
class-map match-all silver
match ip dscp 18 20 22

policy-map SHAPE
class gold
  shape peak 512000
  bandwidth percent 50
class bronze
  shape average 384000
  bandwidth percent 20
class silver
  bandwidth percent 30
  shape peak 448000

interface Serial4/0
ip address 4.4.4.1 255.255.255.0
service-policy output SHAPE

end
```

**What is the CIR value for all the traffic marked with DSCP values 10, 12 and 14?**

- A. 128000
- B. 256000
- C. 512000
- D. 1024000
- E. Cannot be determined.

**Answer: D**

Target Rate = CIR

**QUESTION NO: 71**

**What does the BGP backdoor command do?**

- A. It changes the distance of an iBGP route to 20.
- B. It changes the distance of an eBGP route to 200.
- C. It changes the distance of an IGP route to 20.
- D. It does not effect any changes in distance of the route.
- E. It changes the distance of an IGRP route to 200.

**Answer: B**

**Explanation:**

Backdoor only makes the IGP learned route the preferred route.

To specify a backdoor route to a BGP border router that will provide better information about the network, use the **network backdoor** router configuration command. To remove an address from the list, use the **no** form of this command.

[http://www.cisco.com/en/US/products/sw/iosswrel/ps1826/products\\_command\\_summary\\_chapter09186a00800d9c5b.html#xtocid197442](http://www.cisco.com/en/US/products/sw/iosswrel/ps1826/products_command_summary_chapter09186a00800d9c5b.html#xtocid197442)

By definition, eBGP updates have a distance of 20 which is lower than the IGP distances. Default distance is 120 for RIP, 100 for IGRP, 90 for EIGRP, and 110 for OSPF.

By default, BGP has the following distances, but that could be changed by the **distance** command:

**distance bgp external-distance internal-distance local-distance**

**external-distance:20**

**internal-distance:200**

**local-distance:200**

If we want RTA to learn about 160.10.0.0 via RTB (IGP), then we have two options:

- Change eBGP's external distance or IGP's distance, which is not recommended.
- Use BGP backdoor.

BGP backdoor makes the IGP route the preferred route

RTA learns 160.10.0.0 from RTB via EIGRP with distance 90, and also learns it from RTC via eBGP with distance 20. Normally eBGP is preferred, but because of the **backdoor** command EIGRP is preferred

[http://www.cisco.com/en/US/tech/tk365/tk80/technologies\\_tech\\_note09186a00800c95bb.shtml#bgpbackdoor](http://www.cisco.com/en/US/tech/tk365/tk80/technologies_tech_note09186a00800c95bb.shtml#bgpbackdoor)

**QUESTION NO: 72**

**You are a network technician at TestKing. After configuring EtherChannel on Switch-B on ports 2/1-4 to Switch-A using set port channel 2/1-4 on, you receive the message as shown in the following exhibit:**

```
Switch-B> (enable)
%SPANTREE-2-CHNMISCFG: STP loop - channel 2/1-4 is disabled in vlan 1.
%PAGP-5-PORTFROMSTP:Port 2/1 left bridge port 2/1-4
%PAGP-5-PORTFROMSTP:Port 2/2 left bridge port 2/1-4
%PAGP-5-PORTFROMSTP:Port 2/3 left bridge port 2/1-4
%PAGP-5-PORTFROMSTP:Port 2/4 left bridge port 2/1-4
```

**You disabled the EtherChannel on Switch-B, but you still have no connectivity to Switch-A.**

**Which of the following commands has to be issued on Switch-B to restore communication with Switch-A?**

- A. set port channel all mode off

- B. set trunk channel 2/1-4 desirable dot1q
- C. set port enable 2/1-4
- D. set port channel 2/1-4 mode desirable

**Answer: C**

**Explanation:**

The message clearly indicates that the ports 2/1-4 have been disabled. This is a consequence of spantree.  
[channel 2/1-4 is disabled in vlan 1](#)

The command to enable these ports is set port enable 2/1-4.

**QUESTION NO: 73**

**Which of the following DNS resource records is not valid?**

- A. NS
- B. PTR
- C. MX
- D. FQDN
- E. A

**Answer: D**

**Explanation:**

FQDN is Fully Qualified Domain name, i.e. [www.cisco.com](http://www.cisco.com). It has nothing do with DNS RRs.

**QUESTION NO: 74**

```
router ospf 1
 redistribute igmp 20 metric 50 subnets
```

**What is the significance of the word subnets in the above configuration?**

- A. It will result in OSPF recognizing classful networks.
- B. It has no effect since IGRP will summarize class boundaries by default.
- C. It will coerce IGRP into supporting VLSM here.
- D. It causes OSPF to accept networks with non-classful masks.

**Answer: D**

**Explanation:**

Whenever there is a major net that is subnetted, you need to use the keyword subnet to redistribute protocols into OSPF. Without this keyword, OSPF only redistributes major nets that are not subnetted. It is possible to run more than one OSPF process on the same router, but as mentioned before, running more than one process of the same protocol is rarely needed, and it consumes the router's memory and CPU.

**QUESTION NO: 75**

Which of the following features is provided by RIP v2 that were previously not possible with RIP v1? (Choose all that apply.)

- A. Classless routing and split-horizon.
- B. Poison reverse and updating to multicast addresses.
- C. Poison reverse and classless routing.
- D. Classless routing and updating to multicast addresses.
- E. Route tag and classless routing.

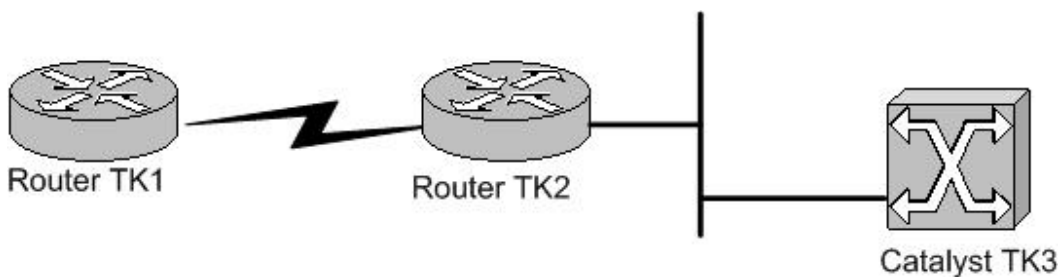
**Answer: A, B, C, E**

**Explanation:**

Both Classless Routing and Multicast updates (224.0.0.9) were impossible with RIP v1 (all other answers have one thing that RIP v1 had.).

**QUESTION NO: 76**

You are the network administrator at TestKing. You are troubleshooting a network problem on the TestKing network. The TestKing network is shown in the following exhibit:



Router TK2 is able to telnet the command interface of the switch, but router TK1 cannot.

What is the probable cause of this problem?

- A. There is no VTP domain on the Catalyst switch.
- B. The incorrect VLAN is attached to the command interface of the Catalyst.
- C. There is no default route configured on the switch.
- D. An incorrect IP address on the switch.
- E. The command interface of the Catalyst is not attached to a VLAN.

**Answer: C**

**Explanation:**

Without a default route on Cat TK3, TK3 will not know how to get packets back to TK1.

**QUESTION NO: 77**

**Which of the following statements is valid when taking Custom Queuing into account?**

- A. Custom queuing has the ability to restrict a particular type of traffic to a given bandwidth not matter what is load is like on that link.
- B. Custom queuing looks at groups of packets from the similar source-destination pairs.
- C. Custom queuing will not proceed to a next queue unless the current queue is empty.
- D. Custom queuing can prevent one type of traffic from dominating a busy link.

**Answer: D**

**Explanation:**

With custom-queuing, all queues will be serviced. With priority-queuing, a bandwidth hog can dominate the link.

**QUESTION NO: 78**

**You are a technician at TestKing. Your newly appointed TestKing trainee wants to know which ISDN reference point network boundary does NOT have an ITU-T standard.**

**What would your reply be?**

- A. R
- B. U
- C. T
- D. S/T
- E. None of the above

**Answer: B**

**Explanation:**

U is not specified in any ITU-T standard (the others > are specified in I.411 and I.412). U reference point is used in North America only.



**QUESTION NO: 79**

**Which of the following statements is true when considering distance vector and link state routing protocols?**

- A. Distance vector protocols have a finite limit of hop counts whereas link state protocols are limitless on the number of hops for a route.
- B. Distance vector protocols have better convergence than link state protocols.
- C. Both distance vector and link state protocols are influenced by link bandwidth and delays when calculating routes.
- D. RIP is a distance vector protocol unlike RIP v2 and OSPF are link state protocols.
- E. Distance vector protocols only send updates to neighboring routers whereas link state protocols depend on flooding to update all routers in the within the same routing domain.

**Answer: A**

**Explanation:**

Only A is true.

**QUESTION NO: 80**

**You are a technician at TestKing. Your newly appointed TestKing trainee wants to know which of the following security services is NOT provided by IPSec.**

**What would your reply be?**

- A. Data integrity.
- B. Data origin authentication.
- C. Data confidentiality.
- D. Protection for multicast/broadcast traffic.
- E. Anti-replay.

**Answer: D**

**Explanation:**

IPSec provides no security against Multicast and Broadcast traffic. In fact IPSec does not support multicast traffic.

**QUESTION NO: 81**

**What is a valid ISAKMP policy parameter when configuring IPsec on IOS routers?**

- A. Security Association's lifetime.
- B. Encryption algorithm.
- C. Hash algorithm.
- D. Authentication method.
- E. Diffie-Hellman group identifier
- F. All of the above.

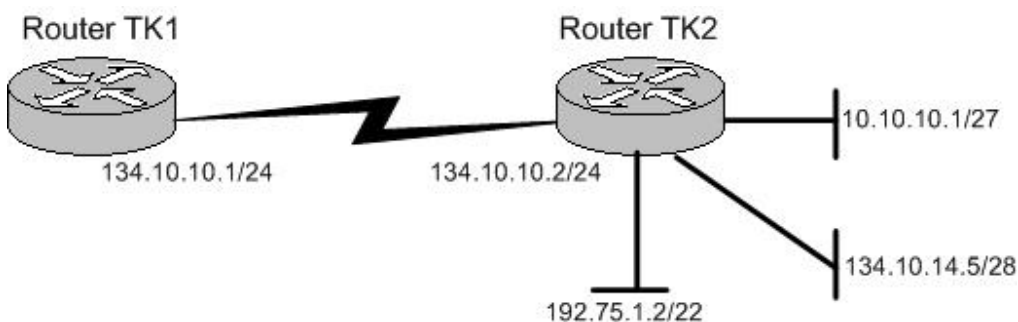
**Answer: F**

There are five parameters to define in each IKE policy:

Parameter	Accepted Values	Keyword	Default Value
encryption algorithm	56-bit DES-CBC	<b>des</b>	56-bit DES-CBC
hash algorithm	SHA-1 (HMAC variant) MD5 (HMAC variant)	<b>sha</b> <b>md5</b>	SHA-1
authentication method	RSA signatures RSA encrypted nonces pre-shared keys	<b>rsa-sig</b> <b>rsa-encr</b> <b>pre-share</b>	RSA signatures
Diffie-Hellman group identifier	768-bit Diffie-Hellman or 1024-bit Diffie-Hellman	<b>1</b> <b>2</b>	768-bit Diffie-Hellman
security association's lifetime			

**QUESTION NO: 82**

**You are the network administrator at TestKing. The TestKing network contains two routers named Router TK1 and Router TK2 as shown in the following exhibit:**



**Both Router TK1 and Router TK2 are running RIPv1. Your newly appointed TestKing trainee wants to know which of the networks attached to Router TK2 will be advertised to Router TK1**

**What would your reply be? (Select all that apply.)**

- A. 10.10.10.0/27 and 134.10.15.0/28
- B. 10.0.0.0/8 and 192.75.0.0/24
- C. 134.10.15.0/28 and 192.75.0.0/22
- D. Only 10.0.0.0/8
- E. Only 134.10.15.0/28
- F. Only 10.10.10.0/27
- G. None of the above.

**Answer: D**

**Explanation:**

**Only one subnet 10.0.0.0/8 will be advertised.**

In this scenario we are being tested on the following concepts:

RIP V1 performs auto summarization at network boundaries by default. It treats the subnets to be advertised differently depending upon several attributes of the respective subnets.

- How is a subnet (10.10.10.1/27), which is not a part of major network of outgoing interface advertised?
- How is subnet with same major network as outgoing interface but different subnet mask advertised?
- How is a super net (192.75.1.2/22) advertised?

Here is the process RIP v1 uses to advertise, assuming that there are no filters (such as distribute-lists, or route-maps) to block the packet:

**Is the route to be advertised part of the major network of the interface?**

If it is not, then summarize the network to its classful boundary and send it out.

**This is the fate of the 10.10.10.0/27 subnet, which will be summarized as 10.0.0.0/8 and sent out.**

If the route is part of the major network, check to see if the subnet mask **matches** that of the outgoing interface. If the subnet mask does match then advertise the route out the interface.

If the subnet mask of the route does not match the interface's subnet mask, then **do not advertise** the route out the interface unless the route is a host route (/32).

**This is the fate of the 134.10.15.0/28 subnet, which will be not be sent out (advertised) at all.**

Super net advertisement (advertising any network prefix less than its classful major network) is not allowed in RIP route summarization.

**This is the fate of the 192.75.1.2/22 subnet, which will be not be sent out (advertised) at all.**

Please note:

If the route is a host route then advertise it out.

**QUESTION NO: 83**

**You are the network administrator at TestKing. You use Committed Access Rate (CAR) to configure policing on a Fast Ethernet interface to allow for extended burst. Traffic has been bursty. A packet arrives on the interface that causes the compounded debt to be greater than the extended burst.**

**With regard to this situation, which of the following statements are true?**

- A. The packet is dropped.
- B. A token is removed from the token ring.
- C. The compounded debt value is effectively set to zero (0).
- D. The packet is not buffered by the CAR process.

**Answer: A, C, D**

**Reference:**

[http://www.cisco.com/univercd/cc/td/doc/product/software/ios120/12cgcr/qos\\_c/qcpart4/qcpolts.htm](http://www.cisco.com/univercd/cc/td/doc/product/software/ios120/12cgcr/qos_c/qcpart4/qcpolts.htm)

**QUESTION NO: 84**

**You are the network administrator at TestKing. You use an ISL trunk to connect two different VLAN Trunk Protocol domains. However, the switches fail to form the trunk automatically.**

**What is the probable cause of this problem?**

- A. The native VLANs are not the same.
- B. The trunks need to be set to "on" or "auto".
- C. The trunks need to be set to "desirable" or "nonegotiate".
- D. The VTP domain names carried in the Dynamic Inter-Switch Link (DISL) messages are not the same.
- E. The Unidirectional Link Detection timers are shorter than the Spanning Tree Protocol (STP) timers.

**Answer: D**

VTP domain names on an ISL trunk must be the same.

**Reference:**

[http://www.cisco.com/warp/public/793/lan\\_switching/2.html](http://www.cisco.com/warp/public/793/lan_switching/2.html)

**QUESTION NO: 85**

**You are the network administrator at TestKing. You intend to power as many IP phones as possible using the switch shown in the following exhibit:**

```
6509A (enable) show environment power
PS1 Capacity 1153.32 Watts (27.46 Amps @42V)
PS2 Capacity 1153.32 Watts (27.46 Amps @42V)
PS Configuration: PS1 and PS2 in Redundant Configuration.
Total Power Available: 1153.32 Watts (27.46 Amps @42V)
Total Power Available for line Card Usage: 1153.32 Watts (27.46 Amps @42V)
Total Power Drivers From the System: 952.98 Watts (22.69 Amps @42V)
Remaining Power in the System: 200.34 Watts (4.77 Amps @42V)
Default Inline Power allocation per point: 7.00 Watts (0.16 Amps @42V)
```

Slow power Requirement/Usage:

Slot	Card Type	PowerRequested Watts	A @42V	PowerAllocated Watts	A @42V	CardStatus
------	-----------	-------------------------	--------	-------------------------	--------	------------

1	WS-X6K-SUP1A-2GE	138.60	3.30	138.60	3.30	ok
2	WS-X6K-SUP1A-2GE	138.60	3.30	138.60	3.30	standby
3	WS-X6182-2PA	99.96	2.38	138.69	3.30	ok
4	WS-X6408-GBIC	63.00	1.50	63.00	1.50	ok
5	WS-X6248-RJ-45	112.98	2.69	112.98	12.69	ok
6	WS-X6248-RJ-45	112.98	2.69	112.98	12.69	ok
7	WS-X6348-RJ-45	100.38	2.39	100.38	2.39	ok
8	WS-X6624-FXS	64.68	1.54	64.68	1.54	ok
9	WS-X6608-T1	83.16	1.98	83.16	1.98	ok

```
6509A (enable) show module
```

Mod	Slot	Ports	Module-Type	Model	Sub	Status
1	1	2	1000BaseX Supervisor	WS-X6K-SUP1A-2GE	yes	ok
15	1	2	Multilayer Switch Feature	WS-F6K-MSFC	no	ok
2	2	2	1000BaseX Supervisor	WS-X6K-SUP1A-2GE	yes	standby
16	1	2	Multilayer Switch Feature	WS-F6K-MSFC	no	ok
4	4	8	1000BaseX Ethernet	WS-X6408-GBIC	no	ok
5	5	48	10/100BaseTX Ethernet	WS-X6248-RJ-45	no	ok
6	6	48	10/100BaseTX Ethernet	WS-X6248-RJ-45	no	ok
7	7	48	10/100BaseTX Ethernet	WS-X6348-RJ-45	no	ok
8	8	24	FXS	WS-X6624-FXS	no	ok
9	9	8	T1	WS-X6608-T1	no	ok

Mod	Module-Name	Serial-Num
-----	-------------	------------

1	SAD040304K3
15	SAD04010LLC
2	SAD04060MJR
16	SAD04060RGL
3	SAD0404470FJH
4	SAD03111748
5	SAD03251828
6	SAD03263422
7	SAD04300N88

### 350 - 001

8 SAD05100AKN  
9 SAD04380DBA

Mod	MAC-Address(es)	Hw	Fw	Sw
1	00-30-b6-34-a7-7a to 00-30-b6-34-a7-7b 00-30-b6-34-a7-78 to 00-30-b6-34-a7-79 00-d0-06-23-80-00 to 00-d0-06-23-83-ff	3.1	5.3(1)	6.2(3)
15	00-30-b6-34-a7-7c to 00-30-b6-34-a7-bb	1-3	12-1(7a)E1	12.1(7a)E1
2	00-01-c9-da-11-4e to 00-01-c9-da-11-4f 00-01-c9-da-11-4c to 00-01-c9-da-11-4d	3.1	5.3(1)	6.2(3)
16	00-0532-33-3c-40 to 00-05-32-33-3c-7f	1.3	12.1(7a)E1	12.1(7a)E1
3	00-02-fe-66-69-6c to 00-02-ffe-66-69-ab	1.3	12.1(7a)E1	12.1(7a)E1
4	00-50-54-6c-c0-90 to 00-50-54-6c-c0-97	1.4	4.2(0.24)v	6.2(3)
5	00-50-54-6d-17-44 to 00-50-54-6d-17-73	1.1	4.2(0.24)v	6.2(3)
6	00-50-54-6e-c0-70 to 00-50-54-6e-c0-77	1.1	4.2(0.24)v	6.2(3)
7	00-01-97-52-c7-60 to 00-01-97-52-c7-8f	1.1	5.3(1)	6.2(3)
8	00-03-32-bb-51-7f	3.0	5.4(2)	6.2(3)
9	00-01-c9-d8-7d-ba to 00-01-c9-d8-7d-c1	1.1	5.4(2)	6.2(3)

Mod	Sub-Type	Sub-Model	Sub-Serial	Sub-Hw
1	L3 Switching Engine	WS-F6K-PFC	SAD04010EHF	1.0
2	L3 Switching Engine	WS-F6K-PFC	SAD04061135	1.0
2	Inline Power Module	WS-F6K-VPWR		1.0

**You want the power supplies to continue to operate in redundant mode after the task is complete.**

**Approximately how many IP phones can be powered by the switch?**

- A. None
- B. 7
- C. 28
- D. 48
- E. 144

**Answer: C**

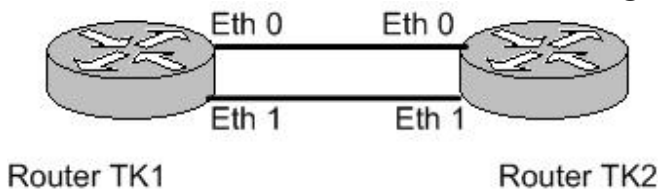
Remaining Power in system = 200.34..

Default Line Power per point = 7 W

Number of IP phones=200.34/7 = 28

**QUESTION NO: 86**

You are the network administrator at TestKing. The TestKing network is shown in the following exhibit:



You perform the following router configurations:

**Router TK1:**

```

no ip routing
!
interface Ethernet 0
no ip address
bridge-group 1
!
interface Ethernet 1
no ip address
bridge-group 1
!
bridge 1 protocol ieee
  
```

**Router TK2:**

```

no ip routing
!
interface Ethernet 0
no ip address
bridge-group 2
!
interface Ethernet 1
no ip address
bridge-group 2
!
bridge 2 protocol ieee
bridge 2 priority 65000
  
```

With regard to this configuration, which of the following are true?

- A. Router TK2 will become the root.  
One port on Router TK1 will be forwarding, and the other will be blocking.  
One port on Router TK2 will be forwarding, and the other will be blocking.
- B. Both Router TK1 and Router TK2 will become the root in an independent spanning tree.  
All ports on Router TK1 and Router TK2 will be forwarding.
- C. Router TK1 will become the root.  
Both ports on Router TK1 will be forwarding.

- Both ports on Router TK2 will be forwarding.
- D. Router TK2 will become the root.  
Both ports on Router TK1 will be forwarding.  
One port on Router TK2 will be forwarding, and the other will be blocking.
- E. Router TK1 will become the root.  
Both ports on Router TK1 will be forwarding.  
One port on Router TK2 will be forwarding, and the other will be blocking.

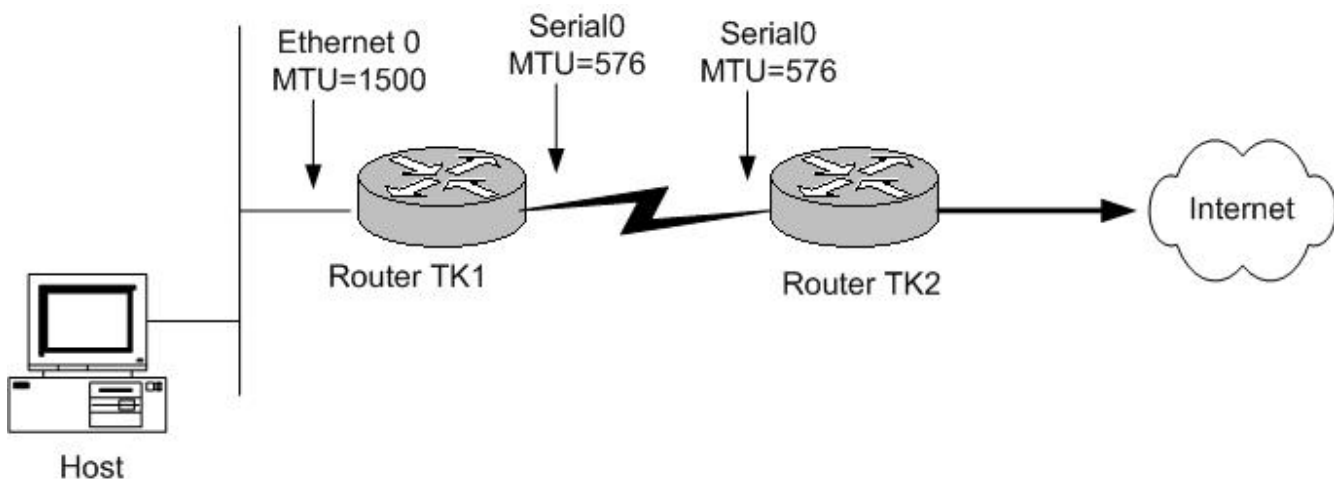
**Answer: E**

**Explanation:**

Bridge 1's priority is at default 32769, Bridge 2 is at 65000, Bridge 1 (with a lower Bridge ID) will be Root Bridge. All ports on the root bridge are always in forwarding state, hence both the ports on Bridge 1 will be in forwarding state. As per STP any other Bridge can only have one connection to the Root Bridge in Forwarding state, hence only one port on Bridge 2 will be forwarding.

**QUESTION NO: 87**

**You are the network administrator at TestKing. The TestKing network is shown in the following exhibit:**



**Host sends a 1500 byte TCP packet with the DF (Don't Fragment) bit set to the Internet.**

**What will Router TK1 do when it tries to forward the packet to interface Serial0?**

- A. It will ignore the DF bit and fragment the packet because routers do not recognize the DF bit.
- B. It will forward the packet without fragmenting it because the DF bit is set.
- C. It will drop the packet and wait for the host to dynamically decrease its MTU size.
- D. It will fragment the packet, and send back ICMP type 3 code 4 (fragmentation needed but DF bit set) messages back to the host.
- E. It will drop the packet, and send back ICMP type 3 code 4 (fragmentation needed but DF bit set) message back to the host.



**Answer: E**

**Explanation:**

Since the DF bit in the IP packet is set, the router will not be allowed to fragment the packet. Also the MTU size on the routers serial interface is restricted to 576, hence the packet will not be allowed to pass through and it will be dropped.

**QUESTION NO: 88**

**You are a technician at TestKing. Your newly appointed TestKing trainee wants to know what the first task is when performing password recovery on a Catalyst 5000 series switch.**

What would your reply be?

- A. Reboot the switch using the **reload** command.
- B. Reboot the switch using the **restart** command.
- C. Set the configuration register to ignore the startup configuration.
- D. Set the boot register to 0x2142.
- E. Power cycle the switch.

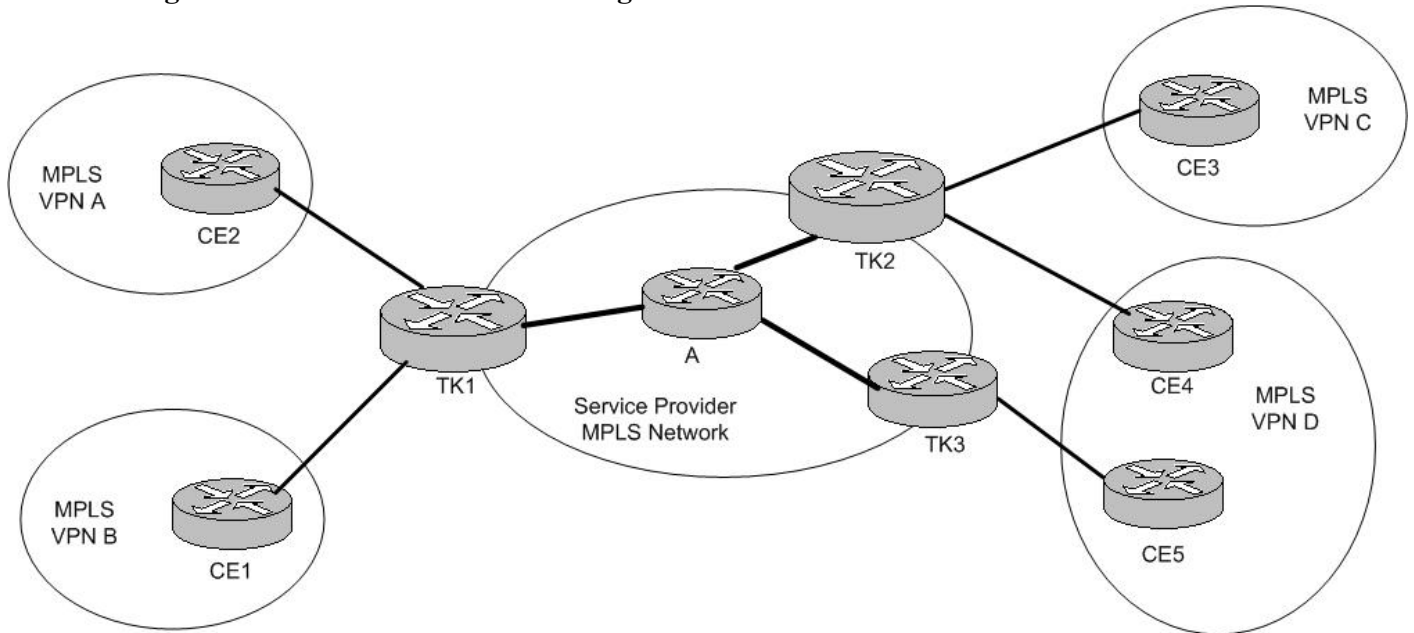
**Answer: E**

Power cycling the switch is the only way to get into password recovery

[http://www.cisco.com/warp/public/474/pswdrec\\_6000.html](http://www.cisco.com/warp/public/474/pswdrec_6000.html)

**QUESTION NO: 89**

You are the network administrator at TestKing. TestKing has a MPLS network. The router topology for the TestKing network is shown in the following exhibit:



**How many routing tables should there be on Router TK2?**

- A. 1
- B. 2
- C. 3
- D. 4
- E. 5

**Answer: A**

There is only one routing table, and two VRFs (VPN routing and forwarding tables).

**QUESTION NO: 90**

With regard to the use of VACLs on the Catalyst 6500 switch, which of the following statements are true? (Choose all that apply.)

- A. VACLs can be used to forward/drop and redirect traffic based on Layer 2 and Layer 3 information.
- B. VACLs cannot be used when using QoS on the switch.
- C. VACLs can be used together with RACL's.
- D. VACLs can be used for traffic that is being Layer 3 switched.
- E. VACLs do not cause extra latency for traffic passing through the switch.

**Answer: A, C, D**

**Explanation:**

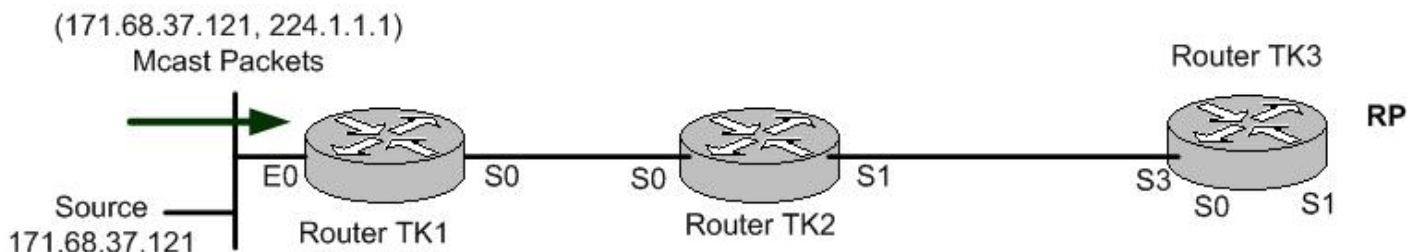
VACLs can be used when using QoS on the switch. VACLs cause extra latency for traffic passing through the switch. For a detailed discussion on VACLs please go through the link below.

**Reference:**

[http://www.cisco.com/univercd/cc/td/doc/product/lan/cat6000/sw\\_6\\_3/config\\_gd/acc\\_list.htm#1052397](http://www.cisco.com/univercd/cc/td/doc/product/lan/cat6000/sw_6_3/config_gd/acc_list.htm#1052397)

**QUESTION NO: 91**

You are a network technician at TestKing. The TestKing network is shown in the following exhibit:

**Router TK1:**

```
(*, 224.1.1.1), 00:00:03/00:00:00, RP 171.68.28.140, flags: SP
Incoming interface: Serial0, RPF nbr 171.68.28.191,
Outgoing interfaces list: Null
```

```
(171.68.37.121/32, 224.1.1.1), 00:00:03/00:02:56, flags FPT
Incoming interface: Ethernet0, RPF nbr 0.0.0.0, Registering
Outgoing interface list: Null
```

Your newly appointed TestKing trainee wants to know which of the following error(s) conditions has the “Registering” indicator to stay present in the (S, G) entry as a result.

**What would your reply be? (Choose all that apply.)**

- A. Router TK2 has incorrectly calculated the RPF interface for the source (171.68.37.121) as Serial1.
- B. Router TK3 (RP) failed to send a "Register-Stop" message to Router TK2.
- C. Multicast group 244.1.1.1. was not joined by receivers.
- D. PIM is not enabled on Router TK2.

**Answer: B, D**

**Reference:** Developing IP Multicast Networks, (from page 259, PIM register process)

**QUESTION NO: 92**

**Which of the following fields qualifies as an optional component according to the IEEE 802.5 Token Ring specifications?**

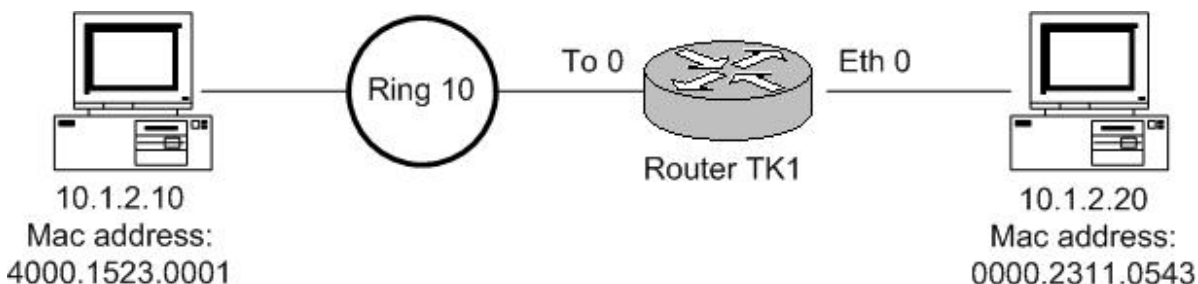
- A. RI – Routing Information
- B. FC – Frame Control
- C. AC – Access Control
- D. FCS – Frame Check Sequence
- E. RC – Routing Control
- F. EFS – End of Frame Sequence

**Answer: A**

The RI field is optional.

**QUESTION NO: 93**

**You are the network administrator at TestKing. The TestKing network is shown in the following exhibit:**



**You perform the following configuration on Router TK1:**

```
RouterTK1:
  no ip routing
  !
  source-bridge ring-group 100
  source-bridge transparent 100 200 1 1
  !
  interface Ethernet 0
  no ip address
  bridge-group 1
  !
  InterfaceToken ring 0
  no ip address
  source-bridge 10 1 100
  source-bridge spanning
  !
  bridge 1 protocol ieee
  bridge 1 bitswap-layer3-addresses
```

**What will happen to the frame if a non source route ARP Request that is sourced by 10.1.2.10 and destined to 10.1.2.20?**

- A. Router TK1 would bitswap the MAC addresses before forwarding the frame out of the Ethernet.
- B. Router TK1 would forward the ARP request as is to the Ethernet interface within the frame.
- C. Router TK1 will not be able to forward the frame because it is not source routable.
- D. Router TK1 would cache the Routing Information Field (RIF), bitswap the MAC addresses then forward the frame out of the Ethernet.

**Answer: C**

**Explanation:**

In SR/TLB for a request from the TR side to be able to reach the Ethernet side it is essential that the source route information be included in the request packets. If a non-source routable request is encountered then it will be dropped, as the SR/TLB will not be able to act upon it due to the lack of source route information.

**QUESTION NO: 94**

**You are a network technician at TestKing. Your newly appointed TestKing trainee wants to know why the clock source command is used in the IOS T1/E1 interface command mode, as well as the default setting.**

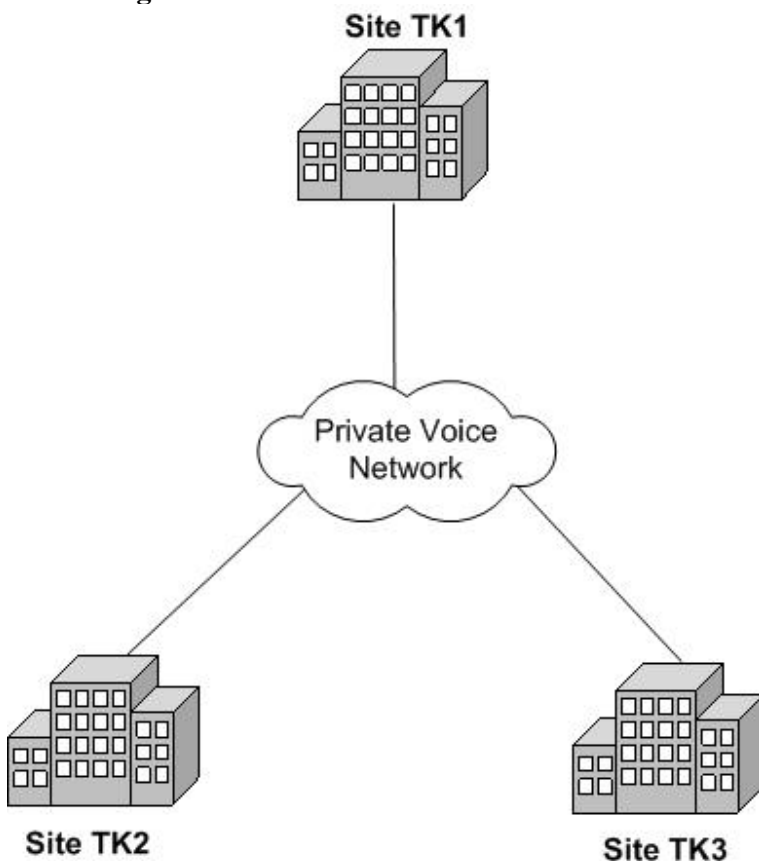
**What would your reply be?**

- A. **The clock source** selects a source for the interface to clock received data.  
Its default is clock source loop-timed (Specifies that the T1/E1 interface takes the clock from the Tx (line) and uses it for Rx.)
- B. Routers are DTEs and NEVER supply clock to T1/E1 line.
- C. **The clock source** selects a source for the interface to clock outgoing data.  
The default is clock source line –Specifies that the T1/E1 link uses the recovered clock from the line.
- D. **The clock source** identifies the stratum level associated with the router T1/E1. Its default is Stratum 1.

Answer: C

**QUESTION NO: 95**

You are the network administrator at TestKing.com. The topology for the TestKing network is shown in the following exhibit:



**Some TestKing users on Site TK1 complain that voice calls from Site TK2 and Site TK3 are loud and distorted. TestKing users on Site TK3 complain that voice calls from Site TK1 are too soft.**

**How will you address these concerns?**

- A. Apply both option B and Option C.
- B. Apply padding (to soften harshness of sound) inbound to Site TK1 and outbound from Site TK2.
- C. Apply gain (to enhance sounds) inbound to Site TK3.
- D. Apply gain (to enhance sounds) outbound from Site TK1 and inbound to Site TK2.
- E. Apply both option C and option D.

**Answer: E**

**Explanation:**

To increase the volume. You can increase the gain of a signal coming into the router. If the voice level is too low, you can increase the input gain by using the input gain command.

**QUESTION NO: 96**

**In what are the bc and be parameters in Frame Relay traffic shaping measured?**

- A. Bits per millisecond.
- B. Bits per interval.
- C. Bytes per interval.
- D. Bytes per second.
- E. Bits per second
- F. Bytes per millisecond

**Answer: B**

**Explanation:** The Sustain (bc) and excess (be) are configured bit per interval.

**Reference:**

[http://www.cisco.com/warp/public/125/framelay\\_ts\\_cmd.html](http://www.cisco.com/warp/public/125/framelay_ts_cmd.html)

**QUESTION NO: 97**

You are a technician at TestKing. Your newly appointed TestKing trainee wants to know which signaling protocol is used by Cisco to provide support for MPLS traffic engineering.

What would your reply be?

- A. RSVP
- B. LDP
- C. BRI
- D. SS7
- E. TDP

**Answer: A**

Cisco FRR utilizes MPLS label stacking with RSVP signaling to create a backup tunnel around the link or node that needs to be protected. On detection of loss of signal from the link, the MPLS FRR application in Cisco IOS Software starts forwarding the traffic onto the backup tunnel, transparent to end users or applications such as VoIP or video, in 50 ms or less (actual failover time may be greater or less than 50ms, depending on the hardware platform, the number of TE Tunnels and/or Network prefixes).

**Reference:** White Paper, Deploying Guaranteed-Bandwidth Services with MPLS

[http://www.cisco.com/en/US/tech/tk436/tk428/technologies\\_white\\_paper09186a00800a3e69.shtml](http://www.cisco.com/en/US/tech/tk436/tk428/technologies_white_paper09186a00800a3e69.shtml)

**QUESTION NO: 98**

You are the network administrator at TestKing. You have a access-list that contains the following entries:

```
access-list 101 permit tcp any host 209.165.201.10 eq telnet
access-list 101 deny ip any any
```

Which types of packets will be permitted through the router if it has been configured with the above inbound ACL? (Choose all that apply.)

- A. A non-fragment packet en route to the server on port 21.
- B. A non-initial fragment packet en route to the server on port 23.
- C. A non-initial fragment packet passing through to another host that's not 229.165.201.10.
- D. A non-initial fragment packet going to the server on port 21.
- E. An initial-fragment or non-fragment packet en route to the server on port 23.



**Answer: B, D, E**

**Explanation:**

**B, E:** Telnet (port 23) is permitted by ACL.

**D:** A non initial fragment destined to the server will indeed be permitted. The reason being that the first line of ACL has some L3 and some L4 information which needs to be matched for a packet to be permitted.

Since a non initial frame matches the L3 information. Moreover since it is a non initial frame so it will contain no L4 information in it. Hence the packet will be permitted.

**QUESTION NO: 99**

**You are a technician at TestKing. Your newly appointed TestKing trainee wants to know which of the following would be the correct framing types for a T1 data line.**

**What would your reply be? (Choose all that apply.)**

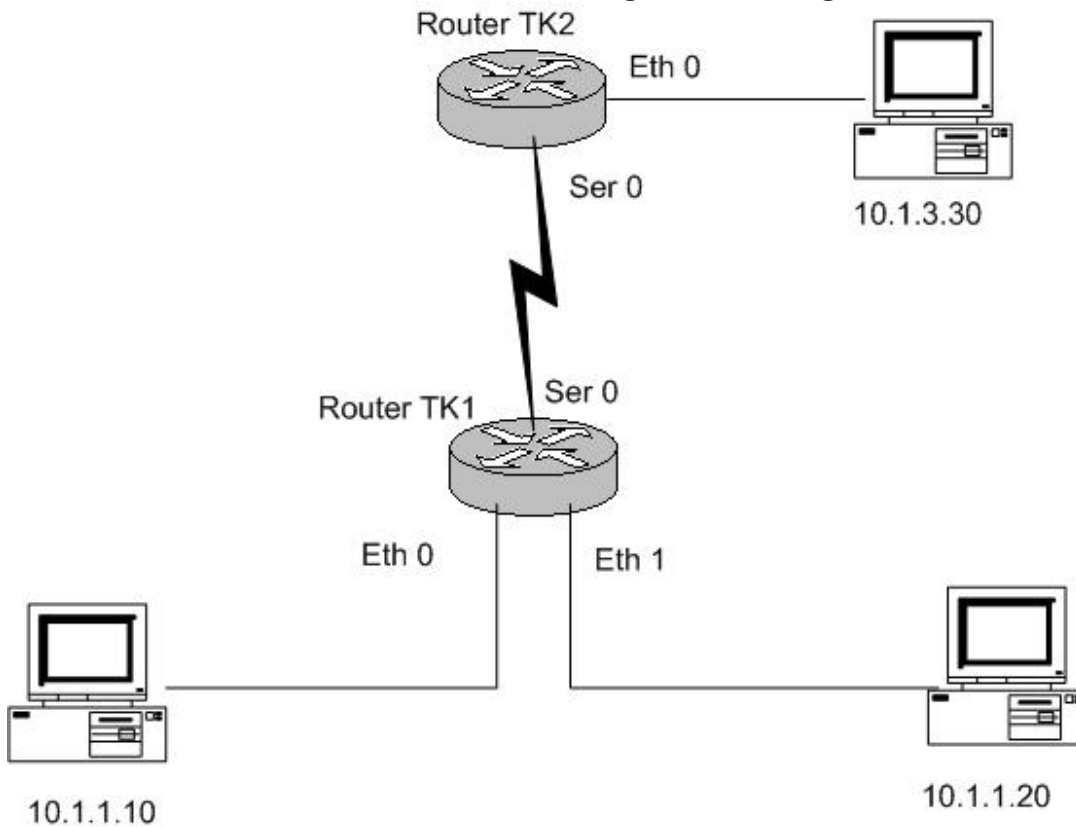
- A. B8ZS
- B. SF
- C. EMI
- D. Token Ring
- E. ESF
- F. All of the above.

**Answer: B, E**

**Explanation:** SuperFraming and Extended SuperFraming are the two T1 framing types.

**QUESTION NO: 100**

You are the network administrator at TestKing. The TestKing network is shown in the following exhibit:



You perform the following configuration:

**RouterTK1:**

```

bridge irb
!
interface Ethernet 0
no ip address
bridge-group 1
!
interface Ethernet 1
no ip address
brige-group 1
!
interface serial 0
ip address 10.1.2.1 255.255.2550
!
interface BVI 1
ip address 10.1.1.1 255.255.255.0
no ip directed-broadcast
  
```

```

!
router eigrp 1
network 10.1.0.0
!
bridge 1 protocol ieee
bridge 1 route ip

```

**RouterTK2:**

```

interface Ethernet 0
ip address 10.1.3.1 255.255.255.0
!
interface serial 0
ip address 10.1.2.2. 255.255.255.0
!
router eigrp 1
network 10.1.0.0

```

**The TestKing network has just been brought up. If a user on device 10.1.1.10 pinged the 10.1.3.30 device, how would Router TK1 forward the ICMP's?**

- A. Router TK1 will forward the ICMP's out using both serial 0 and Ethernet 1.
- B. Router TK1 will not forward the ICMP out of any interface.
- C. Router TK1 will forward the ICMP's out using only Serial 0.
- D. Router TK1 will forward the ICMP's out using only Ethernet 1.

**Answer: C**

**Explanation:**

Integrated routing and bridging makes it possible to route a specific protocol between routed interfaces and bridge groups, or route a specific protocol between bridge groups. Local or unroutable traffic can be bridged among the bridged interfaces in the same bridge group, while routable traffic can be routed to other routed interfaces or bridge groups.

When you enable routing for a given protocol on the bridge-group virtual interface, packets coming from routed interface, but destined for a host in a bridged domain, are routed to the bridge-group virtual interface and are forwarded to the corresponding bridged interface. All traffic routed to the bridge-group virtual interface is forwarded to the corresponding bridge group as bridged traffic. All routable traffic received on a bridged interface is routed to other routed interfaces as if it is coming directly from the bridge-group virtual interface.

Since ICMP is a routable packet, (IP Packet) with layer three information it will be routed to other routed interface as described above.

**Reference:**

[http://www.cisco.com/univercd/cc/td/doc/product/software/ios121/121cgcr/ibm\\_c/bcprt1/bcdtb.htm](http://www.cisco.com/univercd/cc/td/doc/product/software/ios121/121cgcr/ibm_c/bcprt1/bcdtb.htm)

**QUESTION NO: 101**

**You are a technician at TestKing. You want to logically establish a LANE network. Which LANE Components would you use?**

- A. LECS, redundant LECS, and BUS.
- B. SSRP, BUS, NNI and LEC.
- C. ILMI, AAL5, LE ARP and SSRP.
- D. BUS, LES, LEC and VCC.
- E. LECS, LES, and BUS.

**Answer: E**

**QUESTION NO: 102**

**You are the network administrator at TestKing. You are concerned about Denial-of-Service attacks. You want to protect the TestKing network from Denial-of-Service attacks via ICMP floods. You perform the following configuration:**

```
interface Hssi5/0
  rate-limit input access-group 100 256000 8000 8000 conform-action transmit exceed-action drop

access-list 100 permit icmp any any
```

**Of what QoS mechanism is this an example?**

- A. CBWFQ
- B. LLC
- C. RSVP
- D. CAR
- E. WFQ

**Answer: D**

**Explanation:**

CBWFQ does control traffic but this paragraph and the link below shows that the example is not configured for CBWFQ but for CAR (see further paragraph)

Class-based weighted fair queueing (CBWFQ) extends the standard WFQ functionality to provide support for user-defined traffic classes. For CBWFQ, you define traffic classes based on match criteria including protocols, access control lists (ACLs), and input interfaces. Packets satisfying the match criteria for a class constitute the traffic for that class. A queue is reserved for each class, and traffic belonging to a class is directed to the queue for that class.

[http://www.cisco.com/en/US/products/sw/iosswrel/ps1830/products\\_feature\\_guide09186a0080087a84.html](http://www.cisco.com/en/US/products/sw/iosswrel/ps1830/products_feature_guide09186a0080087a84.html)

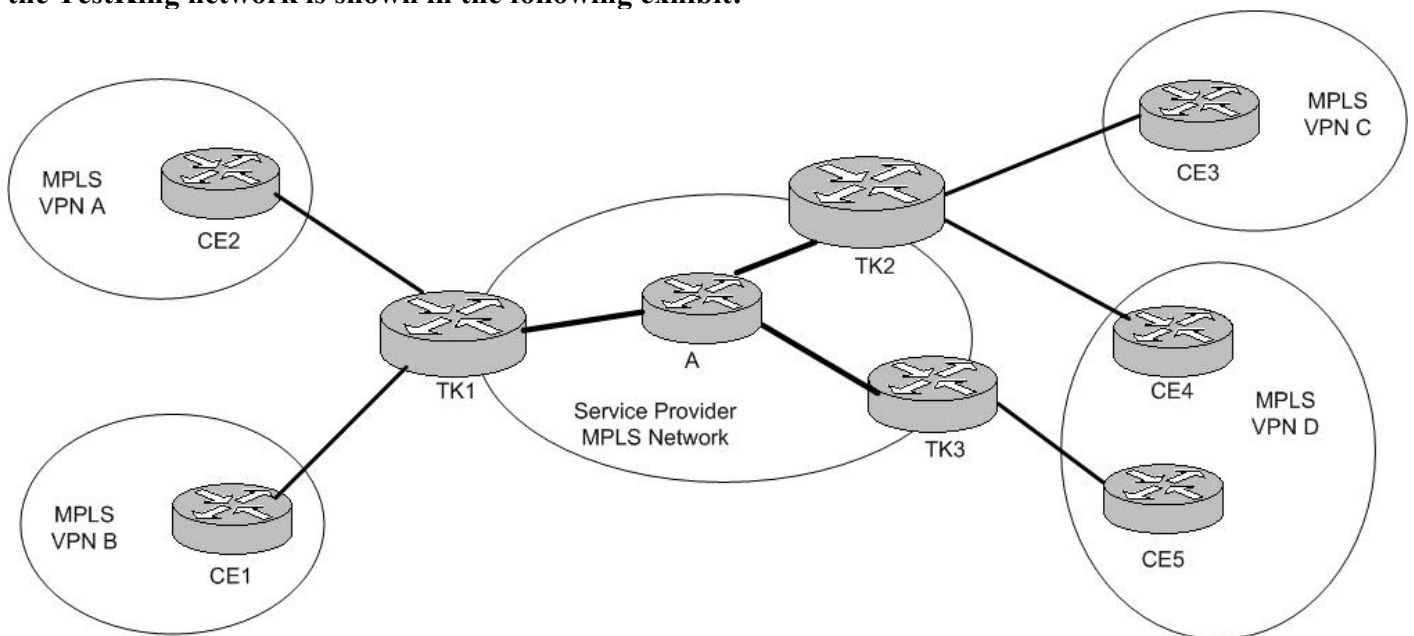
### CAR

Rate limiting is one mechanism to use to allow a network to run in a degraded manner, but remain up when it is receiving a stream of Denial of Service (DoS) attack packets as well actual network traffic. Rate limiting can be achieved in a number of methods using Cisco IOS® software. Namely, through Committed Access Rate (CAR), Traffic Shaping, and both Shaping and Policing through Modular Quality of Service Command Line Interface (QoS CLI).

[http://www.cisco.com/en/US/products/sw/iosswrel/ps1835/products\\_tech\\_note09186a00800fb50a.shtml](http://www.cisco.com/en/US/products/sw/iosswrel/ps1835/products_tech_note09186a00800fb50a.shtml)

### QUESTION NO: 103

You are the network administrator at TestKing. TestKing has a MPLS network. The router topology for the TestKing network is shown in the following exhibit:



How many routing tables will be on Router TK1?

- A. 1
- B. 2
- C. 3
- D. 4
- E. 5

**Answer: A**

**QUESTION NO: 104**

**You are the network administrator at TestKing. The TestKing network uses the 10.10.10.0 network address. You perform the following configurations:**

```
tamer (enable) show pvlan
Primary      Secondary      Secondary-Type      Port
-----
900          901              community           9/37
900          902              isolated            9/38-39
```

```
tamer (enable) show pvlan mapping
Port   Primary      Secondary
----
15/1   900           901-902
```

```
interface vlan 900
 ip address 10.10.10.2 255.255.255.0
 ip proxy-arp
```

**All stations on the TestKing network are connected to port 9/37 through 9/39.**

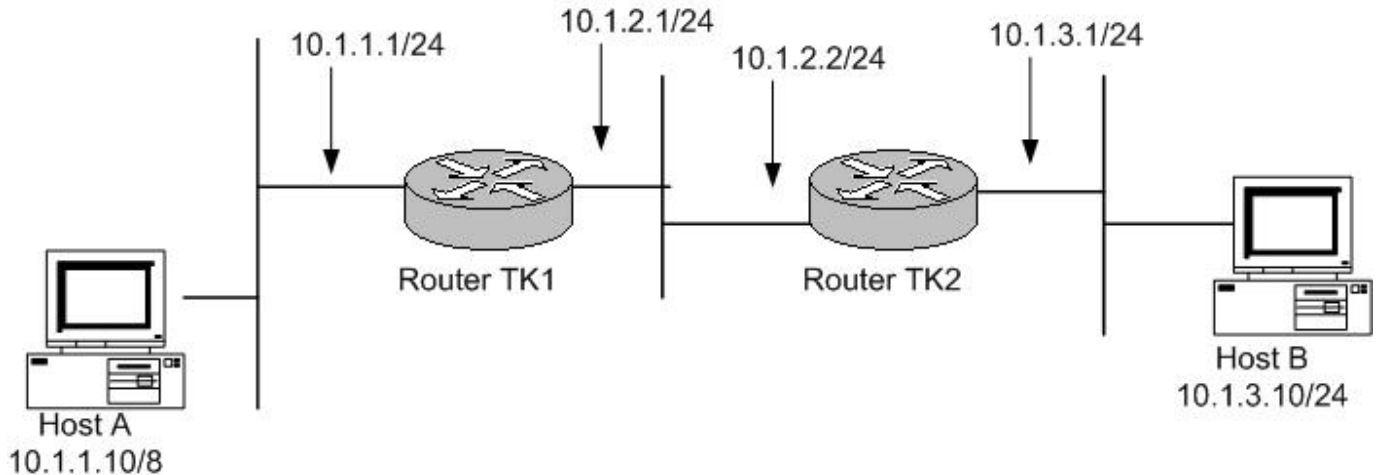
**Which of the following statements are true?**

- A. Port 9/38 has Layer 3 connectivity with Port 9/37 and port 9/39.
- B. Port 9/38 has Layer 2 connectivity with Port 9/39 but not with port 9/37.
- C. Port 9/38 has Layer 3 connectivity with Port 9/39 but not with port 9/37.
- D. Port 9/38 has Layer 2 connectivity with Port 9/37 and port 9/39.
- E. None of the above.

**Answer: A**

**QUESTION NO: 105**

You are the network administrator at TestKing. You want to send a packet from Host A to Host B. Host A and Host B are connected via Router TK1 and Router TK2. Both Router TK1 and Router TK2 have routing entries for all TestKing networks. Host A has an 8 bit network mask while Host B has a 24 bit network mask. The TestKing network is shown in the following exhibit:



Which of the following is required to enable Host A to send packets to Host B?

Note: Assume.

- A. Host A must have a default gateway address of 10.1.1.1.
- B. Host B must have a default gateway address of 10.1.3.1.
- C. Proxy ARP must be enabled on Router TK1.
- D. Proxy ARP must be enabled on Router TK2.

Answer: B, C

**QUESTION NO: 106**

You are the network administrator at TestKing. During routine maintenance, you use a sniffer to verify that a TestKing Router is receiving a specific SAP. However, the server is not showing up in the server table.

What could be the cause of this problem? (Choose all that apply.)

- A. The Router does not know how to get to the IPX network advertised in the SAP packet.
- B. The SAP table contains an entry with a different SAP type.
- C. An access-list is configured to filter out this SAP type.
- D. The router only runs NLSP.
- E. The server only runs NLSP.

Answer: A, C, E

**QUESTION NO: 107**

**You are the network administrator at TestKing. You configure a router on the TestKing network as a Terminal Server. The configuration of the router is shown in the following exhibit:**

```
2511a#show line 6
  Tty Typ   Tx/Rx      A modem Roty AccO   Accl Uses Noise Overruns
  6   TTY   9600/9600          14    59898    0/0

Line 6, Location: "", Type: ""
Length: 24 lines, Width: 80 columns
Baud rate (TX/RX) is 9600/9600, no parity, 1 stopbits, 8 databits
Status Ready
Modem state: Ready
Group codes: 0
Modem hardware state: CTS* noDSR* DTR RTS
Special Chars: Escape Hold Stop Start Disconnect Activation
                BREAK      none - -      none
Timeouts:      Idle EXEC   Idle Session   Modem Answer Session Dispatch
                00:10:00   00:15:00           none    not set
                Idle Session Disconnect Warning
                never

Modem type is unknown.
Session limit is not set.
Time since activation: 1d04h
Editing is enabled.
History is enabled, history size is 10.
DNS resolution in show commands is enabled
Full user help is disabled
Allowed transports are lat pad telnet rlogin mop nasi. Preferred is lat.
No Output characters are padded
No special data dispatching characters
2511a#
```

**Line 6 is experiencing spurious signals. What command would fix this problem?**

- A. flowcontrol hardware
- B. transport input telnet
- C. no exec
- D. exec-timeout 0 0



**Answer: A**

**QUESTION NO: 108**

**You are a technician at TestKing. The TestKing network has an ISDN TE2. Your newly appointed TestKing trainee wants to know what devices are included in ISDN TE2.**

**What would your reply be?**

- A. Devices that manage switching functions.
- B. Devices that use the standard ISDN interface.
- C. Devices that mark the boundary between the carrier's ISDN network and the CPE.
- D. Devices that do not use the standard ISDN interface.
- E. None of the above.

**Answer: D**

**QUESTION NO: 109**

**You are a technician at TestKing. You are implementing RIPv2 on the TestKing network. Your newly appointed TestKing trainee wants to know where RIPv2 sends its own routing update packets.**

**What would your reply be?**

- A. 0.0.0.0
- B. 224.0.0.4
- C. 224.0.0.5
- D. 224.0.0.9
- E. 255.255.255.255

**Answer: D**

224.0.0.9 is RIPv2s multicast address.

**QUESTION NO: 110**

**You are the network administrator at TestKing. The TestKing network has a router named Router TK2. Router TK2 is connected to a stub EIGRP neighbor. With regard to this network, which of the following are true?**

- A. Router TK2 will send only default-routes to the stub EIGRP neighbor.
- B. Router TK2 will send only summary routes to the stub EIGRP neighbor.
- C. Router TK2 will not query the stub EIGRP neighbor about any internal route.
- D. Router TK2 will not query the stub EIGRP neighbor about any external route.
- E. Router TK2 will not query the stub EIGRP neighbor about any route.
- F. None of the above.

**Answer: E**

**Reference:**

<http://www.cisco.com/univercd/cc/td/doc/product/software/ios120/120newft/120limit/120s/120s15/eigrpstb.htm>

**QUESTION NO: 111**

**Consider the following scenario: An interface has been configured for custom queuing. Bandwidth has been allocated for three flows namely: A, B and C. Each with average packet sizes of 1000 bytes, 500 bytes and 250 bytes.**

**How many packets need to be allowed for flow C for it to achieve a ratio of 20:50:30 for flows A, B and C respectively if you assume that flow A has been configured to allow one packet per servicing of its queue?**

- A. 1
- B. 2
- C. 3
- D. 4
- E. 5
- F. 6
- G. 12

**Answer: F**

**Explanation:** If flow A uses 20% of the bandwidth and flow C uses 30%, then C uses 1.5 times the bandwidth as A. The average byte size of A is 1000 bytes. 1000 times 1.5 is 1500 bytes. That would give the bandwidth of 1500 bytes for flow C. Since the average packet size of C is 250 bytes,  $1500/250 = 6$ .

**QUESTION NO: 112**

**What will be the result of the following configuration commands?**

```
line vty 0 4
no login
password cisco
```

- A. The login password is login
- B. The VTY password is needed but not set.
- C. The VTY password is cisco.
- D. No password is needed for VTY access.
- E. The login password is vty 0 4

**Answer: D**

**Explanation:** No Login will not prompt users for any initial login.

**QUESTION NO: 113**

**You are a network technician at TestKing. Your newly appointed TestKing trainee wants to know what Multicast addresses in the range of 239.0.0.0 through 239.255.255.255 are reserved for.**

**What would your reply be?**

- A. Administratively Scoped multicast traffic that is meant to stay inside of a private network and will not be transmitted into the Internet.
- B. Link-local multicast traffic made up of network control messages meant to stay in the local subnet.
- C. Global Internet multicast traffic meant to travel throughout the Internet.
- D. Any valid multicast data stream.

**Answer: A**

**Reference:**

Jeff Doyle Volume II chapter on IP Multicast.

**QUESTION NO: 114**

**Which of the following is the tiebreaker employed by ISIS to elect the Designated IS on a LAN if all the neighbors happen to have the same priority?**

- A. The highest router-ID.
- B. The lowest system-ID.
- C. The lowest router-ID.
- D. The highest SNPA.
- E. The lowest MAC address.
- F. The highest system-ID.

**Answer: D**

**Explanation:** SNPA: SubNetwork Point of Attachment.

**QUESTION NO: 115**

**How will you explain the situation to your newly appointed TestKing trainee when she asks why the sniffer, when directly connected to an access switch, reveals an excessive amount of BPDUs with the TCA bit set?**

- A. The network is error free.
- B. Improper cabling is being used in the network.
- C. There is no spanning tree portfast configured on the ports connecting 2 workstations.
- D. The CPU utilization on the root switch is up to 99% operational and thus is not sending any BPDUs.
- E. None of the above.

**Answer: B, C**

**Explanation:**

**QUESTION NO: 116**

**A network administrator of TestKing.com is using a private IP address space for the company network with NAT to allow the users to have access to the Internet. But the network administrator should also take into account that there is a web server on the internal network that must also have incoming access from the Internet.**

**What will the network administrator need to do to accomplish this task?**

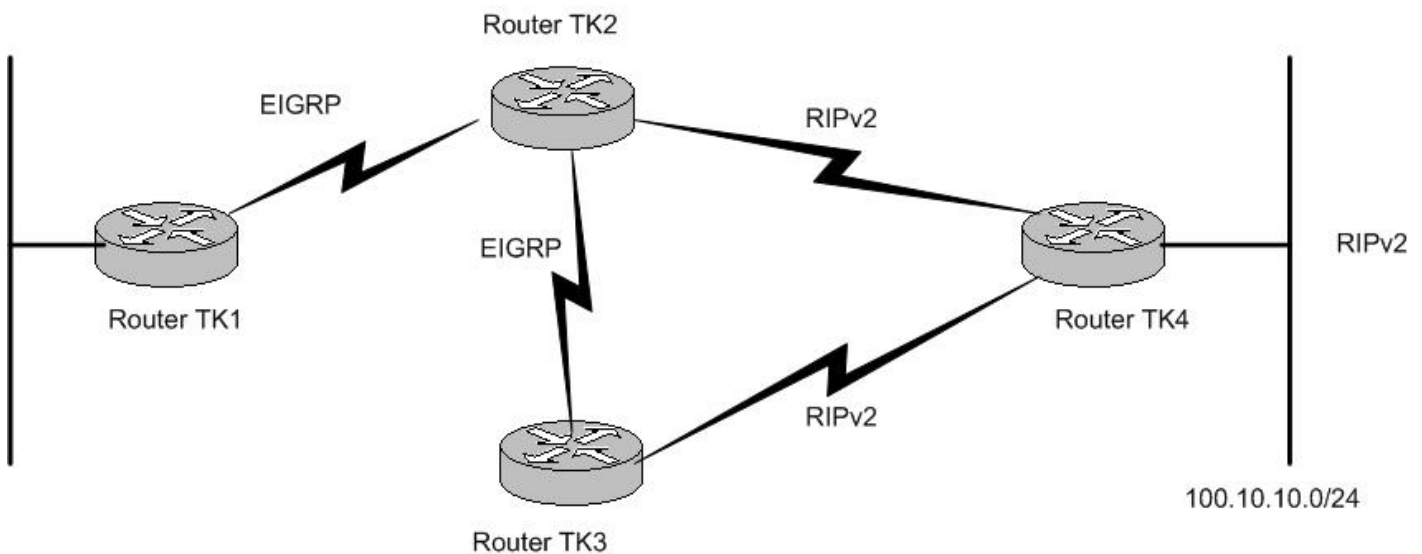
- A. Use a dynamic mapping with the **reverse** keyword.
- B. Place the server's internal IP address in the external NAT records.
- C. There must be a static NAT mapping for the web server's address.
- D. Dynamic NAT is automatic.

**Answer: C**

**Explanation:** Without a static NAT mapping, the server will be NATed out of the NAT pool. No outside stations will be able to reach him consistently.

**QUESTION NO: 117**

**You are the network administrator at TestKing. The Routing protocols which run between the different routers in the TestKing network are shown in the following exhibit:**



**On Router TK3 RIPv2 is being redistributed into EIGRP. No other redistribution is done to the network.**

**With regard to this scenario, who owns the route for subnet 100.10.1.0/24 in the routing table of Router TK1?**

- A. Nobody, because the route is neither in the routing table of Router TK1, nor EIGRP topology table.
- B. External EIGRP.
- C. The route is only in the EIGRP topology table only and not in the routing table of Router TK1.
- D. Internal EIGRP.
- E. The route is only but is in the EIGRP topology table as an active route and not in the routing table of Router TK1.

**Answer: B**

**Explanation:** External EIGRP, because the route is from outside the AS.

#### QUESTION NO: 118

You are a PC technician at TestKing. Your newly appointed TestKing trainee wants to know the correct procedure to TFTP a Cisco IOS image from a TFTP server with the 10.10.1.5 255.255.255.0 ip address.

What would your reply be?

- A. Copy tftp from flash 10.10.1.5 source file name destination file name enter
- B. Copy flash tftp 10.10.1.5 255.255.255 source file name destination file name enter
- C. Copy tftp flash 10.10.1.5 source file name destination file name enter
- D. Copy tftp flash source file name destination file name 10.10.1.5 255.254.255.0 enter
- E. Copy tftp flash 10.10.1.5 destination file name source file name enter

**Answer: C**

**Explanation:**

```
Router# copy tftp: flash:
System flash partition information:
Partition Size Used Free Bank-Size State Copy-Mode
  1 4096K 2048K 2048K 2048K Read Only RXBOOT-FLH
  2 4096K 2048K 2048K 2048K Read/Write Direct
[Type ?<no> for partition directory; ? for full directory; q to abort]
Which partition? [default = 2]

      **** NOTICE ****

Flash load helper v1.0
This process will accept the copy options and then terminate
the current system image to use the ROM based image for the copy.
Routing functionality will not be available during that time.
If you are logged in via telnet, this connection will terminate.
Users with console access can see the results of the copy operation.
      ---- ***** ----

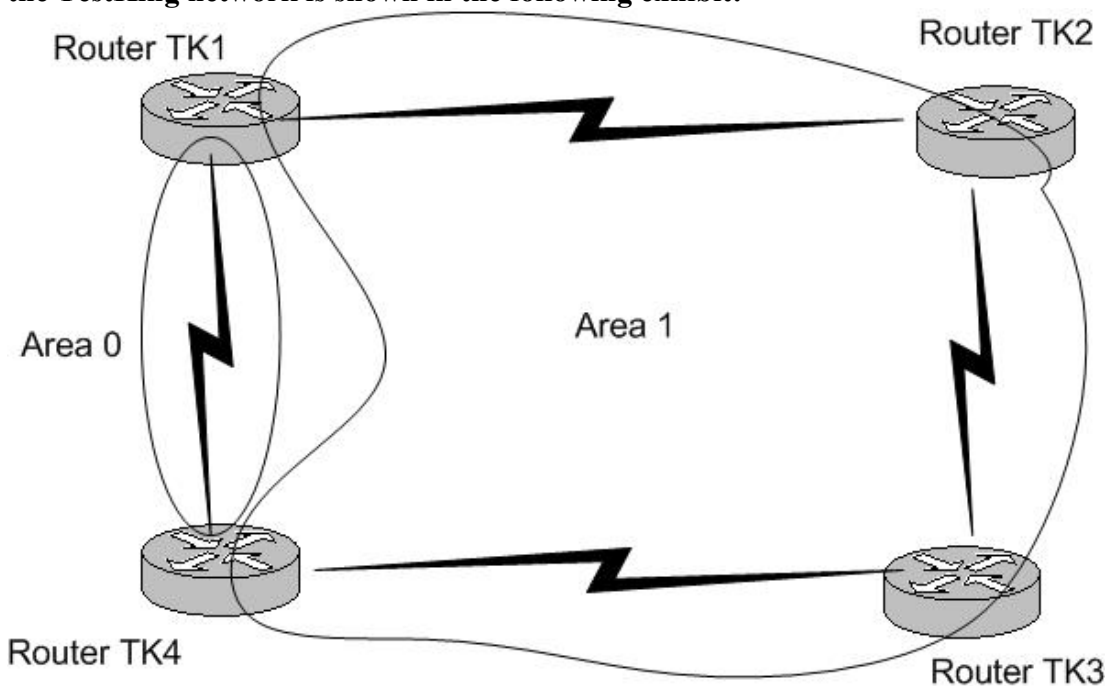
Proceed? [confirm]
System flash directory, partition 1:
File Length Name/status
  1 3459720 master/igs-bfpx.100-4.3
[3459784 bytes used, 734520 available, 4194304 total]
Address or name of remote host [255.255.255.255]? 172.16.1.1
Source file name? master/igs-bfpx-100.4.3
Destination file name [default = source name]?
Loading master/igs-bfpx.100-4.3 from 172.16.1.111: !
Erase flash device before writing? [confirm]
Flash contains files. Are you sure? [confirm]
Copy 'master/igs-bfpx.100-4.3' from TFTP server
as 'master/igs-bfpx.100-4.3' into Flash WITH erase? [yes/no] yes
```

**Reference:**

[http://www.cisco.com/en/US/products/sw/iosswrel/ps5187/products\\_command\\_reference\\_chapter09186a008017d031.html#1030138](http://www.cisco.com/en/US/products/sw/iosswrel/ps5187/products_command_reference_chapter09186a008017d031.html#1030138)

**QUESTION NO: 119**

You are the network administrator at TestKing. TestKing has an OSPF network, The router topology for the TestKing network is shown in the following exhibit:



Which of the following statements describes the behavior of packets from Router TK2 to Router TK4?

- A. Select a path after considering the costs inside Area 1 only.
- B. Alternate between Router TK1 and Router TK3 if the costs are equal.
- C. Always go through Router TK1 with no regard for costs.
- D. Select a path after considering the costs inside both Area 0 and Area 0.
- E. None of the above.

**Answer: A**

**Explanation:** OSPF prefers Intra Area Path over Inter Area Paths.

**Reference:** <http://www.riverstonenet.com/support/ospf/interface-costs.htm>

**Not B:** The Answer B is incorrect because OSPF does not conduct ECMP load balancing on multiple paths with equal cost if the respective paths span through more than one area. B is incorrect for several reasons. If a packet has to alternate between two paths that means Per Packet load balancing is in effect. Which is normally in place for links less than 56k. For higher link speeds fast switching (default switching mode) is enabled. In this mode all packets to one destination in a target subnet are sent over one path, since route lookup is not performed for every packet, it is rather performed per flow. So B is totally ruled out.

#### QUESTION NO: 120

**You are a network technician at TestKing. Your newly appointed TestKing trainee wants to know which of the following transfer modes is not supported by HDLC.**

**What would your reply be?**

- A. LAPD
- B. ARB
- C. ABM
- D. ARP
- E. NRM

**Answer: B**

#### QUESTION NO: 121

**You are a trainee technician at TestKing. Your supervisor shows you the output from a `show ip mroute` command. The output is shown in the following exhibit:**

```
Router#show ip mroute 23.2.3.23
```

```
IP Multicast Routing table
```

```
Flags: D - Dense, S - Sparse, C - Connected, L - Local, P - Pruned
```

```
      R - RP-bit set, F - Register flag, T - SPT-bit set, J - JOIN SPT
```

```
      X - Proxy Join Timer Running
```

```
Timers: uptime/Expires
```

```
Interface state: Interface, next-hop or VCD, State/Mode
```

```
(*, 236.82.134.23), 00:09:49/00:04:23 RP 10.1.24.1, flags: SC
```

```
  Incoming interface: Serial1.708, RPF nbr 10.1.20.2
```



```
Outgoing interface list:  
Ethernet0, Forward/Sparse, 00:09:50/00:04:12
```

**Your supervisor wants to know what the IP address of the Upstream Neighbor on the Shared Tree is.**

**What would your reply be?**

- A. 10.1.24.1
- B. 10.1.24.2
- C. 10.1.20.2
- D. 10.1.20.3
- E. 23.2.3.23

**Answer: C**

**QUESTION NO: 122**

**What is the maximum transmit value for LLC flow control according to the IEEE 802.2 specification?**

- A. 15
- B. 127
- C. 511
- D. 1023
- E. 2095
- F. 4095

**Answer: B**

According to the IEEE 802.2 Logical Link Control specification, the maximum transmit value for LLC flow control is 127.

**Reference: LLC flow control techniques for bridged LANs**

**C.1 Overview**

This annex describes a technique, called dynamic window flow control, to control the offering of frames to the network by an LLC entity when congestion is detected or suspected. It is most effective in a bridged LAN. The technique is one of recovery from congestion and does not prevent congestion in a bridged LAN. It is not a substitute for proper network sizing. The method employs the transmit window already permitted by the standard to regulate the flow between two LLCs using the connection-mode service. Congestion in one direction of a logical link connection is treated independently of congestion in the other direction. The technique does not involve communication with the bridges, but rather relies on a simple algorithm implemented by the LLCs. MAC protocols are unaffected. All actions described in this annex apply to the station transmitting in the direction of the congestion. The receiver does

not participate, except through normal LLC procedures, and does not require knowledge of the transmitter's participation. The service interface between the data link layer and the network layer is also unchanged.

## C.2 Definitions

**C.2.1 k:** The transmit window size in use at any given time.

**C.2.2 kmax:** The **maximum transmit window size, which is the maximum value that the transmit window k may have. The value of kmax shall not exceed 127.**

## QUESTION NO: 123

**You are a trainee technician at TestKing. Your supervisor issues the following interface command:**

```
RouterTK(config-if)# invert txclock
```

**What is the purpose of this command?**

- A. To synchronizes TXD and RXD clocks.
- B. To correct systems that use long cables that experience high error rates when operating at the higher transmission speeds.
- C. To configure the serial interface to monitor the DSR signal as the line up/down indicator.
- D. To invert the phase of local clock used for timing incoming data on a UIO serial port in DCE mode.

## Answer: B

Systems that use long cables or cables that are not transmitting the TxC signal (transmit echoed clock line, also known as TXCE or SCTE clock) can experience high error rates when operating at the higher transmission speeds. For example, if a PA-8T synchronous serial port adapter is reporting a high number of error packets, a phase shift might be the problem. Inverting the clock might correct this shift.

## QUESTION NO: 124

**You are the network administrator at TestKing. You are troubleshooting a performance problem on the TestKing network. You suspect that packets are being lost on a link between one of the Routers and the Switch. The link between the Router and the Switch is a Full Duplex 100Mb Ethernet connection. You want to diagnose this link. You connect a Fast Ethernet Hub between the Router and the Switch. You now see an excessive number of alignment errors, CRC errors and Late Collisions.**

**With regard to this scenario, which of the following statements are true?**

- A. Either the Router or the Switch is faulty.
- B. These errors will not cause a performance problem.

- C. The cabling is causing these errors and should be replaced.
- D. Adding the Hub in between might have caused these errors.

**Answer: D**

The errors cited can all be attributed to increase cable distance, and the fact that the hub cannot handle Full Duplex.

**QUESTION NO: 125**

**You are the network administrator at TestKing. You want to gain access on Router TestK on the TestKing network. The current configuration is shown in the following exhibit:**

```
!  
version 12.0  
service timestamps debug uptime  
service timestamps log update  
no service password-encryption  
!  
hostname TestK  
!  
enable secret 5 $1$XV53$hqb0Ra7gwpky0cmL4u3EW0  
enable password cisco
```

**What must you type to gain access to Router TestK?**

- A. cisco
- B. TestK
- C. 4u3EW0
- D. \$1\$XV53\$hqb0Ra7gwpky0cmL4u3EW0
- E. None of the above

**Answer: E**

The enable secret password takes precedence over the enable password. In this example, the enable secret is encrypted. You would need to type the unencrypted password to gain access.

**QUESTION NO: 126**

**With regard to Multilayer Switching, which of the following statements is true?**

- A. The MLS Switching Engine will forward the first packet in every flow.
- B. The MLS Route Processor will forward the first packet in every flow.

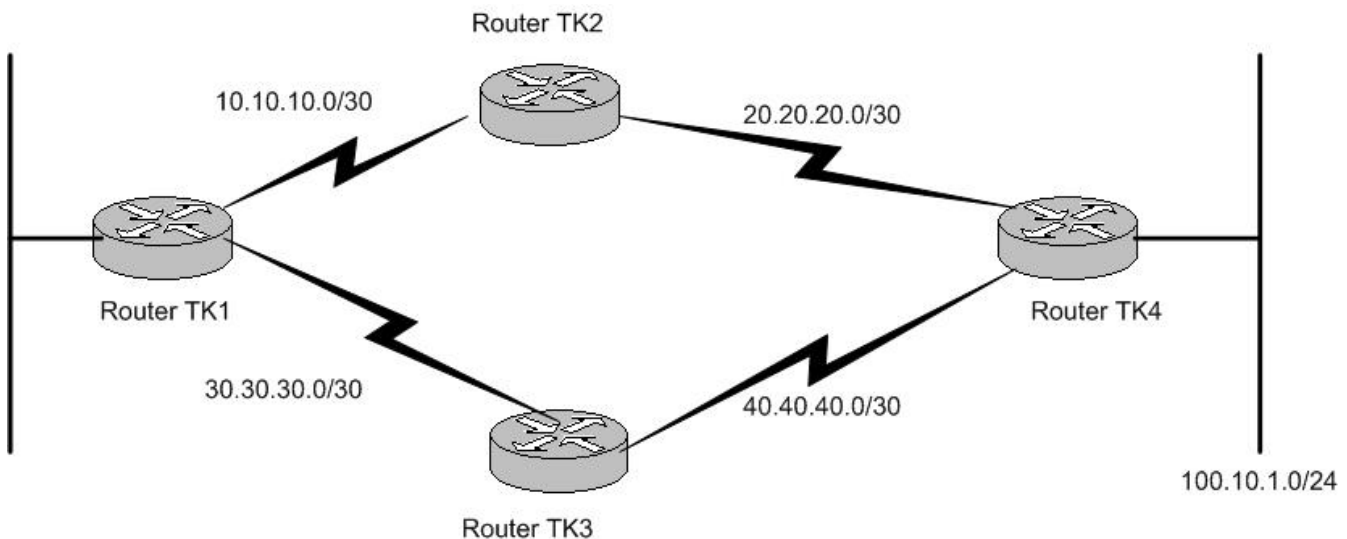
- C. The MLS Switching Engine will forward all traffic.
- D. The MLS Route Processor will redirect all traffic.
- E. The MLS Route Processor will forward all traffic.

**Answer: B**

Route once, switch many.

**QUESTION NO: 127**

You are the network administrator at TestKing. The router topology for the TestKing network is shown in the following exhibit:



The current configuration for Router TK1, Router TK2, Router TK3, and Router TK4 are as follows:

**Router TK1:**

```

interface loopback0
  ip address 1.1.1.1 255.255.255.255
router eigrp 10
  network 1.0.0.0
  network 10.0.0.0 interface loopback0
  ip address 4.4.4.4 255.255.255.255
router eigrp 10
  redistribute connected metric 1000 200 1 255 1500
  network 20.0.0.0
  no auto-summary
router ospf 10
  
```

```
redistribute connected metric 100 subnets

network 40.40.40.0 0.0.0.255 area 0
router bgp 10
  network 100.10.1.0 mask 255.255.255.0
  neighbor 1.1.1.1 remote-as 10
  neighbor update-source loopback
  no auto-summary
router ospf 10
  network 1.1.1.1 0.0.0.0 area 0
  network 30.30.30.0 0.0.0.255 area 0
router bgp 10
  neighbor 4.4.4.4 remote-as 10
  neighbor 4.4.4.4 update-source loopback0
```

**Router TK2**

```
router eigrp 10
network 10.0.0.0
network 20.0.0.0
no auto-summary
```

**Router TK3**

```
router ospf 10
network 30.30.30.0 0.0.0.255 area 0
network 40.40.40.0 0.0.0.255 area 0
```

**Router TK4**

**Your newly appointed TestKing trainee wants to know who owns the subnet 100.10.1.0/24 in the routing table of Router TK1.**

**What would your reply be?**

- A. Router TK1 does not have this subnet in its routing table.
- B. EIGRP
- C. OSPF
- D. BGP
- E. RIP
- F. It is there as a static route.

**Answer: A**

**QUESTION NO: 128**

**You are a technician at TestKing. You tell your newly appointed TestKing trainee about the TCP/IP reference model and the OSI reference model. Your trainee now wants to know which of the layers in the OSI reference model are missing from the TCP/IP reference model.**

**What would your reply be? (Choose all that apply.)**

- A. Application
- B. Presentation
- C. Session
- D. Transport
- E. Network
- F. Data link
- G. Physical

**Answer: B, C, F**

The TCP/IP reference model does not have a presentation layer, a session layer and a data-link layer.

**QUESTION NO: 129**

**You are the network administrator at TestKing. All routers in the TestKing network are running OSPF. Router TK1 is being connected to Area 0 and Area 1. The router is configured with area 1 nssa default-information-originate.**

**With regard to Router TK1, which of the following statements are false? (Choose all that apply.)**

- A. TK1 will inject a type 3 default route into area 1.
- B. TK1 will inject a type 7 default route into area 1.
- C. TK1 will inject a type 5 default route into area 1.
- D. TK1 needs a default route in its routing table to inject a default into area 1.
- E. TK1 does not need a default route in its routing table to inject a default into area 1.

**Answer: C, D**

**Reference D:** OSPF Injects a Default Route into a NSSA.PDFG

**QUESTION NO: 130**

**You are a trainee technician at TestKing. Your supervisor shows you the output from a `show iddiag` command. The output is shown in the following exhibit:**

Router#show diag 10

Slot 10:

Physical slot 10, ~physical slot 0x5, logical slot 10, CBus 0  
Microcode Status 0x4  
Master Enable, LED, WCS Loaded  
Board is analyzed  
Pending I/O Status: None  
EEPROM format version 1  
VIP2 RSK controller, HW rev 2.02, board revision D0  
Serial number: 17090200 Part number: 73-2167-05  
Test history: 0x00 RMA number: 00-00-00  
Flags: cisco 7000 board; 7500 compatible

EEPROM contents (hex):

0x20: 01 1E 02 02 01 04 C6 98 49 08 77 05 00 00 00 00  
0x30: 68 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

Slot database information:

Flags: 0x4 Insertion time: 0x18C0 (00:29:13 ago)

Controller Memory Size: 32 Mbytes DRAM, 4096 Kbytes SRAM

**Your supervisor wants to know what model of Versatile Interface Processor (VIP) is shown.**

**What would your reply be?**

- A. VIP2-50
- B. VIP2-40
- C. VIP2-30
- D. VIP2-20
- E. VIP2-10

**Answer: A**

In hex spot 0x21 (1E), which equals VIP2-50.

#### **QUESTION NO: 131**

**You are a network technician at TestKing. Your newly appointed TestKing trainee wants to know how many LSPs will originate from a non-pseudonode ISIS router.**

**What would your reply be?**

- A. 1 per link and 1 per external route.

- B. Always a maximum of 3.
- C. 1 per link.
- D. 1, but 2 if external routes are redistributed into ISIS on this router.
- E. Always 1.

**Answer: E**

**QUESTION NO: 132**

**There are packets that arrived via DLSW+ on Router A, which must be sent to a host on an Ethernet attached to Router A. But even though bridging was enabled on the Ethernet, the packets cannot reach the host.**

**What is the most likely reason for the problem?**

- A. The DLSW+ peer cost doesn't match the Ethernet bridge group.
- B. SRTLB should vacillate between the source route Virtual Ring and the Ethernet.
- C. The DLSW+ **bridge-group** command was not configured.
- D. The bridge-group number on the Ethernet is too high.
- E. All of the above.

**Answer: C**

**QUESTION NO: 133**

**Which of the following is the most important aspect that has to be taken into account when TestKing has two border routers running BGP to two different ISP's respectively and as the network administrator you want to control which path inbound traffic takes without the use of communities?**

- A. Cost
- B. MED
- C. Weight
- D. Local preference
- E. AS-path prepending
- F. Metric

**Answer: B**

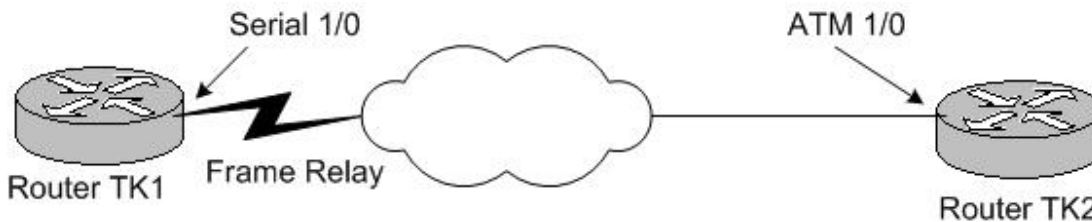
**Explanation:** MED is to prefer a path into your AS.



C would require communities.

**QUESTION NO: 134**

You are the network administrator at TestKing. The TestKing network is shown in the following exhibit:



Router TK1 illustrates the EXSTART state for neighbor Router TK2.

Router TK1 illustrates the EXCHANGE state for neighbor Router TK2.

Your newly appointed TestKing trainee wants to know what the most probable reason for this EXCHANGE/EXSTART state could be.

What would your reply be?

- A. Unicast packets only do one-way travel due to a failure of some sort.
- B. There is an MTU mismatch.
- C. An access-list could be blocking the OSPF DBD packets.
- D. There is an OSPF network type mismatch.
- E. Multicast packets only do one-way travel due to a failure of some sort.

**Answer: B**

**Explanation:** This problem is caused by MTUs being mismatched.

**Reference:** <http://www.cisco.com/warp/public/104/12.html>

**QUESTION NO: 135**

With regard to FastEthernet Channel, which of the following statements is valid?

- A. Ports within a Fast Ether Channel do not have to run at the same speed and duplex.
- B. Port Aggregation Protocol (PAGP) facilitates the automatic creation of Fast Ether channels links.
- C. Ports within a Fast Ether Channel may be assigned to multiple VLANs.
- D. Fast Ethernet Channels can not be configured as a trunk.

- E. Ports within a Fast Ether Channels can not be configured as a trunk.
- F. All of the above.

**Answer: B**

**QUESTION NO: 136**

**Which of the following statements regarding IRB is invalid?**

- A. IRB will allow the same protocol to be bridged and routed through a single physical interface.
- B. IRB makes use of a virtual interface for connectivity between bridges and routed interfaces.
- C. IRB can support multiple protocols on the same router.
- D. IRB allows the same protocol to be bridged and routed on the same router.

**Answer: A**

**Explanation:**

The statement A is false. The other statements are true.

For example, you can bridge IP between two ethernet interfaces on a router and route IP traffic to the serial interface on that router. However, you can't bridge and route IP on a single interface. So answer A is the only false statement.

**QUESTION NO: 137**

**Your newly appointed TestKing trainee wants to know what is the maximum supported cable length that must be allowed for when using a Single Mode Fiber with a 8.3/9/19 micron Core, given the fact that LX/LH Gbic is being used?**

**How would you respond?**

- A. 3.1 miles (5 km)
- B. 6.2 miles (10 km)
- C. This type of fiber is not supported with an LX/LH gbic.
- D. None of the above.

**Answer: B**

**Explanation:**

Single Mode fiber allows 10 km of distance.

**QUESTION NO: 138**

**Which of the following access lists would you, the network administrator at TestKing, use to get a filter that will only allows IPX network numbers between BB100 and BB1FF (inclusive).**

- A. access-list 850 permit any BB100.0000. 0000 B1FF.FFFF.FFFF
- B. access-list 805 permit range BB100 BB1FF
- C. access-list 932 permit any BB100.0000.0000 FF.FFFF.FFFF.FFFF
- D. None of the above.
- E. All of the above.

**Answer: D**

**Explanation:** Instead of the ANY keyword, it should be -1 for IPX.

**QUESTION NO: 139**

**Your newly appointed TestKing trainee wants to know what command in interface configuration mode she must use to enable RSVP?**

**What advice will you give her?**

- A. ip rsvp sender
- B. ip rsvp enable
- C. ip rsvp bandwidth
- D. Ip rsvp inclusive
- E. ip rsvp reservation
- F. RSVP is enabled in global configuration mode, not in interface configuration mode.

**Answer: C**

**Explanation:** ip rsvp enables RSVP.

**QUESTION NO: 140**

**You are a network technician at TestKing and have been instructed to add a new switch to the TestKing network, when testing the switch you find that the switch does not learn the VLANs via VTP automatically. What could be causing the problem?**

- A. The VTP server did not send a periodic VTP advertisement.
- B. There are no users on the new switch.
- C. The other switch is a VTP client.
- D. The native VLAN on the trunk is VLAN 60.
- E. The VTP domain name is not properly configured.

**Answer: E**

**QUESTION NO: 141**

**You are a technician at TestKing. You notice that the log of a 7500 series switch with a FDDI interface shows the following message about twice a day:**

```
%CBUS-3-BADTXEOFVEC: Fddi0/0 ustatus: bad txEof vec
```

**You contact the TAC for advice. The TAC informs you that this message indicates that the interface has aborted a transmit due to a claim frame coming in to the interface while the interface was transmitting. The FDDI ring contains mission critical TestKing web servers.**

**What action should you take?**

- A. Log a case at the TAC as this is indicative of a major problem on the FDDI ring.
- B. Replace the FDDI concentrator and check all FDDI cables.
- C. Place a sniffer on the ring to find the cause of the claims.
- D. Replace the FDDI Interface.
- E. Do nothing.

**Answer: E**

**Explanation:**

These messages indicate a recovery condition of the microcode, and occur when a claim on the FDDI ring collides with a transmit on the ring. There are various methods to strip frames off the ring. If an FIP has ever transmitted a FDDI frame, it knows that it is supposed to remove that frame. If, after transmission, and before it has had a chance to strip/remove it, there occurs some ring upset which requires a re-initialization, the FIP knows that it is supposed to remove a frame. The ring has transitioned and that frame is lost.

**If you see these messages only from time to time, there is no need to worry.** If you see them a lot however, you should check your entire FDDI ring to see if there is a problem on it. Troubleshooting the source of the claims would solve the root cause of the problem. The condition that is causing the message itself should not create any issues.

**Reference:** FDDI Frequently Asked Questions, <http://www.cisco.com/warp/public/90/13.html>

#### QUESTION NO: 142

**You are a technician at TestKing. You notice that the following two messages are displayed occasionally on a Catalyst console:**

```
%MLS-4-MOVEOVERFLOW:Too many moves, stop MLS for 5 sec(20000000)
%MLS-4-RESUMESC:Resume MLS after detecting too many moves
```

**What is the probable cause of this problem?**

- A. A transitory Spanning Tree loop
- B. A permanent Spanning Tree loop
- C. A unidirectional fiber link
- D. Faulty switch port
- E. Pinnacle sync failure

**Answer: A**

**Explanation:**

If you see these messages infrequently, it is most likely a transitory L2 (spanning-tree) loop, resulting in packet flooding in one or more VLANs. However, if you are seeing an excessive number of these messages (for example, if your syslog server log file or your switch console are being flooded with these messages), the problem might be due to the following reasons:

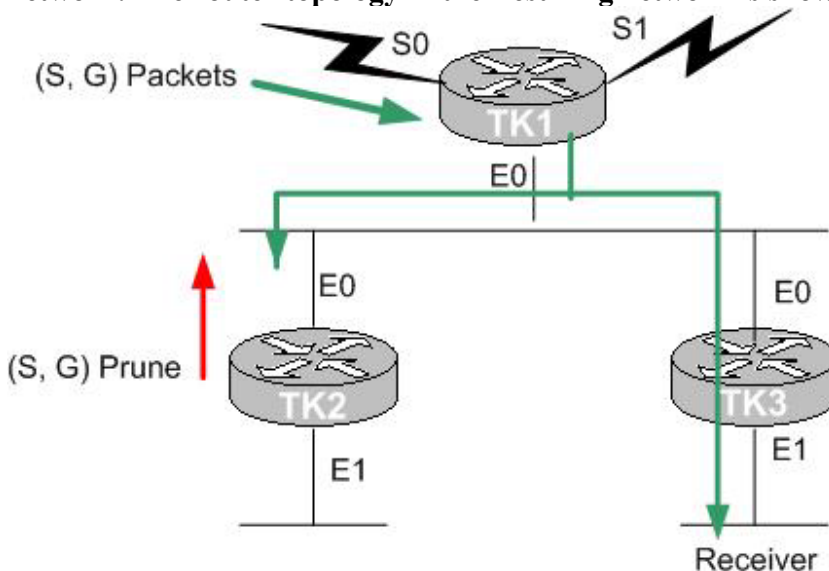
- a permanent L2 (spanning-tree) loop
- one or more faulty switch ports
- a bad cable (for example, a unidirectional fiber link)
- other bad hardware (not necessarily on the switch generating the messages)
- misconfigured device (for example, a traffic generator sending traffic to two switch ports using the same MAC address)

**Reference:**

Common CatOS Error Messages on Cisco Catalyst Switches <http://www.cisco.com/warp/public/473/34.shtml>

**QUESTION NO: 143**

You are the network administrator at TestKing. You are trouble shooting a problem on the TestKing network. The router topology in the TestKing network is shown in the following exhibit:



The flow of (S, G) traffic is being prevented from being Pruned and the flow to the receiver is being cutting off.

What is the cause of this problem?

- A. On hearing the (S, G) Prune message from router TK2, Router TK3 will send an (S, G) Join message to router TK1 to override the Prune.
- B. On hearing the (S, G) Prune message from router TK2, Router TK3 will send an (S, G) Join message to router TK2 to override the Prune.
- C. On hearing the (S, G) Prune message from router TK2, Router TK3 will send an (S, G) Graft message to router TK2 to override the Prune from router TK2.
- D. Router TK1 will not respond to the (S, G) Prune because interface E0 is in the outgoing interface list.
- E. Router TK2 will not send an (S, G) Prune because it would have heard a previous (S, G) Join message sent by router TK3.

**Answer: A**

**Explanation:**

After a prune, the router waits for joins, if none arrive, then the router drops the Group.

**QUESTION NO: 144**

**With regard to TACACS+ and RADIUS, which of the following statements are true?**

- A. TACACS+ uses UDP while RADIUS uses TCP for transport.
- B. RADIUS and TACACS+ encrypts the entire body of the packet.
- C. RADIUS is an IETF standard, while TACACS+ is not.
- D. TACACS+ sends a separate request for authorization, while RADIUS uses the same request for authentication and authorization.
- E. RADIUS and TACACS+ has multiprotocol support.

**Answer: C, D**

**Explanation:**

- RADIUS uses UDP while TACACS+ uses TCP.
- RADIUS encrypts only the password in the access-request packet, from the client to the server. The remainder of the packet is unencrypted while TACACS+ encrypts the entire body of the packet but leaves a standard TACACS+ header.
- RADIUS combines authentication and authorization while TACACS+ uses the AAA architecture, which separates authentication, authorization, and accounting.
- TACACS+ offers multiprotocol support while RADIUS does not support AppleTalk Remote Access (ARA) protocol, NetBIOS Frame Protocol Control protocol, Novell Asynchronous Services Interface (NASI) and X.25 PAD connection.
- RADIUS does not allow users to control which commands can be executed on a router and which cannot. Therefore, RADIUS is not as useful for router management or as flexible for terminal services. TACACS+ on the other hand does allow users to control the authorization of router commands on a per-user or per-group basis.

**Reference:** TACACS+ and RADIUS Comparison, <http://www.cisco.com/warp/public/480/10.html>

**QUESTION NO: 145**

**You are a technician at TestKing. The TestKing network has a legacy ISDN configuration. The ISDN link is up but EIGRP is not sending updates across the link.**

**What could be the cause of this problem?**

- A. The dialer-list is blocking EIGRP.
- B. The EIGRP configuration is incorrect.
- C. The encapsulation is different on the opposite ends of the link.
- D. There is a network type mismatch.
- E. The broadcast keyword is missing from the dialer-map.

**Answer: E**

**QUESTION NO: 146**

**You are the network administrator at TestKing. Your newly appointed TestKing trainee wants to know what LSA type the `area range` command acts on.**

**What would your reply be?**

- A. Type 1 and 2.
- B. Type 3 and 4.
- C. Type 3 and 5.
- D. Type 4 and 5.
- E. Type 1, 2 and 3.

**Answer: A**

**Explanation:**

Area range command is used for summarizing routes on the boundary of two OSPF areas. The information to be summarized is contained in two types of LSAs. Type 1 and Type 2. Type 1 LSAs are Router LSAs and are generated by each router in an OSPF network, Type 2 LSAs are network LSAs, these are generated by the DR. Both Type 1 and Type 2 LSAs are flooded within the originating area only. Only when the information needs to be conveyed to another area in a summarized form area-range command is used, which acts on the information provided by these two LSAs.

**Reference:**

CCIE Professional Development Routing TCP/IP Volume I by Jeff Doyle page 471.

**QUESTION NO: 147**

**You are a technician at TestKing. The TestKing network includes two router name Router TK1 and Router TK2. Router TK1 and Router TK2 are running IPX. The network number E115E is used on the link between Router TK1 and Router TK2. IPX EIGRP is enabled between the two routers with AS number 30. You want to disable IPX-RIP traffic across the link.**

**What should you do?**

- A. Issue the `no network E115E` command under the `ipx router rip` command.
- B. By default, IPX-RIP is automatically disabled when IPX-EIGRP is enabled.
- C. Issue the `ipx rip passive-interface` command on both ends of the link.
- D. Issue the `network E115E` command under the `ipx router eigrp 30` command.
- E. Issue the `no ipx rip` command.



**Answer: B**

**Explanation:**

When you enter IPX Routing, IPX RIP is automatically installed and configured. Answer A, disabled IPX RIP.

**QUESTION NO: 148**

**You are the network administrator at TestKing. The TestKing network is a single area OSPF network. Your newly appointed TestKing trainee wants to know which LSAs operate inside the stub OSPF area.**

**What would your reply be?**

- A. Type1.
- B. Type 1 and 2.
- C. Type 2 and 3.
- D. Type 3 and 4.
- E. Type 1, 2 and 3.

**Answer: E**

**Reference:**

CCIE Professional Development Routing TCP/IP Volume I by Jeff Doyle page 479.

**QUESTION NO: 149**

**You are the network administrator at TestKing. A port on a FDDI concentrator on the TestKing network gets disabled continuously after a few hours. You need to re-enable the port each time.**

**Which are probable causes of this problem? (Choose all that apply.)**

- A. The link quality is bad.
- B. An errand user is disabling the port.
- C. Claims frames are seen on the Ring.
- D. There are too many late collisions.
- E. Spanning Tree has been enabled on the Concentrator.

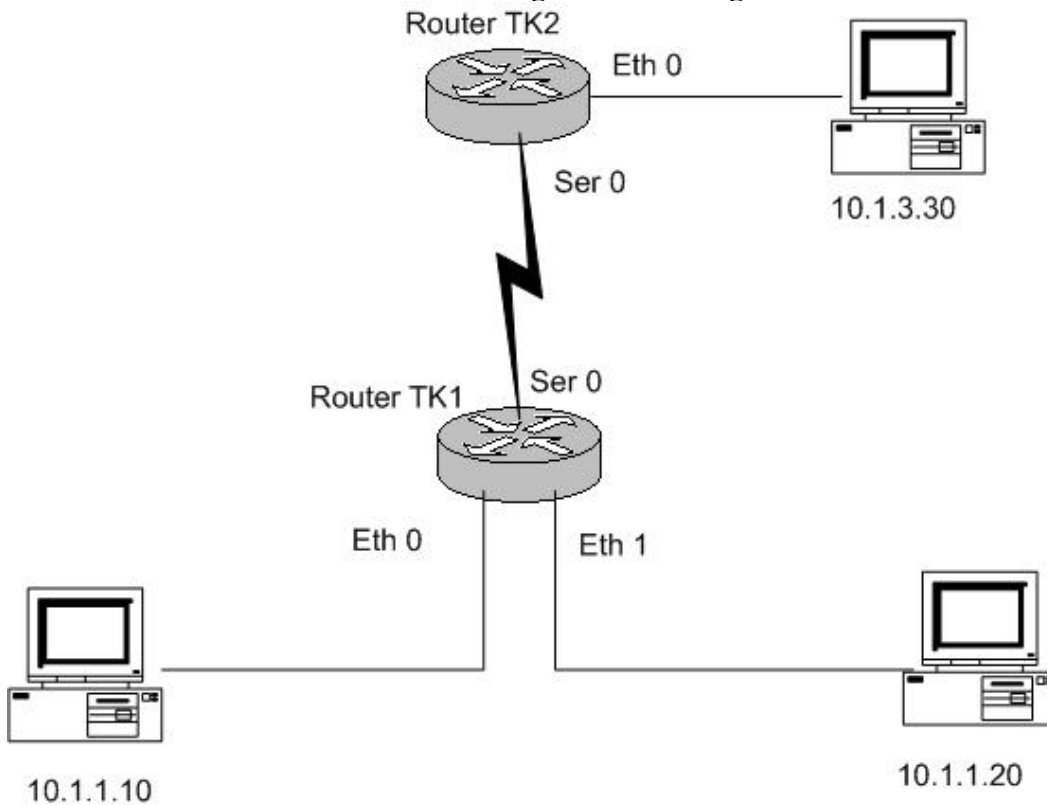
**Answer: A, C**

**Explanation:**

Poor link quality will disable a FDDI connection.

**QUESTION NO: 150**

You are a trainee technician at TestKing. The TestKing network is shown in the following exhibit:



**RouterTK1 is configured as follows:**

```

bridge irb
!
interface Ethernet 0
no ip address
bridge-group 1
!
interface Ethernet 1
no ip address
brige-group 1
!
interface serial 0
ip address 10.1.2.1 255.255.2550
!
interface BVI 1
ip address 10.1.1.1 255.255.255.0
no ip directed-broadcast
  
```

```

!
router eigrp 1
network 10.1.0.0
!
bridge 1 protocol ieee
bridge 1 route ip

```

**Router TK2 is configured as follows:**

```

interface Ethernet 0
ip address 10.1.3.1 255.255.255.0
!
interface serial 0
ip address 10.1.2.2 255.255.255.0
!
router eigrp 1
network 10.1.0.0

```

**The network has just been brought up. You supervisor asks you how Router TK1 would forward a broadcast if device 10.1.1.10 sends a UDP broadcast to FFFF.FFFF.FFFF at the MAC layer.**

**What would your reply be?**

- A. Router TK1 will forward the UDP broadcast out of Serial 0 and Ethernet 1.
- B. Router TK1 will forward the UDP broadcast out of Ethernet 1.
- C. Router TK1 will forward the UDP broadcast out of Serial 0.
- D. Router TK1 will not forward the UDP broadcast.

**Answer: B**

**Explanation:**

Bridge-group is between the Ethernet ports. S0 is a routing port and will not forward broadcasts.

#### **QUESTION NO: 151**

**Your newly assigned TestKing trainee is curious about MTUs and wants to know if MTU forms part of the metric calculation of an EIGRP route. What can you tell her?**

- A. Yes, it is always used in the calculation of EIGRP routes.
- B. No, it is never used in the calculation of EIGRP routes.
- C. It is part of the metric calculation only if the appropriate K-value is activated.
- D. Only the smallest MTU of any links along the path is used with the metric calculation.

**Answer: B**

**Explanation:**

IGRP metric calculation is done using the formula Note Eigrp metric is  $=256 * \text{IGRP metric}$   
 $\text{metric} = [k1 * BW + (k2 * BW) / 256 - \text{Load} + k3 * \text{DLY}] * [k5 / (\text{Reliability} + k4)]$

$k1 = k3 = 1$  and  $k2 = k4 = k5$

MTU is tracked but never used in calculating the metric for IGRP or EIGRP

<http://www.cisco.com/warp/public/103/eigrp-toc.html#eigrpmetrics>

Reference: Jeff Doyle page 243

**QUESTION NO: 152**

**Which MAC address is used to activate the PAUSE mechanism that inhibits the flow of frames for specified periods of time when taking the IEEE 802.3 CSMA/CD specification into account?**

- A. 00-00-00-00-00-00
- B. 00-00-0C-00-00-0F
- C. 00-00-0C-07-AC-3C
- D. 01-80-C2-00-00-01
- E. FF-FF-FF-FF-FF-FF

**Answer: D**

**Explanation:**

Full Duplex Pause operation.

**QUESTION NO: 153**

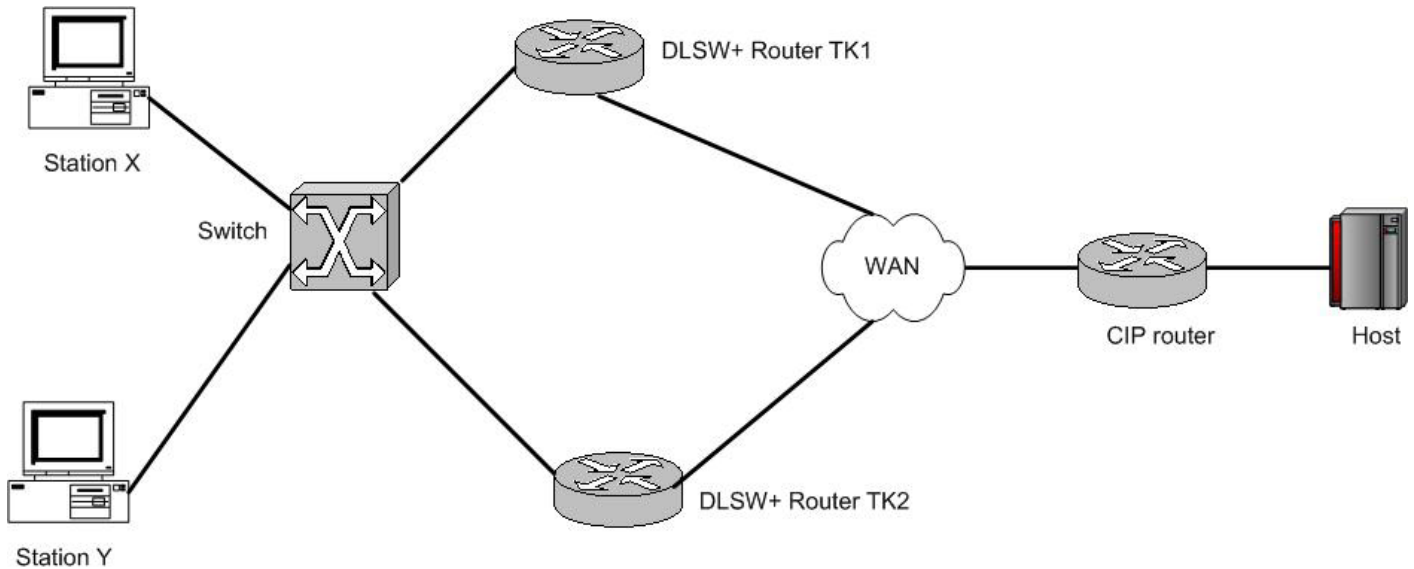
**At what stage will the Data Link Switching (DLSW) peers enter the connect state when one employs Transmission Control Protocol (TCP) encapsulation?**

- A. When test frame broadcasts are sent.
- B. After the peers finish Capabilities Exchange.
- C. After the CUR/ICR exchange takes place.
- D. Never – there is no such stage as a “CONNECT” state.

**Answer: B**

**QUESTION NO: 154**

You are the network administrator at TestKing. The TestKing network consists of two end stations, namely station X and station Y, that are connected via Data Link Switching Plus (DLSW+) routers in a common VLAN. The DLSW+ routers have peers to the Channel Interface Processor (CIP) router. The TestKing network is shown in the following exhibit:



TestKing users complaint that they cannot maintain their SNA sessions even though their IP connectivity is not affected. Both DLSW+ routers show they can reach the Host via 4000.2feb.0001.

Which DLSW+ feature can you use to fix the problem?

- A. Load Balancing.
- B. Ethernet Redundancy.
- C. Duplicate Path Bias.
- D. Static Paths.
- E. All of the above.

**Answer: B**

**Reference:**

[http://www.cisco.com/warp/public/cc/pd/ibsw/ibdlsw/prodlit/dls12\\_rg.htm](http://www.cisco.com/warp/public/cc/pd/ibsw/ibdlsw/prodlit/dls12_rg.htm)

**QUESTION NO: 155**

What protocol is not disabled by the `no service udp-small-servers` command?

- A. Echo
- B. Daytime
- C. Chargen
- D. Discard

**Answer: B**

**Explanation:**

The UDP small servers are: Echo, Discard, and Chargen. Daytime is not a UDP small server.

**Reference:**

<http://www.cisco.com/warp/public/66/23.html>

**QUESTION NO: 156**

**Which of the following statements describes the effect of the method that IEEE 802.1D states is to prevent a single end station that disconnected from disrupting Spanning Tree?**

- A. Re-zeroing the Topology Change flag.
- B. Disabling the 801.1D Change Detection parameter.
- C. Re-setting the Topology Change flag to one (1).
- D. Configuring the BridgeForwardDelay to 1/2 of the BridgeMaxage.
- E. Using the BridgeForwardDelay timer to oust dynamic entries.

**Answer: B**

**QUESTION NO: 157**

**What is the Reverse Path Forward (RPF) check in IP multicast networks' function?**

- A. To establish reverse flow path of multicast traffic from the receiver to the source.
- B. To prevent multicast traffic looping through the network.
- C. To determine interfaces inclusion in the outgoing interface list.
- D. To prevent the movement of unauthorized multicast traffic.

**Answer: B**

**QUESTION NO: 158**

**Which of the following does NOT feature as a primary function of Random Early Discard (RED)?**

- A. To avoid global synchronization for TCP traffic.
- B. To unbiased support bursty traffic.
- C. To minimize packet delay jitter.
- D. To prevent the starvation of the lower priority queues.
- E. All of the above.

**Answer: D**

**Explanation:** RED takes a proactive approach to congestion. Instead of waiting until the queue is completely filled up, RED starts dropping packets with a non-zero drop probability after the average queue size exceeds a certain minimum threshold. A drop probability ensures that **RED randomly drops packets from only a few flows, avoiding global synchronization**. A packet drop is meant to signal the TCP source to slow down. Responsive TCP flows slow down after packet loss by going into slow start mode.

Reference: 'IP Quality of Service' page 130.

Random Early Detection (RED) is a congestion avoidance mechanism that takes advantage of TCP's congestion control mechanism.

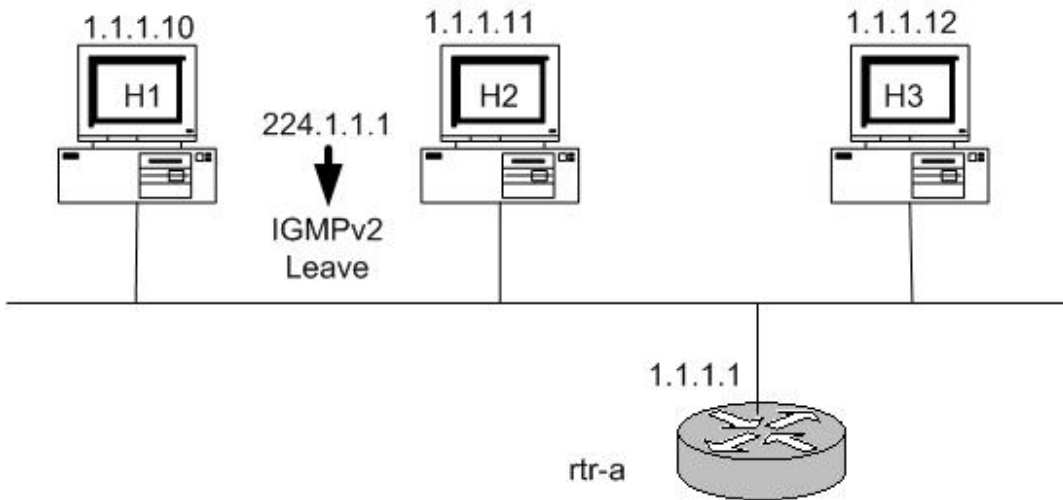
Reference: [http://www.cisco.com/en/US/partner/tech/tk543/tk760/tk549/tech\\_protocol\\_home.html](http://www.cisco.com/en/US/partner/tech/tk543/tk760/tk549/tech_protocol_home.html)

**Incorrect answers:**

The other alternatives are the primary goals of RED.

**QUESTION NO: 159**

**You are the network administrator at TestKing. The router and all the hosts on the TestKing network are IGMPv2 speakers. The TestKing network is shown in the following exhibit:**



Host 2 and Host 3 belong to the 224.1.1.1 group.

How will the router react when Host 2 wants to send an IGMPv2 Leave message to leave group 224.1.1.1?

- A. By sending an IGMPv2 General Query to 224.0.0.1.
- B. By sending an IGMPv2 Group Specific Query to 224.1.1.1.
- C. By sending an IGMPv2 Leave Acknowledgement to Hosts 1 and 3.
- D. By sending an IGMPv2 General Query to 224.1.1.1.
- E. By sending an IGMPv2 Group Specific Query to 224.0.0.1.

**Answer: B**

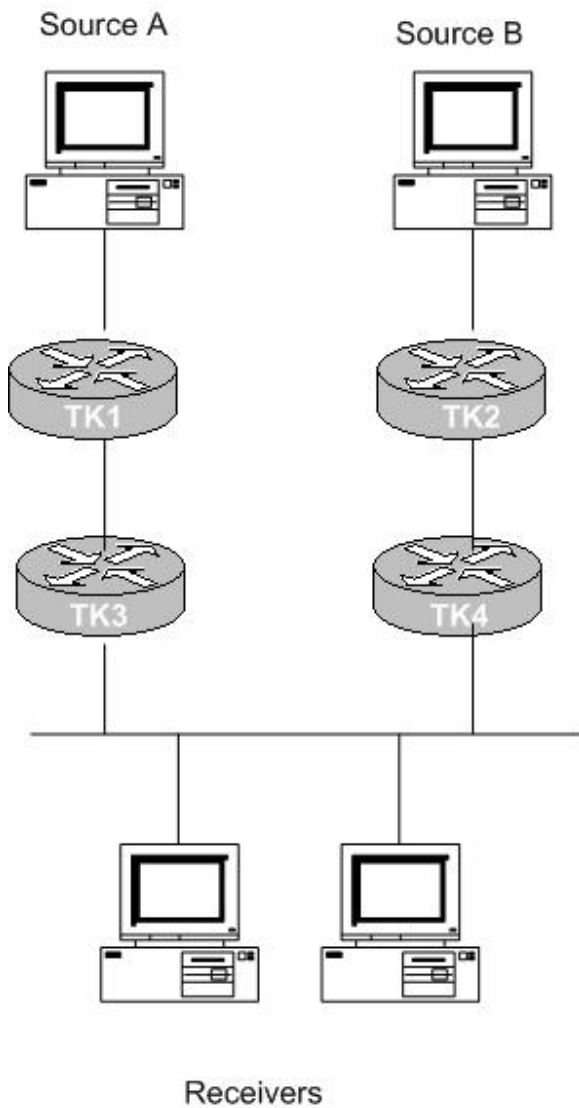
**Explanation:**

In IGMP v2, a leave message is responded by a group specific query.

**QUESTION NO: 160**

You are the network administrator at TestKing. The TestKing network is shown in the following exhibit:





**Router TK1 is configured as follows:**

```
ip multicast-routing

interface loopback0
 ip address 192.168.1.1 255.255.255.0

ip pim send-RP-announce loopback0 scope 16 group-list 1
ip pim send-RP-discovery loopback0 scope 16

access-list 1 permit 239.0.0.0 0.255.255.255
```

**Router TK2 is configured as follows:**

```

ip multicast-routing

interface loopback 0
 ip address 192.168.1.2 255.255.255.0

ip pim send-RP-announce loopback0 scope 16 group-list 1
ip pim send-RP-discovery loopback0 scope 16

access-list 1 permit 239.0.0.0 0.255.255.255

```

**Which of the routers will take on the function of Mapping Agent and source Auto-RP Discovery messages to group 224.0.1.40?**

- A. Both Router A and B will function as active Mapping Agents and source Auto-RP Discovery messages to 224.0.1.40.
- B. Router A will function as active Mapping Agent and source Auto-RP Discovery messages to 224.0.1.40,
- C. Both Router A and B will function as active Mapping Agents and both will source Auto-RP Discovery messages to 224.0.1.39.
- D. Router B will function as active Mapping Agent and source Auto-RP Discovery message to 224.0.1.40.

**Answer: D**

**Explanation:**

The higher IP wins the election for mapping agent.

**Reference:**

Look for Auto-RP with multiple RPs

<http://www.cisco.com/warp/public/105/48.html#autowithmult>

#### QUESTION NO: 161

**With regard to GTS and FRTS, which of the following statements are true?**

- A. GTS applies only on a per interface basis and can use access lists to select the traffic to shape.
- B. For GTS, the shaping queue is weighted fair queue (WFQ) while FRTS does not support WFQ; instead, the queue can be a CQ, PQ or FIFO.
- C. FRTS supports shaping on a per-DLCI basis, while GTS is configurable per interface or subinterface.
- D. GTS works with a variety of Layer 2 technologies, including Frame Relay, ATM, Switched Multimegabit Data Service, and Ethernet.

**Answer: B, C**

**Explanation:**

Generic traffic shaping (GTS), class-based shaping, distributed traffic shaping (DTS), and Frame Relay traffic shaping (FRTS) are similar in implementation, share the same code and data structures, differ in regard to their CLIs, and differ in the queue types used.

**B:** For GTS, the shaping queue is a weighted fair queue.

For FRTS, the queue can be a weighted fair queue (configured by the frame-relay fair-queue command), a strict priority queue with WFQ (configured by the frame-relay ip rtp priority command in addition to the frame-relay fair-queue command), custom queuing (CQ), priority queuing (PQ), or first-in, first-out (FIFO).

**C:** FRTS supports shaping on a per-DLCI basis; GTS and DTS are configurable per interface or subinterface.

**Note:** possibly only select one.

**Reference:**

[http://www.cisco.com/univercd/cc/td/doc/product/software/ios120/12cgcr/qos\\_c/qcpart4/index.htm](http://www.cisco.com/univercd/cc/td/doc/product/software/ios120/12cgcr/qos_c/qcpart4/index.htm)

**QUESTION NO: 162**

**You are a technician at TestKing. You are connecting a new 10/100 NIC to a Catalyst 5000 switch port. You want to achieve the best connection.**

**Which settings should you use?**

- A. NIC: 100 Mbps & Full-duplex  
Catalyst: Auto
- B. NIC: Auto  
Catalyst: 100 Mbps & Full-duplex
- C. NIC: 100 Mbps & Half-duplex  
Catalyst: Auto
- D. NIC: 10 Mbps & Half-duplex  
Catalyst: 10 Mbps & Half-duplex

**Answer: C**

**Explanation:**

The speed and duplex cannot be Hard-Coded on only one link. This will result a duplex mismatch. The duplex default setting always (half-duplex) for port switch or NIC card when they set auto.

<http://www.cisco.com/warp/public/473/46.html>

**QUESTION NO: 163**

**You are a technician at TestKing. Your newly appointed TestKing trainee wants to know which IP protocol is used to send PIMv2 control messages.**

**What would your reply be?**

- A. UDP
- B. IGMP
- C. EIGRP
- D. Protocol number 109
- E. Protocol number 103

**Answer: E**

**Reference:**

<http://www.ietf.org/proceedings/99mar/I-D/draft-ietf-pim-v2-dm-01.txt>

**QUESTION NO: 164**

**Which of the following has an administrative distance that is lower than 120?**

- A. External EIGRP routes.
- B. iBGP routes.
- C. Internal EIGRP routes.
- D. Static routes.
- E. ISIS routes

**Answer: C, D, E**

**Explanation:**

Internal EIGRP, 90, Static Routes, 1, ISIS routes 115 are all below 120. iBGP routes are 200, and External EIGRP are 170.

**QUESTION NO: 165**

**With regard to PNNI, which of the following statements are true?**

- A. PNNI has QoS awareness and has layer 2 reachability support.
- B. PNNI ignores QoS and supports both layer 2 and layer 3 routing.
- C. PNNI supports redistribution of IP routes to ATM routing tables and route dampening.
- D. PNNI comes up automatically when a switch is brought up.
- E. PNNI must be connected in a three-level hierarchical topology.

**Answer: A**

**Explanation:**

IISp provides a static routing solution that is not easily scalable and has no support for quality of service (QoS). PNNI provides a highly scalable routing solution with dynamically determined routing paths and support for QoS requirements.

**Reference:**

[http://www.cisco.com/univercd/cc/td/doc/product/atm/c8540/12\\_0/13\\_19/atg/pnni.htm](http://www.cisco.com/univercd/cc/td/doc/product/atm/c8540/12_0/13_19/atg/pnni.htm)

**QUESTION NO: 166**

**You are a technician at TestKing. Your newly appointed TestKing trainee wants to know what the purpose of the `bgp deterministic-med` command is.**

**What would your reply be?**

- A. It configures BGP to compare MEDs between different ASs.
- B. It makes the default metric count the worst possible metric.
- C. It makes the default metric count the best possible metric.
- D. It configures BGP to reorder the entries by neighbor AS.
- E. It configures BGP to reorder the entries by MED.

**Answer: E**

**Explanation:**

Enabling the `bgp deterministic-med` command ensures the comparison of the MED variable when choosing routes advertised by different peers in the same autonomous system (AS). Enabling the `bgp always-compare-med` command ensures the comparison of the MED for paths from neighbors in different autonomous systems.

**QUESTION NO: 167**

**How is the metric for a summarized route derived when the `interface summary` command for EIGRP is used?**

- A. It is derived from the component route that has the biggest metric.
- B. It is derived from the component route that has the smallest metric.
- C. It is derived from the interface that has the summary command.
- D. It is derived from the component route which has the longest mask.
- E. It is derived from the default-metric command.

**Answer: B**

**QUESTION NO: 168**

**With regard to ISIS, which of the following statements are true? (Choose all that apply.)**

- A. Within one area of ISIS, all links must have **ip router isis** configured.  
At least one link in that area must have this command, if the IP routing is to work correctly.
- B. In ISIS the pseudonode is the router that is responsible for originating the LSP for the LAN.
- C. The protocol ID in the ip header of CLNS is type 203.
- D. You do not need to configure a NET on the router to run ISIS for IP.

**Answer: A, ?**

**QUESTION NO: 169**

**Which are examples for Physical WAN interface standards?**

- A. EIA/TIA 232, EIA/TIA 449, RFC 1771, and V.35.
- B. EIA/TIA 232, EIA/TIA 449, IEEE 802.3 and IEEE 802.5.
- C. IEEE 802.3, IEEE 802.5, ISO 8648 and RFC 1771.
- D. EIA/TIA 232, EIA/TIA 449, V.35, HSSI and EIA 530.
- E. None are physical WAN interfaces.

**Answer: D**

**Explanation:**

EIA/TIA 232, EIA/TIA 449 EIA 530, and V.35 are for Interface Between Data Terminal Equipment and Data Circuit-Terminating Equipment Employing Serial Binary Data Interchange.  
HSSI is a high speed serial interface.

**Incorrect Answers:**

IEEE 802.5 is Token-Ring.

IEEE 802.3 is Ethernet.

ISO 8648 is an architectural model of the OSI Network Layer

**QUESTION NO: 170**

**Which is the proper signal for contact 6 of a PHY without an internal crossover MDI Signal according to the IEEE 802.3 CSMA/CD specification?**

- A. Receive +
- B. Transmit +
- C. Receive –
- D. Transmit –

**Answer: C**

**Explanation:**

Four pins are used for data transfer ie. 1,2,3 and 6.

1 Rc+

2 Rc-

3 Tx+.

6 Tx-

**QUESTION NO: 171**

**You are a network technician at TestKing. Your newly appointed TestKing trainee wants to know which OSPF routers can originate an ASBR-summary LSA type 4.**

**What would your reply be?**

- A. ASBRs when configured with the summary command for OSPF routes.
- B. ABRs only.
- C. ASBRs and ABRs when both are originating indication LSAs.
- D. ABRs when configured with the area-range command.
- E. ASBRs only.

**Answer: C**

**Explanation:**

**ABRs generate two types of LSAs: Type 3 and Type 4.**

Network Summary LSAs (Type 3) are originated by ABRs. They are sent into a single area to advertise destinations outside that area. In effect, these LSAs are the means by which an ABR tells Internal routers of an attached area what destinations the ABR can reach.

ASBR Summary LSA (Type 4) are also originated by ABRs. ASBR summary LSAs are identical to Network summary LSAs except that the destination they advertise is an ASBR and not a network.

**Reference:**

CCIE Professional Development Routing TCP/IP Volume I by Jeff Doyle page 474.

**QUESTION NO: 172**

**Which of the following attributes are “well known” BGP attributes? Choose all that apply.**

- A. Atomic-aggregate
- B. MED
- C. Next-hop
- D. AS-path
- E. Aggregator
- F. All of the above.

**Answer: A, C, D**

**Reference:**

[http://www.cisco.com/univercd/cc/td/doc/cisintwk/ito\\_doc/bgp.htm](http://www.cisco.com/univercd/cc/td/doc/cisintwk/ito_doc/bgp.htm)

**QUESTION NO: 173**

**You are a network technician at TestKing. Your newly appointed TestKing trainee wants to know what is meant by BGP synchronization.**

**What would your reply be?**

- A. It means that a BGP router can only advertise an iBGP-learned route provided that the route is in the only in the BGP table.
- B. It means that a BGP router can only advertise an eBGP-learned route provided that the route is an IGP route in the routing table.

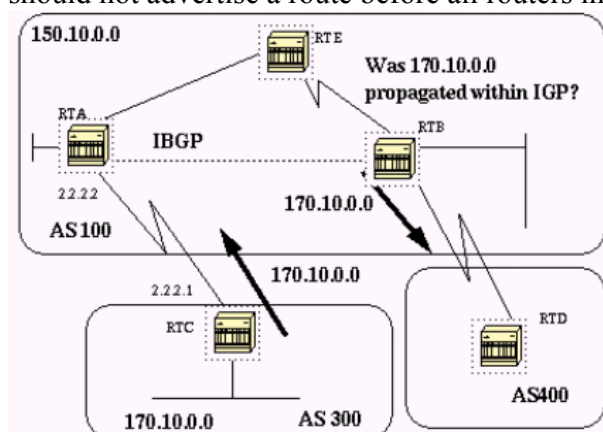


- C. It means that a BGP router can only advertise an iBGP-learned route provided that the route is in the routing table of all its iBGP neighbors.
- D. It means that a BGP router can only advertise an eBGP-learned route provided that the route is metric 0 in the BGP table.
- E. It means that a BGP router can only advertise an iBGP-learned route provided that the route is an IGP route in the routing table.

**Answer: B**

**Explanation:**

BGP Synchronization says: "If your autonomous system is passing traffic from another AS to a third AS, BGP should not advertise a route before all routers in your AS have learned about the route via IGP."



Before we discuss synchronization let us look at the following scenario. RTC in AS300 is sending updates about 170.10.0.0. RTA and RTB are running iBGP, so RTB will get the update and will be able to reach 170.10.0.0 via next hop 2.2.2.1 (remember that the next hop is carried via iBGP). In order to reach the next hop, RTB will have to send the traffic to RTE. Assume that RTA has not redistributed network 170.10.0.0 into IGP, so at this point RTE has no idea that 170.10.0.0 even exists. If RTB starts advertising to AS400 that he can reach 170.10.0.0 then traffic coming from RTD to RTB with destination 170.10.0.0 will flow in and get dropped at RTE.

In the above example, RTB will wait to hear about 170.10.0.0 via IGP before it starts sending the update to RTD. We can fool RTB into thinking that IGP has propagated the information by adding a static route in RTB pointing to 170.10.0.0. Care should be taken to make sure that other routers can reach 170.10.0.0 otherwise we will have a problem reaching that network.

**QUESTION NO: 174**

Your newly appointed TestKing trainee wants to know which interface level command is needed to enable a queue for voice traffic when serial interface has to support IP-based voice traffic in a strict priority queue and all other traffic are to be handled through the weighted fair queuing mechanism.

What would your reply be?

- A. fair-queue
- B. ip llc-queue
- C. priority-group
- D. ip rtp priority
- E. priority-queuing

**Answer: D**

**Explanation:**

To reserve a strict priority queue for a set of Real-Time Transport Protocol (RTP) packet flows belonging to a range of User Datagram Protocol (UDP) destination ports, use the **ip rtp priority** command in interface configuration mode. This command is most useful for voice applications, or other applications that are delay-sensitive

This command extends and improves on the functionality offered by the **ip rtp reserve** command by allowing you to specify a range of UDP/RTP ports whose voice traffic is guaranteed strict priority service over any other queues or classes using the same output interface. Strict priority means that if packets exist in the priority queue, they are dequeued and sent first—that is, before packets in other queues are dequeued.

**Reference:**

[http://www.ciscocom/en/US/products/sw/iosswrel/ps5207/products\\_command\\_reference\\_chapter09186a00801a7edf.html#wp1128299](http://www.ciscocom/en/US/products/sw/iosswrel/ps5207/products_command_reference_chapter09186a00801a7edf.html#wp1128299)

**QUESTION NO: 175**

**Which of the following will you classify as an EIGRP multicast flow timer?**

- A. The timeout timer after which EIGRP retransmits to the neighbor in non CR mode, through unicasts.
- B. The time interval between consecutive received EIGRP hello intervals.
- C. The timer after which EIGRP will not forward multicast data traffic.
- D. The timer interval between consecutive transmitted EIGRP hello intervals.
- E. The timeout timer after which EIGRP retransmits to the neighbor in CR mode, through unicasts.
- F. None of the above.

**Answer: E**

**Explanation:**

After pair of routers become neighbors, they will send routing updates (and other packets) to one another using a reliable multicast scheme. For example, if router one has a series of packets which must be transmitted to routers two, three, and four such as a routing table update, it will send the first packet to the EIGRP multicast address, 224.0.0.10, and wait for an acknowledgment from each of its neighbors on its Ethernet interface (in this case, routers two, three and four). Let's assume that routers two and four do answer, but router three does not.

Router one will wait until the multicast flow timer expires on the Ethernet interface, then send out a special packet, a sequence TLV, telling router three not to listen to any further multicast packets from router one, then it will continue transmitting the remainder of the update packets as multicast to all other routers on the network. The sequence TLV indicates an out-of-sequence multicast packet. Those routers not listed in the packet enter Conditional Receive (CR) mode, and continue listening to multicast. While there are some routers in this mode, the Conditional Receive bit will be set in multicast packets. In this case, router one will send out a sequence TLV with router three listed, so routers two and four will continue listening to further multicast updates.

**QUESTION NO: 176**

**Which protocols are used as a means of transport by RTP?**

- A. IP/RTCP
- B. IP/UDP
- C. IP/TCP
- D. BRI
- E. None of the above.

**Answer: B**

**Explanation:**

**QUESTION NO: 177**

**What is the first ISUP message that is sent by an originating node during call establishment by means of Signalling System 7?**

- A. A RLC
- B. An ARC
- C. An IAM
- D. A REL
- E. An ACM

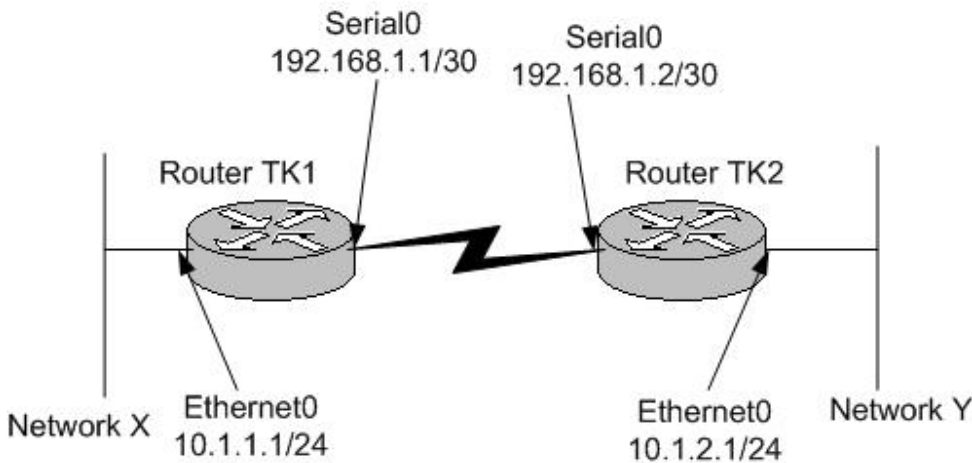
**Answer: C**

**Explanation:**

IAM is the first message sent by an SS7 switch during call establishment.

**QUESTION NO: 178**

You are the network administrator at TestKing. The TestKing network consists of network X and Y that are connected via Router TK1 and Router TK2. The TestKing network is shown in the following exhibit:



Router TK1 and Router TK2 are configured to employ IPSec in efforts to secure traffic between network X and Y. Now, which of the following crypto access-lists must be configured on Router TK1?

- A. access-list 101 permit ip host 192.168.1.1 host 192.168.1.2
- B. access-list 101 permit ip 10.1.1.0.0.0.0.255 host 192.168.1.2
- C. access-list 101 permit ip 10.1.1.0.0.0.0.255 10.1.2.0.0.0.0.255
- D. access-list 101 permit ip 10.1.1.0.0.0.0.255 10.1.2.0.0.0.0.255
- access-list 101 permit ip 10.1.2.0.0.0.0.255 10.1.1.0.0.0.0.255
- E. access-list 101 permit ip 10.1.2.0.0.0.0.255 10.1.1.0.0.0.0.255

**Answer: C**

**Explanation:**

The format of the command for configuring IPSec is shown below.

access-list 101 permit

Source Network Addresses on X

Destination Network Subnets on Y

**QUESTION NO: 179**

A serial interface with flow-based WFQ is carrying 25 flows in the following fashion:

- Twelve flows are marked as IP Precedence 0,
- Ten flows are marked as IP Precedence 1, and
- Three flows are marked as IP Precedence 5.

Based on the above information, how much interface bandwidth is allocated to one of flows that are marked as IP Precedence 5?

- A. 1%
- B. 10%
- C. 12%
- D. 15%
- E. 20%

**Answer: C**

**Explanation:**

Interface bandwidth is allocated to one of flows that are marked as IP Precedence is calculated as shown below.

$$\frac{(5+1)}{[12*(0+1)] + [10*(1+1)] + [3*(5+1)]} = \frac{6}{12+20+18} = \frac{6}{50} = 12\%$$

**QUESTION NO: 180**

When two ISIS neighbors build their adjacency, through how many states do will they pass?

- A. 2: Init, Up
- B. 3: Init, 2-way, Full
- C. 4: Start, Loading, Synchronizing, Up
- D. 5: Init, 2-way, Exstart, Exchange, Up
- E. none, adjacency will be automatic.

**Answer: A**

**Explanation:**

Init and UP are the only two ISIS states.

**QUESTION NO: 181**

Which of the following codecs consumes the most bandwidth?

- A. G.729
- B. G.723
- C. GSM
- D. G.711
- E. G.728

**Answer: D**

G.711 is 64 Kbps, the rest are less.

**QUESTION NO: 182**

**You are the network administrator at TestKing. The TestKing network includes a Gigabit link between a Router and a Switch. The Gigabit link is configured as Full Duplex. You notice that the collision counter on the link is increasing.**

**What is the probable cause of this problem?**

- A. A bug or faulty equipment.
- B. The Router is receiving too much traffic and is asserting the Collision signal to be slow down the rate that the switch is sending traffic.
- C. Both the Router and the Switch are transmitting at the same time.
- D. The switch and the router might be running 802.1q trunking.

**Answer: A**

In full duplex mode collisions are impossible so it could only be a bug or problem with hardware.

**QUESTION NO: 183**

**You are the network administrator at TestKing. You want to bypass the normal routed hop-by-hop paths.**

**What should you use?**

- A. Traffic engineering
- B. Traffic tunneling
- C. Traffic policing
- D. Traffic shaping

- E. Traffic gearing

**Answer: A**

**QUESTION NO: 184**

**With regard to IOS NAT, which type of addressing describes the internal network that uses private network addresses?**

- A. Inside local
- B. Inside global
- C. Outside local
- D. Outside global

**Answer: A**

Cisco uses the term inside local for the private IP addresses and inside global for the public IP addresses. The enterprise network that uses private addresses, and therefore that needs NAT, is the “inside” part of the network. The Internet side of the NAT function is the “outside” part of the network. A host that needs NAT has the IP address it uses inside the network, and it needs an IP address to represent it in the outside network.

**QUESTION NO: 185**

**With regard to IPSec, which of the following are true?**

- A. IPSec supports Multicast.
- B. IPSec does not support Multicast.
- C. IPSec supports Multicast in IOS 12.x or later.
- D. IPSec does not support Multicast in IOS 10.x or earlier.
- E. IPSec does not support Multicast in IOS 11.x or earlier.

**Answer: A**

**QUESTION NO: 186**

**You are the network administrator at TestKing. TestKing has an ATM network. Your newly appointed trainee wants to know what is used to connect two ATM switches on the TestKing network.**

**What would your reply be?**

- A. DLCI
- B. FDDI
- C. NNI
- D. UNI
- E. CNI

**Answer: C**

**QUESTION NO: 187**

**You are a technician at TestKing. You are connecting a new 10/100 NIC to a Catalyst 5000 switch port.**

**Which settings will result a duplex mismatch?**

- A. NIC: 100 Mbps & Half-duplex  
Catalyst: Auto
- B. NIC: 100 Mbps & Full-duplex  
Catalyst: Auto
- C. NIC: 100 Mbps & Half-duplex  
Catalyst: Auto
- D. NIC: 10 Mbps & Half-duplex  
Catalyst: 10 Mbps & Half-duplex

**Answer: B**

**Explanation:**

The speed and duplex cannot be Hard-Coded on only one link. This will result a duplex mismatch. The duplex default setting always (half-duplex) for port switch or NIC card when they set auto.

**Reference:**

<http://www.cisco.com/warp/public/473/46.html>

**QUESTION NO: 188**

**You are a trainee technician at TestKing. Your supervisor shows you the following output:**



```

Router#show version
Cisco Internetwork Operating System Software
IOS (tm) 2500 Software (C2500-IS-L), Version 12.1(12), RELEASE SOFTWARE (fc1)
Copyright (c) 1986-2000 by cisco Systems, Inc.
Compiled Wed 25-Oct-00 05:18 by cmong
Image text-base: 0x03071DB0, data-base: 0x00001000

ROM: System Bootstrap, Version 5.2(8a), RELEASE SOFTWARE
BOOTFLASH: 3000 Bootstrap Software (IGS-RXBOOT), Version 10.2(8a), RELEASE
SOFTWARE (fc1)

Router uptime is 7 minutes
System returned to ROM by reload
System image file is "flash:c2500-is-l_121-12.bin"

cisco 2500 (68030) processor (revision D) with 16384K/2048K bytes of memory.
Processor board ID 03867477, with hardware revision 00000000
Bridging software.
X.25 software, Version 3.0.0.
SuperLAT software (copyright 1990 by Meridian Technology Corp).
TN3270 Emulation software.
1 Token Ring/IEEE 802.5 interface(s)
2 Serial network interface(s)
32K bytes of non-volatile configuration memory.
16384K bytes of processor board System flash (Read ONLY)

Configuration register is 0x2102

```

**Your supervisor wants to know what system IOS feature the output indicates.**

**What would your reply be?**

- A. IP Plus
- B. IP
- C. Enterprise Plus IPSEC 56
- D. Enterprise Plus
- E. Enterprise

**Answer: A**

**Explanation:** The system image file name in the exhibit is c2500-is-l\_121-12.bin  
So it's Enterprise Plus, the following table shows the question possibilities;

IOS feature	file name
IP Plus	c2500- <b>is</b> -l.121-12.bin
IP	c2500- <b>i</b> -l.121-12.bin

Enterprise Plus IPSEC 56	c2500- <b>jk8s</b> -l.121-12.bin
Enterprise Plus	c2500- <b>js</b> -l.121-12.bin
Enterprise	c2500- <b>j</b> -l.121-12.bin

**Reference:** CCO login required

[http://www.cisco.com/warp/customer/432/features.html#select\\_s](http://www.cisco.com/warp/customer/432/features.html#select_s)

#### QUESTION NO: 189

You are a technician at TestKing. Your newly appointed TestKing trainee wants to know what the correct initialization process for a Token Ring station to enter the ring is.

What would your reply be?

- A. Request initialization  
Duplicate address check  
Lobe media check  
Monitor check  
Participate in neighbor notification
- B. Lobe media check  
Duplicate address check  
Monitor check  
Participate in neighbor notification  
Request initialization
- C. Lobe media check  
Monitor check  
Duplicate address check  
Participate in neighbor notification  
Request initialization
- D. Lobe media check  
Monitor check  
Request initialization  
Duplicate address check  
Participate in neighbor notification

#### Answer: C

The process for a station to insert into the Token Ring follows five phases:

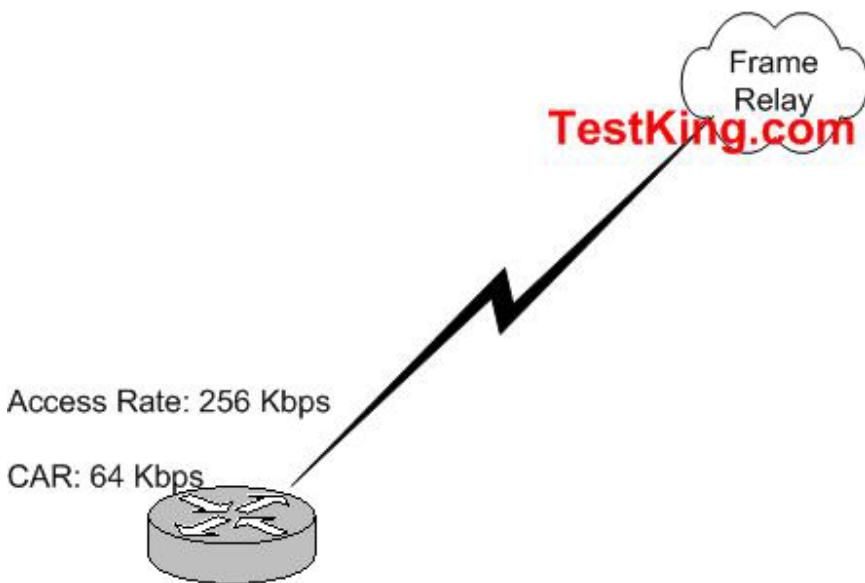
- Phase 0—Lobe media check
- Phase 1—Physical insertion
- Phase 2—Address verification
- Phase 3—Participation in ring poll
- Phase 4—Request initialization

CCIE Routing and Switching Exam Certification Guide by Anthony Bruno (page 169)

[http://www.cisco.com/en/US/products/hw/modules/ps2643/products\\_tech\\_note09186a0080093dc2.shtml](http://www.cisco.com/en/US/products/hw/modules/ps2643/products_tech_note09186a0080093dc2.shtml)

**QUESTION NO: 190**

You are a technician at TestKing. The TestKing router shown in the following exhibit is receiving a notification from the Frame Relay provider that there is congestion in the network.



You want the router to react dynamically to this notification.

What command should you issue?

- A. `traffic-shape adaptive 64000`
- B. `fair-queue 64000`
- C. `shape peak 256000 64000`
- D. `frame-relay class slow`

**Answer: A**

This is kind of a sneaky question. It requires you have knowledge of QOS. The diagram shows a statement called CAR. CAR is committed access rate. Normally when one thinks of Car, you think of the rate-limit command that is used to establish car. However it is in my view that this question is not asking about CAR but about GTS. Generic Traffic Shaping is setup by using the traffic-shape adaptive command.

[http://www.cisco.com/en/US/products/sw/iosswrel/ps1831/products\\_configuration\\_guide\\_chapter09186a00800c60cc.html](http://www.cisco.com/en/US/products/sw/iosswrel/ps1831/products_configuration_guide_chapter09186a00800c60cc.html)

**traffic-shape adaptive** [*bit-rate*] configures minimum bit rate to which traffic is shaped when backward explicit congestion notifications (BECNs) are received on an interface.

With adaptive GTS, the router uses backward explicit congestion notifications (BECNs) to estimate the available bandwidth and adjust the transmission rate accordingly. The actual maximum transmission rate will be between the rate specified in the traffic-shape adaptive command and the rate specified in the traffic-shape rate command.

As you can see this fulfills the requirement of the question about the Frame Relay network sending information about congestion.

Frame-relay class *slow* is command is setting up a map class. When a map class is applied to the main interface all the VC gets the traffic shaping from the main interface. This command needs too much assuming while the traffic-rate command does not. The answer could be this is the CAR is really CIR (committed information rate). Here is a link to Frame Relay Traffic Shaping.

[http://www.cisco.com/en/US/products/sw/iosswrel/ps1831/products\\_configuration\\_guide\\_chapter09186a00800c60d3.html](http://www.cisco.com/en/US/products/sw/iosswrel/ps1831/products_configuration_guide_chapter09186a00800c60d3.html) Like always use your best judgment based on experience and knowledge.

#### QUESTION NO: 191

Which of the following protocols qualifies to be classified amongst the so-called Distance Vector type? (Choose all that apply.)

- A. OSPF
- B. BGP
- C. RIP
- D. ISIS
- E. EIGRP
- F. All of the above.

**Answer: B, C, E**

**Note:** if the answer is a single option I would pick **C** as per cisco documentation (see link below) Eigrp is ADVANCED distance vector while BGP is technically a path vector (developed from distance vector) but both fit the "so-called" statement.

**Explanation:** RIP is a distance vector protocol. (B was an original answer) However I think it is E BGP (the reference below shows that it is a path vector that came from distance vector. Hence the "so-called Distance Vector" statement is applicable. RIP is distance vector so no question. EIGRP is sometimes considered advanced distance vector.

**Reference:**

CCIE Professional Development Routing and Switching Volume 1, Page 86

## CCIE Routing and Switching Exam Certification Guide Page 338

EIGRP is an advanced Cisco-proprietary distance-vector routing protocol, which means it uses a metric more sophisticated than distance (hop count) for route selection.

[http://www.cisco.com/en/US/products/hw/routers/ps380/products\\_configuration\\_guide\\_chapter09186a008007cdc7.html](http://www.cisco.com/en/US/products/hw/routers/ps380/products_configuration_guide_chapter09186a008007cdc7.html)

The BGP-4 protocol [BGP-4] in particular, and path vector routing protocols in general, are mostly independent of the particular Address Family for which the protocol is being used. (RFC 2545)

<http://www.faqs.org/rfcs/rfc2545.html>

BGP is a Path Vector Protocol, which is similar to a Distance Vector Protocol, but with a key difference. A Distance Vector Protocol chooses routes based on the hop count (or routers traversed) and link speeds; BGP, in contrast, chooses a route that traverses the least number of Autonomous Systems (AS). As a routing advertisement passes through an AS, it prepends (adjusts the path length advertised) the ASN of the AS of origin to the path of other ASes it has traversed. By default, the path with the fewest ASNs is stored in the routing table as the optimal path to a destination network. One AS can contain multiple routers, so it's possible the actual hop count is higher than the AS path indicates.

<http://www.networkcomputing.com/1025/1025ws1.html>

**QUESTION NO: 192**

**Which of the following is used in the Ethernet environment? (Choose all that apply.)**

- A. Non Canonical format MAC addresses.
- B. CSMA/CD for media access.
- C. Canonical format MAC addresses.
- D. 802.5 encapsulated frames.
- E. All of the above.

**Answer: B, C**

**Explanation:**

**B:** CSMA/CD is the media access method on Ethernet network

**C:** CCIE Routing and Switching Exam Certification Guide Page 111 and page 112. In Ethernet, for each octet, the LSB is transmitted first and the MSB is transmitted last. The canonical transmission is also known as LSB first.

**Incorrect answers:**

**A:** Ethernet and Token Ring topologies read MAC addresses differently. For example, a MAC address of 4040.4040.4040 on Ethernet is read as 0202.0202.0202 on Token Ring.

[http://www.cisco.com/en/US/tech/tk331/tk660/technologies\\_tech\\_note09186a008012811e.shtml](http://www.cisco.com/en/US/tech/tk331/tk660/technologies_tech_note09186a008012811e.shtml)

**D:** 802.5 is Token Ring

**QUESTION NO: 193**

**Which IP address is used by RIPv2 to send its own routing update packets? (Choose all that apply)**

- A. 224.0.0.10
- B. 255.255.255.255
- C. 224.0.0.13
- D. 224.0.0.5
- E. 224.0.0.9

**Answer: E**

**Explanation:** RIPv2, periodic route updates sent every 30 seconds to multicast address 224.0.0.9.

**Reference:** CCIE Routing and Switching Exam Certification Guide Page 338

**QUESTION NO: 194**

**You are a PC technician at TestKing. Your newly appointed TestKing trainee wants to know what an LSP is in MPLS.**

**What would your reply be?**

- A. Label Switched Pair
- B. Label Switched Path
- C. Label Switched Performance
- D. Liability Switched Pair
- E. Label Switched Protocol

**Answer: B**

**Explanation:** The MPLS traffic engineering Internet Protocol (IP) explicit address exclusion feature provides a means to exclude a link or node from the path for an MPLS traffic engineering label-switched path (LSP).

**QUESTION NO: 195**

**One of your newly appointed TestKing trainees wants to know what the Multicast addresses in the range of 224.0.0.0 through 224.0.0.255 are reserved for.**

**How will you reply?**

- A. It is reserved for Administratively Scoped multicast traffic intended to remain inside a private network.
- B. It is reserved for Administratively Scoped multicast traffic that is not supposed to be transmitted onto the Internet.
- C. It is reserved for link-local multicast traffic consisting of network control messages that is not supposed to leave the local subnet.
- D. Any valid multicast data stream
- E. Global Internet multicast traffic intended to travel throughout the Internet.

**Answer: C**

As found in RFC1112

**QUESTION NO: 196**

**The H.225 is responsible for Call Signalling as part of the H.323 Specification.**

**In what ISO Protocol Layer is the H.225 responsible for Call Signalling as part of the H.323 Specification?**

- A. Application
- B. Presentation
- C. Session
- D. Transport
- E. Network
- F. Data-Link
- G. Physical

**Answer: C**

**Explanation:**

H.323 and the subset H.225 is above TCP or UDP in OSI-layer 5, which is the session layer.

OSI Layer Number   OSI Layer Name   VoIP Protocols and Functions

7 Application   NetMeeting/Applications

6 Presentation   Codecs

**5 Session   H.323/MGCP/SIP**

4 Transport   RTP/TCP/UDP

3 Network   IP

2 Data Link   Frame Relay, ATM, Ethernet, PPP, MLP, and mor

H.323—the International Telecommunication Union-Telecommunications Standardization Sector (ITU-T) specification for sending voice, video, and data across a network. The H.323 specification includes several related standards, such as H.225 (call control), H.235 (security), H.245 (media path and parameter negotiation), and H.450 (supplementary services). For more information, see the "H.323 Overview" chapter in this configuration guide.

MGCP—Media Gateway Control Protocol, an Internet Engineering Task Force (IETF) draft standard for controlling voice gateways through IP networks. For more information, see the "Configuring MGCP and Related Protocols" chapter in this configuration guide.

SIP—Session Initiation Protocol, defined in IETF RFC 2543.

### QUESTION NO: 197

Study the Exhibit below carefully:

```
6509b> show module
```

Mod	Slot	Ports	Module-Type	Model	Sub Status
1	1	2	1000BaseX Supervisor	WS-X6K-SUP2-2GE	yes ok
15	1	1	Multilayer Switch Feature	WS-F6K-MSFC2	no ok
2	2	2	1000BaseX Supervisor	WS-X6K-SUP2-2GE	yes standby
16	2	1	Multilayer Switch Feature	WS-F6K-MSFC2	no ok
3	3	16	1000BaseX Ethernet	WS-X6516-GBIC	no ok
4	4	16	1000BaseX Ethernet	WS-X6516-GBIC	no ok
5	5	0	Switch Fabric Module	WS-C6500-SFM	no ok
7	7	16	1000BaseX Ethernet	WS-X6516-GBIC	no ok
8	8	16	1000BaseX Ethernet	WS-X6516-GBIC	no ok

Given the information as is illustrated, what is the appropriate version of Cisco IOS software when you need to convert Hybrid software to Cisco IOS software?

- A. c6sup12-jsv-mz.121-7a.E1.bin
- B. c6sup22-jsv-mz.121-8a.E3.bin
- C. c6msfc2-jsv-mz.121-7a.E1.bin
- D. cat6000-sup2.6-2-3.bin

**Answer: B**

**Explanation:**

Supervisor Engine 2 with MSFC2 Software Images and Ordering Information

Product Number	Description	Image
<b>S6S22AV-12113E</b>	<b>Cisco Catalyst 6000 and Cisco 7600 Supervisor Engine 2/MSFC2 Cisco IOS Enterprise with Versatile Interface Processor (VIP) Software Release 12.1(13)E1</b>	<b>c6sup22-jsv-mz.121-13.E1</b>
<b>S6S22ALV-12113E</b>	Cisco Catalyst 6000 and Cisco 7600 Supervisor Engine 2/MSFC2 Cisco IOS Enterprise LAN Only Software	c6sup22-js-mz.121-13.E1



Release 12.1(13)E1  
**S6S22AK2-12113E** Cisco Catalyst 6000 and Cisco 7600 Supervisor Engine c6sup22-jk2sv-mz.121-13.E1  
2/MSFC2 Cisco IOS Enterprise with VIP and 3DES  
Software Release 12.1(13)E1

**QUESTION NO: 198**

**You are contracted as a technician at TestKing. Your newly appointed TestKing trainee wants to know which encryption technology has to have the manual exchange of RSA public keys between crypto peers.**

**How would you reply?**

- A. IPSec using RSA signatures
- B. IPSec using RSA encrypted nonces
- C. IPSec with manual keying
- D. Cisco Encryption Technology
- E. IPSec using preshared keys
- F. IPSec using RSA authentication

**Answer: C**

**Explanation:**

Manual keying is usually only necessary when configuring a Cisco device to encrypt traffic to another vendor's device, which does not support IKE. If IKE is configurable on both devices, it is preferable to using manual keying.

**Reference:** Cisco – “Configuring IPSec Manual Keying between Routers”

**QUESTION NO: 199**

**Which of the following statements is a spot on description for the sliding window protocol? (Choose all that apply)**

- A. It allows the transmission of multiple frames before waiting for an acknowledgement.
- B. The size of the sliding window can only increase or stay the same.
- C. The window on offer is advertised by the sender.

- D. The receiver must wait for the window to fill before sending an ACK.
- E. The sender need not transmit a full window's worth of data.

**Answer: A, D, E**

**Explanation:**

**Windowing**

TCP uses a window of sequence numbers to implement **flow control**. The receiver indicates the amount of data to be sent. The receiver sends a window with every ACK that indicates a range of acceptable sequence numbers beyond the last received segment. The window allows the receiver to tell the sender how many bytes to transmit.

In TCP, a sender transmits only a limited amount of data before the receiver must send an acknowledgement. Windows usually include multiple packets, but if the sender doesn't get acknowledgements within a **set time**, all the packets must be retransmitted.

In Win 2000 and XP, the default TCP window size is **16K bytes** - meaning no more than 11 frames can be outstanding without an acknowledgement. For 11 frames at 12 microseconds each, any delay of 132 microseconds or more would cause retransmissions.

**QUESTION NO: 200**

**You are a trainee technician at TestKing. Your supervisor shows you the following line from an `rsvp` command:**

```
ip rsvp sender 255.1.1.1 12.1.2.1 UDP 7001 12.1.2.1 Hssi0 20 1
```

**Your supervisor wants to know what the above line indicates.**

**What would your reply be?**

- A. The router will act as if it was receiving PATH messages destined to multicast address 255.1.1.1 from source 12.1.2.1.  
The previous hop of the PATH message is 12.1.2.1, and the message was received on interface Hssi0.
- B. The router will act as if it was sending RESV messages destined to multicast address 225.1.1.1 from source 12.1.2.1.  
The next hop of the PATH message is 12.1.2.1, and the message was received on interface Hssi0.

- C. The router will act as if it was sending PATH messages destined to multicast address 225.1.1.1 from source 12.1.2.1.  
The next hop of the PATH message is 12.1.2.1, and the message was received on interface Hssi0.
- D. The router will act as if it was receiving RESV messages destined to multicast address 225.1.1.1 from source 12.1.2.1.  
The previous hop of the PATH message is 12.1.2.1, and the message was received on interface Hssi0.

**Answer: A**

**Explanation:**

This command causes the router to act as if it were receiving PATH messages destined to multicast address 225.1.1.1 from a source 12.1.2.1. The previous hop of the PATH message is 12.1.2.1, and the message was received on interface Hssi0.

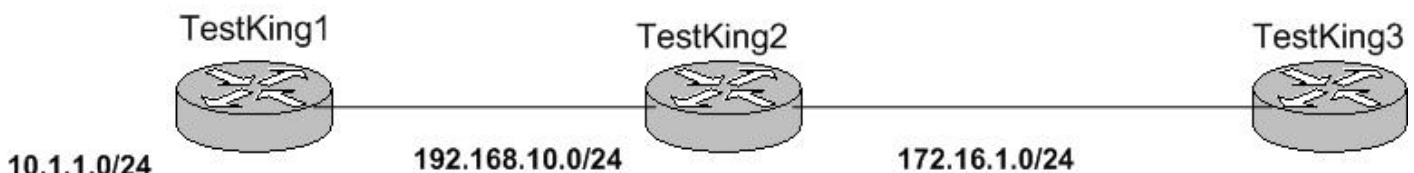
**References:** Cisco's "Quality of Service Solutions Configuration Guide"

<http://www.netcraftsmen.net/welcher/papers/rsvp.html>

**QUESTION NO: 201**

You are the network administrator at TestKing. The TestKing network contains three routers named Router TestKing1, Router TestKing2 and Router TestKing3. All three routers run EIGRP with auto-summary on. Router TestKing1 has been configured for the network 10.1.1.0/24 with the `redistribute connected` command.

The router topology for the TestKing network is shown in the following exhibit:



Which route originated by Router TestKing1 would you expect to find in the routing table of Router TestKing3 when issuing the `show ip route 10.1.1.0` command?

- A. 10.1.0.0/16
- B. 10.0.0.0/24
- C. 10.0.0.0/8
- D. 10.1.1.0/24
- E. 192.168.10.0/24

**Answer: D**

**Explanation:** Auto-Summarization of External Routes

•EIGRP will not auto-summarize external routes unless there is a component of the same major network that is an internal route.

**Not C:** In this scenario the network is not an external route. It is being advertised into EIGRP process using the network command. In such cases EIGRP does Auto Summarize.

EIGRP behaves differently to internal and external routes as far as summarization is concerned.

#### QUESTION NO: 202

**You are the network administrator at TestKing. A port on router on the TestKing network goes to **err-disable**.**

**Which of the following is NOT the cause?**

- A. Duplex mismatch
- B. Unidirectional Link
- C. Bidirectional Link running to different two switches.
- D. Spanning Tree loop
- E. VLANs on the trunk were not matching on both sides

**Answer: E**

**Explanation:**

If the interface status is **err-disable** in the output of the **show interface status** command, refer to the common reasons below. When a port is error-disabled, the LED associated with the port on the front panel will be **solid orange**.

The reasons for the interface going into “**err-disable**” state are varied. Some of the possibilities include the following:

- duplex mismatch (A is incorrect)
- port-channel misconfiguration
- Bridge Protocol Data Unit (BPDU) Guard violation
- UniDirectional Link Detection (UDLD) condition (B is incorrect)
- late-collision detection
- link-flap detection
- security violation
- Port Aggregation Protocol (PAgP) flap

- Layer 2 Tunneling Protocol (L2TP) Guard
- DHCP snooping rate-limiting
- EtherChannel guard detects a misconfigured EtherChannel

**QUESTION NO: 203**

**What protocol is not disabled by the `no service tcp-small-servers` command?**

- A. Echo
- B. Time
- C. Daytime
- D. Chargen
- E. Discard

**Answer: B**

**Explanation:**

The TCP small servers are: Echo, Discard, Chargen, and Daytime. Time is not a small server.

**QUESTION NO: 204**

**With regard to Token Ring environments, which statement regarding are true?**

- A. The Active monitor sends out an “active monitor present” MAC frame every 12 seconds.
- B. The Active monitor sends a “standby monitor present” MAC frame to every 12 seconds.
- C. The Active monitor provides the master clock for the ring.
- D. The Active monitor delays frames by 24 bits.
- E. The Active monitor sends the “active monitor present” MAC frame to broadcast address FF.FF.FF.FF.FF.FF.

**Answer: C, D**

**Explanation:**

**Every station on a token ring network is either an Active Monitor (AM) or a Standby Monitor (SM).** The Active Monitor is chosen in an election process called “monitor contention” and has the general responsibility of making sure that everything is running properly on the ring.

Any station that is not acting as the Active Monitor, is acting as a Standby Monitor because it is standing by to become the Active Monitor, should the Active Monitor fail to perform its duties.

At any given time on a properly operating token ring network, there will be **only one Active Monitor**. Should the circumstance arise that there are two Active Monitors on one ring (for example, two separate rings being joined into one while all stations are up and running), both Active Monitors will detect the presence of the other and instantly become Standby Monitors. The ring is then left without an Active Monitor until the Standby Monitors realize that an AM is lacking and initiate monitor contention.

#### Responsibilities of the Active Monitor

The specific responsibilities of the Active Monitor are:

- **Provide master clocking to the ring.**  
The Active Monitor is responsible for putting onto the wire a master clock signal, which all other stations use to "synch up" their internal clocks so that every station knows when a bit time begins and ends.
- **Provide a minimum 24 bit "latency buffer".**  
The purpose of the latency buffer is to simulate a ring length that assures that the token can be circulated properly. Because most token ring networks have a small (in terms of the speed of propagation of electrical signals) ring length, the latency buffer assures that no station other than the AM itself is ever stripping the initial bits of the token off of the wire before it has finished sending the last bits.
- **Initiate Ring Polling every seven seconds.**  
The AM will send an Active Monitor Present (AMP) frame every **seven seconds**. AMP and SMP frames are sent to the functional address **0x'C0-00-FF-FF-FF-FF'** (multicast = 'this ring' broadcast); they are ignored by token-ring bridges.
- **Monitor Ring Polling.**  
If the AM does not receive an AMP or SMP frame from its nearest upstream neighbor within seven seconds of initiating ring polling, it reports a Ring Poll Failure to the ring's Error Monitor.
- **Ensure proper token passing.**  
The Active Monitor watches for problems in token passing such as circulating tokens due to a station raising the ring's priority and then never lowering it, or lost tokens (specifically, the AM must see a good token every 10 milliseconds).
- **Compensate for frequency jitter.**  
As stations bit repeat data around the ring, they each introduce a small amount of phase shift in the signal. This phase shift is referred to as "jitter". The AM compensates for this by generating a master clock signal based on its own internal clock rather than the clock signal being received from its upstream neighbor.

#### Responsibilities of a Standby Monitor

The general responsibility of a Standby Monitor is to make sure that the Active Monitor is performing its duties properly. Specifically, its responsibilities are:

- **Monitor token passing on the ring.**  
Similar to the AM, Standby Monitors watch token passing on the ring, but much more leniently. A SM must see either a data frame or a good token at least once every 2.6 seconds. If it does not, it initiates monitor contention.
- **Monitor Ring Polling.**  
If a Standby Monitor does not see an Active Monitor Present frame at least once every 15 seconds, it initiates monitor contention.

- **Monitor ring frequency.**

If a Standby Monitor detects that the clock signal being produced by the AM differs significantly from its own internal clock, it will initiate monitor contention.

**Reference:** <http://www.wildpackets.com/compendium/TR/TR-RiMon.html>

**QUESTION NO: 205**

**Which of the following PIMv2 control messages are common to both PIM Dense Mode and PIM Sparse Mode? (Choose all that apply.)**

- A. Bootstrap
- B. Join/Prune
- C. Register
- D. Assert
- E. Hello

**Answer: B, D, E**

PIM-DM use the following PIMV2 messages;

- Hello
- Join/Prune
- Graft
- Graft-Ack
- Assert

PIM-SM use the following PIMV2 messages

- Hello
- Bootstrap
- Candidate-RP-Advertisement
- Join/Prune
- Assert
- Register
- Register-Stop

**Reference:** 'CCIE Professional Development Routing TCP/IP Volume 2' in the section 'Understanding IP Multicast Routing' pages 475 and 488.

**QUESTION NO: 206**

**You are the network administrator at TestKing. You perform the following configuration on a HSSI interface:**

```
interface Hssi4/0/0
  rate-limit input access-group rate limit 1 10000000 10000 10000 conform-action
  access-list rate-limit 1 mask 07
```

**What is the effect of this commands?**

- A. The command access rate policing limits all traffic to 10Mbps
- B. Traffic matching access-list 07 is rate limited
- C. Voice traffic with DiffServ code point 43 is guaranteed
- D. IP Precedence traffic with Values 0 , 1 and 2 will be policed

**Answer: D**

**Explanation:**

Use the mask keyword to assign multiple IP precedence's to the same rate-limit list. To determine the mask value, perform the following steps:

Step 1 Decide which precedence's you want to assign to this rate-limit access list.

Step 2 Convert the precedence's into an 8-bit numbers with each bit corresponding to one precedence. For example, an IP precedence of 0 corresponds to 00000001, 1 corresponds to 00000010, 6 corresponds to 01000000, and 7 corresponds to 10000000.

Step 3 Add the 8-bit numbers for the selected precedence's together. For example, the mask for precedence's 1 and 6 is 01000010.

Step 4 Convert the binary mark into the corresponding hexadecimal number. For example, 01000010 becomes 0x42. This value is used in the access-list rate-limit command. Any packets that have an IP precedence of 1 or 6 will match this access list. A mask of FF matches any precedence, and 00 does not match any precedence.

#### **QUESTION NO: 207**

**You are a technician at TestKing. You tell your newly appointed trainee about QoS features.**

**Your trainee now wants to know what QoS functions are performed by edge routers.**

**What would your reply be?**

- A. packet classification
- B. congestion management
- C. congestion avoidance
- D. admission control



**Answer: A, D**

**Explanation:**

As per Cisco's Hierarchical network model, the Core or backbone of the network should not be involved in Processor intensive tasks. Tasks such as packet classification and access control are limited to the access layer and in some cases to the distribution layer.

Another thing to bear in mind is that QoS functionality is always defined over WAN. Which clearly implies that functions such as congestion management and congestion avoidance will be addressed on the Core routers or Backbone switches.

**QUESTION NO: 208**

**You are a technician at TestKing. TestKing has a OSPF network. Your newly appointed TestKing trainee wants to know which IP multicast addresses does OSPF use.**

**What would your reply be? (Choose all that apply.)**

- A. 224.0.0.1
- B. 224.0.0.5
- C. 224.0.0.6
- D. 224.0.0.13
- E. 224.0.0.255

**Answer:** 224.0.0.5 and 224.0.0.6

**QUESTION NO: 209**

**With regard to PPPoA, which of the following statements are true? (Choose all that apply.)**

- A. PPPoA contains information about NCP LCP and supports all AAL.
- B. PPPoA adaptation layer 5 (AAL5) uses AAL5 as the framed protocol is used primarily in xDSL.
- C. PPPoA is not a standard based protocol.
- D. **In PPPoA architecture, IP address allocation for the subscriber CPE uses IPCP negotiation**
- E. PPPoA supports all ppp feature except password PAP CHAP.

**Answer: B, D**

**Explanation:**

Point-to-Point Protocol (PPP) (RFC 1331) provides a standard method of encapsulating higher layer protocols across point-to-point connections. It extends the High-Level Data Link Control (HDLC) packet structure with a 16-bit protocol identifier that contains information about the content of the packet.

The packet contains three types of information:

- Link Control Protocol (LCP) negotiates link parameters, packet size, or type of authentication
- Network Control Protocol (NCP) contains information about higher layer protocols including IP and IPX, and their control protocols (IPCP for IP)
- Data frames containing data

PPP over ATM adaptation layer 5 (AAL5) (RFC 2364) uses AAL5 as the framed protocol, which supports both PVC and SVC. PPPoA was primarily implemented as part of ADSL. It relies on RFC1483, operating in either Logical Link Control-Subnetwork Access Protocol (LLC-SNAP) or VC-Mux mode. A customer premises equipment (CPE) device encapsulates the PPP session based on this RFC for transport across the ADSL loop and the digital subscriber line access multiplexer (DSLAM).

**Reference:**

[http://www.cisco.com/warp/public/794/pppoa\\_arch.html](http://www.cisco.com/warp/public/794/pppoa_arch.html)

**QUESTION NO: 210**

**How would you go about recovering the password of a 3550 Catalyst switch? (Make the appropriate choice.)**

- Unplug power, Hold mode button down, plug power in, issue flash\_init, issue load\_helper, issue rename flash:config.text flash:config.old, issue boot, issue no, issue enable, issue rename flash:config.old flash:config.text, issue config t
- Unplug power, Hold mode button down, ,plug power in, issue flash\_init, issue load\_helper, issue rename flash:config.etxt flash:config.old, issue boot, issue no, issue enable, issue rename flash:config.old flash:config.text, issue config t, issue no enable secret, issue write mem
- Unplug power, Hold mode button down, plug power in, issue rename flash:config.text flash:config.old, issue boot, issue no, issue enable, issue rename flash:config.old flash:config.text, issue copy flash:config.text system running-config, issue config t, issue no enable secret, issue write mem
- Unplug power, plug power in, issue flash\_init, issue load\_helper, issue rename flash:config.text flash:config.old, issue boot issue no, issue enable, issue rename flash:config.old flash:config.text, issue copy flash:config.text system running-config, issue config t, issue no enable secret, issue write mem
- Unplug power, Hold mode button down, ,plug power in, issue flash\_init, issue load\_helper, issue rename flash:config.text flash:config.old, issue boot, issue no, issue enable, issue rename flash:config.old flash:config.text, issue copy flash:config.text system running-config, issue config t, issue no enable secret, issue write mem

**Answer: E**

### Step-by-Step Procedure

1. Attach a terminal or PC with terminal emulation (for example, Hyper Terminal) to the console port of the switch. Use the following terminal settings:

- Bits per second (baud): 9600
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow Control: Xon/Xoff

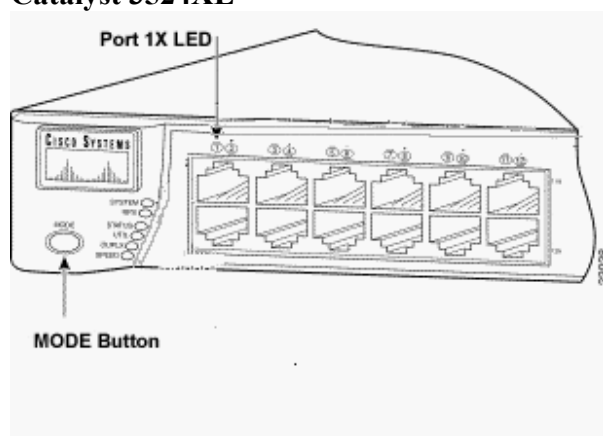
**Note:** For additional information on cabling and connecting a terminal to the console port, refer to Connecting a Terminal to the Console Port on Catalyst Switches.

2. Unplug the power cable.
3. Hold down the mode button located on the left side of the front panel, while reconnecting the power cable to the switch.

**For 2900/3500XL and 3550 Series switches:** release the mode button after the LED above **Port 1x** goes out.

**Note:** LED position may vary slightly depending on the model.

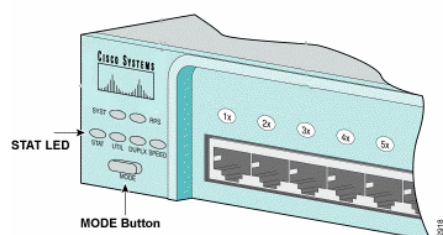
#### Catalyst 3524XL



**For 2950 Series switches:** release the mode button after the **STAT** LED goes out.

**Note:** LED position may vary slightly depending on the model.

#### Catalyst 2950-24



The following instructions appear:

The system has been interrupted prior to initializing the flash filesystem. The following commands will initialize the flash filesystem, and finish loading the operating system software:

```

flash_init
load_helper
boot
switch:

```

*!-- This output is from a 3500XL switch. Output from a 2900XL, 2950 or 3550 will vary slightly.*

4. Issue the **flash\_init** command.

```

switch: flash_init
Initializing Flash...
flashfs[0]: 143 files, 4 directories
flashfs[0]: 0 orphaned files, 0 orphaned directories
flashfs[0]: Total bytes: 3612672
flashfs[0]: Bytes used: 2729472
flashfs[0]: Bytes available: 883200
flashfs[0]: flashfs fsck took 86 seconds
....done Initializing Flash.
Boot Sector Filesystem (bs:) installed, fsid: 3
Parameter Block Filesystem (pb:) installed, fsid: 4
switch:

```

*!-- This output is from a 2900XL switch. Output from a 3500XL, 3550 or 2950 will vary slightly.*

5. Issue the **load\_helper** command.

```

switch: load_helper
switch:

```

6. Issue the **dir flash:** command.

The switch file system is displayed:

```

switch: dir flash:
Directory of flash:/
2  -rwx 1803357  <date>      c3500xl-c3h2s-mz.120-5.WC7.bin

```

*!-- This is the current version of software.*

```

4  -rwx 1131    <date>      config.text

```

*!-- This is the configuration file.*

```

5  -rwx 109     <date>      info
6  -rwx 389     <date>      env_vars
7  drwx 640     <date>      html
18 -rwx 109     <date>      info.ver
403968 bytes available (3208704 bytes used)
switch:

```

*!--- This output is from a 3500XL switch. Output from a 2900XL, 2950 or 3550 will vary slightly.*

7. Type **rename flash:config.text flash:config.old** to rename the configuration file.

```
switch: rename flash:config.text flash:config.old
switch:
```

*!--- The config.text file contains the password definition.*

8. Issue the **boot** command to boot the system.

```
switch: boot
Loading "flash:c3500xl-c3h2s-mz.120-
5.WC7.bin"...#####
#####
#####
#####
#####
File "flash:c3500xl-c3h2s-mz.120-5.WC7.bin" uncompressed and
installed, entry po
int: 0x3000
executing...
```

*!--- Output truncated.*

*!--- This output is from a 3500XL switch. Output from a 2900XL, 2950 or 3550 will vary slightly.*

9. Enter **"n"** at the prompt to start the Setup program.

```
--- System Configuration Dialog ---
At any point you may enter a question mark '?' for help.
Use ctrl-c to abort configuration dialog at any prompt.
Default settings are in square brackets '['].
Continue with configuration dialog? [yes/no]: n
```

*!--- Type "n" for no.*

Press RETURN to get started.

*!--- press Return or Enter.*

Switch>

*!--- The Switch> prompt is displayed.*

10. At the switch prompt type **en** to enter enable mode.

```
Switch>en
Switch#
```

11. Type **rename flash:config.old flash:config.text** to rename the configuration file with its original name.

```
Switch#rename flash:config.old flash:config.text
Destination filename [config.text]
```

*!-- Press Return or Enter.*

Switch#

12. Copy the configuration file into memory:

```
Switch#copy flash:config.text system:running-config
Destination filename [running-config]?
```

*!-- Press Return or Enter.*

1131 bytes copied in 0.760 secs

Switch#

The configuration file is now reloaded.

13. Change the password:

```
Switch#configure terminal
Switch(config)#no enable secret
```

*!-- This step is necessary if the switch had an enable secret password.*

```
Switch(config)#enable password Cisco
Switch#(config)#^Z
```

*!-- Control/Z.*

14. Write the running configuration to the configuration file with the **write memory** command:

```
Switch#write memory
Building configuration...
[OK]
Switch#
```

#### QUESTION NO: 211

You are a technician at TestKing and your newly appointed trainee wants to know which pair of Multicast traffic will share the same Ethernet multicast MAC address of “01-00-5e-10-20-02”.

How will you reply?

- A. 224.128.10.2 and 225.128.10.2
- B. 224.10.20.2 and 225.10.20.2
- C. 239.144.32.2 and 224.16.32.2
- D. All of the above
- E. None of the above

**Answer: C**

**Explanation:**

Ethernet interfaces map the **lower 23 bits** of the IP multicast address to the lower 23 bits of the MAC **0100.5e00.0000**. As an example, the IP multicast address 224.0.0.2 is mapped to the MAC layer as **0100.5e00.0002**.

- HEX 01 = 00-5e (all Multicast Addresses);
- HEX 10 = 00010000 - could be both **16 and 144** (decimal) due to the fact that we ignore the first bit of the second octet when converting to binary;
- HEX 20 = 00100000 = 32;
- HEX 02 = 00000010 = 2.

**QUESTION NO: 212**

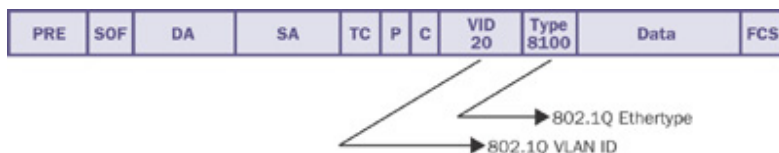
**Which of the following Ethertypes is used to indicate on 802.1q tagged packet?**

- A. 8100
- B. 8012
- C. DEAD
- D. ABAB

**Answer: A**

**Explanation:**

The IEEE 802.1Q specification defines the Ethertype field to be 8100 in the presence of a VLAN ID (tag)



**QUESTION NO: 213**

**Your newly appointed TestKing trainee wants to know what the basic components are that a Network Layer Packet consists of.**

**What will you reply? (Choose all that apply.)**

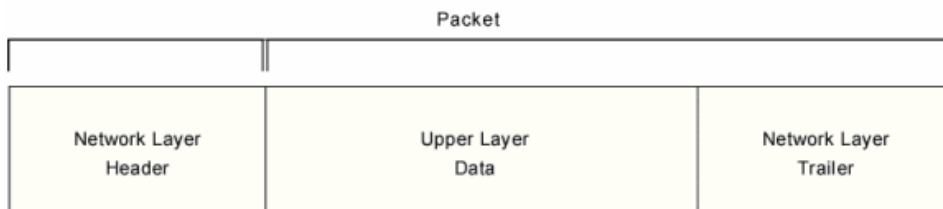
- A. Upper Layer Data

- B. Network Layer Header
- C. Data Link Layer Header
- D. Network Layer Trailer
- E. Network Layer Data
- F. All of the above.

**Answer: A, B, D**

**Explanation:**

A packet is an information unit whose source and destination are network-layer entities. A packet is composed of the network-layer header (and possibly a trailer) and upper-layer data. The header and trailer contain control information intended for the network-layer entity in the destination system. Data from upper-layer entities is encapsulated in the network-layer header and trailer. The figure illustrates the basic components of a network-layer packet.



**QUESTION NO: 214**

**Which of the following manual settings, on the PC, will have a duplex mismatch when a 10/100 switch port which was configured for Auto-negotiation has a PC with 10/100 auto-negotiation capable NIC connected to it?**

- A. 100mb half duplex
- B. Auto-negotiation
- C. 100mb full duplex
- D. 10mb full duplex
- E. 10mb half duplex

**Answer: C**

**Explanation:**

Auto set on the switch side with 100mbps full-duplex will result in a duplex-mismatch because auto defaults to half-duplex.

**Reference:**

<http://www.cisco.com/warp/public/473/46.html>



**QUESTION NO: 215**

**Which of the following special characters is used as a wildcard in a destination pattern string?**

- A. pound sign (#)
- B. dash (-)
- C. asterix (\*)
- D. period (.)
- E. plus (+)

**Answer: D**

**Explanation:**

The string is a series of digits that specify the E.164 or private dialing plan telephone number. Valid entries are the digits 0 through 9 and the letters A through D. The following special characters can be entered in the string:

- The plus symbol (+) can be used to indicate an E.164 standard number.
- The star character (\*) and the pound sign (#) that appear on standard touch-tone dial pads can be used in any dial string. However, these characters cannot be used as leading characters in a string (for example, \*650).
- The period (.) can be used as a trailing character, and is used as a wildcard character.

Multiple periods as trailing characters indicate multiple wildcard digits, such as for the 789... wildcard.

- The comma (,) can be used only in prefixes, and is used to insert a one-second pause or a delay.

The timer (T) character can be used to configure variable length dial plans.

Configuration example:

```
Router(config-settlement)# dial-peer voice number pots
```

```
Router(config-settlement)# destination-pattern [+]string[T]
```

**QUESTION NO: 216**

**You are a PC technician at TestKing. Your newly appointed TestKing trainee wants to know which of the following VoIP Protocols operate at the transport layer of an OSI model.**

**What would your reply be?**

- A. MGCP
- B. SIP
- C. H323

- D. RTP
- E. None of the above.

**Answer: D**

**Presentation:**

G.729(A)/G.723.1/G.711

Session: H.323/SIP/SDP

**Transport: RTP/UDP/RSVP**

Network: IP/WFQ/IP-prec

DataLink: CRTP/MP

Physical --- ---

#### QUESTION NO: 217

The TestKing network has ISIS configured across several routers. Which command will you, the technician, use to verify whether the correct ISIS paths to the Intermediate systems are used?

- A. show isis topology
- B. show ip route isis topology
- C. show ip route isis
- D. show clns neighbor
- E. show ip route

**Answer: C**

**Explanation:**

The reasons I believe it's C is because I run a network with over 40 devices running ISIS. I check the output of the command in my GSR....All the options are listed below... The router reflects the question more than Cisco definition.

```
testking#show isis ?
  database      IS-IS link state database
  hostname      IS-IS Dynamic hostname mapping
  mesh-groups   IS-IS mesh groups
  mpls          IS-IS MPLS
  nsf           Non-stop forwarding state
  route         IS-IS level-1 routing table
  spf-log       IS-IS SPF log
  topology      IS-IS paths to Intermediate Systems
```

```
testking#show isis topology
```

**Cisco definitions****show isis topology**

To display a list of all connected routers in all areas, use the **show isis topology** command in user EXEC or privileged EXEC mode.

**show clns neighbors**

To display end system (ES), intermediate system (IS), and multitopology Integrated Intermediate System-to-Intermediate System (M-ISIS) neighbors, use the **show clns neighbors** command in user EXEC or privileged EXEC mode

**Note:** Could also be A, depending on how you read the question.

**QUESTION NO: 218**

Use the following indicators to show the correct chronological order or sequence of the five preceding tiebreakers used by BGP during its own best route selection process

- (1) MED
- (2) local-preference
- (3) AS-path
- (4) weight
- (5) origin-code.

- A. 1,2,3,4,5
- B. 5,1,2,4,3
- C. 4,2,3,5,1
- D. 4,3,1,5,2
- E. 1,3,4,2,5

**Answer: C**

**Explanation:****How the Best Path Algorithm Works**

BGP assigns the first valid path as the current best path. It then compares the best path with the next path in list, until it reaches the end of the list of valid paths. Following is a list of rules used to determine the best path:

1. Prefer the path with the largest WEIGHT. **Note:** WEIGHT is a Cisco-specific parameter, local to the router on which it's configured.
2. Prefer the path with the largest LOCAL\_PREF.
3. Prefer the path that was locally originated via a **network** or **aggregate** BGP subcommand, or through redistribution from an IGP. Local paths sourced by **network/redistribute** commands are preferred over local aggregates sourced by the **aggregate-address** command.
4. Prefer the path with the shortest AS\_PATH. Note the following:

- This step is skipped if **bgp bestpath as-path ignore** is configured.
  - An AS\_SET counts as 1, no matter how many ASs are in the set.
  - The AS\_CONFED\_SEQUENCE is not included in the AS\_PATH length.
5. Prefer the path with the lowest origin type: IGP is lower than EGP, and EGP is lower than INCOMPLETE.
  6. Prefer the path with the lowest multi-exit discriminator (MED).

**QUESTION NO: 219**

You are a trainee technician at TestKing. The TestKing network is shown in the following exhibit:



Your supervisor wants to know which type of delivery will occur if TestKing1 wants to send a message to TestKing2.

What would your reply be?

- A. Direct delivery
- B. Partial delivery
- C. Installment delivery
- D. Indirect delivery
- E. Instant delivery
- F. Guarantee delivery

**Answer: A.**

**Explanation:**

Direct delivery implies that both the devices are on the same network segment (IP subnet) and no router is required for communication between the two. In indirect delivery the two devices are on different network segments (IP subnets) and a router will be required for the two to communicate.

**QUESTION NO: 220**

**Because MTU between various types of media differs, it must be taken into account when one design, plan or implement internetworks. What would be the Maximum Valid Size for Fast Ethernet?**

- A. 65 bytes
- B. No limit
- C. 1500 bytes
- D. 15 18 bytes
- E. 4400 bytes

**Answer: C**

**Explanation:**

Standard Ethernet frame MTU is 1500 bytes. This does not include the Ethernet header and Cyclic Redundancy Check (CRC) trailer, which is 18 bytes in length, to make the total Ethernet frame size of 1518. In this document, MTU size or packet size refers only to Ethernet payload. Ethernet frame size refers to the whole Ethernet frame, including the header and the trailer. Baby giant frames refer to Ethernet frame size up to 1600 bytes, and jumbo frame refers to Ethernet frame size up to 9216 bytes.

[http://www.cisco.com/en/US/products/hw/switches/ps663/products\\_tech\\_note09186a00801350c8.shtml](http://www.cisco.com/en/US/products/hw/switches/ps663/products_tech_note09186a00801350c8.shtml)

The question is tricky but the answer is 1500 because MTU size only refers to Ethernet payload and does not account for Ethernet header and CRC.

4400 I believe is the MTU for FDDI could be wrong though.

**Note:** Preamble is not calculated in frame size so DA (6 bytes) SA (6 bytes) Type (2 bytes) data + pad (1500 bytes) FCS (4bytes) = a total of 1518

Standard Ethernet frame MTU is 1500 bytes. This does not include the Ethernet header and Cyclic Redundancy Check (CRC) trailer, which is 18 bytes in length, to make the total Ethernet frame size of 1518.

**QUESTION NO: 221**

**Of the following which IETF protocol is used by SIP for the purpose of call routing?**

- A. BGP
- B. SAP
- C. EIGRP
- D. TRIP
- E. OSPF
- F. RIP

**Answer: D**

**Explanation:**

This explanation presents the Telephony Routing over IP (TRIP). TRIP is a policy driven inter-administrative domain protocol for advertising the reachability of telephony destinations between location servers, and for advertising attributes of the routes to those destinations. TRIP's operation is independent of any signaling protocol, hence TRIP can serve as the telephony routing protocol for any signaling protocol. The Border Gateway Protocol (BGP-4) is used to distribute routing information between administrative domains. TRIP is used to distribute telephony routing information between telephony administrative domains. The similarity between the two protocols is obvious, and hence TRIP is modeled after BGP-4.

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Routing protocols for VoIP allow intermediaries, such as SIP proxies and H.323 gatekeepers, to make call routing decisions based on reachability information learned from peer elements. The iptel group has already defined a protocol, Telephony Routing over IP (TRIP), RFC 3219, which solves one aspect of this problem. Specifically, it handles the case where calls need to be routed between domains. It allows for the exchange of routing information between these providers, so that policies can be applied to the resulting data to create a forwarding information base.

This document describes Session Initiation Protocol (SIP), an application-layer control (signaling) protocol for creating, modifying, and terminating sessions with one or more participants. These sessions include Internet telephone calls, multimedia distribution, and multimedia conferences. SIP invitations used to create sessions carry session descriptions that allow participants to agree on a set of compatible media types. SIP makes use of elements called proxy servers to help route requests to the user's current location, authenticate and authorize users for services, implement provider call-routing policies, and provide features to users. SIP also provides a registration function that allows users to upload their current locations for use by proxy servers. SIP runs on top of several different transport protocols.

<http://www.iptel.org/info/players/ietf/numbering/>

**QUESTION NO: 222**

**What is the, by now well known and familiar, worldwide prefix scheme was developed by ITU to standardize numbering plans?**

- A. G.124
- B. E.164
- C. E.124
- D. G.164
- E. None of the above

**Answer: B**

**Explanation:**

The objective of this recommendation is to specify a methodology that will provide a standardized method for presenting the domestic numbering plans of all countries (i.e., each country's application of E.164). This recommendation also includes a method by which this information is made available to all interested parties as well as timely information on numbering plan changes that influence the routing, charging, and accounting of international telecommunications traffic.

- ITU-T Recommendation E.164: "The international public telecommunication numbering plan"
- Tied to treaty obligations (specific roles and obligations defined for ITU Member States and ITU-T TSB Director)
- defines number structure and functionality for four principal categories of numbers

**QUESTION NO: 223**

**You are the network administrator at TestKing. During routine maintenance, your issue the show interface Fast Ethernet0 command on Router TK1. The output from the command is shown in the following exhibit:**

```
FastEthernet0 is up, line protocol is up
Hardware is DEC21140, address is 00e0.1ea8.e299 (bia 00e0.1ea8.e299)
Description: Ethernet 100Mbps
Internet address is 1.1.1.1 /22
MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec, rely 255/255, load 3/255
Encapsulation ARPA, loopback not set, keepalive set (10 sec)
Half-duplex, 100Mb/s, 100BaseTX/FX
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:00, output 00:00:00, output hang never
Last clearing of "show interface" counters never
Queuing strategy: fifo
Output queue 0/40, 0 drops; input queue 0/75, 0 drops
5 minute input rate 1953000 bits/sec, 652 packets/sec
```

```
5 minute output rate 1407000 bits/sec, 600 packets/sec
47250970 packets input, 3285704002 bytes, 0 no buffer
Received 257038 broadcast, 1056 runts, 0 giants, 0 throttles
1718 input errors, 662 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 watchdog, 0 multicast
311 input packets with dribble condition detected
46158848 packets output, 3093573182 bytes, 0 underruns
0 output errors 959 collisions, 0 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
```

**Which of the following statements is valid?**

- A. There is a physical problem with the connection since there are recorded Runts and CRCs.
- B. The interface is operational in a 100mb full duplex environment.
- C. There is an enormous amount of collisions recorded on the interface.
- D. Collisions, runts and CRC's are normal for a 100mb half-duplex connection.
- E. None of the above.

**Answer: D**

**Explanation:**

Many performance issues with NICs may be related to data link errors. Excessive errors usually indicate a problem. When operating at half-duplex setting, some data link errors such as FCS, alignment, runts, and collisions are normal. Generally, a one percent ratio of errors to total traffic is acceptable for half-duplex connections. If the ratio of errors to input packets is greater than two or three percent, performance degradation may be noticed.

**QUESTION NO: 224**

**What are the basic components that a Network Layer Packet consists of? (Choose all that apply.)**

- A. Network Layer Trailer
- B. Upper Layer Data
- C. Network Layer Data
- D. Network Layer Header
- E. Data Link Layer Header
- F. All of the above

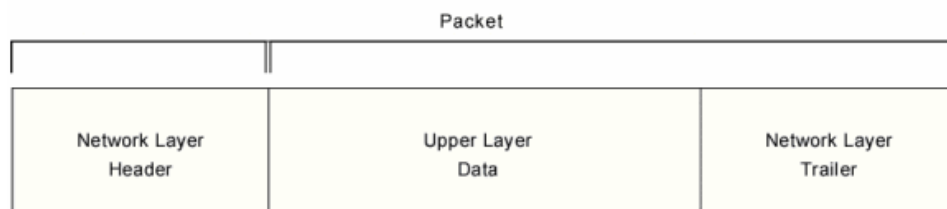
**Answer: A, B, D**

**Explanation:**

A packet is an information unit whose source and destination are network-layer entities. A packet is composed of the network-layer header (and possibly a trailer) and upper-layer data. The header and trailer contain control



information intended for the network-layer entity in the destination system. Data from upper-layer entities is encapsulated in the network-layer header and trailer. The figure illustrates the basic components of a network-layer packet.



#### QUESTION NO: 225

Which of the following is the second step bootstrap procedure the BootP protocol employs?

- A. The BootP uses a telnet application to connect to the server, after which the client will use the DHCP server to get hold of the memory image.
- B. The BootP will get hold of the memory image after which the client will use a second protocol to gather the necessary information.
- C. The client will use a second protocol to gather the necessary information, and then BootP will get hold of the memory image.
- D. The BootP will gather and provide the client with the information necessary to obtain an image and then the client will use a second protocol to get hold of the memory image.
- E. None of above

**Answer: D**

#### **Explanation:**

This RFC describes an IP/UDP bootstrap protocol (BOOTP), which allows a diskless client machine to discover its own IP address, the address of a server host, and the name of a file to be loaded into memory and executed. The bootstrap operation can be thought of as consisting of TWO PHASES. This RFC describes the first phase, which could be labeled 'address determination and boot file selection'. After this address and filename information is obtained, control passes to the second phase of the bootstrap where a file transfer occurs. The file transfer will typically use the TFTP protocol, since it is intended that both phases reside in PROM on the client. However BOOTP could also work with other protocols such as SFTP or FTP. This RFC suggests a proposed protocol for the ARPA-Internet community, and requests discussion and suggestions for improvements.

#### **BOOTP procedure summary.**

Diskless WS broadcasts a bootp request on port 67 Server responds to this request on port 68. Server provides the client with two pieces information.

- 1.IP address of client and Hostname of the Server.
- 2.File name required by client to boot.

The Client then uses TFTP to obtain this file from the Server and boot.

**QUESTION NO: 226**

**Unauthorized access to systems can be prevented through different settings. How many different privilege levels is there that can be used to achieve this goal?**

- A. 10
- B. 16
- C. 9
- D. 0
- E. 15

**Answer: B**

There are 16 privilege-levels (0 to 15).

**QUESTION NO: 227**

**Your newly appointed TestKing trainee wants to know which command she can use to specify the address of a terminating router or gateway. How would you reply?**

- A. destination address
- B. terminate gateway target
- C. session target
- D. dial-peer terminal
- E. destination port
- F. destination pattern

**Answer: C**

dial-peer voice 30 voip

destination-pattern 1111

session target ipv4:24.247.46.33

**QUESTION NO: 228**

**Which command can be used to display a local SNMP engine's identification as well as all the remote engines configured on a given router?**

- A. Show SNMP id engine
- B. Show engine.id
- C. Show SNMP engineID
- D. Show SNMP engine
- E. Show SNMP engine ID
- F. Show engine

**Answer: C**

**Explanation:**

Output from my GSR

```
testking#show snmp ?
  mib          show mib objects context
  engineID show local and remote SNMP engine IDs
  group        show SNMPv3 groups
  pending      snmp manager pending requests
  sessions     snmp manager sessions
  stats        show snmp statistics
  user         show SNMPv3 users
  |            Output modifiers
  <cr>
testking#show snmp
```

**Reference: CCO login required.**

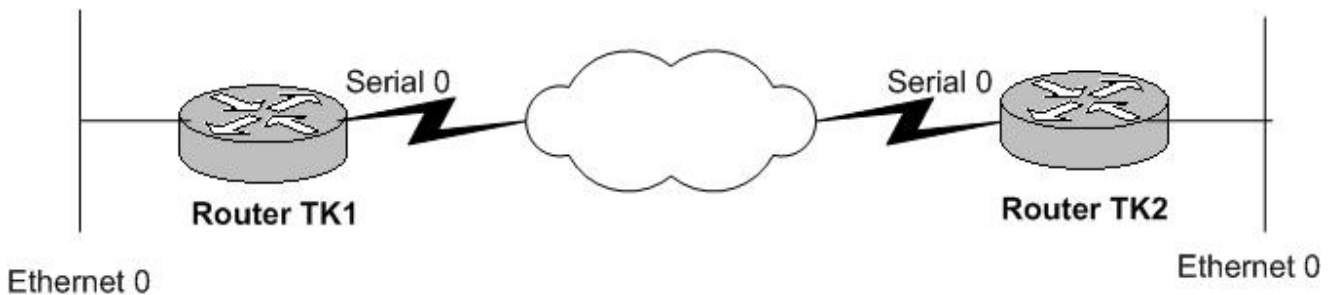
[http://www.cisco.com/en/US/products/sw/iosswrel/ps5207/products\\_command\\_reference\\_chapter09186a00801a809e.html#1030651](http://www.cisco.com/en/US/products/sw/iosswrel/ps5207/products_command_reference_chapter09186a00801a809e.html#1030651)

## Section B – additional questions

**Note:** These are older questions. The related topics, such as IPX and X.25, have been removed from the CCIE Written exam. Questions are included here for historical reasons.

### QUESTION NO: 1

You are the network administrator at TestKing. The TestKing network is shown in the following exhibit:



You configure Router TK1 as follows:

```
hostname RouterTK1
!
ipx routing 1000.1000.1000
!
interface Ethernet 0
  IPX network ACA1234
!
interface Serial 0
  encapsulation frame-relay
  ipx network 100
  frame-relay ipx 100.1000.1000.1001
!
ipx router rip
  no network 100
!
ipx router EIGRP 1
!
```

You configure Router TK2 as follows:

```
hostname RouterTK2
!
ipx routing 1000.1000.1001
!
```

```

interface Ethernet 0
  ipx network ACA1235
  ipx gns-response-delay 10
!
interface Serial 0
  encapsulation frame-relay
  ipx network 100
  frame-relay map ipx 100.1000.1000.1000
!
ipx router rip
  no network 100
!
ipx router EIGRP 1

```

**The Frame Relay PVCs are up and running. However, a host connected to Router TK1 is not able to communicate with a server that is attached to the Ethernet interface on Router TK2.**

**What is the cause of this problem?**

- A. EIGRP will not run properly over the Frame Relay cloud.
- B. The GNS response delay was not configured on the router.
- C. Redistribution has not been configured between EIGRP and RIP.
- D. The IPX routing command is not matching the Ethernet's MAC address.

**Answer: D**

**Explanation:**

**IPX RIP is disabled and no network has been enabled for eigrp, then no routing will take place.**

## **QUESTION NO: 2**

**You are a network technician at TestKing. Your newly appointed TestKing trainee wants to know which of the following would NOT be a responsibility of the active monitor if the IEEE 802.5 standard for token ring networks specifies the use of a centralized ring maintenance mechanism called active monitor that oversees the ring.**

**What would your reply be?**

- A. Checking for lost tokens in the ring.
- B. Locating breaks in the ring.
- C. Inserting delay bits to the ring, thereby enlarging it if it is not big enough for the token to circulate.
- D. Removing continuously circulating frames.

- E. Cleaning up the ring when garbled frames appear.

**Answer: B**

**Explanation:**

Beaconing is not handled by the Active-Monitor.

**QUESTION NO: 3**

**What could be a possible cause for the non-responsive reaction when implementing an IPX ping from a Cisco router to a Novell server?**

- A. Novell Servers will never respond to IPX pings, only to pings between Cisco Routers.
- B. Cisco IPX Pings are being sent to a Novell Server.
- C. The IPX server table does not have the correct SAP entry.
- D. The IPX network is not configured on Loopback 0.
- E. All of the above.

**Answer: B**

**Explanation:** Cisco uses a proprietary IPX ping that is not compatible with non-Cisco (i.e. Novell) stations.

**QUESTION NO: 4**

**When taking the IEEE 802.5 Token Ring specification into account, which of the following stations is responsible for the removal of frames from the ring when M-bit is set to 0 (zero)?**

- A. The receiving station
- B. The ring parameter server
- C. The transmitting station
- D. The active monitor
- E. The configuration report server
- F. All stations.

**Answer: D**

**Explanation:** As a frame passes the Active Monitor (AM), the monitor count bit is set. If a frame passes with the monitor count bit set, the AM assumes that the original sender of the frame was unable to remove the frame from the ring. The AM purges this frame, sends a Token Soft Error message to the Ring Error Monitor, and generates a new token.

**QUESTION NO: 5**

You are a technician at TestKing. Your newly appointed TestKing trainee wants to know how compressed traffic is sent on an X.25 interface when TCP/IP header compression is used.

What would your reply be? (Choose all that apply.)

- A. Taking a route over a multiprotocol virtual circuit.
- B. Taking the route over a separate virtual circuit.
- C. Taking the same route as all other traffic over the same virtual circuit.
- D. Taking the route over a separate real circuit.
- E. None of the above.

**Answer: C**

**Explanation:** Compression can be used on X.25. **Only end routers can perform compression and decompression.** For example:

```
interface Serial3/0:2
  ip address 133.11.102.101 255.255.255.0
  encapsulation x25
  x25 address 3101
  x25 map ip 133.11.102.210 3210 broadcast compress
```

```
x25 nvc count
```

To specify the maximum number of switched virtual circuits (SVCs) that a protocol can have open simultaneously to one host, use the **x25 nvc** interface configuration command.

<i>count</i>	Circuit count from 1 to 8. A maximum of eight virtual circuits can be configured for each <b>protocol/host pair</b> to increase throughput across networks. <b>Protocols that do not tolerate out-of-order delivery, such as encapsulated TCP header compression, will only use one virtual circuit</b> despite this value. The default is 1.
--------------	---

**You need one dictionary per X.25 VC**, since the dictionary is reset when the Mbit=0 is received, and you can receive interleaved X.25 fragments with the Mbit=1 on multiple VCs. As a result the memory needed is 24kB \* number of VCs for the compression.

Note: The compression algorithm is reset at the beginning of each X.25 packet. This means that payload compression is more efficient when large packets are used.

x25 map **compressedtcp** *address x.121-address* [*option*]  
no x25 map **compressedtcp** *address x.121-address*

To map compressed TCP traffic to an X.121 address, use the **x25 map compressedtcp interface configuration command**. To delete a TCP header compression map for the link, use the **no** form of this command.

**TCP/IP header compression** algorithm as per **RFC 1144**

**QUESTION NO: 6**

**What is the first action that the Active monitor will take when it detects that a token is missing during a ring recovery, when taking into account the IEEE802.5 Token Ring specification?**

- A. Execute a token purge
- B. Start the claim token process
- C. Execute a ring purge
- D. Begin the beacon process
- E. Initialize the Fault timer

**Answer: B**

**Explanation:** A claim token frame is issued any time 1) the current Active Monitor or a Standby Monitor detects a signal loss or has a timer expire indicating that it has been too long since a token was last seen; 2) the Active Monitor is unable to receive ring purge frames bask; or 3) any ring station inserts into the ring and does not detect an Active Monitor. If a station is unable to receive the Claim Token frame sent, the failure condition of the network will escalate to a beaconing state.

**Reference:**

<http://www.bralyn.net/techpages/papers/token.ring.html>

**Note:**

Section A contains 228 questions.

Section B contains 6 questions.

The total number of questions is 234.

Each section starts with QUESTION NO :1. There are no missing questions.