640-801

Cisco® Certified Network Associate (CCNA®)

Version 6.0

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Note:
Section A contains 103 questions.
Section B contains 71 questions.
The total number of questions is 174.
Each section starts with QUESTION NO: 1. There are no missing questions.

Section A

QUESTION NO: 1
You work as network administrator at TestKing.
Your trainee is configuring a router with both physical and logical interfaces.
He asks you what factor determines the OSPF router ID.
What should you tell him?

A. The lowest network number of any interface.
B. The lowest IP address of any logical interface.
C. The lowest IP address of any physical interface.
D. The highest network number of any interface.
E. The highest IP address of any logical interface.
F. The highest IP address of any physical interface.

Answer: F
Explanation:
The OSPF topology database includes information about routers and the subnets, or links, to which they are attached. To identify the routers in the neighbor table's topology database, OSPF uses a router ID (RID) for each router. A router's OSPF RID is that router's highest IP address on a physical interface when OSPF starts running.

Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page 208

QUESTION NO: 2
Your TestKing trainee is configuring a router. In particular, he is examining a routing table that contains static, RIP, and IGRP routes for the same destination network with each set to its default administrative distance.
He asks you which route will be used to forward data?

A. The IGRP route
B. The static route
C. The RIP route
D. All three will load balance.

Answer: B
Explanation:
To decide which route to use, IOS uses a concept called Administrative Distance. Administrative distance is a number that denotes how believable an entire routing protocol is on a single router. The lower the number, the better, or more believable the routing protocol.

Route Type	Administrative Distance
• Static	1
• IGRP	100
• RIP	120

Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page 177

QUESTION NO: 3
Three bicycle stores in the TestKing Pro chain have decided to establish network connectivity to maintain their repair business in a centralized manner. The stores contracted a local technician, non-Cisco certified, to configure the routers. However, the local MCP certified technician was not able to finish the configuration in an appropriate manner. No network connectivity has been established among the routers. The routers are named TestKing1, TestKing2, and TestKing3.
TestKing Pro has contracted you to fix the problems. Identify the fault(s) and make the necessary change(s) to establish connectivity. The routers have been configured with the following specifications:

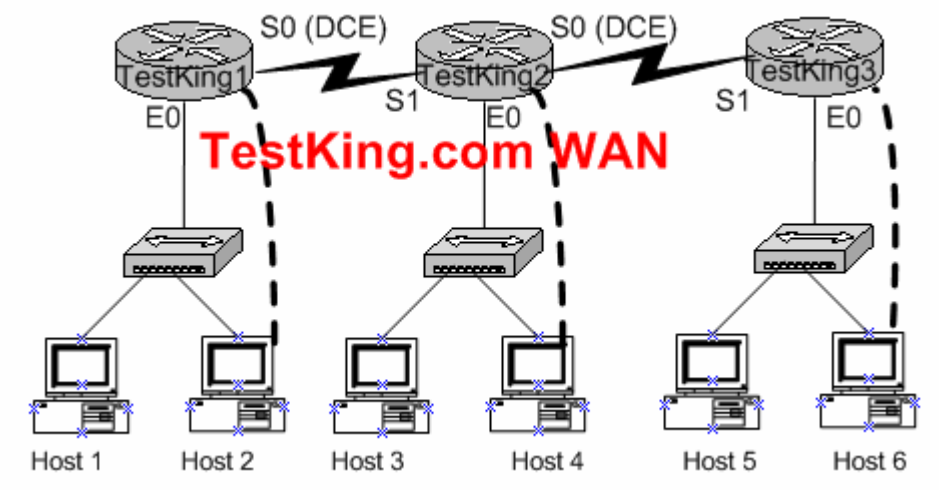
- **The routers are named TestKing1, TestKing2, and TestKing3.**
- **RIP is the routing protocol**
- **Clocking is provided on the serial 0 interfaces**
- **The password on each router is "testking"**
- **The subnet mask on all interfaces is the default mask.**
- **The IP addresses are listed in chart below.**

TestKing1
E0 192.168.27.1
E1 192.168.29.1
S0 192.168.31.1
Secret password: testking

TestKing2
E0 192.168.35.1

S0 192.168.33.1
S1 192.168.31.2
Secret password: testking

TestKing3
E0 192.168.37.1
S1 192.168.33.2
Secret password: testking



To configure the router click on the host icon that is connected to the router by a serial cable.

Answer:

Click on Host 2:

Router TestKing1:

TestKing1> **enable**
Password: **testking**
TestKing1 # **config terminal**
TestKing1 (config) # **interface ethernet 0**
TestKing1 (config-if) # **ip address 192.168.27.1 255.255.255.0**
TestKing1 (config-if) # **no shutdown**
TestKing1 (config-if) # **exit**
TestKing1 (config) # **interface ethernet 1**
TestKing1 (config-if) # **ip address 192.168.29.1 255.255.255.0**
TestKing1 (config-if) # **no shutdown**
TestKing1 (config-if) # **exit**
TestKing1 (config) # **interface serial 0**
TestKing1 (config-if) # **ip address 192.168.31.1 255.255.255.0**

TestKing3 (config-if) # **clock rate 64000**
TestKing1 (config-if) # **no shutdown**
TestKing1 (config-if) # **exit**
TestKing1 (config) # **router rip**
TestKing1 (config-router) # **network 192.168.27.0**
TestKing1 (config-router) # **network 192.168.29.0**
TestKing1 (config-router) # **network 192.168-31.0**
TestKing1 (config-router) # **Ctrl-Z**
TestKing1 # **copy running-config startup-config**

Click on Host 4

Router TestKing2:

TestKing2> **enable**
Password: **testking**
TestKing2 # **config t**
TestKing2 (config) # **interface ethernet 0**
TestKing2 (config-if) # **ip address 192.168.35.1 255.255.255.0**
TestKing2 (config-if) # **no shutdown**
TestKing2 (config-if) # **exit**
TestKing2 (config) # **interface serial 0**
TestKing2 (config-if) # **ip address 192.168.33.1 255.255.255.0**
TestKing2 (config-if) # **clock rate 64000**
TestKing2 (config-if) # **no shutdown**
TestKing2 (config-if) # **exit**
TestKing2 (config) # **interface serial 1**
TestKing2 (config-if) **# ip address 192.168.31.2 255.255.255.0**
TestKing2 (config-if) # **no shutdown**
TestKing2 (config-if) # **exit**
TestKing2 (config) # **router rip**
TestKing2 (config-router) # **network 192.168.35.0**
TestKing2 (config-router) # **network 192.168.33.0**
TestKing2 (config-router) # **network 192.168.31.0**
TestKing2 (config-router) # **Ctrl-Z**
TestKing2 # **copy running-config startup-config**

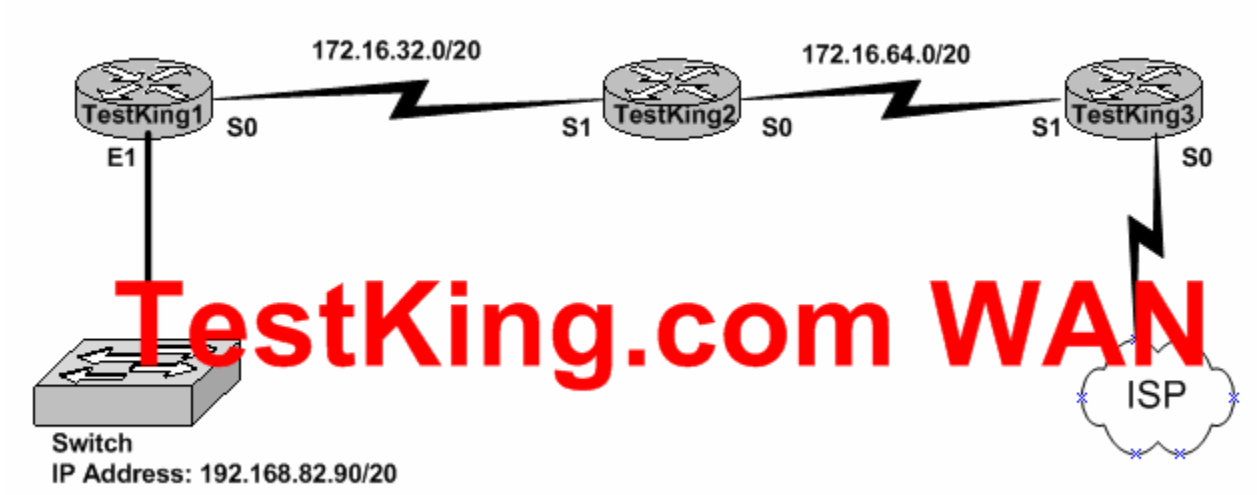
Router TestKing3:

Click on Host6

TestKing3> **enable**

Password: **testking**
TestKing3 # **config t**
TestKing3 (config) # **interface ethernet 0**
TestKing3 (config-if) # **ip address 192.168.37.1 255.255.255.0**
TestKing3 (config-if) # **no shutdown**
TestKing3 (config-if) # **exit**
TestKing3 (config) # **interface serial 1**
TestKing3 (config-if) # **ip address 192.168.33.2 255.255.255.0**
TestKing3 (config-if) # **no shutdown**
TestKing3 (config-if) # **exit**
TestKing3 (config) # **router rip**
TestKing3 (config-router) # **network 192.168.33.0**
TestKing3 (config-router) # **network 192.168.37.0**
TestKing3 (config-router) # **Ctrl-Z**
TestKing3 # **copy running-config startup-config**

QUESTION NO: 4
Exhibit:

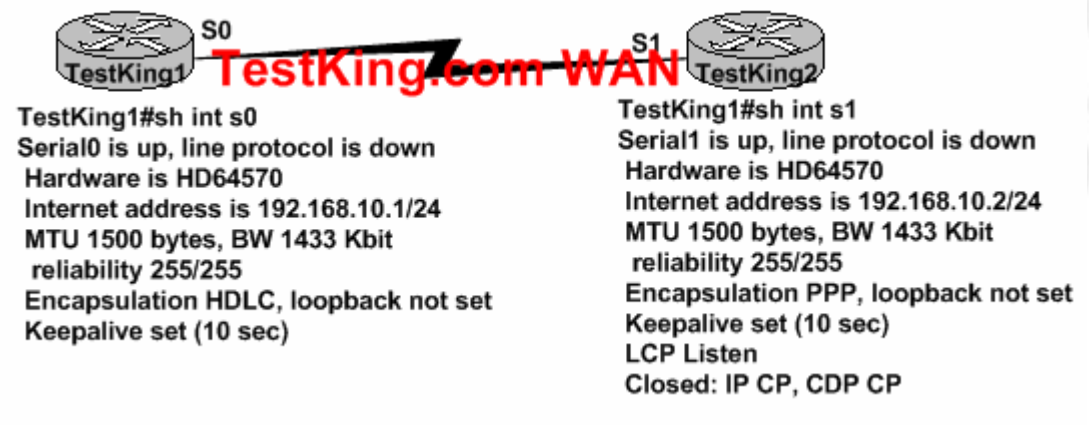


The exhibit above shows the TestKing.com network.
Your trainee David asks you which broadcast addresses of the subnets are shown in the exhibit?(Choose three)

A. 172.16.32.255
B. 172.16.47.255
C. 172.16.64.255
D. 172.16.82.255
E. 172.16.79.255
F. 172.16.95.255

Answer: B E F
Explanation:
172.16.32.0/20 has 16 increments and the broad cast address will always be 1 before the actual number. 172.16.32.0 next increment will be 172.16.48.0 so then the broadcast address is 1 less than 172.16.48.0 = 172.16.47.255 (Broadcast address).

QUESTION NO: 5
Exhibit:



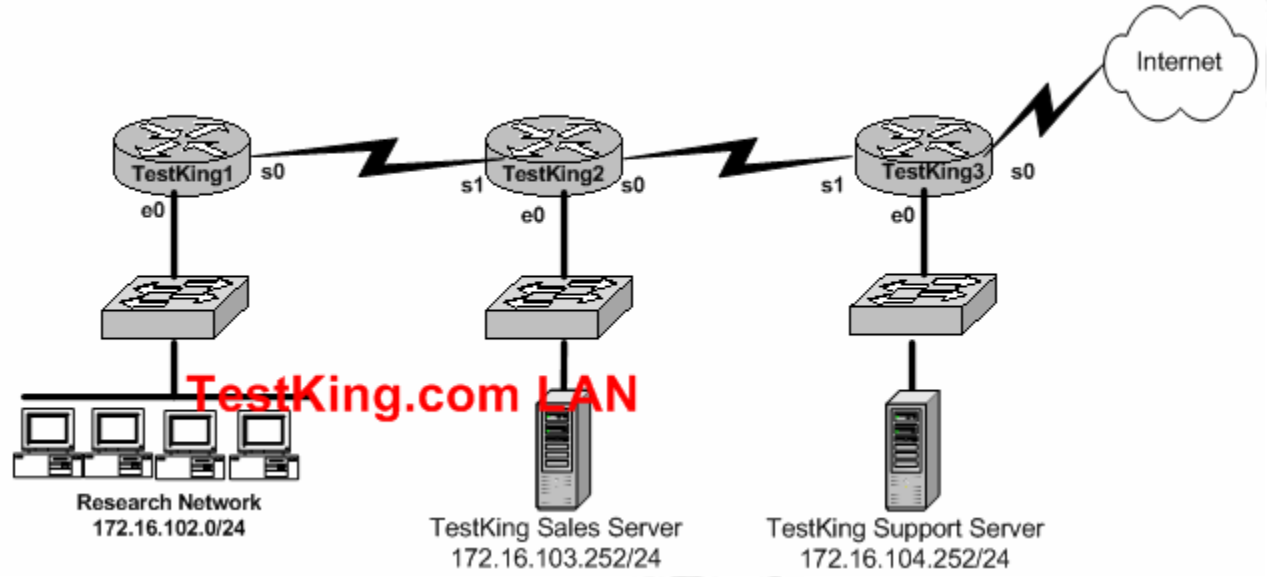
Two routers named TestKing1 and TestKing2 are connected via their serial interfaces as illustrated, but they are unable to communicate. The TestKing1 router is known to have the correct configuration. Given the partial configurations, identify the fault on the TestKing2 router that is causing the lack of connectivity.

A. Incomplete IP address
B. Insufficient bandwidth
C. Incorrect subnet mask
D. Incompatible encapsulation
E. Link reliability too low
F. IPCP closed

Answer: D
Explanation:
HDLC and PPP Configuration
HDLC and PPP configuration is straightforward. You just need to be sure to configure the same WAN data-link protocol on each end of the serial link. Otherwise, the routers will misinterpret the incoming frames, because each WAN data-link protocol uses a different frame format. Other than configuring some optional features, that's all you need to do.

Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page 310

QUESTION NO: 6
Exhibit:



You work as a network administrator at TestKing.com. A named access list called *research_block* has been written to prevent users on the research network and public Internet form access to the TestKing Support server. All other users within the TestKing company should have access to this server. The list contains the following statements.

deny 172.16.102.0 0.0.0.255 172.16.104.255 0.0.0.0
permit 172.16.0.0 0.0.255.255 172.16.104.252 0.0.0.0

Which of the following commands sequences will place this list to meet these requirements?

A. TestKing1(config)# **interface e0**
TestKing1(config-if)# **ip access-group research_block in**
B. TestKing1(config)# **interface s0**
TestKing1(config-if)# **ip access-group research_block out**
C. TestKing2(config)# **interface s0**
TestKing2(config-if)# **ip access-group research_block out**
D. TestKing2(config)# **interface s1**
TestKing2(config-if)# **ip access-group research_block in**
E. TestKing3(config)# **interface s1**
TestKing3(config-if)# **ip access-group research_block in**

F. TestKing3(config)# **interface e0**
TestKing3(config-if)# **ip access-group research_block out**

Answer: F
Explanation:
To enable the ACL on an interface and define the direction of packets to which the ACL is applied, the ip access-group command is used.

When referring to a router, these terms have the following meanings.

- **Out** - Traffic that has already been through the router and is leaving the interface; the source would be where it's been (on the other side of the router) and the destination is where it's going.
- **In** - Traffic that is arriving on the interface and which will go through the router; the source would be where it's been and the destination is where it's going (on the other side of the router).

Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page 433
http://www.cisco.com/en/US/products/sw/secursw/ps1018/products_tech_note09186a00800a5b9a.shtml

QUESTION NO: 7
Exhibit:

```
RouterTestKing# Show ip route

<some output text omitted>

Gateway of last resort is not set.

1  172.16.0.0[110/84632] via 192.168.6.3,00:00:13, FastEthernet0/0
R  192.168.3.0 [120/3] via 192.168.2.2,00:00:09, Serial0/0
C  192.168.2.0 is directly connected, Serial0/0
C  192.168.6.0 is directly connected, FastEthernet0/0
```

Based on the display of the command output, what does *[120/3]* represent?

A. 120 is the UDP port for forwarding traffic and 3 is the number of hops.
B. 120 is the administrative distance and 3 is the metric for that route.
C. 120 is the bandwidth of the link and 3 is the routing process number.
D. 120 is the value of the update timer and 3 is the number of updates received for that route.

Answer: B
Explanation:

To decide which route to use, IOS uses a concept called Administrative Distance. Administrative distance is a number that denotes how believable an entire routing protocol is on a single router. The lower the number, the better, or more believable the routing protocol.

Route Type	Administrative Distance
• Connected	0
• IGRP	100
• RIP	120

Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page 177

QUESTION NO: 8
David, your TestKing trainee, asks you about basic characteristics of switches and hubs for network connectivity. What should you tell him?

A. Switches take less time to process frames than hubs take.
B. Switches do not forward broadcasts.
C. Hubs can filter frames.
D. Using hubs can increase the amount of bandwidth available to hosts.
E. Switches increase the number of collision domains in the network.

Answer: E
Explanation: Switches increases the number of collisions domains in the network.

Note:
Switches use a couple of different types of internal processing variations. Almost of the more recently released switches use store-and-forward processing, but all three types of switching are supported in at least one type of currently available Cisco Switch.

- **Store-and-forward –**The switch fully receives all bits in the frame (store) before forwarding the frame (forward).
- **Cut-through** – The switch performs the address table lookup as soon as the destination address field in the header is received.
- **Fragment-free** – This performs like cut-through switching, but the switch waits for 64 bytes to be received before forwarding the first bytes of the outgoing frame.

Reference:
CCNA Self-Study CCNA INTRO exam certification Guide (Ciscopress, ISBN 1-58720-094-5) Page 243

QUESTION NO: 9

Your boss at TestKing asks you about half-duplex and full-duplex Ethernet. What are unique for half-duplex Ethernet? (Choose two)

A. Half-duplex Ethernet operates in a shared collision domain.
B. Half-duplex Ethernet operates in a private collision domain.
C. Half-duplex Ethernet has higher effective throughput.
D. Half-duplex Ethernet has lower effective throughput.
E. Half-duplex Ethernet operates in a private broadcast domain.

Answer: A D
Explanation:
A single device could not be sending a frame and receiving a frame at the same time because it would mean that a collision was occurring. So, devices simply chose not to send a frame while receiving a frame. That logic is called half-duplex logic.
Ethernet switches allow multiple frames to be sent over different ports at the same time. Additionally, if only one device is connected to a switch port, there is never a possibility that a collision could occur. So, LAN switches with only one device cabled to each port of the switch allow the use of full-duplex operation. Full duplex means that an Ethernet card can send and receive concurrently.

Reference:
CCNA Self-Study CCNA INTRO exam certification Guide (Ciscopress, ISBN 1-58720-094-5) Page 62-63

QUESTION NO: 10
You work as a technician at TestKing. You are required to configure PPP on an interface on a Cisco router. A technician is configuring PPP on an interface.
Which PPP authentication methods can you use? (Choose two)

A. SSL
B. VPN
C. PAP
D. LAPB
E. CHAP
F. SLIP

Answer: C E
Explanation:
Password Authentication Protocol (PAP) and Challenge Handshake Authentication Protocol (CHAP) authenticate the endpoints on either end of a point-to-point serial link. Chap is the preferred method today because the identifying codes flowing over the link are created using a MD5 one-way hash, which is more secure that the clear-text passwords sent by PAP.

Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page 314

QUESTION NO: 11
Exhibit:

What function does the Frame Relay DLCI provide with respect to TestKingA?

A. Defines the signaling standard between TestKingA and the frame switch.
B. Identifies the circuit between TestKingA and the frame switch.
C. Identifies the circuit between TestKingB and the frame switch.
D. Identifies the encapsulation used between TestKingA and TestKingB.
E. Defines the signaling standard between TestKingB and the frame switch,

Answer: C
Explanation:
TestKingA sends frames with DLCI, and they reach the local switch. The local switch sees the DLCI field and forwards the frame through the Frame Relay network until it reaches the switch connected to TestKingB. The TestKingB's local switch forwards the frame out of the access link to TestKingB.

Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page 386

QUESTION NO: 12
A technician are configuring a router named TestKing2.
Why does she use passive-interface command?

A. Allows a routing protocol to forward updates out an interface that is missing its IP address.
B. Allows a router to send routing updates on an interface but not receive updates via that interface.
C. Allows an interface to remain up without receiving keepalives.
D. Allows interfaces to share IP addresses.
E. Allows a router to receive routing updates on an interface but not send updates via that interface.

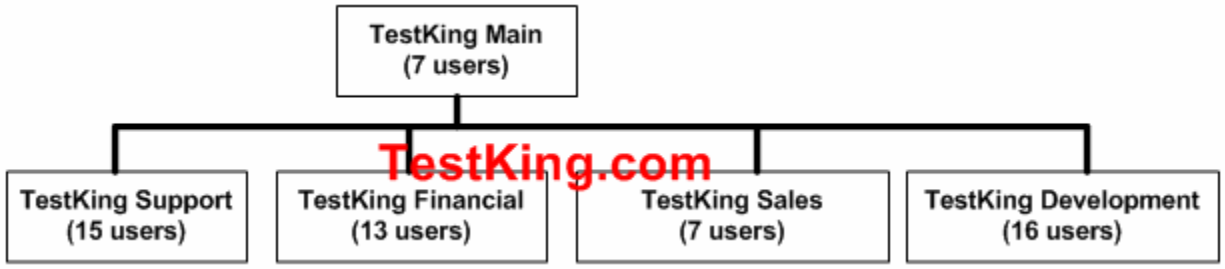
Answer: E
Explanation:

The **passive-interface** command is used to control the advertisement of routing information. The command enables the suppression of routing updates over some interfaces while allowing updates to be exchanged normally over other interfaces.

With most routing protocols, the **passive-interface** command restricts outgoing advertisements only. However, when used with Enhanced Interior Gateway Routing Protocol (EIGRP), the effect is slightly different. This document demonstrates that use of the **passive-interface** command in EIGRP suppresses the exchange of hello packets between two routers, resulting in the loss of their neighbor relationship. This stops not only routing updates from being advertised, but it also suppresses incoming routing updates. This document also discusses the configuration required in order to allow the suppression of outgoing routing updates, while allowing incoming routing updates to be learnt normally from the neighbor.

Reference:
http://www.cisco.com/en/US/tech/tk365/tk207/technologies_tech_note09186a0080093f0a.shtml

QUESTION NO: 13
Exhibit:



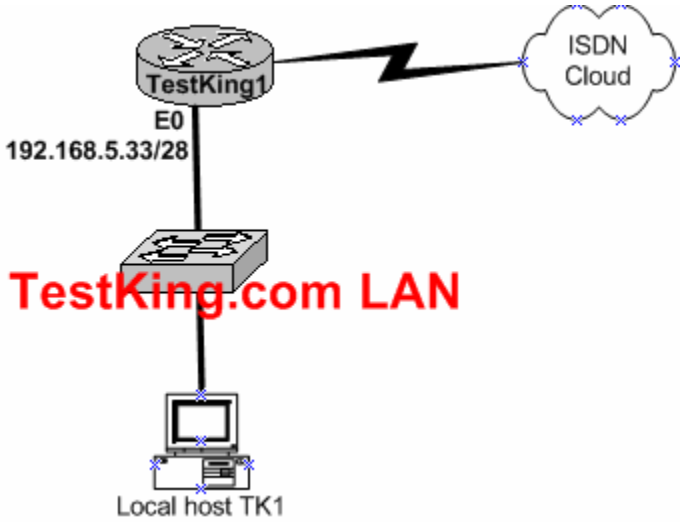
A new network is being designed for your company TestKing. Using a Class C IP network. which subnet mask will provide one useable subnet per department while allowing enough usable host addresses for each department specified in the graphic?

A. 255.255.255.0
B. 255.255.255.192
C. 255.255.255.224
D. 255.255.255.240
E. 255.255.255.248
F. 255.255.255.252

Answer: C

QUESTION NO: 14

Exhibit:



As a network technician at TestKing you are required to troubleshoot the network shown in the exhibit. The host, TK1, is connected to the TestKing1 LAN is unable to connect to resources on other networks. Assuming that host is configured as follows:

host address: 192.168.5.45
subnet mask: 255.255.255.240
default gateway: 192.168.5.32

Which of the following is the cause of this problem?

A. The default gateway is a subnetwork address.
B. The default gateway is on a different subnet form the host.
C. The host subnet mask does not match the subnet mask of the attached router interface.
D. The IP address of the host is on a different subnet than the default gateway.

Answer: A

QUESTION NO: 15
Your boss at TestKing asks you why you are using a router to segment the network at the main office. What are the benefits? What should you tell her? (Choose two)

A. Filtering can occur based on Layer 3 information.
B. Broadcasts are eliminated.
C. Routers generally cost less than switches.
D. Broadcasts are not forwarded across the router.
E. Adding a router to the network decreases latency.

Answer: A, D

QUESTION NO: 16
You work as a network technician at TestKing. You are required to divide the 172.12.0.0 network into subnets. Each submit must have the capacity of 458 IP addresses.
Furthermore, according to the requirement you must provide the maximum number of subnets.
Which network mask should you use?

Answer: 255.255.254.0
Explanation:
To obtain 459 IP addresses the number of host bits will be 9. In this maximum 512 hosts can be assigned. Keep 9 bits for host means 4th octet and last bit is 3rd will be 0. This gives 255.255.254.0 is subnet mask.

QUESTION NO: 17
Your new Junior TestKing trainee Rutger has a problem with basic binary math. He must convert the binary number 10011101 into its decimal and hexadecimal equivalent.
Which two numbers must Rutger provide? (Choose two)

A. 159
B. 157
C. 185
D. 0x9D
E. 0xD9
F. 0x159

Answer: B D
Explanation:
10011101 = 157
0x9D is **ASCII Hexadecimal = 157**

Reference:
http://www.cisco.com/en/US/products/sw/iosswrel/ps1818/products_command_reference_chapter09186a008007fc95.html

QUESTION NO: 18

Exhibit:

Note: SPIDs are not required for this switch.

You work as a network consultant. Your customer TestKing wants you to bring up the ISDN link (refer to the exhibit).
Which command should you use? (Select three)

A. Router(config-if)# **encapsulation ppp**
B. Router(config)# **isdn switch-type** ***type***
C. Router(config)# **dialer-list 1 protocol ip permit**
D. Router(config)# **dialer map ip** ***address*** **name** ***name connection number***
E. Router(config-if)# **ip address** ***address subnet mask***
F. Router(config-if)# **dialer-group 1**

Answer: A E F
Explanation:

- Proper encapsulation to be defined on both routers.
- IP address to be assigned for interface with subnet mask
- Dialer group number enables dialer-list on this interface. Dialer-list to be defined on gloabal configuration command.

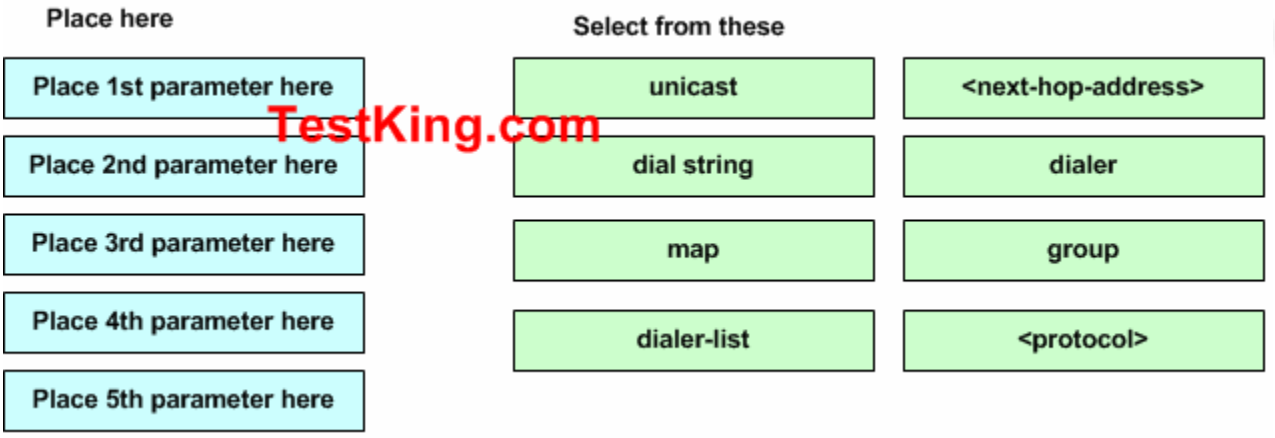
Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page 310+337

QUESTION NO: 19
You are required to troubleshoot LAN connectivity on the TestKing main site in Toronto.
Which router IOS commands would be useful for you? (Choose three)

A. ping
B. tracert
C. ipconfig
D. show ip route
E. winipcfg
F. show interfaces

Answer: A D F

QUESTION NO: 20
As a network technician at TestKing you are required to configure an ISDN BRI interface. Specifically, you must configure dial-on-demand routing (DDR).
Which sequence of parameters should you use to achieve this goal?



Answer:

Place 1st - next hop address
Place 2nd - Dialer-list
Place 3rd - protocol
Place 4th - Dialer-String
Place 5th - group

Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page 342

QUESTION NO: 21
Your TestKing trainee Tess wants to display the configuration register setting on her router.
Which command should she use?

A. **show register**
B. **show flash**
C. **show boot**

D. **show version**

Answer: D
Explanation:
show version
To display the configuration of the system hardware, the software version, the names and sources of configuration files, and the boot images, use the **show version** command in EXEC mode.

Examples

The following is sample output from the **show version** command:

```
Router1> show version
Cisco Internetwork Operating System Software
IOS (tm) 7200 Software (C7200-J-M), Experimental Version 11.3(19970915:164752) [
hampton-nitro-baseline 249]
Copyright (c) 1986-1997 by cisco Systems, Inc.
Compiled Wed 08-Oct-97 06:39 by hampton
Image text-base: 0x60008900, data-base: 0x60B98000
ROM: System Bootstrap, Version 11.1(11855) [beta 2], INTERIM SOFTWARE
BOOTFLASH: 7200 Software (C7200-BOOT-M), Version 11.1(472), RELEASE SOFTWARE (fc
1)
Router1 uptime is 23 hours, 33 minutes
System restarted by abort at PC 0x6022322C at 10:50:55 PDT Tue Oct 21 1997
System image file is "tftp://171.69.1.129/hampton/nitro/c7200-j-mz"
cisco 7206 (NPE150) processor with 57344K/8192K bytes of memory.
R4700 processor, Implementation 33, Revision 1.0 (512KB Level 2 Cache)
Last reset from power-on
Bridging software.
X.25 software, Version 3.0.0.
SuperLAT software copyright 1990 by Meridian Technology Corp).
TN3270 Emulation software.
8 Ethernet/IEEE 802.3 interface(s)
2 FastEthernet/IEEE 802.3 interface(s)
4 Token Ring/IEEE 802.5 interface(s)
4 Serial network interface(s)
1 FDDI network interface(s)
125K bytes of non-volatile configuration memory.
1024K bytes of packet SRAM memory.
20480K bytes of Flash PCMCIA card at slot 0 (Sector size 128K).
20480K bytes of Flash PCMCIA card at slot 1 (Sector size 128K).
4096K bytes of Flash internal SIMM (Sector size 256K).
Configuration register is 0x0
```

Reference:
http://www.cisco.com/univercd/cc/td/doc/product/software/ios123/123cgcr/fun_r/cfr_1g10.htm#1033030

QUESTION NO: 22
You are configuring a subnet on the TestKing branch office in Berlin.
You need to assign IP addresses to hosts in this subnet.

You have been given the subnet mask of 255.255.255.224.
Which IP address would be valid? (Choose three)

A. 15.234.118.63
B. 92.11.178.93
C. 134.178.18.56
D. 192.168.16.87
E. 201.45.116.159
F. 217.63.12.192

Answer: B, C, D
Explanation:
B: Valid Host in subnetwork 2 (92.11.178.64 to 92.11.178.95)
C: Valid Host in subnetwork 1(134.178.18.32 to 134.178.18.63)
D: Valid host in subnetwork 2 (192.168.16.64 to 192.168.16.95

QUESTION NO: 23
You work as network administrator/technician at TestKing. You are configuring Frame Relay on a Cisco router.
What is the default LMI (Local Management Interface) frame type transmitted by the Cisco router on a Frame Relay circuit?

A. Q933a
B. B8ZS
C. IETF
D. Cisco
E. ANSI

Answer: D
Explanation:

	Name	**Document**	**IOS LMI-Type Parameter**
•	Cisco	Proprietary	cisco
•	ANSI	T1.617 Annex D	ansi
•	ITU	Q.933. Annex A	q.933a

Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page 382

QUESTION NO: 24
You have subnetted the 210.106.14.0 network with a /24 mask.
Your boss at TestKing wants to know how many usable subnetworks and usable host addresses per subnet this would provide.
What should you tell her?

A. 1 network with 254 hosts
B. 2 networks with 128 hosts
C. 4 networks with 64 hosts
D. 6 networks with 30 hosts

Answer: A

QUESTION NO: 25
TestKing , a fast growing company with one central headquarters site and 3 regional offices, is looking for a scalable WAN technology. Current plans include adding an additional 7 regional offices with all sites requiring continuous connectivity. The current HQ router has no free ports.
Which of the following WAN technologies would meet TestKing's requirements?

A. Dedicated PPP/HDLC links
B. Frame Relay
C. ISDN-BRI
D. ADSL
E. Broadband cable service

Answer: D
Explanation:
ADSL work by using a modem and is always on. The question tells you that the HQ router has no free ports, so by using a ADSL modem, it will be the best choice for this question. The cable modem would also be a good choice, but without much security, the ADSL is the better answer.

Reference:
CCNA Self-Study CCNA INTRO exam certification Guide (Ciscopress, ISBN 1-58720-094-5) Page 465

QUESTION NO: 26
You work as a network technician at TestKing. You are configuring a E0 interface connected to the 192.168.1.8/29 LAN on a Cisco router.
You apply the following access list to the interface.

```
access-list 123 deny tcp 192.168.1.8 0.0.0.7 eq 20 any
access-list 123 deny tcp 192.168.1.8 0.0.0.7 eq 21 any
```

What consequence will this access list have?

A. All traffic will be allowed to exit E0 except FTP traffic.
B. FTP traffic from 192.168.1.22 to any host will be denied.
C. FTP traffic from 192.168.1.9 to any host will be denied.
D. All traffic exiting E0 will be denied.
E. All FTP traffic to network 192.168.1.8/29 from any host will be denied.

Answer: D
Explanation:
By default access list is having implicit deny statement at the end. In this example there is no permit statement, so it will deny all traffic exiting E0 Interface.
Incorrect answers
A: It will deny FTP and Telnet Traffic
B,C,E: It will deny all traffic in addition to the condition mentioned in the answer. Because there is no permit statement at the end.

QUESTION NO: 27
Your TestKing trainee Charles is curios about characteristics of link-state routing protocols.
What should you tell him? (Choose three)

A. Packets are routed based upon the shortest path to the destination.
B. Paths are chosen based upon the cost factor to the destination.
C. The exchange of advertisement is triggered by a change in the network.
D. In a multipoint network, all routers exchange routing tables directly with all other routers.
E. Every router in an OSPF area is capable of representing the entire network topology.
F. Only the designated router in an OSPF area is capable of representing the entire network topology.

Answer: A C E
Explanation:
Open Shortest Path First

- Each router discovers its neighbors on each interface. The list of neighbors is kept in a neighbor table.
- Each router uses a reliable protocol to exchange topology information with its neighbors.
- Each router places the learned topology information into its topology database.
- Each router runs the SPF algorithm against its own topology database.
- Each router runs the SPF algorithm against its own topology database to calculate the best routes to each subnet in the database.

- Each router places the best roué to each subnet into the IP routing table.

The following list points out some of the key features of OSPF:

- Converges very quickly – from the point of recognizing a failure, it often can converge in less than 10 seconds.
- Supports VLSM.
- Uses short Hello messages on a short regular interval, with the absence of hello messages indicating that a neighbor is no longer reachable.
- Sends partial updates when link status changes, and floods full updates every 30 minutes. The flooding, however, does not happened all at once, so the overhead s minimal.
- Uses cost for the metric.

Reference:
CCNA Self-Study CCNA INTRO exam certification Guide (Ciscopress, ISBN 1-58720-094-5) Page 417

QUESTION NO: 28
As a network technician at TestKing you are configuring access lists on an interface of a Cisco router. You use multiple access lists.
Which of the following statements are valid? (Select one)

A. There is no limit to the number of access lists that can be applied to an interface, as long as they are applied in order from most specific to most general.
B. Cisco IOS allows only one access list to be applied to an interface.
C. One access list may be configured per direction for each Layer 3 protocol configured on an interface.
D. Up to three access lists per protocol can be applied to a single interface.
E. No more than two access lists can be applied to a single interface.
F. The maximum number allowed varies depending on the amount of RAM installed in the router.

Answer: E
Explanation:
Applying Access Lists to Interfaces

For some protocols, you can apply up to two access lists to an interface: one inbound access list and one outbound access list. With other protocols, you apply only one access list which checks both inbound and outbound packets.

If the access list is inbound, when the router receives a packet, the Cisco IOS software checks the access list's criteria statements for a match. If the packet is permitted, the software continues to process the packet. If the packet is denied, the software discards the packet.

If the access list is outbound, after receiving and routing a packet to the outbound interface, the software checks the access list's criteria statements for a match. If the packet is permitted, the software transmits the packet. If the packet is denied, the software discards the packet.

Reference:
http://www.cisco.com/en/US/products/sw/iosswrel/ps1828/products_configuration_guide_chapter09186a00800ca5fc.html#12853

QUESTION NO: 29
You work as a network technician at TestKing. You are configuring a WAN link.
Which are typical Layer 2 encapsulations for this link? (Choose three)

A. Ethernet
B. Frame Relay
C. POTS
D. HDLC
E. PPP
F. Token Ring

Answer: D E, ? (Pending. Send suggestion to feedback@estkaing.com.)
Explanation:
WAN data-link protocols used on point-to-point serial links provide the basic function of data delivery across that one link. The two most popular WAN data-link protocols are High-Level Data Link Control (HDLC) and PPP.

Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page

QUESTION NO: 30
Roger is setting up WAN connectivity between the TestKing New York and the TestKing Tokyo offices.
He uses a uses two data link layer encapsulations, one for data and one for signaling.
Which WAN Service does he use?

A. ISDN
B. Frame Relay
C. ATM
D. FDDI

Answer: A
Explanation:
ISDN Q.931 messages are used for signaling.
ISDN B channels are used to transport data.

Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page 327

QUESTION NO: 31
You have segmented a network into two separate segments, segment 1 and segment2, with a Cisco router. Your boss at TestKing is concerned about the cost, and wants to what the purpose of your action is. What should you tell him?

A. It increases the number of collisions.
B. It decreases the number of broadcast domains.
C. It connects segment 1's broadcasts to segment 2.
D. It prevents segment 1's broadcasts from getting to segment 2.

Answer: D

QUESTION NO: 32
Your TestKing trainee Ellen is studying the basic of distance vector and link state routing protocols. As her mentor, what could you tell her? (Choose two)

A. Distance vector protocols send the entire routing table to directly connected neighbors.
B. Link state protocols send the entire routing table to all routers in the network.
C. Distance vector protocols send updates about directory connected neighbors to all networks listed in the routing table.
D. Link state protocols send updates containing the state of their own links to all other routers on the network.

Answer: A D
Explanation:
Distance Vector Protocols:
Distance Vector Protocols advertise routing information by sending messages, called routing updates, out the interfaces on a router. These updates contain a series of entries, with each entry representing a subnet and a metric.
Link-State Protocols:
Sends partial updates when link status changes, and floods full updates every 30 minutes. The flooding, however, does not happen all at once, so the overhead is minimal.

Reference:
CCNA Self-Study CCNA INTRO exam certification Guide (Ciscopress, ISBN 1-58720-094-5) Page 413 + 419

QUESTION NO: 33
Your TestKing trainee Bob wants some information regarding the split horizon rule.
What should you tell him?

A. Only routers can split boundaries (horizons) between concentric networks.
B. All distance vector protocols require fall back routes that may cause momentary loops as the topology changes.
C. Networks can only remain fully converged if all information about routes is sent out all active interfaces.
D. Information about a route should not be sent back in the direction from which the original update came.
E. Each AS must keep routing tables converged to prevent dead routes from being advertised across the AS boundary.

Answer: D
Explanation:
Split horizon blocks information about routes from being advertised by a router out of any interface from which that information originated.

Reference:
http://www.cisco.com/en/US/products/sw/iosswrel/ps1826/products_configuration_guide_chapter09186a00800877c6.html

QUESTION NO: 34
Your boss at TestKing want you to brief him on differences and similarities between bridges and switches.
What should you tell her? (Choose two)

A. Bridges are faster than switches because they have fewer ports.
B. A switch is a multiport bridge,
C. Bridges and switches learn MAC addresses by examining the source MAC address of each frame received.
D. A bridge will forward a broadcast but a switch will not.
E. Bridges and switches increase the size of a collision domain.

Answer: B C
Explanation:
Bridges build the bridge table by listening to incoming frames and examining the source MAC address in the frame.

Switches are multiport bridges that allow you to create multiple broadcast domains. Each broadcast domain is like a distinct virtual bridge within a switch.

Reference:
CCNA Self-Study CCNA INTRO exam certification Guide (Ciscopress, ISBN 1-58720-094-5) Page 239

http://www.cisco.com/en/US/products/hw/switches/ps4324/products_configuration_guide_chapter09186a00801 86a3e.html

QUESTION NO: 35
Exhibit:
```
o/r 0x2142
```

You are working with a 2500 series Cisco router. You are performing the password recovery procedure. You have just typed the command shown in the exhibit.
Your TestKing trainee Mahmoud is curious on the purpose of this command.
What should you tell him?

A. To restart the router.
B. To bypass the configuration in NVRAM.
C. To view the lost password.
D. To save the changes to the configuration.
E. To enter ROM Monitor mode.

Answer: B
Explanation:
o/r 0x2142

!--- Changes the value of config-register to 2142, so that the Router boots,
!---ignoring the NVRAM contents.

Reference:
http://www.cisco.com/en/US/products/hw/routers/ps233/products_password_recovery09186a0080094795.shtml

QUESTION NO: 36
You have told your boss at TestKing that the OSI model has 7 layers. He is curious which protocol is on the application layer. He asks you to give him two examples of items associated with the layer.
What should you tell him? (Select two)

A. ping

B. Telnet
C. FTP
D. TCP
E. IP

Answer: B C
Explanation:

Layer Name	**Examples**
Application (layer 7)	Telnet, HTTP, FTP, WWW browsers, NFS, SMTP gateways, SNMP

Reference:
CCNA Self-Study CCNA INTRO exam certification Guide (Ciscopress, ISBN 1-58720-094-5) Page 34

QUESTION NO: 37
You are working as a network technician at TestKing.
You are required to troubleshooting the WAN link between the TestKing main office at Boston and the TestKing remote office at Rio De Janeiro.
A Cisco router that was providing Frame Relay connectivity at the Rio de Janeiro site as replaced with a different vendor's frame relay router. Connectivity is now down between the Boston and Rio De Janeiro site.
What is the most likely cause of the problem?

A. Mismatched LMI types.
B. Incorrect DLCI.
C. Mismatched encapsulation types.
D. Incorrect IP address mapping.

Answer: A
Explanation:
Three LMI protocol options are available in Cisco IOS software: Cisco, ITU, and ANSI. Each LMI option is slightly different and therefore is incompatible with the other two. As long as both the DTE and DCE on each end of an access link use the same LMI standard, LMI works fine.

Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page 381

QUESTION NO: 38
Exhibit:

```
hostname TestKingA
!
!
interface Ethernet0
 ip address 192.168.10.9 255.255.255.248
!
interface Serial0
 ip address 172.16.25.1 255.255.255.0
 clockrate 56000
!
interface Serial1
 ip address 10.1.1.1 255.255.255.0
!
router rip
 network 192.168.10.0
!
line con 0
 password testking
 login
line aux 0
line vty 0 4
 password testking
 login
!end
```

Five new routes need to be configured quickly for testing. While connected to a router by console, the administrator copies and pastes a configuration from a text file, a part of which is shown in the graphic, into the HyperTerminal window.
Why would host 192.168.10.10/29 be unable to ping the Ethernet interface of the router as a result of this procedure?

A. The new configuration needs to be saved to the NVRAM before the changes take effect.
B. The router needs to be reloaded before the changes are implemented.
C. The Ethernet network does not show up in the routing table because the RIP configuration is incomplete.
D. The copied configuration did not overwrite the shutdown command on the Ethernet interface.
E. The subnet mask on the router prevents the host from communicating with it.

Answer: D
Explanation:
Default configuration of any interface is always shutdown and always needs the command "no shutdown" in the interface command mode in order to enable the interface.

Reference:
CCNA Self-Study CCNA INTRO exam certification Guide (Ciscopress, ISBN 1-58720-094-5) Page 379

QUESTION NO: 39
Exhibit:

```
testking1# debug ip rip

<some output text is omitted>

testking1#debug ip rip
1d00h: RIP:received v1 update from 172.16.100.2 on Serial0/0
1d00h: 172.16.10.0 in 1 hops
1d00h: 172.16.20.0 in 1 hops
1d00h: 172.16.30.0 in 1 hops

testking1# show ip route

Gateway of last resort is not set

  172.16.0.0/24 is subnetted, 8 subnets
C   172.16.150.0 is directly connected, FastEthernet0/0
C   172.16.220.0 is directly connected, Loopback2
C   172.16.210.0 is directly connected, Loopback1
C   172.16.200.0 is directly connected, Loopback0
R   172.16.30.0 [120/1] via 172.16.100.2, 00:00:07, Serial0/0
S   172.16.20.0[1/0] via 172.16.150.15
R   172.16.10.0[120/1] via 172.16.100.2,00:00:07, Serial0/0
C   172.16.100.0 is directly connected, Serial0/0
```

The network administrator at TestKing has found the following problem. The remote networks 172.16.10.0, 172.16.20.0, and 172.16.30.0 are accessed through the testking1 router's serial 0/0 interface. No users are able to access 172.16.20.0. After reviewing the command output shown in the graphic, what is the most likely cause of the problem?

A. No gateway of last resort on testking1.
B. testking1router's not receiving 172.16.20.0 update.
C. Incorrect static route for 172.16.20.0.
D. 172.16.20.0 not located in testking1's routing table.

Answer: C

QUESTION NO: 40

You work as a network technician at TestKing. You have subnetted the 213.105.72.0 network with a /28 mask. Your boss asks you how many usable subnetworks and usable host addresses per subnet this will provide. What should you tell her?

A. 62 networks and 2 hosts
B. 6 networks and 30 hosts
C. 8 networks and 32 hosts
D. 16 networks and 16 hosts
E. 14 networks and 14 hosts

Answer: E

QUESTION NO: 41
Exhibit:

```
ROUTER_B#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, * - candidate default
       U - per-user static route

Gateway of last resort is not set

R    192.168.8.0/24 [120/1] via 192.168.2.2, 00:00:10, Serial0
C    192.168.9.0/24 is directly connected, Serial1
R    192.168.10.0/24 [120/7] via 192.168.9.1, 00:00:02, Serial1
R    192.168.11.0/24 [120/7] via 192.168.9.1, 00:00:03, Serial1
C    192.168.1.0/24 is directly connected, Ethernet0
C    192.168.2.0/24 is directly connected, Serial0
R    192.168.3.0/24 [120/1] via 192.168.2.2, 00:00:10, Serial0
R    192.168.4.0/24 [120/15] via 192.168.2.2, 00:00:10, Serial0
R    192.168.5.0/24 [120/15] via 192.168.2.2, 00:00:10, Serial0
R    192.168.6.0/24 [120/15] via 192.168.2.2, 00:00:10, Serial0
R    192.168.7.0/24 [120/1] via 192.168.2.2, 00:00:10, Serial0
```

You are troubleshooting a Cisco router at the main office of TestKing in Toronto. You enter the show ip route command. The output is displayed in the exhibit. Which route will not be entered into the routing table of a neighboring router?

A. R 192.168.8.0/24 [120/1] via 192.168.2.2, 00:00:10, Serial0
B. R 192.168.11.0/24 [120/7] via 192.168.9.1, 00:00:03, Serial1
C. C 192.168.1.0/24 is directly connected, Ethernet0
D. R 192.168.5.0/24 [120/15] via 192.168.2.2, 00:00:10, Serial0

Answer: C
Explanation:

Directly connected routes do not have a next-hop router field, because the packet does not need to be sent to another router, but instead to the destination host.

Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page 166

QUESTION NO: 42
You work as a network technician at TestKing. You have subnetted the 201.105.13.0 network with a /26 mask. Your boss asks you how many usable subnetworks and usable host addresses per subnet this will provide. What should you tell her?

A. 64 networks and 4 hosts
B. 4 networks and 64 hosts
C. 2 networks and 62 hosts
D. 62 networks and 2 hosts

Answer: C

QUESTION NO: 43
Your TestKing trainee Fernanda is studying the spanning three algorithm. She asks you how the spanning-tree path cost is determined by default.
What should you tell her?

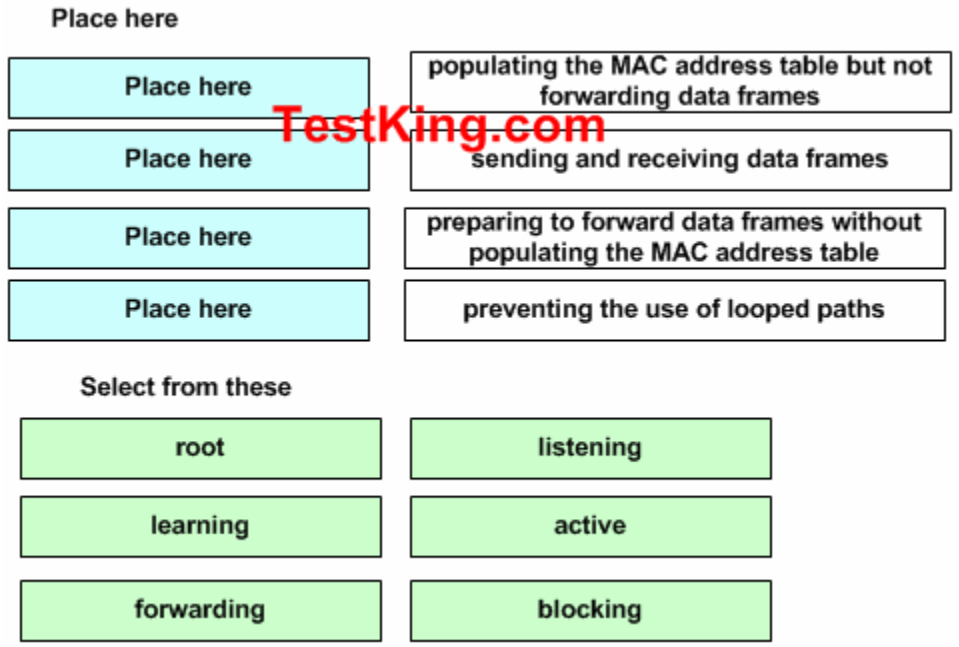
A. Total hop count.
B. Sum of the costs based on bandwidth.
C. Dynamically determined based on load.
D. Individual link cost based on latency.

Answer: D
Explanation:
The cost to reach the root from this bridge – At the beginning of the process, each bridge claims to be root, so the value is set to 0, which is this bridge's cost to reach itself. The lower the cost, the better the path, with the range of costs being between 0 and 65,535, inclusive.

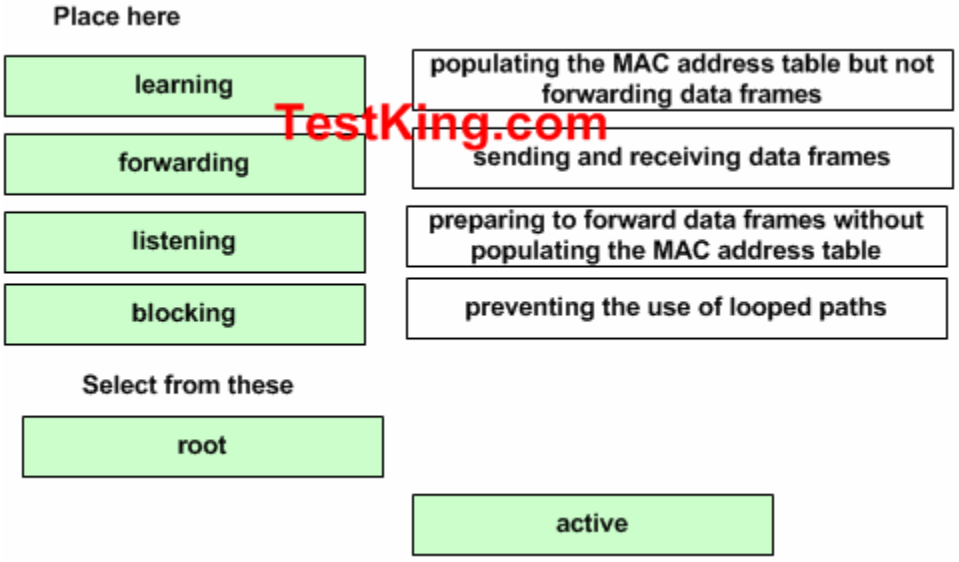
Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page 39

QUESTION NO: 44
You are giving a lecture on the Spanning-Tree algorithm for your TestKing trainees. You need to connect the Spanning-Tree Protocol states with the correct functions.

(Not all options are used.)



Answer:



Explanation:

- **Listening -** Listens to incoming Hello messages to ensure that there are no loops, but does not forward traffic or learn MAC addresses on the interface.

- **Learning –**learns MAC addresses and builds a filter table but does not forward frames.
- **Forwarding –** Sends and receives all data on the bridged port.
- **Blocking –** are used to prevent network loops.

Reference:
CCNA Study guide Second Edition (Sybex, Todd Lammle) page 82

QUESTION NO: 45
You work as a network technician at TestKing. You are required to establish a Telnet session with a cisco router. Which commands should you use?

A. testking1(config)# **line console 0**
testking1(config-if)# **enable password testking**
B. testking1(config)# **line console 0**
testking1(config-line)# **enable secret testking**
testking1(config-line)# **login**
C. testking1(config)# **line console 0**
testking1(config-line)# **password testking**
testking1(config-line)# **login**
D. testking1(config)# **line vty 0**
testking1(config-line)# **enable password testking**
E. testking1(config)# **line vty 0**
testking1(config-line)# **enable secret testking**
testking1(config-line)# **login**
F. testking1(config)# **line vty 0**
testking1(config-line)# **password testking**
testking1(config-line)# **login**

Answer: F
Explanation:

Access from	**Password Type**	**Configuration**
Telnet	vty password	line vty 0 4 login password cisco

Reference:
CCNA Self-Study CCNA INTRO exam certification Guide (Ciscopress, ISBN 1-58720-094-5) Page 177

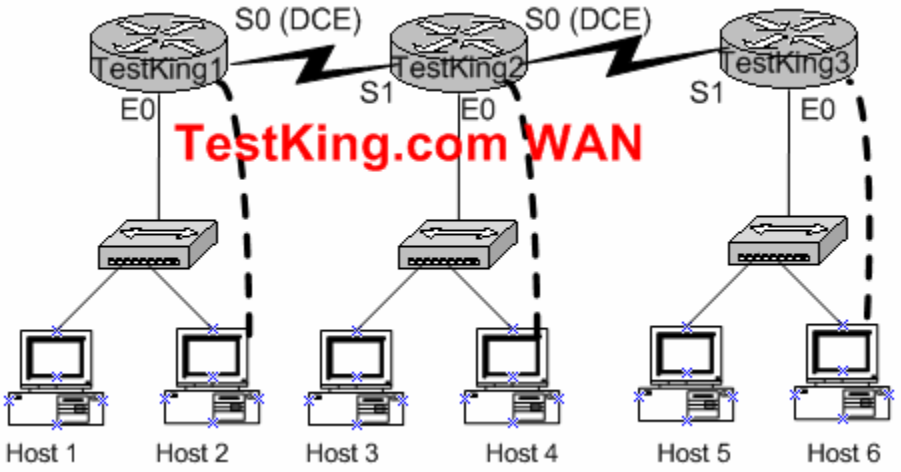
QUESTION NO: 46
A Law firm has offices in three different countries. Two of the offices have network connectivity to each other. The third office has recently received a router and is to be connected to the other two. The names of the routers are TestKing1, TestKing2, and TestKing3. Configure the TestKing3's router's IP addresses on the E0 and S1 interfaces so that the E0 interface receives the first usable subnet while the S1 interface receives the second usable subnet from the network 192.168.101.0/28. Both interfaces should receive the first available IP of the subnet. The zero subnet should not be used. The routers have been configured with the following specifications.

- **The routers are named TestKing1, TestKing2, and TestKing3.**
- **RIP is the routing protocol.**
- **Clocking is provided on the serial 0 interfaces**
- **The secret password on the TestKing3 router is "testking"**
- **The subnet mask of all networks other than 192.168.101.0 is the default mask.**
- **The IP addresses are listed in the chart below.**

TestKing1
E0 192.168.93.1
S0 192.168.95.1

TestKing2
E0: 192.168.97.1
S0: 192.168.101.42
S1: 192.168.95.2

TestKing3
E0 to be determined
S1 to be determined
Secret password: testking



To configure the router click on the host icon that is connect to a router by a serial console cable.

Answer:
TestKing3> **enable**
Password: **testking**
TestKing3 # **config terminal**
TestKing3 (config) # **interface ethernet 0**
TestKing3 (config-if) # **ip address 192.168.101.17 255.255.255.0**
TestKing3 (config-if) # **no shutdown**
TestKing3 (config-if) # **exit**
TestKing3 (config-) # **interface serial 0**
TestKing3 (config-if) # **ip address 192.168.101.33 255.255.255.0**
TestKing3 (config-if) # **clock rate 64000**
TestKing3 (config-if) # **no shutdown**
TestKing3 (config-if) # **exit**
TestKing3 (config) # **router rip**
TestKing3 (config-router) # **network 192.168.93.0**
TestKing3 (config-router) # **network 192.168.95.0**
TestKing3 (config-router) # **network 192.168.101.0**

Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page 165

CCNA Self-Study CCNA INTRO exam certification Guide (Ciscopress, ISBN 1-58720-094-5) Page 486

QUESTION NO: 47
You work as a network consultant. You are planning a network installation for a large organization named TestKing. The design requires 100 separate subnetworks, so TestKing has acquired a Class B network address.
What subnet mask will provide the 100 subnetworks required, if 500 usable host addresses are required per subnet?

A. 255.255.240.0
B. 255.255.246.0
C. 255.255.252.0
D. 255.255.254.0
E. 255.255.255.0
F. 255.255.255.192

Answer: D

QUESTION NO: 48
Your TestKing trainee Jose are interested in ACLs (access control lists).
He asks you want they can be used for.
What should you tell him? (Choose three)

A. Protect hosts from viruses.
B. Classify network traffic.
C. Provide high network availability.
D. Identify interesting traffic for DDR.
E. IP route filtering.
F. Monitor the number of bytes and packets.

Answer: B, C, E
Explanation:
IP access control lists (ACLs) cause a router to discard some packets based on criteria defined by the network engineer. The goal of these filters is to prevent unwanted traffic in the network – whether to prevent hackers from penetrating the network or just to prevent employees from using systems they should not be using.
IP access lists can also be used to filter routing updates, to match packets for prioritization, to match packets for prioritization, to match packets for VPN tunneling, and to match packets for implementing quality of service features.

Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page 427

QUESTION NO: 49
You are configuring a network at TestKing main site in Toronto. You use a distance vector routing protocol.
What could you use to prevent rooting loops in the network? (Choose two)

A. Link-state advertisements (LSA)
B. Spanning Tree Protocol
C. Shortest path first tree
D. Split horizon
E. Hold-down timers

Answer: D E
Explanation:

- **Split horizon –** the routing protocol advertises routes out an interface only if they were not learned from updates entering that interface.
- **Hold-down timer –** After finding out that a router to a subnet has failed, a router waits a certain period of time before believing any other routing information about that subnet.

Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page 154

QUESTION NO: 50
Exhibit:

Refer to the router topology shown in the exhibit. Assuming that all routers are running RIP, which statements describe how the routers exchange their routing tables? (Choose two)

A. TestKing1 exchanges with TestKing3.
B. TestKing1 exchanges with TestKing4.
C. TestKing1 exchanges with TestKing2.
D. TestKing4 exchanges with TestKing3.
E. TestKing4 exchanges with TestKing1.
F. TestKing4 exchanges with TestKing2.

Answer: A, D

QUESTION NO: 51
Your TestKing trainee Boris is configuring a serial interface on a Cisco router.
He asks you which encapsulations he can use on the interface.
What should you tell him? (Choose three)

A. Ethernet

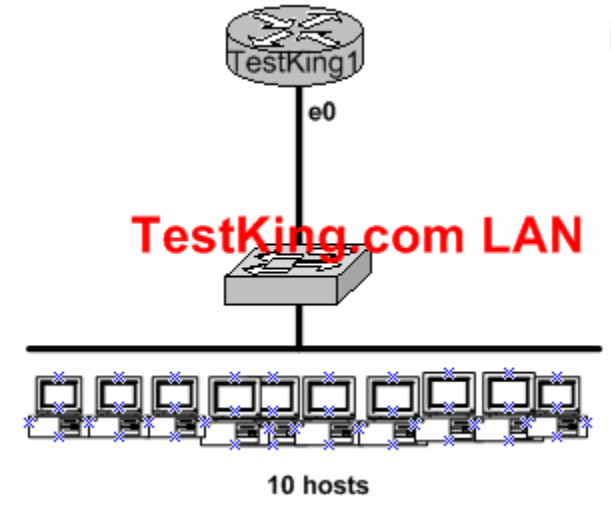
B. Token Ring
C. HDLC
D. Frame Relay
E. PPP

Answer: C, D, E

QUESTION NO: 52
You work as network consultant. Your customer, TestKing Inc, has a class C network license. TestKing requires 5 usable subnets, each capable of accommodating at least 18 hosts.
Which subnet mask should you use?

Answer: 255.255.255.224
Explanation:
Default subnet mask for class C network is 255.255.255.0. If one has to create 5 subnets , then 3 bits are required . With 3 bits we can create 6 subnets. Remaining 5 bits are used for Hosts. One can create 30 hosts using 5 bits in host field. This matches with requirement.

QUESTION NO: 53
Exhibit:



Refer to the topology shown in the graphic. Each host is connected through its own 10Mbps half-duplex switch port to the e0 interface of the router TestKing1.
What is the bandwidth available to each host?

A. 1 Mbps
B. 10 Mbps
C. 20 Mbps
D. 100 Mbps

Answer: B

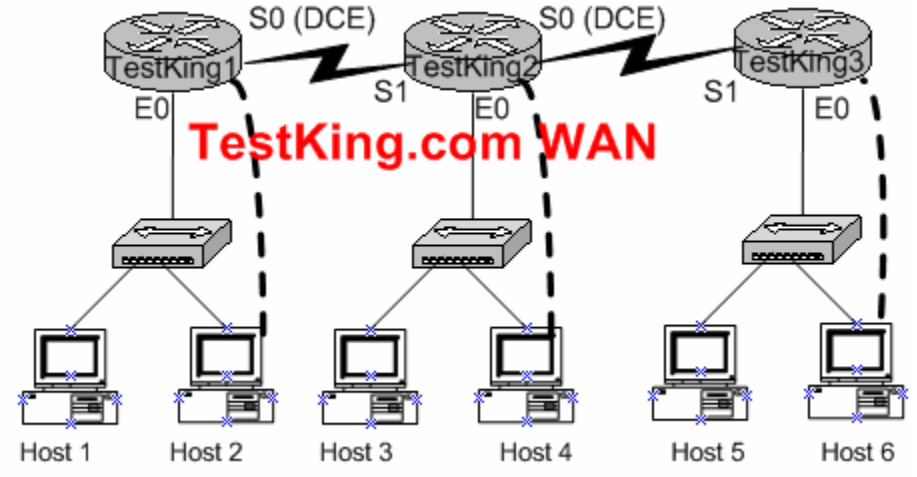
QUESTION NO: 54
Three sites, TestKing1, TestKing2, and TestKing3 are connected via a WAN. At each site a router provides serial connectivity to the Wan and an Ethernet connection to a LAN. All three routers are configured, and the network is functional. Configure and apply an access list will prevent telnet access to the TestKing3 router while allowing all other traffic to pass. The access list should not contain more than three (3) statements and should be applied to the TestKing3 router. The routers have been previously configured with the following specifications:

- **The routers are named TestKing1, TestKing2, and TestKing3.**
- **RIP is the routing protocol.**
- **The clocking signal is provided on the serial 0 interfaces.**
- **All passwords on all routers are "testking".**
- **The subnet mask on all the interfaces is the default mask.**
- **IP addresses are listed in the chart below.**

TestKing1
E0 192.168.149.1
S0 192.168.199.1
Secret password: testking

TestKing2
E0 192.168.155.1
S0 192.168.11.1
S1 192.168.199.2
Secret password: testking

TestKing3
E0 192.168.165.1
S1 192.168.11.2



To configure the router click on the host icon that is connected to a router by a serial console cable.

Answer:
Testking3(config): Interface E0
testking3(config-if): Access-list 101 deny TCP any 192.168.165.0 0.0.0.255 eq 23
testking3(config-if): Access-list 101 permit IP any any
testking3(config): interface S1
testking3(config-if): Ip Access-group 101 IN

QUESTION NO: 55
You work as a network technician at TestKing. You have completed the password recovery procedure on a Cisco router. The process is successful and the router returns to normal operation.
What is configuration register value at this point of time?

A. 0x2100
B. 0x2101
C. 0x2102
D. 0x2124
E. 0x2142

Answer: C
Explanation: It is default factory setting. Router should attempt to load an IOS from flash memory and load startup configuration file. Flash memory also called NVRAM

Incorrect answers
A: It is ROM Monitor mode. A low level problem determination
B: Router to boot from ROM

E: The value 0x2142 to be set for configuration register in case of password recovery procedure

QUESTION NO: 56
What feature of a networks switch allows an administrative to create separate broadcast domains?

A. Store-and-forward switching
B. Microsegmentation
C. Transparent bridging
D. Fragment-free switching
E. Virtual LANs
F. Cut-through switching

Answer: E
Explanation: Creation of VLAN in a switch provide separate Broadcast domain . If VLAN is not there all ports as members of one Broadcast domain.

Reference: Wendell Odom. CISCO CCNA Certification Guide (2000 Press) Page 172

Incorrect Answers
A: This is one of the Switching method in a switch. It will not play any role for creating separate broadcast domains
B: Not related to the question
C: Transparent bridging is called Transparent because the endpoints devices do not need to know that the bridges exists. It will not play any role for creating separate broadcast domain
D,F: Both are switching methods in a switch**.**

QUESTION NO: 57
New switches have been purchased for a network upgrade. The objective for the network design emphasizes efficient, error-free transport instead of fast transport.
Which switching mode should be configured on the new switches to provide error-free transport to the network?

A. cut-through
B. fragment-free
C. frame-filtering
D. store-and-forward
E. 802.1q forwarding
F. VTP transparent mode

Answer: D
Explanation:
The Switch receives and stores all bits in the frame before forwarding the frame. This allows switch to check the FCS before forwarding the frame. FCS is Ethernet Trailer.
Incorrect answers:

A. The Switch performs the address table lookup as soon as the destination address field in the header is received. The first bits in the frame can be sent out to out port before the final bits in the incoming frame are received. This does not allow the switch to discard frames that fail the FCS check.

B. This is also same as A. But Switch waits 64 bytes to be received before forwarding the first bytes of the outgoing frame. Collisions may occur during first 64 bytes of the frame. Frames in error due to collision will not be forwarded. The FCS still cannot be checked.

C,E,F : They are not related to Switch mode transport.

QUESTION NO: 58
Given a subnet mask of 255.255.255.224, which of the following addresses can be assigned to network hosts? (Select three.)

A. 15.234.118.63
B. 92.11.178.93
C. 134.178.18.56
D. 192.168.16.87
E. 201.45.116.159
F. 217.63.12.192

Answer: B, C, D
Explanation:
B: Valid Host in subnetwork 2 (92.11.178.64 to 92.11.178.95)
C: Valid Host in subnetwork 1(134.178.18.32 to 134.178.18.63)
D: Valid host in subnetwork 2 (192.168.16.64 to 192.168.16.95

Incorrect answers:
A. is a broadcast
E. is a broadcast
F. is a network id

QUESTION NO: 59
A technician at TestKing needs to update the network documentation. One of the tasks includes documenting the name of the IOS image file of each router in the network.
Which commands could be used to find this information?

A. `Router# show protocols`
B. `Router# show version`
C. `Router# show image`
D. `Router# show IOS`
E. `Router# show flash`

Answer: B
"Show flash" displays all the image files in it. There could be more than one file. However, "show version" displays the one that is currently in use by the router.)
Incorrect answers:
A: Show Protocols will shows routed Protocol using by the router, all interface conditions and their IP address if configured.
C,D. There are no such commands.

QUESTION NO: 60
Which statement describes the rule of split horizon?

A. Only routers can split boundaries (horizons) between concentric networks.
B. All distance vector protocols require fall back routers that may cause momentary loops as the topology changes.
C. Networks can only remain fully converged if all information about routers is sent out all active interfaces.
D. Information about a route should not be sent back in the direction from which the original update come.
E. Each AS must keep routing tables converged to prevent dead routes from being advertised across the AS boundary.

Answer: D
Explanation:
Split horizon includes two related concepts that affect what routes are included in a routing update:
An update does not include the subnet of the interface out which the update is sent
All routes with outgoing interface of interface x are not included in updates sent out that same interface x.

Reference: Wendell Odom. CISCO CCNA Certification Guide (2000 Press) Page 369

Incorrect Answers
A: There is no such requirement
B: Distance vector protocols updates routing table at regular intervals instead of Topology changes
C: This is not a feature of split horizon
E: This is not a related feature for split horizon

QUESTION NO: 61
Exhibit:

Which of the following is the minimum configuration commands required to bring up the ISDN link shown in graphic.
Note : SPIDs are not required for this switch. (Choose three)

A. `Router(Config-if)# encapsulation ppp`
B. `Router(Config-if)# isdn switch-type type`
C. `Router(Config-if)# dialer-list, protocol ip permit`
D. `Router(Config-if)# dialer map ip address name name connection number.`
E. `Router(Config-if)# ip address subnet mask`
F. `Router(Config-if)# dialer group 1`

Answer: A, E, F
Explanation:
A: Proper encapsulation to be defined on both routers.
E: IP address to be assigned for interface with subnet mask
F: Dialer group number enables dialer-list on this interface. Dialer-list to be defined on gloabal configuration command.
Incorrect Answers:
B, C: The commands are executed on global configuration command.
D: Syntax is wrong. Proper syntax is dialer map ip ip address/subnet mask name connection name number.

QUESTION NO: 62
Which of the following are characteristics of PPP? (Choose three)

A. Can be used over analog circuits.
B. Maps Layer 2 to Layer 3 address.
C. Encapsulates several routed protocols.
D. Supports IP only.
E. Provides error correction.

Answer: A C E

Explanation:

- PPP can be used on either type of line (dial or switched lines), because data-link protocols are designed for point-to-point environment.
- PPP uses one LCP per link and one Control Protocol for each Layer 3 protocol defined on the link. If a router is configured for IPX, Apple Talk, and IP on a PPP serial link, the router configured for PPP encapsulation automatically tries to bring I the appropriate control protocols for each layer 3 protocol.
- Error recovery can be performed by the data-link protocol or a higher-layer protocol, or it might not be performed at all. Supported but not enabled by default.

Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page 309

QUESTION NO: 63
A user types the command ping 204.211.38.52 during a router console session.
What does this command use to test connectivity between the two devices?

A. ICMP echo request
B. Information request
C. Timestamp reply
D. Redirect
E. Source quench

Answer: A
Explanation:
The ping command sends an ICMP echo request packet to the stated destination address. The TCP/IP software at the destination then replies to the ping echo request packet with a similar packet, called ICMP echo reply.

Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page 146

QUESTION NO: 64
An administrator must assign static IP addresses to the servers in the network. For network 192.168.20.24/29 the router is assigned the first usable host address while the sales server is given the last usable host address.
Which of the following should be entered into the IP properties box for the sales server?

A. IP address: 192.168.20.14 Subnet Mask: 255.255.255.248 Default Gateway: 192.168.20.9
B. IP address: 192.168.20.254 Subnet Mask: 255.255.255.0 Default Gateway: 192.168.20.1

C. IP address: 192.168.20.30 Subnet Mask 255.255.255.248 Default Gateway: 192.168.20.25
D. IP address: 192.168.20.30 Subnet Mask 255.255.255.240 Default Gateway: 192.168.20.17
E. IP address: 192.168.20.30 Subnet Mask 255.255.255.240 Default Gateway: 192.168.20.25

Answer: C

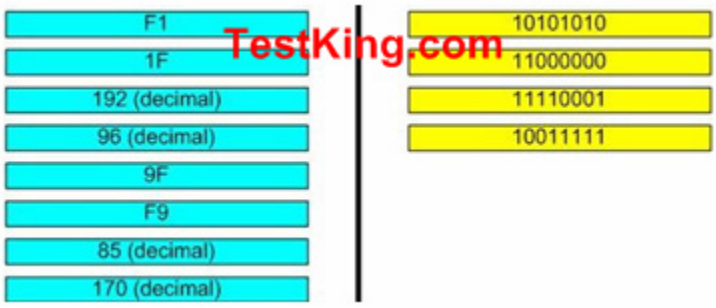
QUESTION NO: 65
Which two statements about the store and forward switching method are true? (Choose two)

A. Latency remains constant regardless of frame size.
B. Latency through the switch varies with frame length.
C. The switch receives the complete frame before beginning to forward it.
D. The switch checks the destination address as soon as it receives the header and begins forwarding the frame immediately.

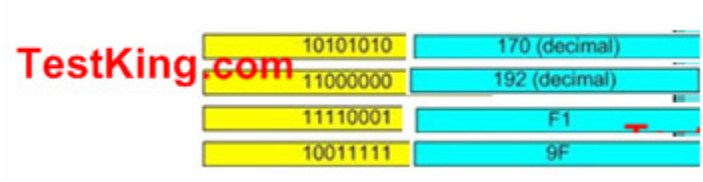
Answer: B C
Explanation:
With store-and-forward, the entire frame is received by the switch before the first bit of the frame is forwarded. As soon as the incoming switch port receives enough of the frame to see the destination MAC address, the forwarding decision is made and the frame is transmitted out the appropriate outgoing port to the destination device. So, each frame might experience slightly less latency.

Reference:
CCNA Self-Study CCNA INTRO exam certification Guide (Ciscopress, ISBN 1-58720-094-5) Page 243

QUESTION NO: 66
Match the hex and decimal numbers listed on the left with the corresponding binary number listed on the right. Not all options apply.



Answer:



Explanation:
170 (Decimal) = 10101010
192 (Decimal) = 11000000
F1 (241 = Decimal) = 11110001
9F (159 = Decimal) = 10011111

DEC	HEX	BIN	DEC	HEX	BIN	DEC	HEX	BIN
0	00	00000000	43	2B	00101011	86	56	01010110
1	01	00000001	44	2C	00101100	87	57	01010111
2	02	00000010	45	2D	00101101	88	58	01011000
3	03	00000011	46	2E	00101110	89	59	01011001
4	04	00000100	47	2F	00101111	90	5A	01011010
5	05	00000101	48	30	00110000	91	5B	01011011
6	06	00000110	49	31	00110001	92	5C	01011100
7	07	00000111	50	32	00110010	93	5D	01011101
8	08	00001000	51	33	00110011	94	5E	01011110
9	09	00001001	52	34	00110100	95	5F	01011111
10	0A	00001010	53	35	00110101	96	60	01100000
11	0B	00001011	54	36	00110110	97	61	01100001
12	0C	00001100	55	37	00110111	98	62	01100010
13	0D	00001101	56	38	00111000	99	63	01100011
14	0E	00001110	57	39	00111001	100	64	01100100
15	0F	00001111	58	3A	00111010	101	65	01100101
16	10	00010000	59	3B	00111011	102	66	01100110
17	11	00010001	60	3C	00111100	103	67	01100111
18	12	00010010	61	3D	00111101	104	68	01101000
19	13	00010011	62	3E	00111110	105	69	01101001
20	14	00010100	63	3F	00111111	106	6A	01101010
21	15	00010101	64	40	01000000	107	6B	01101011
22	16	00010110	65	41	01000001	108	6C	01101100
23	17	00010111	66	42	01000010	109	6D	01101101
24	18	00011000	67	43	01000011	110	6E	01101110
25	19	00011001	68	44	01000100	111	6F	01101111
26	1A	00011010	69	45	01000101	112	70	01110000
27	1B	00011011	70	46	01000110	113	71	01110001
28	1C	00011100	71	47	01000111	114	72	01110010
29	1D	00011101	72	48	01001000	115	73	01110011
30	1E	00011110	73	49	01001001	116	74	01110100
31	1F	00011111	74	4A	01001010	117	75	01110101
32	20	00100000	75	4B	01001011	118	76	01110110
33	21	00100001	76	4C	01001100	119	77	01110111
34	22	00100010	77	4D	01001101	120	78	01111000
35	23	00100011	78	4E	01001110	121	79	01111001
36	24	00100100	79	4F	01001111	122	7A	01111010
37	25	00100101	80	50	01010000	123	7B	01111011
38	26	00100110	81	51	01010001	124	7C	01111100
39	27	00100111	82	52	01010010	125	7D	01111101
40	28	00101000	83	53	01010011	126	7E	01111110
41	29	00101001	84	54	01010100	127	7F	01111111
42	2A	00101010	85	55	01010101			

DEC	HEX	BIN	DEC	HEX	BIN	DEC	HEX	BIN
128	80	10000000	171	AB	10101011	214	D6	11010110
129	81	10000001	172	AC	10101100	215	D7	11010111
130	82	10000010	173	AD	10101101	216	D8	11011000
131	83	10000011	174	AE	10101110	217	D9	11011001
132	84	10000100	175	AF	10101111	218	DA	11011010
133	85	10000101	176	B0	10110000	219	DB	11011011
134	86	10000110	177	B1	10110001	220	DC	11011100
135	87	10000111	178	B2	10110010	221	DD	11011101
136	88	10001000	179	B3	10110011	222	DE	11011110
137	89	10001001	180	B4	10110100	223	DF	11011111
138	8A	10001010	181	B5	10110101	224	E0	11100000
139	8B	10001011	182	B6	10110110	225	E1	11100001
140	8C	10001100	183	B7	10110111	226	E2	11100010
141	8D	10001101	184	B8	10111000	227	E3	11100011
142	8E	10001110	185	B9	10111001	228	E4	11100100
143	8F	10001111	186	BA	10111010	229	E5	11100101
144	90	10010000	187	BB	10111011	230	E6	11100110
145	91	10010001	188	BC	10111100	231	E7	11100111
146	92	10010010	189	BD	10111101	232	E8	11101000
147	93	10010011	190	BE	10111110	233	E9	11101001
148	94	10010100	191	BF	10111111	234	EA	11101010
149	95	10010101	192	C0	11000000	235	EB	11101011
150	96	10010110	193	C1	11000001	236	EC	11101100
151	97	10010111	194	C2	11000010	237	ED	11101101
152	98	10011000	195	C3	11000011	238	EE	11101110
153	99	10011001	196	C4	11000100	239	EF	11101111
154	9A	10011010	197	C5	11000101	240	F0	11110000
155	9B	10011011	198	C6	11000110	241	F1	11110001
156	9C	10011100	199	C7	11000111	242	F2	11110010
157	9D	10011101	200	C8	11001000	243	F3	11110011
158	9E	10011110	201	C9	11001001	244	F4	11110100
159	9F	10011111	202	CA	11001010	245	F5	11110101
160	A0	10100000	203	CB	11001011	246	F6	11110110
161	A1	10100001	204	CC	11001100	247	F7	11110111
162	A2	10100010	205	CD	11001101	248	F8	11111000
163	A3	10100011	206	CE	11001110	249	F9	11111001
164	A4	10100100	207	CF	11001111	250	FA	11111010
165	A5	10100101	208	D0	11010000	251	FB	11111011
166	A6	10100110	209	D1	11010001	252	FC	11111100
167	A7	10100111	210	D2	11010010	253	FD	11111101
168	A8	10101000	211	D3	11010011	254	FE	11111110
169	A9	10101001	212	D4	11010100	255	FF	11111111
170	AA	10101010	213	D5	11010101			

Reference:
http://www.cisco.com/en/US/products/hw/switches/ps2246/products_programming_reference_guide_chapter09186a00800c33e4.html

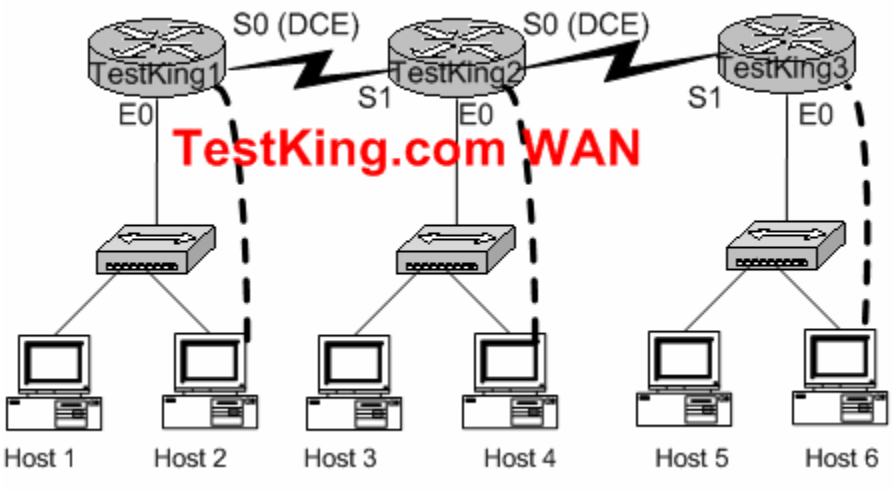
QUESTION NO: 67
A group of bakeries wants to provide network connectivity for 3 factories in the group. Each factory is to have one LAN. The TestKing1 and TestKing2 routers are completely configured. The TestKing3 router has been configured except the routing protocol. Configure the routing protocol to allow a host on the LAN of the TestKing3 router to communicate with a host on the TestKing2 router. The routers have been configured with the following specifications:

- **The routers are named TestKing1, TestKing2, and TestKing3.**
- **RIP is the routing protocol**
- **The clocking is provided on the serial 0 interfaces.**
- **The secret password on the TestKing3 router is "testking"**
- **The subnet masks on all interfaces is the default mask.**
- **The IP addresses are listed in the chart**

TestKing1
E0 192.168.149.1
S0 192.168.179.1

TestKing2
E0 192.164.155.1
S0 192.168.111.1
S1 192.168.179.2

TestKing3
E0 192.168.165.1
S1 192.111.2



To configure the router click on a host icon that is connected to a router by a serial cable.

Answer:
TestKing3#config t
Testking3(config)#router rip
Testking3(config-router)#network 192.168.165.0
Testking3(config-router)#network 192.168.111.0
Testking3(config)# Ctrl-Z
Output omitted

```
TestKing3#copy running-config startup-config
**Output omitted**

[OK]
TestKing3#_
```

QUESTION NO: 68
Which of the following statements are characteristic of a typical VLAN arrangement? (Choose three)

A. VLANs logically divide a switch into multiple, independent switches at Layer 2.
B. A VLAN can span multiple switches.
C. VLANs typically decrease the number of broadcast domains.
D. Trunk links can carry traffic for multiple VLANs.
E. VLAN implementation significantly increases traffic on a network because trunking information must be added to each packet.
F. VLANs extend the collision domain to include multiple switches.

Answer: B, C, ? (Pending. Send suggestion to feedback@estkaing.com.)

QUESTION NO: 69
Which of the following options can be negotiated using LCP during the PPP link establishment? (Choose three)

A. callback
B. IPCP
C. CHAP
D. multilink
E. TCP
F. Q.931

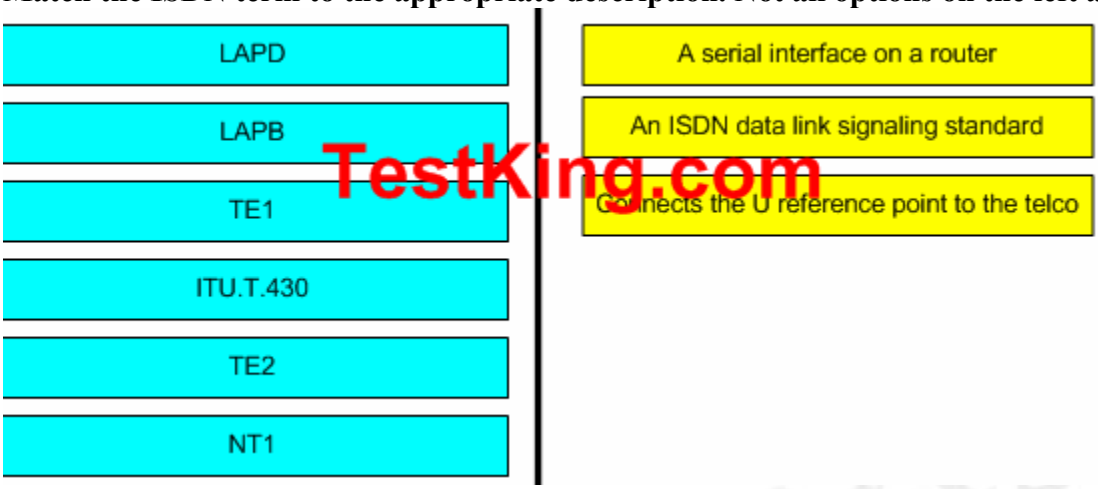
Answer: B C D
Explanation:

- The NCP phase is used for establishing and configuring different network-layer protocols.
- The most common layer 3 protocol negotiated is IP. The routers exchange IP Control Protocol (IPCP) messages negotiating options specific to the protocol.
- Point-to-Point Protocol (PPP) currently supports two authentication protocols: Password Authentication Protocol (PAP) and Challenge Handshake Authentication Protocol (CHAP). Both are specified in RFC 1334 and are supported on synchronous and asynchronous interfaces.

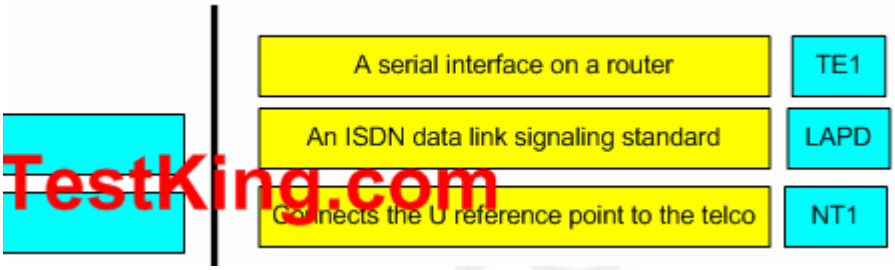
Reference:

CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page 310+311

QUESTION NO: 70
Match the ISDN term to the appropriate description. Not all options on the left apply.



Answer:

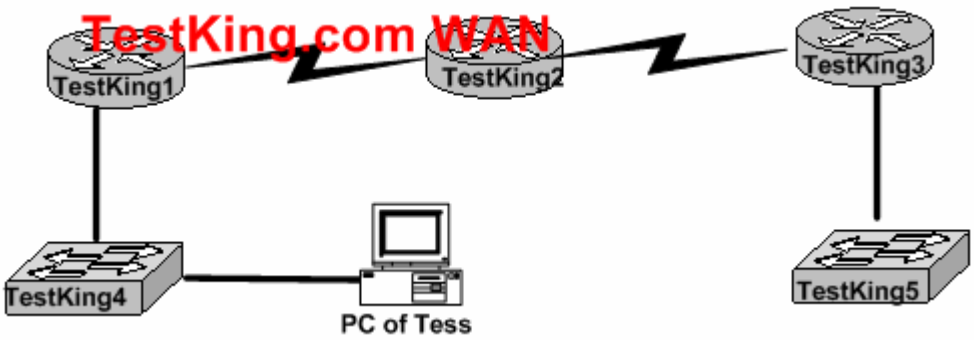


Explanation:

- **LAPD –** provides the data link protocol that allows delivery of messages across that D-channel to the local switch.
- **LAPB -** Protocol and is designed primarily to satisfy the signaling requirements of ISDN basic access. It is defined by ITU-T Recommendations Q.920 and Q.921.
- **TE1 – ISDN –**capable four-wire cable. Understands signaling and 2B=D. Uses an S reference point.
- **ITU.T.430 –** Defines connectors, encoding, framing, and reference points.
- **TE2 –** Equipment that does not understand ISDN protocols and specifications (no ISDN awareness). Uses an R reference point, typically an RS-232 or V.35 cable, to connect to a TA.
- **NT1 –** CPE equipment in North America. Connects with a U reference point (two-wire) to the telco.

Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page Chapter 10

QUESTION NO: 71
Exhibit:



An employee Tess of TestKing company has moved to an office on a different floor. Although the administrator is able to telnet to all of the routers, the address of Switch TestKing5 is needed in order to verify that Tess remains in the same VLAN.
Which action could be used by the administrator to find the IP address of TestKing5?

A. Issue the **show ip route** command on Router TestKing1.
B. Issue the **show ip route** command on Router TestKing3.
C. Issue the **show cdp neighbors** command on Router TestKing2.
D. Issue the **show cdp neighbors detail** command on Router TestKing3.
E. Issue the **show arp** command on Router TestKing1.
F. Issue the **show arp** command on Router TestKing2.

Answer: D
Explanation:
To display detailed information about neighboring devices discovered using Cisco Discovery Protocol (CDP), use the **show cdp neighbors** privileged EXEC command.

Detail - (Optional) Displays detailed information about a neighbor (or neighbors) including network address, enabled protocols, hold time, and software version.

Reference:
http://www.cisco.com/en/US/products/sw/iosswrel/ps1831/products_command_reference_chapter09186a00800d983f.html#1019534

QUESTION NO: 72
Exhibit:

Which of the following commands can be used to configure the address on the TestKing2 serial interface?

A. TESTKING2(config-if)# **ip address 172.16.17.1 255.255.255.0**
B. TESTKING2(config-if)# **ip address 172.16.18.255 255.255.252.0**
C. TESTKING2(config-if)# **ip address 172.16.17.2 255.255.255.252**
D. TESTKING2(config-if)# **ip address 172.16.16.0 255.255.255.0**

Answer: C
Explanation: The IP address on the S0/0 interface must be on the same subnet as the S0/0 interface on TestKing. A 22 bit subnet mask must be used.

QUESTION NO: 73

```
TestKing1# Show running-config

<some output text omitted>

interface serial0/0
 ip address 10.0.1.1 255.255.255.0
 encapsulation frame-relay
!
router igrp 1
network 10.0.0.0

TestKing2# show running-config

<some output text omitted>

interface fastethernet0/0
 ip address 10.10.1.2 255.255.255.0

interface serial0/0
 ip address 10.0.1.1 255.255.255.0
 encapsulation frame-relay
!
router igrp 2
network 10.0.0.0
```

Users on the TestKing2 site Ethernet are unable to access the TestKing1 site network. After reviewing the command output, what is the most likely cause of the problem?

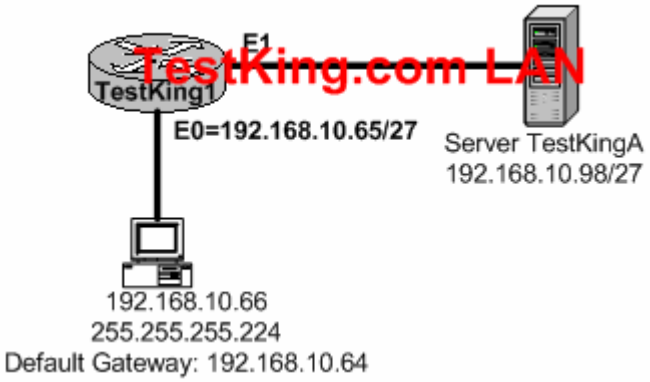
A. Incorrect IP addressing
B. Frame relay is incorrectly configured.
C. IGRP is incorrectly configured.
D. Link state routing protocol is needed.

Answer: C
Explanation:
router igrp
To configure the Interior Gateway Routing Protocol (IGRP) routing process, use the **router igrp** global configuration command. To shut down an IGRP routing process, use the **no** form of this command.
router igrp *autonomous-system*

autonomous-system- Autonomous system number that identifies the routes to the other IGRP routers. It is also used to tag the routing information.

Reference:
http://www.cisco.com/en/US/products/sw/iosswrel/ps1828/products_command_summary_chapter09186a00800f0ab0.html#3674

QUESTION NO: 74
Exhibit:



Company TestKing has just added an employee workstation to its network. The employee is unable to connect to the server TestKingA at IP address 192.168.10.98/27. Identify the incorrectly configured network parameter in the workstation configuration.

A. Workstation IP address

B. Workstation subnet mask
C. Workstation default gateway
D. IP address of the Ethernet 0 router interface

Answer: C

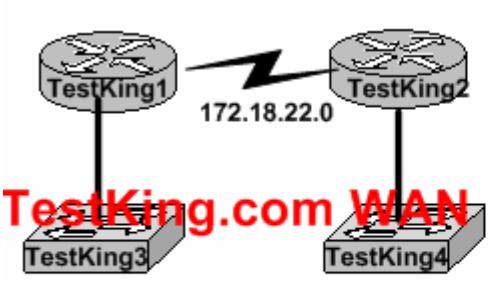
QUESTION NO: 75
Your TestKing trainee Bob asks you what 11111000 binary is in decimal. What should you tell him?

A. 5
B. 192
C. 224
D. 240
E. 248

Answer: E
Explanation:
128 + 64+32+16+8 = 248

Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page 559

QUESTION NO: 76
Exhibit:




```
TestKing1# show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is 172.19.22.2 to network 0.0.0.0

C    172.17.22.0 is directly connected, FastEthernet0/0
C    172.18.22.0 is directly connected, Serial0/0
S*   0.0.0.0/0 [1/0] via 172.19.22.2
```

Users on the 172.17.22.0 network cannot reach the server located on the 172.31.5.0 network. The network administrator connected to router TestKing1 via the console port, issued the show ip route command, and was able to ping the server. Based on the output of the show ip route command and the topology shown in the graphic, what is the cause of the failure?

A. The network has not fully converged.
B. IP routing is not enabled.
C. A static route is configured incorrectly.
D. The FastEthernet interface on TestKing1 is disabled.
E. The neighbor relationship table is not correctly updated.
F. The routing table on TestKing1 has not updated.

Answer: C

QUESTION NO: 77
Exhibit:

Refer to the displayed graphic. TestKing2 and TestKing3 are configured for RIPv1 and have complete connectivity. TestKing1 is added to the network.
What is the most appropriate TestKing1 configuration for full connectivity?

A. TestKing1(config)# **router rip**
TestKing1(config-router)# **network 10.0.0.0**
TestKing1(config-router)# **network 172.16.0.0**
TestKing1(config-router)# **network 192.168.1.0**
B. TestKing1(config)# **router rip**
TestKing1(config-router)# **network 10.0.0.0**
C. TestKing1(config)# **router rip**
TestKing1(config-router)# **network 10.0.0.0**
TestKing1(config-router)# **network 172.16.0.0**
D. TestKing1(config)# **router rip**
TestKing1(config-router)# **network 10.0.0.0**
TestKing1(config-router)# **network 192.168.1.0**

Answer: A

Reference:

CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) page 167

QUESTION NO: 78
You are working as network administrator/technician at TestKing Inc.
While troubleshooting a network connectivity problem, you observe steady link lights on both the workstation NIC and the switch port to which the workstation is connected. However, when the ping command is issued from the workstation, the output message "Request timed out" is displayed.
At which layer of the OSI model does the problem most likely exist?

A. The session layer
B. The protocol layer
C. The data link layer
D. The access layer
E. The network layer
F. The application layer

Answer: E
Explanation:
TCP/IP includes ICMP, a protocol designed to help manage and control the operation of a TCP/IP network. The ICMP protocol provides a wide variety of information about a network's health and operational status. Control message is the most descriptive part of a name. ICMP helps control and manage IP's work and therefore is considered part of TCP/IP's network layer.

Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) page 277

QUESTION NO: 79
Exhibit:

Your boss Dr King studies the network diagram shown in the exhibit. She asks you which function the Frame Relay DLCI provides with respect to TestKing1. What should you tell her?

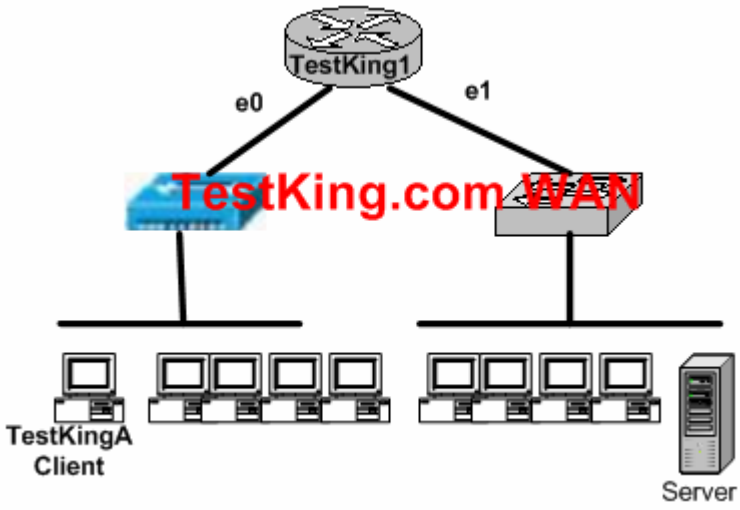
A. Defines the signaling standard between TestKing1 and the frame switch.
B. Identifies the circuit between TestKing1 and the frame switch.
C. Identifies the circuit between TestKing2 and the frame switch.

D. Identifies the encapsulation used between TestKing1 and TestKing2.
E. Defines the signaling standard between TestKing2 and the frame switch.

Answer: C
Explanation:
TestKing1 sends frames with DLCI, and they reach the local switch. The local switch sees the DLCI field and forwards the frame through the Frame Relay network until it reaches the switch connected to TestKing2. The TestKing2's local switch forwards the frame out of the access link to TestKing2.

Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) Page 386

QUESTION NO: 80
Exhibit:



Refer to the graphic. TestKingA is communicating with the server.
What will be the source MAC address of the frames received by TestKingA from the server?

A. The MAC address of router interface e0.
B. The MAC address of router interface e1.
C. The MAC address of the server network interface.
D. The MAC address of TestKingA.

Answer: D

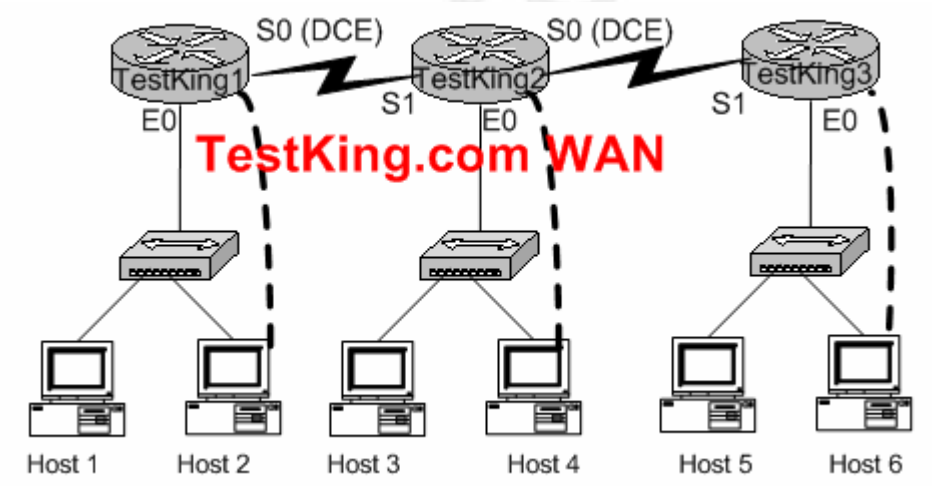
QUESTION NO: 81
You work as network administrator at TestKing Ltd. TestKing has three different sites with one router at each site. The routers are named TestKing1, TestKing2, and TestKing3. A non-certified technician has configured all the routers, but no connectivity exists between the routers. You task is to identify all error(s) and make the necessary adjustment(s) to establish network connectivity.
The routers have been configured with the following configuration:

- **They are named TestKing1, TestKing2, and TestKing3.**
- **RIP is the routing protocol**
- **Clocking is provided on the serial 0 interface.**
- **The password on each router is "testking"**
- **The subnet mask on all interfaces is the default subnet mask.**
- **The IP addresses are listed in the chart below.**

TestKing1
E0 192.168.3.1
S0 192.168.5.1

TestKing2
E0 192.168.8.1
S0 192.168.11.1
S1 192.168.5.2

TestKing3
E0 192.168.13.2
S1 192.168.11.2



To configure the router click on a host icon that is connected to the router by a serial console cable.

Answer:

Explanation:

Click on Host 2:

Router TestKing1:

TestKing1> **enable**
Password: **testking**
TestKing1 # **config terminal**
TestKing1 (config) # **interface ethernet 0**
TestKing1 (config-if) # **ip address 192.168.3.1 255.255.255.0**
TestKing1 (config-if) # **no shutdown**
TestKing1 (config-if) # **exit**
TestKing1 (config) # **interface serial 0**
TestKing1 (config-if) # **ip address 192.168.5.1 255.255.255.0**
TestKing1 (config-if) # **no shutdown**
TestKing1 (config-if) # **exit**
TestKing1 (config) # **router rip**
TestKing1 (config-router) # **network 192.168.3.1**
TestKing1 (config-router) # **network 192.168.5.1**
TestKing1 (config-router) # **Ctrl-Z**
TestKing1 # **copy running-config startup-config**

Click on Host 4

Router TestKing2:

TestKing2> **enable**
Password: **testking**
TestKing2 # **config t**
TestKing2 (config) # **interface ethernet 0**
TestKing2 (config-if) # **ip address 192.168.8.1 255.255.255.0**
TestKing2 (config-if) # **no shutdown**
TestKing2 (config-if) # **exit**
TestKing2 (config) # **interface serial 0**
TestKing2 (config-if) # **ip address 192.168.11.1 255.255.255.0**
TestKing2 (config-if) # **clock rate 64000**
TestKing2 (config-if) # **no shutdown**
TestKing2 (config-if) # **exit**
TestKing2 (config) # **interface serial 1**
TestKing2 (config-if) **# ip address 192.168.5.2 255.255.255.0**
TestKing2 (config-if) # **no shutdown**
TestKing2 (config-if) # **exit**
TestKing2 (config) # **router rip**

TestKing2 (config-router) # **network 192.168.8.0**
TestKing2 (config-router) # **network 192.168.11.0**
TestKing2 (config-router) # **network 192.168.5.0**
TestKing2 (config-router) # **Ctrl-Z**
TestKing2 # **copy running-config startup-config**

Router TestKing3:

Click on Host F

TestKing3> **enable**
Password: **testking**
TestKing3 # **config t**
TestKing3 (config) # **interface ethernet 0**
TestKing3 (config-if) # **ip address 192.168.13.2 255.255.255.0**
TestKing3 (config-if) # **no shutdown**
TestKing3 (config-if) # **exit**
TestKing3 (config) # **interface serial 1**
TestKing3 (config-if) # **ip address 192.168.11.2 255.255.255.0**
TestKing3 (config-if) # **no shutdown**
TestKing3 (config-if) # **exit**
TestKing3 (config) # **router rip**
TestKing3 (config-router) # **network 192.168.13.0**
TestKing3 (config-router) # **network 192.168.11.0**
TestKing3 (config-router) # **Ctrl-Z**
TestKing3 # **copy running-config startup-config**

QUESTION NO: 82
An OSPF interface has been configured with the bandwidth 64 command.
What will be the calculated OSPF cost of this link?

A. 1
B. 10
C. 1562
D. 64000
E. 128000

Answer: B
Explanation:

In Cisco IOS Release 10.3 and later releases, by default OSPF calculates the OSPF metric for an interface according to the bandwidth of the interface. For example, a 64-kbps link gets a metric of 1562, while a T1 link gets a metric of 64.

Reference:
http://www.cisco.com/en/US/products/sw/iosswrel/ps1835/products_configuration_guide_chapter09186a00800b3f2e.html

QUESTION NO: 83
What is the purpose of DLCIs in Frame Relay?

A. The determine the Frame Relay encapsulation type.
B. They identify the logical circuit between a local router and a Frame Relay WAN switch.
C. They represent the keepalives used to maintain the PVC in an active state.
D. They represent the physical address of the router attached to a Frame Relay network.

Answer: B
Explanation:
Routers use the data-link connection identifier (DLCI) as the Frame Replay address, which identifies the VC over which the frame should travel.

Reference:
CCNA Self-Study CCNA ICND exam certification Guide (Ciscopress, ISBN 1-58720-083-X) page 377

QUESTION NO: 84
Which statements is true regarding the command sequence shown below? (Choose three)

RouterA(config)# **interface loopback 0**
RouterA(config-if)# **ip address 192.168.31.33 255.255.255.255**

A. It creates a virtual, software only, interface.
B. It uses a wildcard mask of 255.255.255.255.
C. It ensures that an interface is always active for OSPF processes.
D. It provides a way to test the convergence of OSPF routing updates.
E. The mask of 255.255.255.255 is called a host mask.
F. These commands can only be issued to configure serial interfaces.

Answer: A B D

QUESTION NO: 85
TestKing wants to implement 1000mbps Ethernet. Which IEEE standards apply in this scenario? (chose 2)?

A. 802.3ae
B. 802.3u
C. 802.3z
D. 802.3i
E. 802.3ab
F. 802.3e

Answer: C. E
IEEE 802.3z 1000BASE-SX.
The 1000BaseT standard was released in June 1999, defined by **IEEE 802.3ab**.
Incorrect Answer:
On June 17, 2002 the **IEEE 802.3ae** specification for **10 Gigabit Ethernet** was approved as an IEEE standard by the IEEE Standards Association (IEEE-SA) Standards Board.
IEEE 802.3u 100BASE-TX

QUESTION NO: 86
Which statement describes the routing protocol OSPF(Choose 3)?

A. it supports VLSM
B. it is used to router between Autonomous System.
C. It confines network instability to one area of network.
D. It increases routing overhead over the network
E. It allows extensive control of the routing update
F. It is simpler to configure than RIPv2

Answer: Pending. Send your suggestion to feedback@testking.com.

QUESTION NO: 87
Error detection schemes use which field of frame to detect error?

A. .MTU
B. MAC
C. FCS
D. PDU

E. ERR
F. Flag

Answer: Pending. Send your suggestion to feedback@testking.com.

QUESTION NO: 88
Your TestKing trainee Tess asks you to list options for Frame LMI types. (Choose three)

A. IETF
B. Q.931
C. Q933a
D. IEEE
E. Cisco
F. ANSI

Answer: C, E, F

QUESTION NO: 89
Given a subnet mask of 255.255.255.224, which of the following addresses can be assigned to network hosts? (Choose three)

A. 15.234.118.63
B. 82.11.178.93
C. 134.178.18.56
D. 192.168.16.87
E. 201.45.116.159
F. 217.63.12.192

Answer: C

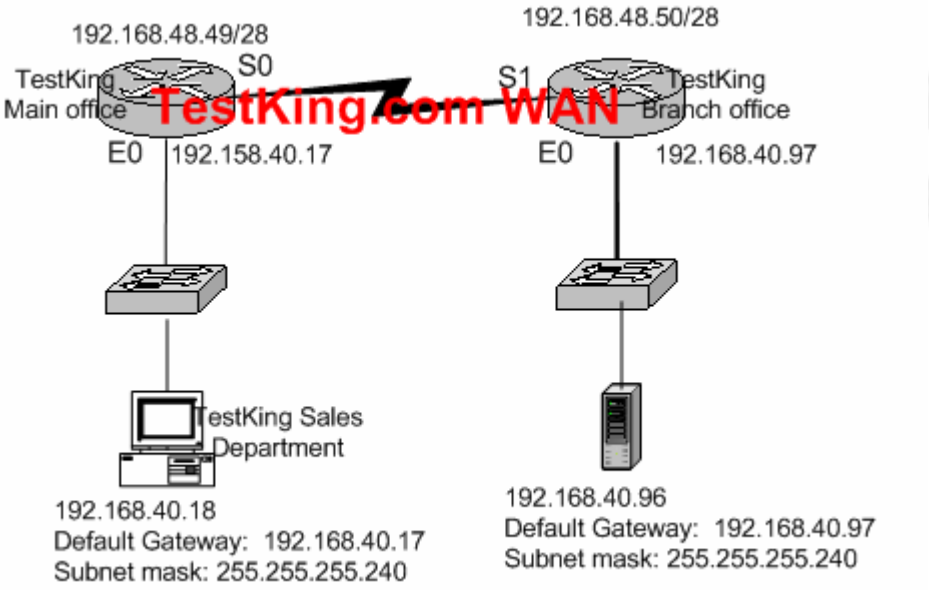
QUESTION NO: 90
Which command will provide you with information regarding the Layer 3 configuration of directly connected router interfaces?

A. **show ip interface**
B. **show cdp neighbors**

C. **show cdp neighbors detail**
D. **show ip route**
E. **show ip link status**
F. **telnet**

Answer: D

QUESTION NO: 91
Exhibit:



You work as a network administrator at TestKing Inc. Hosts in the TestKing sales department are unable to access a new server at the Branch Office. Consider the IP addressing scheme in the accompanying graphic to determine the problem.

A. The default gateway of the workstations in the sales department is incorrect.
B. The subnet mask of the workstations in the sales department is incorrect.
C. The default gateway of the server at the Branch Office is incorrect.
D. The host address of the server at the Branch Office is invalid.
E. The serial 0 interface on the Main Office router and the serial 1 interface on the Branch Office router are not on the same subnetwork.

Answer: D

Explanation: When you convert the IP address (205.113.20.96) of the server and the subnet mask (255.255.255.240) to binary you will get the following results: (IP address first and then the subnet mask.)

11001101 01110001 00010100 01100000
11111111 11111111 11111111 11100000

Thus it is determined that the IP address on the host is in fact the subnet address. This is what would be causing the network problems.

Incorrect Answers:
A. The default gateway in the sales department is correct.
B. The subnet mask is correct.
C. The default gateway in the branch office is correct.
E. This is no problem here.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 233 – 234.

QUESTION NO: 92
You have a Class B network address with a subnet mask of 255.255.255.0.
Which of the following statements are true regarding the resulting network? (Choose two)

A. There are 254 usable hosts per subnet.
B. There is one usable network.
C. There are 255 usable hosts per subnet.
D. There are 254 usable subnets.
E. There are 30 usable subnets.
F. There are 64 usable hosts per subnet.

Answer: A, D

QUESTION NO: 93
When setting up Frame Relay for point-to-point subinterfaces, which of the following must not be configured?

A. The Frame Relay encapsulation on the physical interface.
B. The local DLCI on each subinterface.
C. An IP address on the physical interface.
D. The subinterface type as point-to-point.

Answer: C

QUESTION NO: 94
The following access list was applied outbound on the E0 interface connected to the 192.168.1.8/29 LAN:

access-list 123 deny tcp 192.168.1.8 0.0.0.7 eq 20 any
access-list 123 deny tcp 192.168.1.8 0.0.0.7 eq 21 any

What effect will this access list have?

A. All traffic will be allowed to exit E0 except FTP traffic.
B. FTP traffic from 192.168.1.22 to any host will be denied.
C. FTP traffic from 192.168.1.9 to any host will be denied.
D. All traffic exiting E0 will be denied.
E. All FTP traffic to network 192.168.1.9/29 from any host will be denied.

Answer: D

QUESTION NO: 95
Which command is used to display the placement and direction of an IP access control list on a router?

A. **show access-list**
B. **show ip route**
C. **show ip interface**
D. **show interface**
E. **show interface list**
F. **show ip interface brief**

Answer: C

QUESTION NO: 96
Which of the following are characteristics of microsegmentation? (Choose two)

A. Dedicated paths between sending and receiving hosts are established.
B. The number of collision domains is decreased.
C. Broadcast domains are enlarged.
D. Multiple subnetwork broadcast addresses are created.
E. Multiple ARP tables are required on the connected hosts.
F. Bandwidth is dedicated to connect hosts.

Answer: Pending. Send your suggestion to feedback@testking.com.

QUESTION NO: 97
You are the network administrator of the TestKing company and receive a call from a user who is unable to reach a server at a remote site. After further review your discover the following information.
local PC 10.0.3.35/24
default gateway 10.0.3.1
remote server 10.0.5.250/24

You then conduct the following tests from the offending local PC.

ping 127.0.0.1 – unsuccessful
ping 10.0.3.35 – unsuccessful
ping 10.0.3.1 – unsuccessful
ping 10.0.5.250 – unsuccessful

Which of the following problems would create the test results listed above?

A. TCP/IP not correctly installed.
B. Local physical layer problem.
C. Default gateway down.
D. Remote physical layer problem.

Answer: A

QUESTION NO: 98
Your boss at TestKing wants to know why the Spanning-Tree algorithm is used in a switched LAN?

A. To provide a mechanism for network monitoring in switched environments.
B. To prevent routing loops in networks with redundant paths.
C. To prevent switching loops in networks with redundant switched paths.
D. To manage, the addition, deletion, and naming of VLANs across multiple switches.
E. To segment a network into multiple collision domains.

Answer: C

QUESTION NO: 99
You TestKing trainee Tess ask you which parameter must be supplied when initializing the IGRP routing process. What should you tell her?

A. Connected network numbers
B. IP address mask
C. Metric weights
D. Autonomous system number
E. Register administrative id

Answer: Pending. Send your suggestion to feedback@testking.com.

QUESTION NO: 100
You work as a network technician at TestKing. You need to add a new VLAN, named ACCOUNTS, to your switched network.
Which of the following are true regarding configuration of this VLAN? (Choose three)

A. The VLAN must be created.
B. The VLAN must be named.
C. An IP address must be configured for the ACCOUNTS VLAN.
D. The desired ports must be added to the new VLAN.
E. The VLAN must be added to the STP domain.

Answer: A, B, D

QUESTION NO: 101
Bob, your TestKing trainee, want to segment a network. What devices could he use?
(Choose three)

A. hub
B. repeater
C. switch
D. bridge
E. router
F. media converter

Answer: C, D, E

QUESTION NO: 102
The junior TestKing trainee Ellen asks you to describe what is specific for a global command. What should you tell her?

A. A command that is available in every release of IOS, regardless of the version or deployment status.
B. A command that can be entered in any configuration mode.
C. A command that is universal in application that supports all protocols.
D. A command that is implemented in all foreign and domestic IOS versions.
E. A command that is set once and affects the entire router.

Answer: A

QUESTION NO: 103
What is the range of binary values for the first octet in Class B addresses?

A. 10000000-11111111
B. 00000000-10111111
C. 10000000-10111111
D. 10000000-11011111
E. 11000000-11101111

Answer: C

Section B – practice questions

QUESTION NO: 1

```
RouterTK#show ip route
Codes:    C-connected, s-static, l -IGRP, R -RIP, M -mobile, B -BGP, D -EIGRP, EX - EIGRP external,
      O - OSPF, IA -OSPF inter area, EI -OSPF external type 1, E2 -OSPF external type 2, E -EGP,
      i -IS-IS, L1 -IS-IS level-1, L2 -IS-IS level-2, * -candidate default, U - per-user static
route

Gateway of last resort is not set

R   202.30.8.0 /24[120/1] via 202.30.2.2, 00:00:16, Serial 0
C   202.30.9.0 /24 is directly connected, Serial 1
R   202.30.10.0 /24 is possibly down, routing via 202.30.9.1, Serial 1
R   202.30.11.0 /24 is possibly down, routing via 202.30.9.1, Serial 1
C   202.30.1.0 /24 is directly connected, Ethernet 0
C   202.30.2.0 /24 is directly connected, Serial 0
R   202.30.3.0 /24 [120/1] via 202.30.2.2, 00:00:17. Serial 0
R   202.30.4.0 /24 [120/15/ via 202.30.2.2, 00:00:17, Serial 0
R   202.30.5.0 /24 [120/15] via 202.30.2.2, 00:00:17, Serial 0
R   192.158.6.0 /24 [120/15] via 202.30.2.2, 00:00:17, Serial 0
R   202.30.7.0 /24 [120/1] via 202.30.2.2, 00:00:17, Serial 0
```

You are troubleshooting a router with default settings. You are concerned about the 202.30.10.0 and 202.30.11.0 routes. In particular you are interested how long they will be kept in the routing table. What would be the maximum time these routes would be kept in the routing table?

A. 30 seconds
B. 60 seconds
C. 240 seconds
D. 360 seconds
E. 630 seconds

Answer: C
Explanation: The Rs on the 202.30.10.0 and 202.30.11.0 lines (see below) indicates that the routes were learned from the RIP protocol. :

```
R   202.30.10.0 /24 is possibly down, routing via 202.30.9.1, Serial 1
R   202.30.11.0 /24 is possibly down, routing via 202.30.9.1, Serial 1
```

Note: The hold down timer for RIP is 180 sec. The flush timer for RIP is 240 sec.

QUESTION NO: 2

```
RouterTK#show ip route
Codes:    C-connected, s-static, l -IGRP, R -RIP, M -mobile, B -BGP, D -EIGRP, EX - EIGRP external,
      O - OSPF, IA -OSPF inter area, EI -OSPF external type 1, E2 -OSPF external type 2, E -EGP,
      i -IS-IS, L1 -IS-IS level-1, L2 -IS-IS level-2, * -candidate default, U - per-user static
route

Gateway of last resort is not set

R  202.30.8.0 /24[120/1] via 202.30.2.2, 00:00:10, Serial 0
C  202.30.9.0 /24 is directly connected, Serial 1
R  202.30.10.0 /24 [120/7] via 202.30.9.1, 00:00:02, Serial 1
R  202.30.11.0 /24 [120/7] via 202.30.9.1, 00:00:03, Serial 1
C  202.30.1.0 /24 is directly connected, Ethernet 0
C  202.30.2.0 /24 is directly connected, Serial 0
R  202.30.3.0 /24 [120/1] via 202.30.2.2, 00:00:10. Serial 0
R  202.30.4.0 /24 [120/15/ via 202.30.2.2, 00:00:10, Serial 0
R  202.30.5.0 /24 [120/15] via 202.30.2.2, 00:00:10, Serial 0
R  202.30.6.0 /24 [120/15] via 202.30.2.2, 00:00:10, Serial 0
R  202.30.7.0 /24 [120/1] via 202.30.2.2, 00:00:10, Serial 0
```

You examine the routing table of your router named RouterTK. This routing table will be send to neighboring routers via broadcasts. Some routes might be discarded and not entered in to the routing tables of the neighboring RIP routers. Which of the following routes would be discarded in this way?

A. R 202.30.8.0/24 [120/1] via 202.30.2.2, 00:00:10, Serial0
B. R 202.30.11.0/24 [120/7] via 202.30.9.1, 00:00:03, Serial1
C. C 202.30.1.0/24 is directly connected, Ethernet0
D. R 202.30.5.0/24 [120/15] via 202.30.2.2, 00:00:10, Serial0

Answer: D
Explanation: RIP has the maximum hop count of 15. This route already has a hop count of 15 and adding one would make it unreachable (see below). This route will be discarded.

R 202.30.5.0/24 [120/15] via 202.30.2.2, 00:00:10, Serial0

QUESTION NO: 3
At Layer 2 of the OSI model, which component connects a host to the network media?

A. Hub
B. Switch

C. Bridge
D. NIC
E. Transceiver

Answer: D
Explanation: The data link layer is layer 2 of the OSI model. The data link layer involves frames and uses the burned in MAC addresses that NIC cards and router interfaces have.

Incorrect Answers
A: A hub operates at the physical layer, layer 1.
C: Bridges operate the Data Link layer, layer 2, of the OSI model. However, they are used to connect network segments, not to connect hosts to the network media.
B: Bridges operate the Data Link layer, layer 2, of the OSI model. However, they are not used to connect hosts to the network media.
E: A transceiver works at the physical layer, layer 1.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 21 – 24.

QUESTION NO: 4
You are upgrading your Cisco router IOS from a TFTP server over the network. The upgrade procedure is stopped and you are prompted to erase the current flash contents before continuing.
What is most plausible reason for this?

A. There is insufficient room for more than one image.
B. The router has detected a copy of the current software image on the TFTP server.
C. The file **can be relocated and** not compressed.
D. The image to load is a binary executable file.

Answer: A
Explanation: There might not be enough free Flash memory to store the new image.

Incorrect Answers:
B. Detecting a copy of the image will not stop the procedure nor prompt you to erase the current version.
C. This would not stop the copying of the file.
D. The image is a binary executable file but this will not result in the prompt above.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 137 – 140.

QUESTION NO: 5

Identify three valid host addresses in the 192.168.27.0 network with a subnet mask of 255.255.255.240. (Choose three)

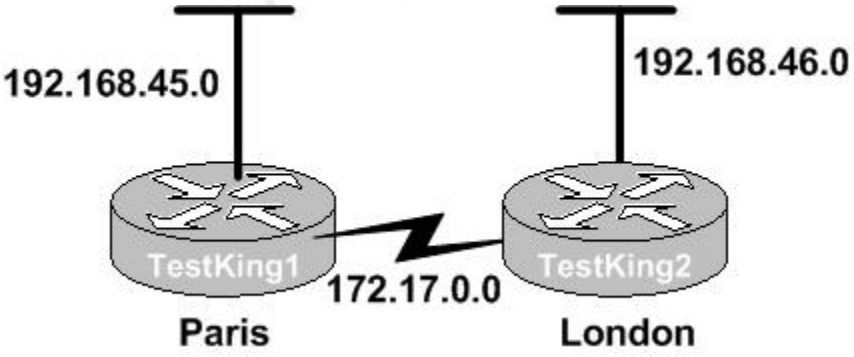
A. 192.168.27.33
B. 192.168.27.112
C. 192.168.27.119
D. 192.168.27.126
E. 192.168.27.175
F. 192.168.27.208

Answer: A, C, D
Explanation: A subnet mask of 255.255.255.240 divides the 4th octet into a subnet parts: the highest four bits, and a host port: the lowest four bits. We simply check the 4th octet to check that all subnet and host parts are ok. i.e that cannot be: 0000 or 1111
A: 33 decimal is 00100001. Both the subnet and the host part are ok.
C: 119 decimal is 01110111. Both the subnet and the host part are ok.
D: 126 decimal is 1111110. Both the subnet and the host part are ok.

Incorrect Answers
B: 112 decimal is 1110000 binary. This is not a valid host address in this network. It has all host bits 0.
E: 175 decimal is 10101111. All host bits are 1's. This is the local broadcast address and cannot be used as a host address.
F: 208 decimal is 11010000 binary. This is not a valid host address in this network. It has all host bits 0.

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 233 – 234.

QUESTION NO: 6
Exhibit:



A network administrator in London has been instructed to prevent all traffic originating on the Paris LAN from entering the TestKing2 router.
Which statement would accomplish this filtering?

A. `access-list 101 deny ip 192.168.45.0 0.0.0.255 any`
B. `access-list 101 deny ip 192.168.45.0 0.0.0.0 any`
C. `access list 101 deny ip 192.168.46.0 0.0.0.0.255 198.168.45.0 0.0.0.255`
D. `access-list 101 deny ip 192.168.46.0 0.0.0.255 any`

Answer: A
Explanation: The access-list is configured to deny all the traffic from Paris router network 192.168.45.0 to any network in london. The wild card mask also correctly defined for Class C network.

Incorrect Answers
B: Wild card mask for 192.168.45.0 network is wrong. Wild card mask should be 0.0.0.255 instead of 0.0.0.0
C: This access list deny all traffic from 192.168.46.0 network to 192.168.45.0 network(There is type in this answer 192 as printed as 198.This can be defined at Testking 1 router if we want to deny traffic from London network (192.168.46.0) to Paris Network(192.168.45.0)
D: This access-list deny traffic from network 192.168.46.0 to any network.

QUESTION NO: 7
Which command is required for connectivity in a Frame Relay network if Inverse ARP is not operational?

A. `frame-relay arp`
B. `frame-relay map`
C. `frame-relay interface-dlci`
D. `frame-relay lmi-type`

Answer: B
Explanation: If inverse arp is not in use,frame-relay map command maps next-hop router's Layer 3 address with Local DLCI to reach that router.
Incorrect answers
A: There is no such command.
C. This Command is used to define DLCI to particular physical interface or Sub Interface. Eg. frame-relay interface-dlci 40
D: This Command is used to define type of LMI messages sent to the switch. The supported LMI types are ansi,q933a,cisco

QUESTION NO: 8
A Class C network address has been subnetted with a /27 mask.
Which of the following addresses is a broadcast address for one of the resulting subnets?

A. 201.57.78.33
B. 201.57.78.64
C. 201.57.78.97
D. 201.57.78.97
E. 201.57.78.159
F. 201.57.78.254

Answer: E
Explanation: First task is which IP address is valid Broadcast address for any of the 201.57.78.0/27 subnets. By definition broad cast address means all the host bits are 1. In this example 5 bits are used for host. Verify each IP address 4 th byte in binary form to see 5 least significant bits are 1.
In this example answer E , 4 th byte in the IP address is 159. Decimal value is 1011111. So This is broadcast address for 201.57.78.0/27 network.

Incorrect answers
A: Binary value for 33 is 00100001. This is not broadcast address for 201.57.78.0/27 network
B: Binary value for 64 is 01000000. This is not broadcast address for 201.57.78.0/27 network
C, D: Binary value for 97 is 01100001 .This is not broadcast address for 201.57.78.0/27 network
F: Binary value for 254 11111110 .This is not broadcast address for 201.57.78.0/27 network

QUESTION NO: 9
Which of the following describe router functions? (Choose three)

A. Packet switching
B. Collision prevention on a LAN segment
C. Packet filtering
D. Broadcast domain enlargement
E. Broadcast forwarding
F. Internetwork communication

Answer: A, C, F
Explanation:
A: Router works in Layer 3 in OSI Model. Packet switching is function of OSI Layer 3.
C: In Packet switching process, packet will be filtered at a particular physical Interface during packet switching.
F: In OSI Model each layer dependent on the layer below and above layer for Internetwork communication. Here Router works with Data Link layer and Transport layer.

Incorrect answers
A: Collision will occur on physical layer. It is not related to Router
D, E: Broadcast activity is not the function of Router. Router will not transmit Broadcast information out to another router.

QUESTION NO: 10
The following access list was applied outbound on he E0 interface connected to the 192.168.1.8/29 LAN:

```
access-list 123 deny tcp 192.168.1.8 0.0.0.7 eq 20 any
access-list 123 deny tcp 192.168.1.9 0.0.0.7 eq 21 any
```

What effect will this access list have?

A. All traffic will be allowed to exit E0 except FTP traffic.
B. FTP traffic from 192.168.1.22 to any host will be denied.
C. FTP traffic from 192.168.1.9 to any host will be denied.
D. All traffic exiting E0 will be denied.
E. All FTP traffic to network 192.168.1.8/29 from any host will be denied.

Answer: D
Explanation:
By default access list is having implicit deny statement at the end. In this example there is no permit statement, so it will deny all traffic exiting E0 Interface.
Incorrect answers
A: It will deny FTP and Telnet Traffic
B,C,E: It will deny all traffic in addition to the condition mentioned in the answer. Because there is no permit statement at the end.

QUESTION NO: 11
Exhibit:

```
hostname TESTKING-A
!
!
interface Ethernet0
 ip address 192.168.10.9 255.255.255.248
!
interface Serial0
 ip address 172.16.25.1 255.255.255.0
 clockrate 56000
!
interface Serial1
```

```
 ip address 10.1.1.1 255.255.255.0
!
router rip
 network 192.168.10.0
!
line con 0
 password testking
 login
line aux 0
line vty 0 4
 password testking
 login
!end
```

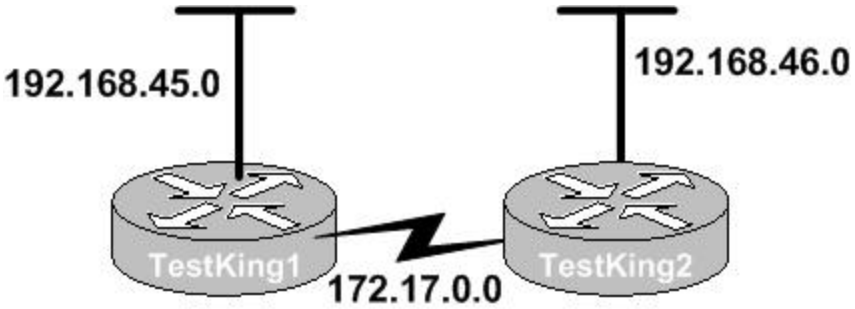
Five new routers need to be configured quickly for testing. While connected to a router by console, the administrator copies and pastes a configuration from e text file, a part of which is shown in the exhibit, into the HyperTerminal window. Why would host 192.168.10.10/29 be unable to ping the Ethernet interface of the router as a result of this procedure?

A. The new configuration needs to be saved to the NVRAM before the changes take effect.
B. The router needs to be reloaded before the changes are implemented.
C. The Ethernet network does not show up in the routing table because the RIP configuration is incomplete.
D. The copied configuration did not overwrite the shutdown command on the Ethernet interface.
E. The subnet mask on the router prevents the host from communicating with it.

Answer: D
Explanation: Default configuration of any interface is always shutdown and always needs the command "no shutdown" in the inferface command mode in order to enable the interface.

Incorrect Answers:
A, B: Changes on the configuration is real-time and being applied on the running-configuration (RAM) not on startup-configuration (NVRAM).
C: The network in the said question was published (network 192.168.10.0) and will show as directly connected.
E: The subnet mask on the configuration (255.255.255.248) matched the one from the question (/29).

QUESTION NO: 12
Exhibit:



A network administrator has been instructed to prevent all traffic originating on the TestKing1 LAN from entering the TestKing2 router.
Which command would implement the access list on the interface of the TestKing2 router?

A. `access-list 101 in`
B. `access-list 101 out`
C. `ip access-group 101 in`
D. `ip access-group 101 out`

Answer: C
Explanation:
In order to use access list for an interface ip access-group command to be defined on interface. Before defining ip access group in an interface one should configure access-list. If ip access-group is not defined it will permit all traffic.

Incorrect answers
A, B: There are no such commands.
D: This will apply on an interface for outgoing packets from the interface. Our question requires access-list to be applied for incoming packets to a particular interface on Testking2.

QUESTION NO: 13
A training company called TestKing has three production facilities. Two of the facilities have network connectivity to each other. The third facility has recently received a router and is to be connected to the other two. The names of routers are QA, StudyGuide, and Examinator. Configure the Examinator router's IP addresses on the E0 and S1 interfaces so that the E0 resolves the first usable subnet while S1 receives the second usable subnet from the network 192.168.81.0/27. Both interfaces should receive the first available IP of the subnet. The zero subnet should not be used. The routers have been configured with the following specifications:

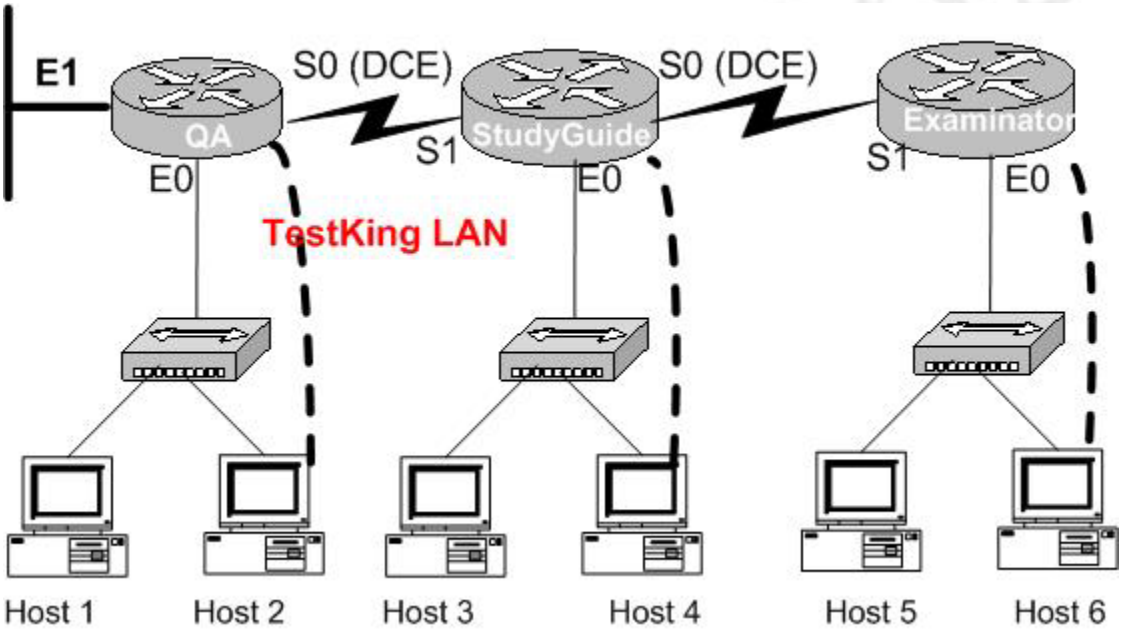
- **The routers are named QA, StudyGuide, and Examinator**
- **RIP is the routing protocol**
- **Clocking is provided on the serial 0 interfaces.**

- **The secret password on the Examinator router is "testking"**
- **The IP address are listed in the chart below.**

Name: QA
E0 : 192.168.83.1
S0 : 192.168.85.1

Name: StudyGuide
E0 : 192.168.88.1
S0 : 192.168.81.89
S1 : 192.168.85.2

Name: Examinator
E0 : to be determined
S1 : to be determined
Secret Password: testking



Task: To configure the router click on the host icon that is connected to the router by a serial cable.

Answer:

Explanation:

Note: comments are added in text after the !-sign. They will not be shown during simulation.

First We click on host 6.

```
Router con0 is now available                    ! The router starts



Press RETURN to get started.                    ! Here we press return

Router>enable
Router#config terminal                          ! We must enter EXEC mode
Enter configuration commands, one per line.  End with END.  ! We must enter configuration mode
Router(config)#hostname Examinator              ! We change the hostname
Examinator(config)#enable secret testking       ! We set the password
Examinator(config)#interface ethernet 0         ! We enter the interface configuration mode for the Ethernet 0 interface
Examinator(config-if)#ip address 192.168.81.33 255.255.255.224  ! We set the ip address
Examinator(config-if)#no shutdown               ! We start the interface
Examinator(config-if)#exit                      ! We exit the interface configuration
Examinator(config)#interface serial 1           ! We enter the configuration mode for the Serial 1 interface
Examinator(config-if)#ip address 192.168.81.65 255.255.255.224 ! We set the ip address
Examinator(config-if)#no shutdown               ! We start the interface
Examinator(config-if)#exit                      ! We exit the interface configuration
Examinator(config)#router rip                   ! We enter the interface configuration mode for the Serial 0 interface
Examinator(config-router)#network 192.168.81.0                ! We set the ip address
Examinator(config-router)#                      ! We press CTRL+Z
00:09:11: %SYS-5-CONFIG_I: Configured from console by console
Examinator#copy running-config startup-config
Destination filename [startup-config]?          !  We press Enter
Building configuration...

[OK]
Examinator#_                                    !We are done
```

Explanation: The network address is 192.168.81.0/27. Here 5 bits are used for host. Total valid hosts in each subnetwork are 2 to the power of 5 –2 . This gives 30 hosts on each subnetwork. The range of each network is below.

Subnet 0. Valid Host addresses are 192.168.81.1 to 192.168.81.30

Subnet 1: Valid Host addresses are 192.168.81.33 to 192.168.81.62

Subnet 2: Valid host addresses are 192.168.81.65 to 192.168.81.94

Use first available IP address to Ethernet 0 from 1st usable subnet.

Use first available IP address to interface s1 from 2nd usable subnet.

QUESTION NO: 14

Which of the following statements regarding routed and routing protocols are true? (Choose two)

A. A routed protocol is assigned to an interface and determines the method of packet deliver.
B. A routing protocol determines the path of a packet through a network.
C. A routed protocol determines the path of a packet through a network.
D. A routing protocol operates at the transport layer of the OSI model.
E. A routed protocol updates the routing table of a router.

Answer: A, B
Explanation:
A: Routed Protocol delivers data to an interface or host.
B: Routing Protocol Routes data.

Incorrect answers
C, E: Routed protocol only delivers data, Routed Protocol will not update any routing tables.
D: A Routing Protocol operates on Layer 3 of OSI Model. ie Network layer.

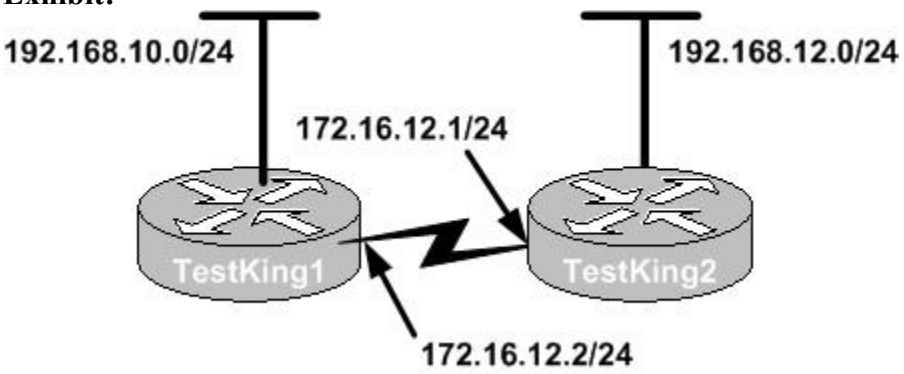
QUESTION NO: 15
What is the subnetwork address for a host with IP address 201.100.5.68/28?

A. 201.100.5.0
B. 201.100.5.32
C. 201.100.5.64
D. 201.100.5.65
E. 201.100.5.31
F. 201.100.5.1

Answer: C
Explanation:
Using the subnet mask prefix value 28 , 4 bits are left for host portion. Total number of hosts are 16 (2 are reserved for Network and Broadcast in each subnetwork).

201.100.5.68 host will reside in subnetwork 201.100.5.64. Valid Hosts in this network are 201.100.5.65 to 201.100.5.79.
Incorrect answers
A: It is network address for subnet 0 . Valid hosts are 201.100.5.1 to 201.100.5.14
B: It is network address. Valid hosts are 201.100.5.33 to 201.100.5.46.
D: It is one of the valid host in subnetwork 201.100.5.64.
E: It is broadcast address
F: It is valid host in subnetwork 201.100.5.0.

QUESTION NO: 16
Exhibit:



The network administrator of the TestKing1 router adds the following command to the router configuration: ip route 192.168.12.0 255.255.255.0 172.16.12.1
What are the results of adding this command? (Choose two)

A. The command establishes a static route.
B. The command invokes a dynamic routing protocol for 192.168.12.0.
C. Traffic for network 192.168.12.0 is forwarded to 172.16.12.1.
D. Traffic for all networks is forwarded to 172.16.12.1.
E. This route is automatically propagated throughout the entire network.

Answer: A, C
Explanation:
IP route command defines static route on a particular router, Traffic from 192.168.12.0 network is forwarded to 172.16.12.1 (IP address of next hop interface).
Incorrect answers
B: It will not invoke any routing Protocol. It defines static route.
D: Only traffic from 192.168.12.0 network is forwarded to 172.16.12.1.
E: It will not propagate route automatically by using ip route command. Route will be propagated only if you defined routing protocol configured networks.

QUESTION NO: 17
An administrator would like to configure a switch over a virtual terminal connection from locations outside of the local LAN.
Which of the following are required in order for the switch to be configured from a remote location? (Select two)

A. The switch must be configured with an IP address, subnet mask, and default gateway.
B. The switch must be connected to a router over a VLAN trunk.
C. The switch must be reachable through a port connected to its management VLAN.
D. The switch console port must be connected to the Ethernet LAN.
E. The switch management VLAN must be created and have a membership of at least one switch port.
F. The switch must be fully configured as an SMTP agent.

Answer: A, C
Explanation:
A: You need IP address, subnet mask and default gateway.
C: The switch must be reachable from outside of the LAN.

Incorrect Answers:
B: It does not need to be connected to a router over a VLAN trunk (This is router-on-the-stick configuration) and not a requirement of the question.
D: The switch console port must not be connected to the Ethernet LAN but instead to the host (PC) using roll-over cable.
E: The switch management VLAN is already created by default (VLAN1).
F: You don't need SMTP agent for this question, SMTP is for email.

QUESTION NO: 18
Which of the following belong to the ISDN TE2 function group? (Choose two)

A. A standard PC.
B. An ISDN phone.
C. An ISDN terminal adapter.
D. A router serial interface.
E. A router ISDN BRI "U" interface.

Answer: A, D
Explanation:
TE2 is used to connect any non –isdn device by using TA (Terminal adaptor). In this example Standard PC and router serial interface on non-ISDN Terminals. Router BRI or PRI interface are ISDN compatible ports.
Incorrect answers
B,C, E: Theses are ISDN compatible devices. It uses ISDN TE1 function.

QUESTION NO: 19
Five minutes after issuing the show running-config command, a technician enters the command again and notices that several access list statements have been altered. Because of this, the technician believes

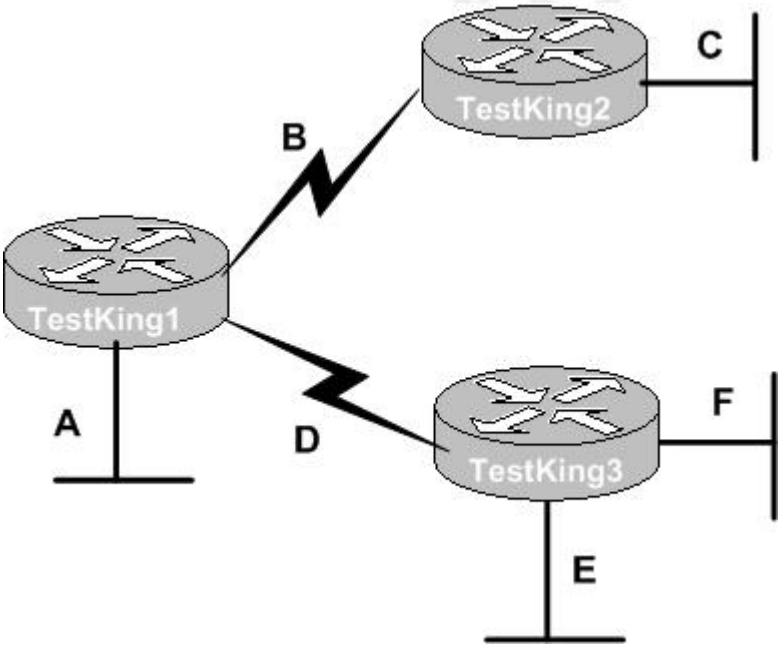
that the router is being configured by an unknown person through Telnet. Before changing the router passwords, the technician would like to discover if anyone is connected to the router by Telnet and stop them from making further changes.
Which commands will accomplish these options? (Choose two)

A. `show hosts`
B. `show sessions`
C. `show connections`
D. `disconnect`
E. CTRL+SHIFT+6x
F. `exit`

Answer: B, D
Explanation:
Show sessions will display connection id, hostname and IP address details. Disconnect will inform closing the connection for specified hostname.

Incorrect answers
A: Show hosts list all hostnames and corresponding ip address in a router.
C: Show connections will provide connection id.
E,F: These are used for exiting from the present mode.

QUESTION NO: 20
Exhibit:



The RIP network shown in the exhibit has been fully operational for two days. Each routing table is complete.
Which networks will be included in the next routing update from the TestKing1 router to the TestKing3 router?

A. A,B,C,D,E,F
B. A,C
C. A,B,C,D
D. B,D
E. D,E,F
F. A,B,C

Answer: F
Explanation: TestKing3 gets routing update from TestKing1 with the following information:
Network A, metric 1
Network B, metric 1
Network C, metric 2

Incorrect Answers:
A: Not A because of split horizon. It is never useful to send information about a route back in the direction from which the original update came.
B: Not B because it is missing one routing update information (Network B).
C, D, E: Not C, D & E because you don't get a routing update for your directly connected network (Network D).

QUESTION NO: 21
What is the purpose of pressing the Ctrl+Break keys during the router password recover procedure?

A. To restart the router.
B. To bypass the configuration in Flash.
C. To view the password before changes are made.
D. To bypass setup configuration mode.
E. To access ROM Monitor mode.

Answer: E
Explanation:
The value 0x2142 to be set for configuration register in case of password recovery procedure. The value to be set in ROM Monitor mode.
Incorrect answers:

A: To restart the router one can execute reload command in Privilege mode.
B: Ctrl+ Break will not bypass the configuration in the flash
C: Ctrl + Break will not show the password
E: Ctrl+Break will not bypass Setup mode. Setup mode is Router configuration mode that prompts the user for basing configuration Parameters.

QUESTION NO: 22
Which connections allow the use of full-duplex Ethernet? (Choose three)

A. Switch to host
B. Switch to switch
C. Hub to hub
D. Switch to hub
E. Host to host

Answer: A, B, E
Explanation:
Host and Switch works in full duplex mode**.**
Incorrect answers:
C,D: Hub Operates in half duplex mode. So connection from Hub to hub or Hub to switch works in half duplex mode.

QUESTION NO: 23
Which of the following host addresses are member of networks that can be routed across the public Internet?

A. 10.172.13.65
B. 172.16.223.125
C. 172.64.12.29
D. 192.168.23.252
E. 198.234.12.95
F. 212.192.48.254

Answer: C, E, F
Explanation:
These addresses are not Private addresses defined by RFC 1918. These addresses can be routed across public Internet.
Incorrect answers:

A,B,D: These addresses are in Private address Range:
The range of Private addresses are 10.0.0.0 to 10.255.255.255,172.16.0.0 to 172.31.255.255 and 192.168.0.0 to 192.168.255.255.

QUESTION NO: 24
Given a subnet mask of 255.255.255.224, which of the following addresses can be assigned to network hosts? (Select three.)

G. 15.234.118.63
H. 92.11.178.93
I. 134.178.18.56
J. 192.168.16.87
K. 201.45.116.159
L. 217.63.12.192

Answer: B, C, D
Explanation:
B: Valid Host in subnetwork 2 (92.11.178.64 to 92.11.178.95)
C: Valid Host in subnetwork 1(134.178.18.32 to 134.178.18.63)
D: Valid host in subnetwork 2 (192.168.16.64 to 192.168.16.95

Incorrect answers:
A. is a broadcast
E. is a broadcast
F. is a network id

QUESTION NO: 25
A technician at TestKing needs to update the network documentation. One of the tasks includes documenting the name of the IOS image file of each router in the network.
Which commands could be used to find this information?

F. `Router# show protocols`
G. `Router# show version`
H. `Router# show image`
I. `Router# show IOS`
J. `Router# show flash`

Answer: B

"Show flash" displays all the image files in it. There could be more than one file. However, "show version" displays the one that is currently in use by the router.)

Incorrect answers:

A: Show Protocols will shows routed Protocol using by the router, all interface conditions and their IP address if configured.

C,D. There are no such commands.

QUESTION NO: 26

Exhibit:

```
hostname tess
!
username tess password testking
!
interface serial 0
   ip address 172.23.56.2 255.255.255.0
   encapsulation ppp
   ppp authentication chap
   clockrate 56000
```

```
hostname tess
!
! username tess password testking
!
interface serial 0
    ip address 172.23.56.3 255.255.255.0
    encapsulation ppp
    ppp authentication chap
```

The output shown in the exhibit was taken from two directly connected routers. Based on the output, which of the following would be displayed when the command Router# show interface serial 0 is entered? (Choose two)

A. Serial 0 is up, line protocol is up
B. Serial 0 is up, line protocol is down
C. LCP open
D. LCP closed

Answer: B, D

Explanation:

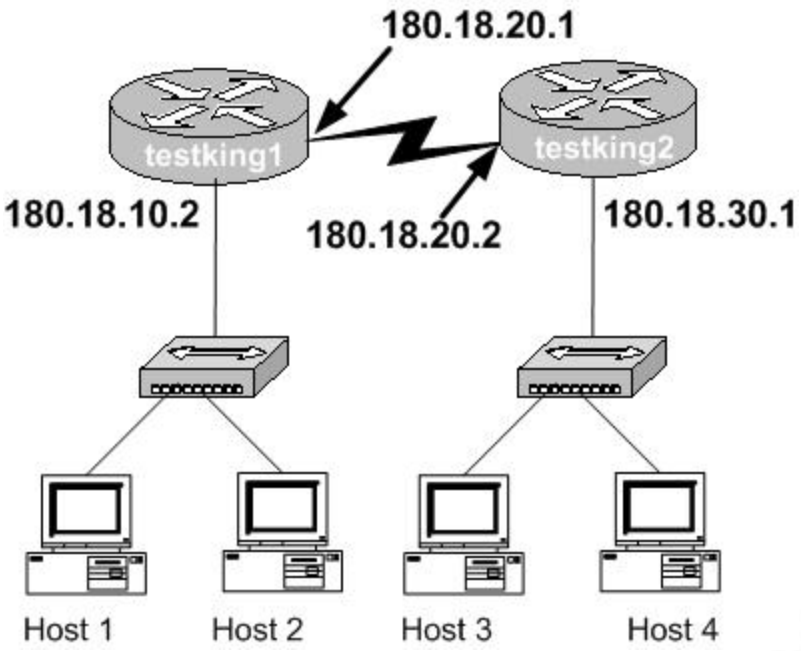
For Chap Authentication to perform both Routers should have different hostnames. Each router will refer other router hostname in username command. In this both routers are same hostname. Chap will not perform during PPP negotiation phase. LCP will be terminated.

Incorrect answers:

A, C: Chap will not be successful because both are pointing to same username . These conditions will not occur.

QUESTION NO: 27

Exhibit:



Which of the following will configure a static route on Router TestKing1 to network 180.18.30.0/24 with an administrative distance of 90?

A. Testking1(config)# ip route 90 180.18.30.0 255.255.255.0 182.18.20.2
B. Testking1 (config)# ip route 90 180.18.20.1 255.255.255.0 182.18.20.2
C. Testking1 (config)# ip route 180.18.20.1 255.255.255.0 182.18.30.0 90
D. Testking1 (config)# ip route 180.18.30.1 255.255.255.0 182.18.20.1 90
E. Testking1 (config)# ip route 180.18.30.0 255.255.255.0 182.18.20.2 90

Answer: E
Explanation:
The syntax is:
`ip route` (Destination prefix) (Destination Prefix mask) (Forwarding Router's address) (Distance metric for this route).
In this example it is defined according to syntax.
Incorrect answers:
A, B: Destination prefix is not matching according to question, Administrative distance also not configured.
C: IP address 180.18.20.1 is not network address. It is one of the interface address on Router TestKing1.
D: IP address 180.18.30.1 is not network address . It is one of the interface address on Router TestKing2.

QUESTION NO: 28
A router with a serial interface will be used for an ISDN link.

What other function group devices are required to complete the connection to the service provider? (Choose two)

A. TE1
B. TE2
C. TA
D. NT1
E. NT2

Answer: C, D
Explanation:
C: TA is used connect Non ISDN Device. Serial Interface is non-ISDN port. BRI Port is IDSN port.
D: NT1 is required to Connect to Service Provider. It converts 2-wire line from Service Provider into 4-wire line.
Incorrect answers:
A: TE1 is used to connect ISDN Terminal.
B: TE2 is used to connect non-ISDN terminal via TA
E: Equipment that uses T interface point to Telco outside North America.

QUESTION NO: 29
The network 172.12.0.0 needs to be divided into subnets where each subnet has the capacity of 458 IP addresses.
What would be the correct subnet mask to accomplish this division keeping the number of subnets at the maximum?

Answer: 255.255.254.0
Explanation:
To obtain 459 IP addresses the number of host bits will be 9. In this maximum 512 hosts can be assigned. Keep 9 bits for host means 4th octet and last bit is 3rd will be 0. This gives 255.255.254.0 is subnet mask.

QUESTION NO: 30
New switches have been purchased for a network upgrade. The objective for the network design emphasizes efficient, error-free transport instead of fast transport.
Which switching mode should be configured on the new switches to provide error-free transport to the network?

A. cut-through
B. fragment-free
C. frame-filtering
D. store-and-forward
E. 802.1q forwarding
F. VTP transparent mode

Answer: D
Explanation:
The Switch receives and stores all bits in the frame before forwarding the frame. This allows switch to check the FCS before forwarding the frame. FCS is Ethernet Trailer.
Incorrect answers:
C. The Switch performs the address table lookup as soon as the destination address field in the header is received. The first bits in the frame can be sent out to out port before the final bits in the incoming frame are received. This does not allow the switch to discard frames that fail the FCS check.
D. This is also same as A. But Switch waits 64 bytes to be received before forwarding the first bytes of the outgoing frame. Collisions may occur during first 64 bytes of the frame. Frames in error due to collision will not be forwarded. The FCS still cannot be checked.
C,E,F : They are not related to Switch mode transport.

QUESTION NO: 31
What is the purpose of typing o/r 0x2142 during a password recover procedure on a 2500 series router?

A. To restart the router.
B. To bypass the configuration in NVRAM.
C. To view the lost password.
D. To save the changes to the configuration.
E. To enter ROM Monitor mode.

Answer: B
Explanation:
On setting 0x2142 in ROM Mon mode Router will bypass configuration in NVRAM. After that user can set new password.
Incorrect answers:
A. Restart the router can be executed by reload command
C: Directly one can not view the lost password by changing the config register 0x2142
D: One can save the config by write command.
E: Pressing Ctrl+ break Router will enter into ROM Mon mode.

QUESTION NO: 32
Which command is used to display the placement and direction of an IP access control list on a router?

A. `show access-list`
B. `show ip route`
C. `show ip interface`
D. `show interface`
E. `show interface list`
F. `show ip interface brief`

Answer: C
Explanation: Page 324 of *Interconnecting Cisco Network Devices by Steve McQuerry*, "The show ip interface command displays IP interface information and indicates whether any access lists are set for a specific interface."

Incorrect answers:
A. **show access-list** will display all configured access lists but not the placement or direction
B. **show ip route** will show the contents of the ip routing table
D. **show interface** will display the status of an interface, including the encapsulation method, but not the access control list.
E. **show interface list** is not a valid command
F. **show ip interface** brief is not a valid command

QUESTION NO: 33
You are configuring a new Catalyst switch that you want to manage remotely from workstations on other network segments within your enterprise.
Which of the following are required to allow remote management of the switch over IP? (Choose two)

A. The switch name must match the workgroup name of the local network.
B. The switch must be configured with an IP address and default gateway.
C. The remote workstations must have access to the management VLAN of the switch.
D. CDP must be enabled on the switch so that it can be located by other devices on the network.

Answer: B, C
Explanation:
For managing switch remotely an IP address and default gateway to be defined on the Switch. The workstations should have access to Management VLAN. I.e. VLAN 1 of the switch.
Incorrect answers:
A: There is no such requirement
D:CDP will determine directly connected devices. It will not play any role for managing switch remotely.

QUESTION NO: 34
TestKing.com has allocated the IP add 199.144.27.0 is its network, to provide flexibility for the LAN design, a subnet mask of 255.255.255.240 has been chosen. Which of the following address can be assigned to LAN on the resulting subnets (Choose three)

A. 199.141.27.33
B. 199.141.27.112
C. 199.141.27.119
D. 199.141.27.126
E. 199.141.27.175
F. 199.141.27.208

Answer: A, C, D
Explanation: These are valid addresses used for hosts.
Incorrect Answers:
B, F: These are network addresses.
E: This is the broadcast address of network 199.141.27.144.

QUESTION NO: 35
A Router with a BRI/T interface will be used for an ISDN Connection what other ISDN device is required to complete this connection?

A. TE1
B. TE2
C. NT1
D. NT2

Answer: C
Explanation: NT1 is used to connect Service Provider.

Reference: ICND by Steve McQuerry (Cisco Press: 2000) pages 392 - 394.
Incorrect answers:
A: TE1 is used for connecting ISDN Terminal
B: TE2 is used for connecting non ISDN terminal with TA
D: NT2 Equipment that uses T interface point to Telco outside North America

QUESTION NO: 36
How many usable sub network and usable hosts per subnet result in the network address 201.105.13.0 is sub netted with a mask of /26?

A. 64 network and 4 hosts
B. 4 network and 64 hosts
C. 2 network and 62 hosts
D. 62 network and 2 hosts

Answer: C
Explanation: On the 4th. octet, /26 will have 2 bits (Subnetwork) and 6 bits (Hosts).

Formula: 2^n-2
Networks: 2^2-2 = 2 networks
Hosts: 2^6-2 = 62 hosts

QUESTION NO: 37
Which of the following if addresses can be assigned to host devices (Choose two)

A. 205.7.8. 32/27
B. 191.168. 10. 2/23
C. 127.0.0.1
D. 224.0.0.10
E. 203.123.45. 47/28
F. 10.10.0.0/13

Answer: B, F
Explanation:
Incorrect Answer:
A: This is a network address.
C: That is a loop-back address.
D: That is a Type D (Multicast) address.
E: This is a broadcast address.

QUESTION NO: 38
All WAN links is side the TestKing.com network use PPP with for authentication security. Which command will display the CHAP authentication process as it occurs between two routers in the network.

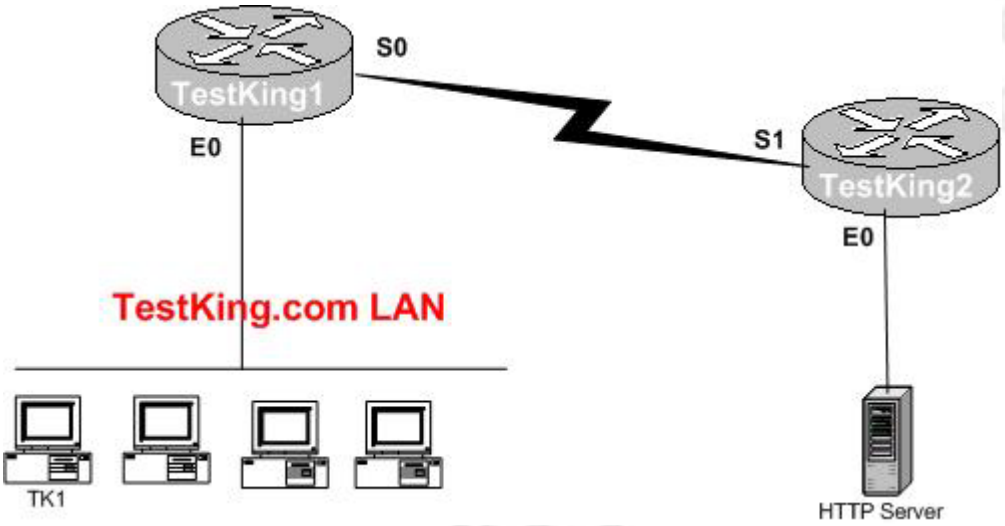
A. `show CHAP authentication`
B. `show interface serial 0`
C. `debug PPP authentication`
D. `debug CHAP authentication`

E. show PPP authentication CHAP

Answer: C
Explanation: This command displays all PPP events occurred between two Routers. (LCP and NCP phase)

Incorrect Answers:
A, B, E: Show command won't show the process as it occurs between the 2 routers.
D: That is an invalid command.

QUESTION NO: 39
Exhibit:



Refer to the exhibit. Host TK1 has established a connection with the HTTP Server attached to interface E0 of the TestKing2 Router.
Which of the following statements describe the information in protocol data units send from host TK1 to this server? (Choose three)

A. The destination port number in a segment. Header will have a value of 80.
B. The destination port number in a segment. Header will have a unique value greater than or equal to 1023.
C. The destination address of a frame will be the MAC address of the HTTP Server inter face.
D. The destination address of a frame will be the MAC address of the E0 interface of the ABC router.
E. The destination IP address of a Packet will be the IP address the E0 interface of the ABC router
F. The destination IP address of a packet will the IP address of the network interface of the HTTP.

Answer: A, D, F
Explanation:

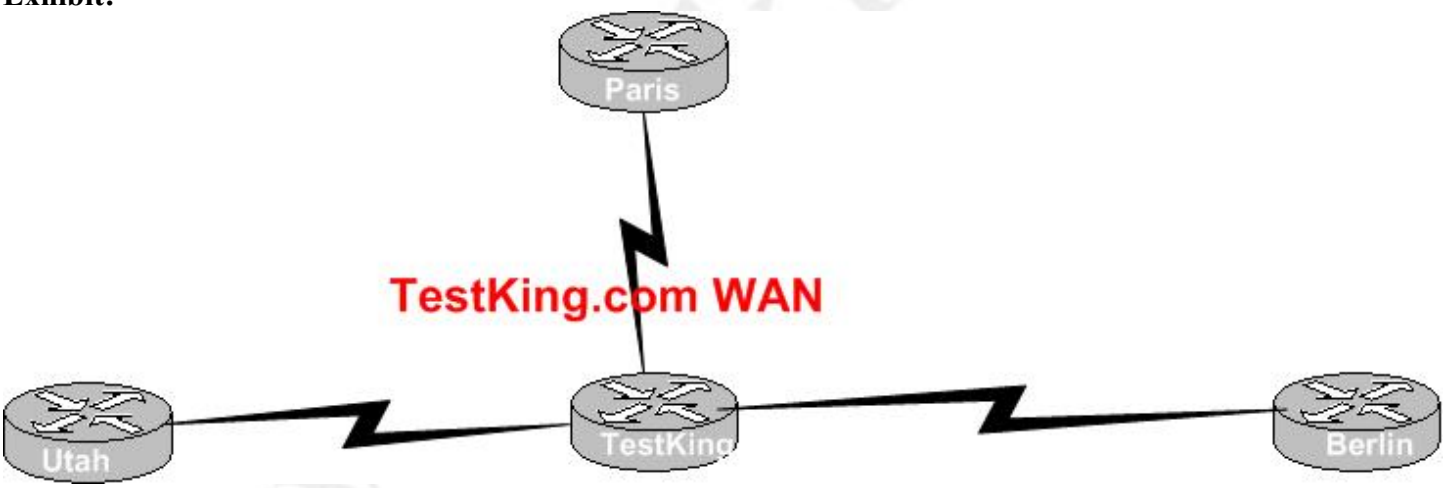
A: The destination port should be port 80 and the source port should be dynamically assigned.
D & F: The preceding explanation is taken from the reference book Internetworking Technologies Handbook, 3rd Edition (Cisco Press: 2001) pages 63 - 64.

Having acquired a router's address by some means, the source host sends a packet addressed specifically to a router's physical (MAC) address, this time with the protocol (network layer) address of the destination host.

As it examines the packet's destination protocol address, the router determines that it either knows or does not know how to forward the packet to the next hop. If the router does not know how to forward the packet, it typically drops the packet. If the router knows how to forward the packet, however, it changes the destination physical address to that of the next hop and transmits the packet.

The next hop may be the ultimate destination host. If not, the next hop is usually another router, which executes the same switching decision process. As the packet moves through the internetwork, its physical (MAC) address changes, but its protocol (network layer - ip address) address remains constant.

QUESTION NO: 40
Exhibit:



Refer to the Router Topology show in exhibit Assuming that all routers are running RIP. Which statement describe how the Router Exchange their routing table. (Choose two).

A. Utah Exchanges With TestKing.
B. Utah Exchanges With Berlin.
C. Utah Exchanges With Paris.
D. Berlin Exchanges With TestKing.
E. Berlin Exchanges With Utah.
F. Berlin Exchanges With Paris.

Answer: A, D
Explanation: In RIP routing protocol Routers exchange routing table only with directly connected Routers. In this case Utah and Berlin are directly connected to Testking.

Incorrect answers:
B,C,E,F: In these cases Routers defined in the example are not directly connected**.**

QUESTION NO: 41
What does a configuration Register Setting of 0x2105 indicate to the Router?

A. The Boot IOS Code is Located in the NVRAM.
B. Check NVRAM for boot system Commands.
C. Bypass NVRAM Configurations.
D. Boot the IOS Code Located in ROM.
E. Perform a Password Recovery.
F. Bypass The Code In ROM.

Answer: B
Explanation:
It is stated in the book ICND by Steve McQuerry page 127 that if the configuration register boot field value is from 0x2 to 0xF, the bootstrap code parses any configuration in NVRAM for boot system commands.
Incorrect Answers:
A: Statement is wrong because IOS code is located in flash not NVRAM (startup-configuration)
C: Register setting of 0x2105 where 5 is the boot field. Boot field value of 0x2 to 0xF will look for startup-configuration in the NVRAM and won't be bypass.
D: Statement is wrong because IOS code is located in flash not ROM (RxBoot).
E: This register is not for password recovery.
F: This statement is wrong.

QUESTION NO: 42
Exhibit:

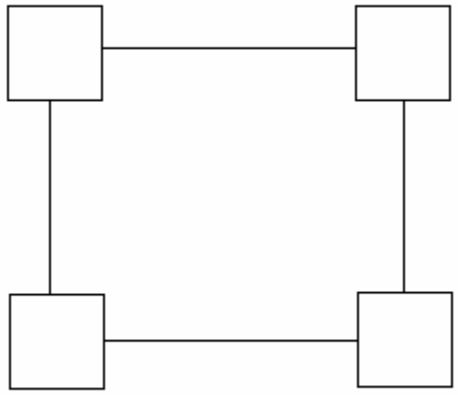
The Frame relay circuit between TestKing1 & TestKing2 is experiencing congestion. Which type of

notification are used to alleviate the congestion? (Choose three)

A. FECN
B. CIR
C. BECN
D. DE
E. DLCI 100 is Down

Answer: A, C, D
Explanation:
A: The FECN is the bit in the Frame relay header that signals any one receiving the frame that congestion is occurring in the same direction of the frame**.**
C: BECN is same as FECN, but congestion is occurring in the opposite **direction of** the frame**.**
D: The DE is the bit in the frame relay header that signals to a switch to, if frames must be discarded, please choose this frame to discard instead of another frame without the DE bit set.
Incorrect answers:
B: CIR is the rate at which DTE can send data for an individual virtual circuit. It is not related to congestion.
E: DLCI is used for identifying virtual circuit. It will not give any information for congestion.

QUESTION NO: 43
Exhibit:



Given a Network with a switched topology as illustrated.
What will be the result if the Spanning-Tree Protocol is disabled on all the switches? (Choose two)

A. Broadcast Storm will occur.
B. Broadcast Storm will be detected quickly.
C. At least one link will be placed in standby.
D. Loops will occur.

E. Loops will be detected quickly.

Answer: A, D
Explanation:
Each switch broad casts data to other switch; It will create Broadcast storm and generate loops with in switches.
Incorrect answers:
B: Broadcast storm will be detected after all switches sending broadcast information
C: There is no Standby mode in Spanning Tree protocol. (Blocking,Listening,Learning and Forwarding are the modes)

QUESTION NO: 44
Exhibit:

After Configuring the router show in the exhibit, the TestKing technician decides to test and document the network, pings from the technician's laptop to all of the interface on each router were successful, if a technician initiates a telnet session to Router TestKing1 and issues the show arp command, which of the following items will be among the entries displayed in the output?

A. The MAC address of the S0 interface on Router TestKing1
B. The MAC address of the E0 interface on Router TestKing1
C. The MAC address of the S0 interface on Router TestKing2
D. The MAC address of the E0 interface on Router TestKing2

Answer: B
Explanation: Because the question stated that the technician initiated a telnet session to Testking1 not TestKing2 so the layer 2 destination address will have the TestKing1 MAC address.

Incorrect Answers:
A, C: Serial interfaces don't have layer 2 addresses (MAC addresses)?
D: Telnet initiated from Testking 1. It will not show Mac address of EO on Testking2

QUESTION NO: 45

Exhibit:

```
*** Out Put Omitted***

MTU 1500 bytes, Bw 10000 kbit, Dly 100 Usec.
reliability 128/255, txload 1/255. rx 253/255
Encapsulation Arpa, Loopback not set
Keepalive set (10 sec)
Arp type: Arpa Timeout 04:00:00
Last Input 21:24:36, output 00:00:08, Output hang never

*Out Put Omitted***
```

Users have been complaining that network applications are running very slowly and responding to input commands intermittently. While troubleshooting the problem, a TestKing technician issues the slow interface E0 command on the router attached to the network. Based on the partial output shown in the exhibit.. Which of the following items indicates that interface E0 is overloaded and causing the network to perform slowly?

A. MTU 1500 bytes
B. BW 10000 kbit
C. DLY 1000 usec
D. Reliability 128/255
E. txload 1/255
F. rxload 253/255

Answer: D
Explanation: Interface E0 is only 50% reliable (128/255) where 255/255 being 100% reliable.

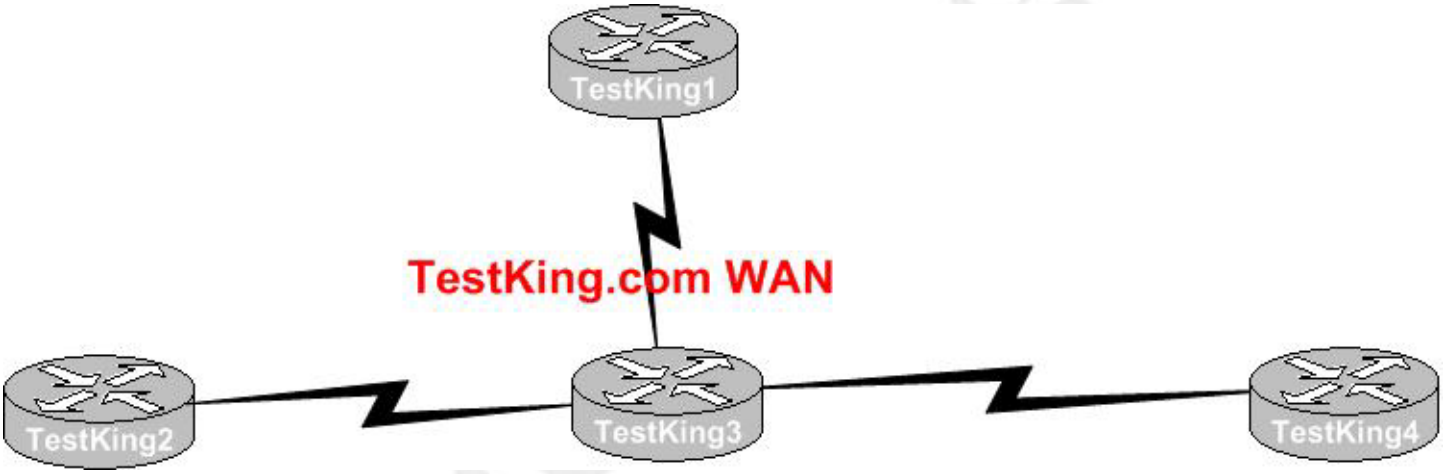
Incorrect Answers:
A, B, C: Because those are default settings and those output are the output readings in normal operation.

QUESTION NO: 46
Which of the following correctly describe steps in the OSI data encapsulation process? (Choose two)

A. Transport layer divides a data stream into segments & adds reliability & flow control information
B. Data link layer adds physical source & destination address & an FCS to the segment
C. Packets are created when the network layer encapsulate a frame with source & destination host address & protocol related control information
D. Packets are created when the network layers adds layers 3 address & control information to a segment
E. The presentation layer translated bits into bits into voltages for transmission across the physical link

Answer: A, D
Explanation:
A: It is the function of Transport layer. TCP and UDP operates in this layer
D: It is the function of the network layer**.**
Incorrect answers:
B: It will use frames instead of segments**.**
C: The network layer can not encapsulate frame. It adds Layer 3 address to segment received from transport layer.
E: It is not the function of Presentation layer. It is function of Physical layer**.**

QUESTION NO: 47
Exhibit:



Given the topology as illustrated, what commands are needed to configure IGRP on the TestKing1 Router? (Choose three)

A. `TestKing1 (config ) # Router IGRP 100`
B. `TestKing1 (config) # router IGRP`
C. `TestKing1 (config - router) # network 192.168.6.0`
D. `TestKing1 (config - router) # network 192.168.7.0`
E. `TestKing1 (config - router) # network 192.168.8.0`
F. `TestKing1 (config - router) # network  192.168.9.0`

Answer: A, ?, ?
More information needed. In particular the IP configuration of the routers.
Explanation:
A. The 100 in the answer is process-id
Network addresses are not defined on each Router in the Exhibit Topology.

QUESTION NO: 48
Exhibit:

```
MTU 1500 bytes, Bw 10000 Kbit, Dly 1000 usec,
reliability 128/255, txload 1/255, rxload 1/255
Encapsulation Arpa, loopback not set
Keepalive set (10 Sec)
ARP type: Arpa, Arp Timeout 04:00:00
Last Input 21:24:36, output 00:00:08, output hang never
last clearing of "show interface" countees never
Queuing strategy: fifo
Output queue 0/40, 0 drops; input queue 0/75: drops
5 min input rate 0 bits/sec, 0 packets/sec
5 min output rate 0 bits/sec, packets/sec
75427 packet input, 10685636 bytes, 0 buffer
Received 75427 broadcast, 933 runts, 253 giants, 0 throttles
0 input error, 0 cvc, 0 frame. 0 overrun, 0 ignored
0 input packet with dribble condition detected
78387 packet output, 7329230 bytes, 0 undernuns
```

During routine network maintenance, a technician issues the show interface E0 command. A partial output of the command is shown in exhibit which values displayed in the command output could indicate that collisions have occurred (Choose two)

A. MTV 1500 bytes
B. Reliability 128/255
C. 933 runts
D. 75427 broadcasts
E. 78387 packets output
F. 253 giants

Answer: C, F
Explanation:
C. Runts means number of packets that are discarded because they are smaller than the minimum packet size of the medium.
F. Giants means number of packets that are discarded because they exceed the maximum packet size for the medium.

QUESTION NO: 49

The command frame – relay map ip 10.121.16.8.102 broadcast was entered on the router. Which of the following statement is true concerning this command?

A. This command should be executed from the global configuration mode.
B. The IP address 10.121.16.8 is the local router part used to forward data.
C. 102 is the remote DLCI that will receive the information.
D. Command is required for all frame relay configuration.
E. The broadcast option allows packet, such as RIP update, to be forwarded across the PVC.

Answer: E
Explanation:
Incorrect Answers:
A: The mentioned command is executed at the interface configuration mode.
B: The ip address is the adjacent router's address not the local router.
C: 102 is the local significant DLCI not remote DLCI.
D: Command is not required for all frame relay configuration. You can use the frame interface-dlci command using sub-interface (point-to-point).

QUESTION NO: 50
Exhibit:

Which of the following is the minimum configuration commands required to bring up the ISDN link shown in graphic.
Note : SPIDs are not required for this switch. (Choose three)

G. `Router(Config-if)# encapsulation ppp`
H. `Router(Config-if)# isdn switch-type type`
I. `Router(Config-if)# dialer-list, protocol ip permit`
J. `Router(Config-if)# dialer map ip address name name connection number.`
K. `Router(Config-if)# ip address subnet mask`
L. `Router(Config-if)# dialer group 1`

Answer: A, E, F
Explanation:
A: Proper encapsulation to be defined on both routers.

E: IP address to be assigned for interface with subnet mask
F: Dialer group number enables dialer-list on this interface. Dialer-list to be defined on gloabal configuration command.
Incorrect Answers:
B, C: The commands are executed on global configuration command.
D: Syntax is wrong. Proper syntax is dialer map ip ip address/subnet mask name connection name number.

QUESTION NO: 51
Which of the following contribute to congestion on an Ethernet network. (Choose two)

A. Use of full duplex mode.
B. Creation of new collision domain.
C. Creation of new broadcast domain.
D. Addition of hub to the network.
E. Use of switches in the network.
F. Amount of ARP or IPX SAP traffic.

Answer: D, F
Explanation:
D: Hub works on Half duplex mode. If more devices connect to a hub and sending simultaneously collision will occur .It contributes to congestion**.**
F: ARP also creates congestion in the network
Incorrect answers:
A: Full Duplex will not generate congestion in the network.
B: Creation of new collision domain means connecting a switch instead of Hub will not contribute congestion. Switch isolates collision domain.
C: Creation of VLAN's in a switch isolate broadcast domain. Each Vlan is separate broadcast domain. It will not generate congestion in network.

QUESTION NO: 52
Which characteristics are representative of a link-state routing protocol? (Choose three)

A. Provide common view of entire topology
B. Exchange routing tables with neighbors.
C. Calculates shortest path.
D. Utilizes event triggered updates.
E. Utilizes frequent periodic updates.

Answer: A, C, D

Explanation: These are unique features of Link-State protocols.
Incorrect Answers:
B: Link-state routing protocol (OSPF) does not exchange routing tables but instead exchanges routing updates (changes).
E: This statement is correct but not a unique feature of Link-state routing protocol.

QUESTION NO: 53
Which Frame Relay feature is responsible for transmitting keepalives to ensure that the PVC does not shut down because of inactivity?

A. DLCI
B. BECN
C. FECN
D. LMI
E. CIR
F. DE

Answer: D
Explanation:
LMI is the protocol used between a DCE and DTE to manage the connection.Signalling messages for SVCs,PVC Status messages, and keepalives are all LMI Messages
Reference: Wendell Odom. CISCO CCNA Certification Guide (2000 Press) Page 531.

Incorrect Answers
A: DLCI **is** a Frame Relay address and is used in Frame Relay headers to identify the virtual circuit.
B: The BECN is the bit in the Frame Relay header that signals to anyone receiving the frame that congestion is occurring in backward direction of the frame. Switches and DTEs can react by slowing the rate by which data is sent in that direction.
C: The FECN is same as B, that congestion is occurring in the same direction as the frame.
E: The CIR is the rate at which the DTE can send data for an individual virtual circuit,for which the provider commits to deliver that amount of data
F: The DE is the bit in the Frame Relay header that signals to a switch to,if frames must be discarded,please choose this frame to discard instead of another frame without the DE bit set.

QUESTION NO: 54
Which of the following options lists the steps in PPP session establishment in the correct order?

A. Optional authentication phase, link establishment phase, network layer protocol phase.
B. Network layer protocol phase, link establishment phase, optional authentication phase.
C. Network layer protocol phase, optional authentication phase, link establishment phase.

D. Link establishment phase, network layer protocol phase, optional authentication phase.
E. Link establishment phase, optional authentication phase, network layer protocol phase.
F. Optional authentication phase, network layer protocol phase, link establishment phase.

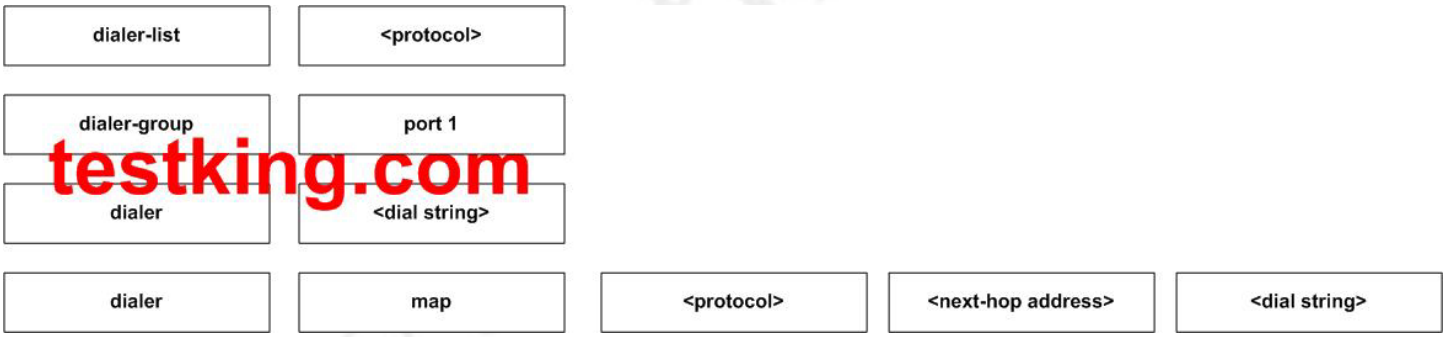
Answer: E
Explanation:
Link establishment is a function in Link Control Protocol (LCP).It is first phase in PPP. In LCP only authentication phase is defined. It is optional phase. Authentication can be done by PAP or CHAP method to authenticate the device on the other end of the link.Network layer protocol is last phase in PPP. PPP is designed to allow the simultaneous use of multiple
Network layer protocols. They are IPCP and IPXCP

Reference: Wendell Odom. CISCO CCNA Certification Guide (2000 Press) Page 525

Incorrect Answers
A: Authentication phase is after Link establishment phase. Order is reversed here
B: Network Layer protocol is last phase in PPP instead of first phase
C: Order is wrong in this answer also
D: Network layer mentioned as Second phase instead of 3rd phase, and Authentication mentioned as 3rd phase instead of 2nd phase.
E: Order of all three are not in proper order**.**

QUESTION NO: 55
Construct the correct parameter sequence used to configure dial-on-demand routing (DDR) on an ISDN BRI interface.

Answer:

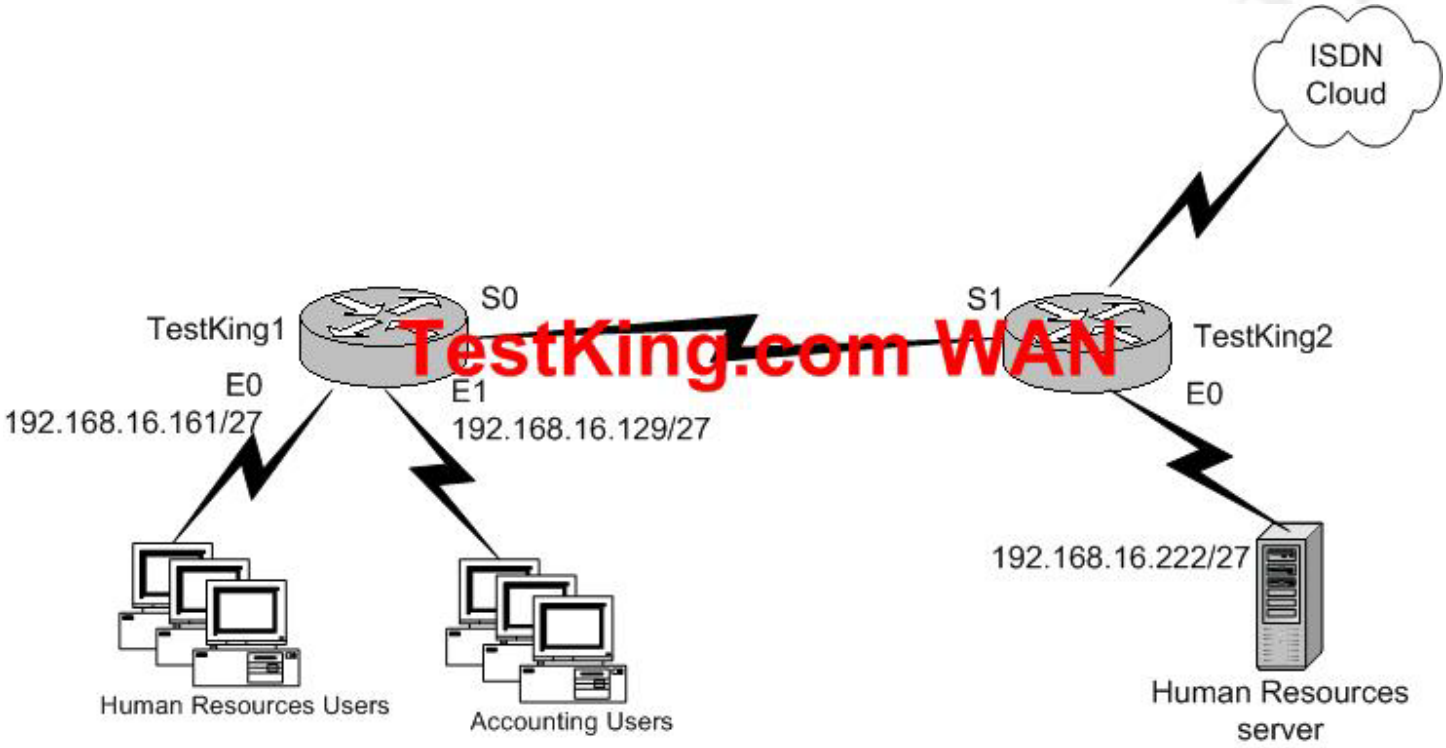


Explanation:

At Global configuration mode:
dialer-list [listnum] protocol [protocol-type] permit/deny
At BRI Interface:
dialer-group n (Enables dialer list on this interface)
dialer string string
dialer map protocol next-hop-address [broadcast] dial-**string**
First define types of traffic considered interesting. Like IP
At interface level define dialer group dial string which is used when dialing only one
Site.
Dialer map to be defined when dialing more than one site. Broadcast ensures that copies of broadcasts go to this next-hop address
Note: In the question Broadcast to be mentioned instead of unicast.

Reference: Wendell Odom. CISCO CCNA Certification Guide (2000 Press) Page 579

QUESTION NO: 56
Exhibit:



You are the network administrator on TestKing. It has become necessary to prevent accounting department users on the TestKing1 router from accessing the human resources server attached to interface E0 of the TestKing2 router. The following access control list has been created:
access-list 19 deny 192.168.16.128 0.0.0.31
access-list 19 permit any

On which interface and in which direction should this access list be placed to prevent accounting users from accessing the network attached to the E0 interface of the TestKing2 router? Access to other networks should be unaffected.

A. TestKing1 S0, out
B. TestKing1 E1, in
C. TestKing1 E1, out
D. TestKing2 S1, in
E. TestKing2 E0, out

Answer: E

Explanation:
The subnetwork address for accounting users in Testking1 is 192.168.16.128. Aim is to prevent accounting users to access Human resource server in Testking 2. E0 is entry point in Testking 2 for accessing Human resource server. So we have to place an access list at interface E0 at Testking 2 to prevent traffic from Accounting users from Testking 1does not sent out to Human resource server. The second line in access-list permit all other traffic entering into interface E0. One has enable access-list inside an interface with ip access-group command.

Reference: Wendell Odom. CISCO CCNA Certification Guide (2000 Press) Page 494

Incorrect Answers
A: If enable access list this interface it will stop accounting users traffic from Testking 1 will not enter in to Testking2.
B: Question asked outgoing traffic for accounting users for Testking 1 users. This will not provide any solution to the problem
C: If enable access-list in this interface stops all outgoing traffic for accounting users in Testking 1 to other interfaces in Testking1 itself
D: If enable access list in this interface will stop sending out accounting users of Test King1 to Human resource server in Testking 2 and ISDN cloud also. This is not the requirement for the question.

QUESTION NO: 57
What feature of a networks switch allows an administrative to create separate broadcast domains?

G. Store-and-forward switching
H. Microsegmentation
I. Transparent bridging
J. Fragment-free switching
K. Virtual LANs
L. Cut-through switching

Answer: E
Explanation: Creation of VLAN in a switch provide separate Broadcast domain . If VLAN is not there all ports as members of one Broadcast domain.

Reference: Wendell Odom. CISCO CCNA Certification Guide (2000 Press) Page 172

Incorrect Answers
A: This is one of the Switching method in a switch. It will not play any role for creating separate broadcast domains
B: Not related to the question
C: Transparent bridging is called Transparent because the endpoints devices do not need to know that the bridges exists. It will not play any role for creating separate broadcast domain

D,F: Both are switching methods in a switch**.**

QUESTION NO: 58
An administrator has decided to use the private address 172.20.0.0 for the internal network. If the maximum number of hosts allowed on a subnet is 62, which of the following is true regarding the addressing scheme?

A. 172.20.62.255 is a host address.
B. Ten bits were borrowed for subnets.
C. 255.255.255.252 is the subnet mask.
D. 172.20.255.64 is a subnet address.
E. Seven host bits must be used to meet the addressing scheme requirement.

Answer: B
Explanation:
The given address is Class B address. Default mask prefix is 16. In the remaining 16 bits of the IP address 6 bits are sufficient for achieve 62 hosts. So Remaining 10 bits are used for subnetting.
Reference:

Incorrect Answers
A: It is a broadcast address
C: This subnet mask allow only 2 hosts. Because only 2 bits are remaining for host**.**
D: The correct subnet address is 172.20.255.192 instead of 172.20.255.64.
E: If one uses 7 host bits, we can achieve 124 hosts. It is more than the requirement. It is wasting one extra bit for host.

QUESTION NO: 59
A small enterprise, TestKing.com Publishing, has a class C network license. TestKing.com requires 5 usable subnets, each capable of accommodating at least 18 hosts.
What is the appropriate subnet mask?

Answer: 255.255.255.224
Explanation:
Default subnet mask for class C network is 255.255.255.0. If one has to create 5 subnets , then 3 bits are required . With 3 bits we can create 6 subnets. Remaining 5 bits are used for Hosts. One can create 30 hosts using 5 bits in host field. This matches with requirement.

QUESTION NO: 60

What is a global command?

A. A command that is available in every release of IOS, regardless of the version or deployment status.
B. A command that can be entered in any configuration mode.
C. A command that is universal in application and supports all protocols.
D. A command that is implemented in all foreign and domestic IOS version.
E. A command that is set once and affects the entire router.

Answer: A
Explanation:
Global command is available an all releases of IOS .In every router one has to define minimum hostname . This will be available in Global config mode in all versions of images.

Reference: Wendell Odom. CISCO CCNA Certification Guide (2000 Press) Page 36

Incorrect Answers
B: It can be entered from usermode or exit from interface mode mainly
C: It is not mandatory to support all protocols
D: Not clear about foreign and Domestic IOS version
E: An interface config may overwrite global config parameter

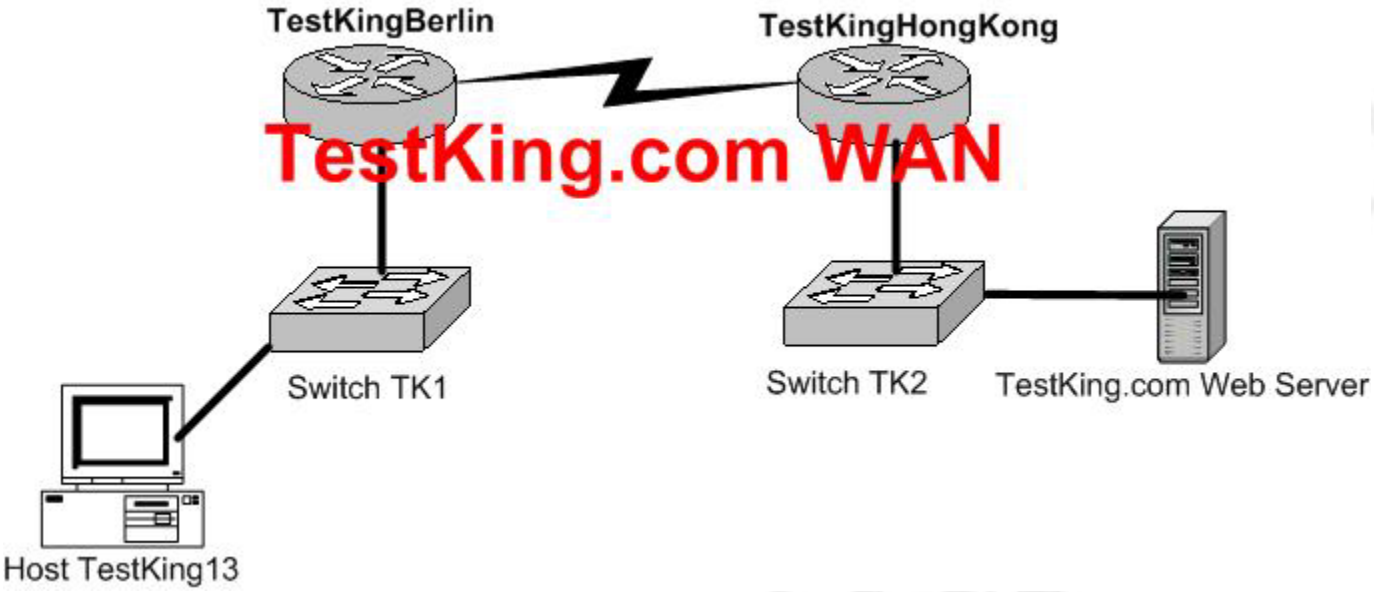
QUESTION NO: 61
You work as network administrator for the TestKing.com Inc. A static route to a TestKing branch office LAN needs to be configured on the testking1 router. The address of the branch office LAN is 172.16.16.0/24. The point-to-point link between the corporate router and the branch office is configured with the first two usable IP addresses on the 172.16.14.0/24 network, with the corporate router serial interface receiving the first address, and the branch office serial interface receiving the second. In the box below, enter the command to configure the corporate router with this static route. No optional parameters are required.

testking1(config)# _____

Answer: ip route 172.16.16.0 255.255.255.0 172.16.14.2
Explanation:
The syntax for ip route is ip route prefix mask { next –hop-router/ output-interface).
In Our example prefix is 172.16.16.0. Mask is 24 bits, ie 255.255.255.0. Branch office serial interface address is second usable address in the network 172.16.14.0. That is 172.16.14.2.
Reference: Wendell Odom. CISCO CCNA Certification Guide (2000 Press) Page 272

QUESTION NO: 62

Exhibit:



Several frames from Host TestKing13 were captured while it was communicating with the TestKing.com web server.
Which of the following are true regarding the captured and decoded frames? (Choose two)

A. The destination address in the packet header is the IP address from the Ethernet interface on the TestKingBerlin router.
B. The destination address in the packet header is the IP address of TestKing.com web server.
C. The destination address in the packet header is the IP address of the Ethernet interface on the TestKingHongKong router.
D. The destination address in the frame header is the MAC address of the TestKing.com web server.
E. The destination address in the frame header is the MAC address of the Ethernet interface on the TestKingHongKong router.
F. The destination address in the frame header is the MAC address of the Ethernet interface is on the TestKingBerlin router

Answer: B, F
Explanation:
B.Packet operates in network layer. In IP header sending the packet from Host testking13 to Webserver contains IP address of Web server is destination address. Router finds the route in its routing table for switching the packet
F. Routing table at Berlin's router having an entry for web server's network address or default gateway address via Ethernet interface of the Berlin's router. The destination address of the frame header contains Mac address of the Ethernet interface on the Berlin's router.
Reference:

Incorrect Answers

A,C: The destination address in packet header is final destination address ,not intermediate IP address
D,E: Frame header Mac address is Mac address of nearest interface Mac Address. This can be obtained by ARP

QUESTION NO: 63
You have configured a new Frame Relay link on a router that is using IGRP.
Which command would you use to set the IGRP metric for the speed of this link?

A. TestKingRouter(config)# **IGRP metric 256K**
B. TestKingRouter(config)# **bandwidth 256**
C. TestKingRouter(config-if)# **metric 256K**
D. TestKingRouter(config-if)# **bandwidth 256**

Answer: D
Explanation:
Bandwidth and delay are used for calculating IGRP metric. They are interface sub commands. (config-if)# mode is interface sub command. This answer is matching with requirement

Reference: Wendell Odom. CISCO CCNA Certification Guide (2000 Press) Page 378

Incorrect Answers
A: It is Global configuration mode. There is no such command
B: It is Global configuration mode
C: There is no such command

QUESTION NO: 64
A network host is configured as follows:
Host IP address: 192.168.16.183 Subnet mask: 255.255.255.224 Default gateway: 192.168.16.190

Which of the following statements describe the network to which this host is attached? (Choose three)

A. The default gateway is configured on a different subnet form this host.
B. The host is a member of the fifth usable subnet of the 192.168.16.0 network.
C. The subnetwork address for this host is 192.168.16.160/28.
D. The address of the next higher subnet is 192.168.16.192.
E. The address of the router interface that is attached to this subnetwork is 192.168.16.190.

F. There are 60 usable host addresses on this subnet.

Answer: B,D,E
Explanation:
B: According to subnet mask , 5 bits are used for hosts. So each subnet contains 30 hosts .The fifth usable subnet range is 192.168.16.160 to 192.168.16.191. Here first address is network and later address is broad cast. Our host .183 is member of this subnetwork.
D: The next subnet address after fifth usable subnet is 192.168.16.192
E: 192.168.16.190 is the router interface in the fifth usable subnet

Incorrect Answers
A: Default gateway is same subnet as Host
C: Subnet mask is different as compared to mask defined in the question
F: There are 30 usable hosts in each subnetwork.

QUESTION NO: 65
Which statement describes the rule of split horizon?

F. Only routers can split boundaries (horizons) between concentric networks.
G. All distance vector protocols require fall back routers that may cause momentary loops as the topology changes.
H. Networks can only remain fully converged if all information about routers is sent out all active interfaces.
I. Information about a route should not be sent back in the direction from which the original update come.
J. Each AS must keep routing tables converged to prevent dead routes from being advertised across the AS boundary.

Answer: D
Explanation:
Split horizon includes two related concepts that affect what routes are included in a routing update:
An update does not include the subnet of the interface out which the update is sent
All routes with outgoing interface of interface x are not included in updates sent out that same interface x.

Reference: Wendell Odom. CISCO CCNA Certification Guide (2000 Press) Page 369

Incorrect Answers
A: There is no such requirement
B: Distance vector protocols updates routing table at regular intervals instead of Topology changes
C: This is not a feature of split horizon

E: This is not a related feature for split horizon

QUESTION NO: 66

Acme Ltd. consists of three campuses: North, Main and South. They have purchased three 2501 routers. Each router has one Ethernet interface and two serial interfaces. Each campus is connected serially to its neighbor. The routers have been working properly.

The connection between North and Main ceases operation one day and an unauthorized entry is detected on the South router.

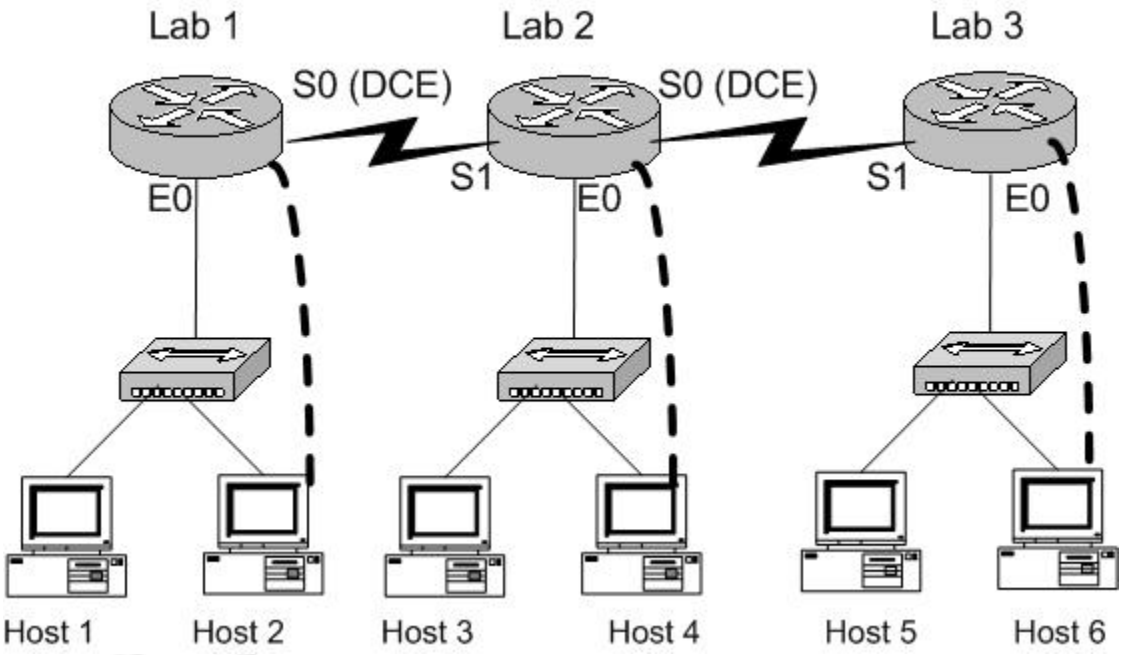
Determine the problem and restore connectivity. The network has been configured with the following characteristics:

The routers are named North, Main, South.

All networks have the default subnet mask.

RIP is the routing protocol.

The clocking signal is provided on the serial 0 interface.



Lab 1

Name: North

E0: 192.168.159.1

S0: 192.168.75.1

Secret password : testk

Lab 2
Name: Main
E0: 192.168.112.1
S0: 192.168.201.1
S1: 192.168.75.2
Secret password : testk

Lab 3
Name: South
E0: 192.168.65.1
S1: 192.168.201.2
Secret password : testk

Start by clicking on host that is connected to the router you want to configure.

Answer Lab 1:
<Click on Host2, which is connected to the Lab 1 router>
enable
config terminal
hostname North
enable secret testk
interface ethernet 0
ip address 192.168.159.1 255.255.255.0
no shutdown
exit
interface serial 0
ip address 192.168.75.1 255.255.255.0
clock rate 64000
no shutdown
exit
router rip
network 192.168.159.0
network 192.168.75.0
^z
copy running-config startup-config

Explanation:

Note: comments are added in text after the !-sign. They will not be shown during simulation.

First we click on the Lab 1 router.

```
Router Con0 is now available          ! The router starts

Press RETURN to get started.          ! Here we press return


Router>enable                         ! We must enter EXEC mode (or enable mode as it also called)
Router#config terminal                ! We must enter configuration mode.
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname North         ! We change the host name
North(config)#enable secret testk                ! We set the password
North(config)#interface ethernet 0               ! We enter interface configuration mode for ethernet 0
North(config-if)#ip address 192.168.159.1 255.255.255.0      ! We set the IP address for Ethernet 0.
                                                 ! Note that we use a 24 bit network mask.
                                                 !It is a class C address.
North(config-if)#no shutdown          ! We start the interface
%LINEPROTO-5-UPDOWN: Line protocol on Interface Ethernet0, changed state to up
%LINK-3-UPDOWN:  Interface Ethernet0, changed state to up

North(config-if)#exit                 ! We exit interface configuration for Ethernet 0
North(config)#interface serial0       ! We enter interface configuration mode for the serial0 interface.
                                      ! Note that there are no space in serial0
North(config-if)#ip address 192.168.75.1 255.255.255.0   ! IP address for serial0
                                      ! Cisco recommends to set the IP address of the interface before
                                      ! setting the clockrate
North(config-if)#clock rate 64000     ! We set a clockrate. We must do it to enable communication between
                                      ! the routers. They must be synchronized.
North(config-if)#no shutdown          !  Start the serial0 interface
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0, changed state to up
%LINK-3-UPDOWN:  Interface Serial0, changed state to up

North(config-if)#exit                 ! Exit interface configuration mode
North(config)#router rip              ! Start the routing protocol. RIP does not need further configuration.
                                      ! RIP works well in this small network.
                                      ! We enter router configuration mode.
North(config-router)#network 192.168.159.0       ! We enable RIP on the network of Ethernet E0.
North(config-router)#network 192.168.75.0        ! We enable RIP on the network of Serial0.
North(config-router)#^Z               ! We exit configuration mode and return to enable mode.
%SYS-5-CONFIG_I: Configured from console by console
North#copy running-config startup-config         ! We save our configurations to NVRAM
Destination filename [startup-config]?           ! We confirm with Enter.
North#                                ! We are finished.
```

You don't need to make full configuration because all routers have already been configured but they have some mistakes. Your task is to find these mistakes and fix them. Maybe the easy way is to remember full config, but better is to understand the right configuration. You need to add two networks for Lab 1 as we only have to add the networks we have on the router. For LAB 2 we add three networks, and for LAB 3 we add two networks.

Wendell Odom. Cisco CCNA Exam #640-507 Certification Guide. (Cisco Press: 2000) pages 374-403.

****

Answer Lab 2:

enable
config terminal
hostname Main
enable secret testk
interface ethernet 0
ip address 192.168.112.1 255.255.255.0
no shutdown
exit
interface serial 0
ip address 192.168.201.1 255.255.255.0
clock rate 64000
no shutdown
exit
interface serial 1
ip address 192.168.75.2 255.255.255.0
no shutdown
exit
router rip
network 192.168.75.0
network 192.168.112.0
network 192.168.201.0^z
copy running-config startup-config

Explanation: Very similar to Lab 1. We have two serial interfaces in lab 2 to configure. We must also make sure that we enable RIP on all three interfaces with the network command.

****

Answer Lab 3:

enable
config terminal
hostname South
enable secret testk
interface ethernet 0
ip address 192.168.65.1 255.255.255.0
no shutdown
exit
interface serial 1
ip address 192.168.201.2 255.255.255.0
no shutdown
exit
router rip
network 192.168.201.0
network 192.168.65.0
^z
copy running-config startup-config

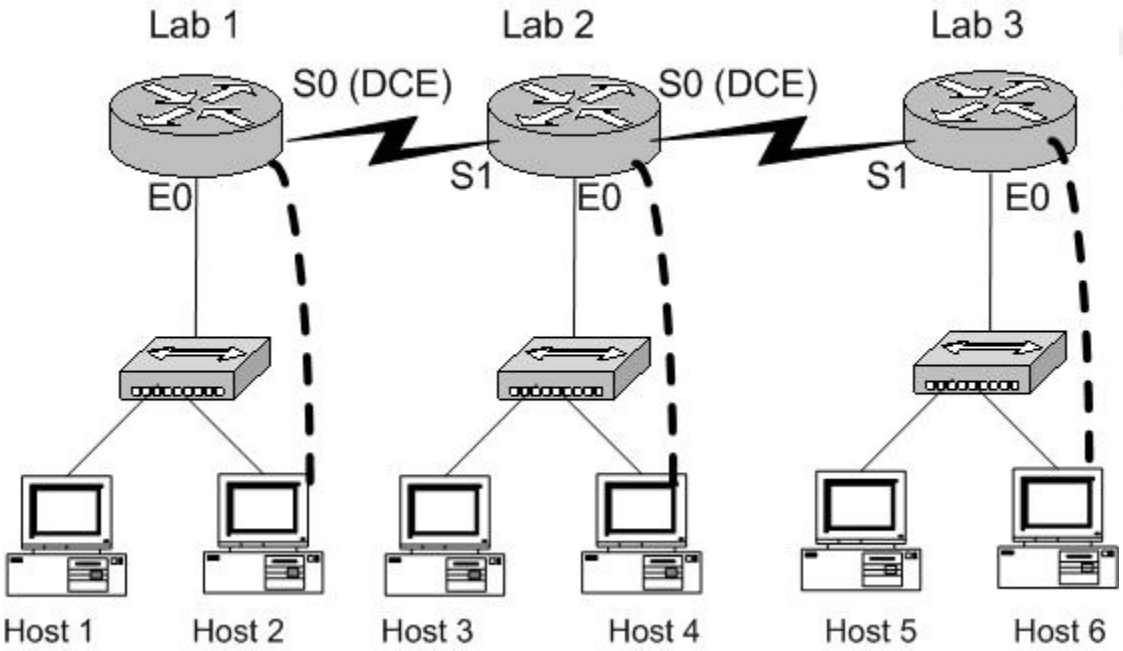
Explanation: Very similar to Lab 1 and Lab 2. Lab C only has one serial interface, serial1.

QUESTION NO: 67
A soft drink company has made the decision to provide 3 branches with network connectivity. There is a LAN in each branch. The Vanilla and Chocolate routers are fully configured. The Plain router is almost fully configured. However, it does not have the routing protocol configured. Configure the routing protocol and publish all networks on the Plain router.
The configurations of the routers are as follows:

- **The routers are named Vanilla, Chocolate, and Plain.**
- **RIP is the routing protocol used.**
- **The clocking is provided on the serial 0 interface.**
- **The password on the Plain router is "TestKing"**
- **The default subnet mask is used on all interfaces**
- **The IP addresses are listed below.**

Vanilla

E0 192.168.149.1
S0 192.168.199.1
Chocolate
E0 192.168.55.1
S0 192.168.101.1
S0 192.168.199.1
Plain
E0 192.168.65.1
S0 192.168.101.1



Lab 1
Name: Vanilla
E0 192.168.149.1
S0 192.168.199.1
Lab 2
Name: Chocolate
E0 192.168.55.1
S0 192.168.101.1
S1 192.168.199.1
Lab3
Name: Plain
E0 192.168.65.1
S1 192.168.101.2

Secret Password: TestKing

Start by clicking on host that is connected to the router you want to configure.

Answer Lab 3:
enable
config terminal
hostname Plain
enable secret TestKing
interface ethernet 0
ip address 192.168.65.1 255.255.255.0
no shutdown
exit
interface serial1
ip address 192.168.101.2 255.255.255.0
no shutdown
exit
router rip
network 192.168.65.0
network 192.168.101.0
network 192.168.55.0
network 192.168.149.0
network 192.168.199.0
^z
copy running-config startup-config

Explanation:
< Click on Host6, which is connected to the Lab 3 router>

```
Router Con0 is now available

Press RETURN to get started.                    ! Press enter.


Router>enable                                   ! Enter enable mode
Router#config terminal                          ! Enter terminal configuration mode.
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname Plain                   ! Change hostname
Plain(config)#enable secret TestKing            ! Enable secret password
```

```
Plain(config)#interface ethernet 0          ! Enter interface configuration mode.
                                            ! Note the space between Ethernet and 0.
Plain(config-if)#ip address 192.168.65.1 255.255.255.0   ! Configure the IP address of the interface.
                                            ! Note that we use a class C subnet mask.
Plain(config-if)#no shutdown                ! Start the interface
%LINEPROTO-5-UPDOWN: Line protocol on Interface Ethernet0, changed state to up
%LINK-3-UPDOWN:  Interface Ethernet0, changed state to up

Plain(config-if)#exit                       ! Exit configuration of Ethernet 0 interface
Plain(config)#interface serial1             ! Configure serial1 (no space in serial1)
Plain(config-if)#ip address 192.168.101.2 255.255.255.0 ! Configure the IP address of the interface.
Plain(config-if)#no shutdown                ! Start the interface
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1, changed state to up
%LINK-3-UPDOWN:  Interface Serial1, changed state to up

Plain(config-if)#exit                       ! Exit interface configuration.
Plain(config)#router rip                    ! Enable RIP. Enter router configuration mode.
Plain(config-router)#network 192.168.65.0   ! Enable RIP on interface Ethernet 0
Plain(config-router)#network 192.168.101.0  ! Enable RIP on interface Serial1
                                            ! We have now added the two local networks. That should
                                            ! be enough, but we are specifically been required to publish
                                            ! all networks. We add the three remote networks as well.
Plain(config-router)#network 192.168.55.0   ! The three external networks are added as well.
Plain(config-router)#network 192.168.149.0
Plain(config-router)#network 192.168.199.0
Plain(config-router)#^Z                     ! Exit configuration mode.
%SYS-5-CONFIG_I: Configured from console by console
Plain#copy running-config startup-config    ! Save running configuration to NVRAM
Destination filename [startup-config]?      ! Accept defaults and save it.
Warning: Attempting to overwrite an NVRAM configuration
previously written by a different version of the system image.
Overwrite the previous NVRAM configuration?[confirm]
Building configuration...

[OK]
Plain#
```

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 277 – 279 and 133.

QUESTION NO: 68

A publishing company has three routers in their network. Marshal, Sherman, and Patton. The Marshal and Sherman routers are fully configured. The Patton router is also fully configured, but need to have a password for the first 5 virtual lines, password for console, and an encrypted password for privileged mode.

Configure the passwords on the Patton router according to the table below.

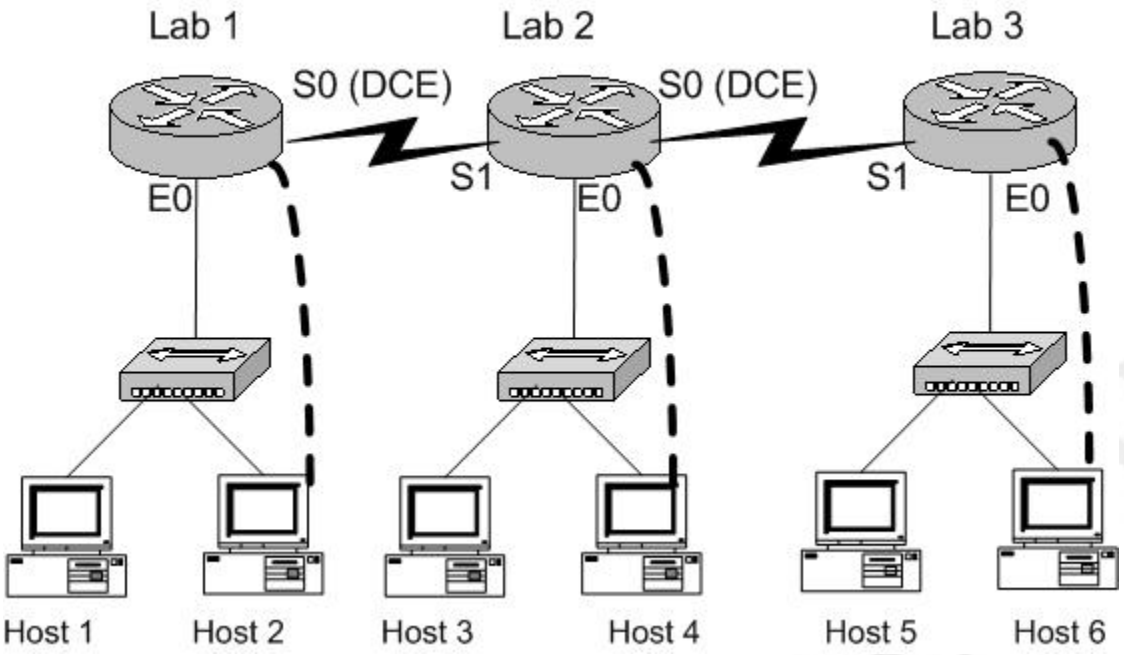
Type	Password
Telnet	apple
Console	pear
Privileged	peach

- **The routers are named Marshal, Sherman, and Patton.**
- **The network is subnetted with a mask 255.255.255.224**
- **The routing protocol is RIP**
- **The serial 0 interface is provided with clocking.**
- **The chart below includes the IP addresses.**

Lab 1
Name : Marshal
E0 : 192.168.12.33
S0 : 192.168.12.65

Lab 2
Name : Patton
E0 : 192.168.12.97
S0 : 192.168.12.129
S1 : 192.168.12.68

Lab 3
Name : Sherman
E0 : 192.168.12.97
S0 : 192.168.12.129
S1 : 192.168.12.68



Start by clicking on host that is connected to the router you want to configure.

Answer Lab 2:
<Click Host4, which is connected to Router Lab 2>

enable
config terminal
hostname Patton
enable secret peach
line con 0
login
password pear
line vty 0 4
login
password apple
^Z
copy running-config startup-config

Explanation:

We should configure the passwords, not any IP configuration on the interfaces.

First we click on the Lab2 router.

```
Router Con0 is now available

Press RETURN to get started.                    ! We press enter.



Router>enable                                   ! We enter enable mode
Router#config terminal                          ! We enter terminal configuration mode
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname Patton                  ! We change the host name. This is however not required.
Patton(config)#enable secret peach              ! Set the secret password.
Patton(config)#line con 0                       ! Configure the terminal connection
Patton(config-line)#login                       ! Specify the terminal connection password
Patton(config-line)#password pear
Patton(config-line)#line vty 0 4                ! Configure the telnet connections. Numbered 0, 1, 2, 3, 4.
Patton(config-line)#login                       ! Specify password
Patton(config-line)#password apple
Patton(config)#^Z                               ! Exit from configuration mode.
%SYS-5-CONFIG_I: Configured from console by console
Patton#copy running-config startup-config       ! Save the running config to NVRAM.
Destination filename [startup-config]?          ! Confirm default selections
Warning: Attempting to overwrite an NVRAM configuration
previously written by a different version of the system image.
Overwrite the previous NVRAM configuration?[confirm]
Building configuration...

[OK]
Patton#
```

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 102 – 103.

QUESTION NO: 69

A Web consulting business has three routers in their systems. These router, Venus, Afrodite, and Zeus, are placed in separate local area networks. The Venus and Afrodite routers need no further configuration. The configuration of Zeus is also complete, except the password for the first 5 virtual lines, the password for the console, and the password for the privileged mode. The CIO has told you that the privileged password must be encrypted to achieve highest possible security.

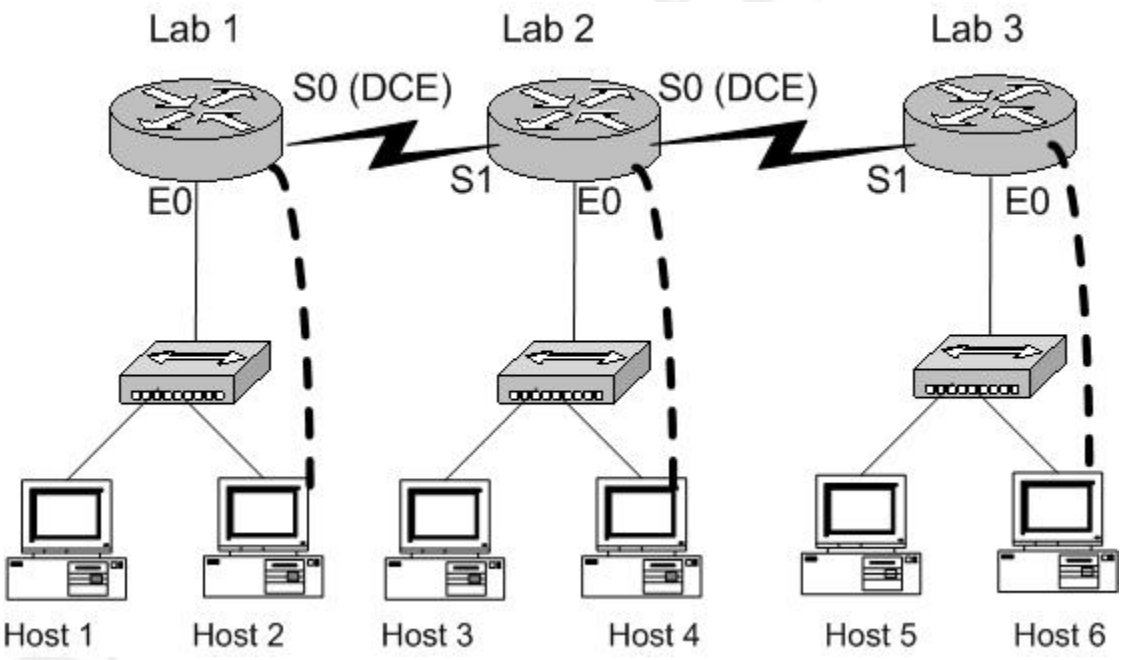
Your task is to configure the passwords on the Zeus router. The passwords to configured are:

Type	**Password**
Telnet	Testking
Console	Andorra

Lab 1
Name: Zeus
E0 : 213.197.14.189
SO : 213.197.14.211

Lab 2
Name: Venus
E0 : 213.197.14.23
SO : 213.197.14.37

Lab 3
Name: Afrodite
E0 : 213.197.14.73
SO : 213.197.14.113
S1 : 213.197.14.120



Start by clicking on host that is connected to the router you want to configure.

Simulation answer:

Lab 1
<Click on Host2, which is connected to the Lab 1 router>
enable
config terminal
enable secret whatsoever
line vty 0 4
login
password Testking
line console 0
login
password andorra
^z
copy running-config startup-config

Explanation:
For the task you don't need to change anything but passwords and we only have to perform Lab 1.

```
Router Con0 is now available

Press RETURN to get started.                    ! We press enter.


Zeus>enable                                     ! Enter enable mode for configuration.
Zeus#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Zeus(config)#enable secret whatsoever           ! Define an enable password (choose something).
                                                ! Make sure that you use the secret keyword.
Zeus(config)#line vty 0 4                       ! We configure the telnet keyword on all 5 telnet
                                                ! connections: 0, 1, 2, 3, 4
Zeus(config-line)#login
Zeus(config-line)#password Testking             ! Specify the telnet password.
Zeus(config-line)#line console 0                ! We configure the console password
Zeus(config-line)#login
Zeus(config-line)#password Andorra              ! We specify the console password.
Zeus(config-line)#^Z                            ! We exit configuration mode with Ctrl-Z.
%SYS-5-CONFIG_I: Configured from console by console
Zeus#copy running-config startup-config         ! We copy the running configuration to NVRAM.
Destination filename [startup-config]?          ! We accept the default target location (press enter)
Warning: Attempting to overwrite an NVRAM configuration
previously written by a different version of the system image.
Overwrite the previous NVRAM configuration?[confirm]        ! We confirm the overwrite (press enter)
Building configuration...

 [OK]
Zeus#
```

Wendell Odom. Cisco CCNA Exam #640-507 Certification Guide. (Cisco Press: 2000) pages 28-30.

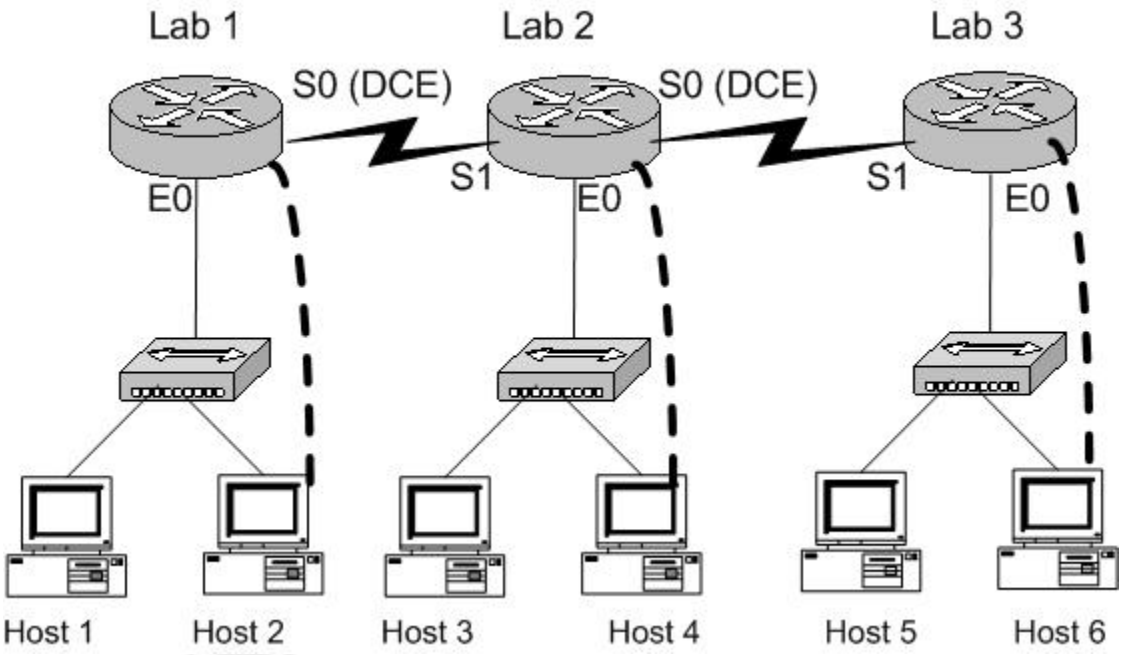
QUESTION NO: 70
You are a network administrator for an Insurance company TestK. The company has three routers named Tokyo, Kobe and Yokohama. You have already configured the Tokyo and the Kobe routers, but Yokohama still need some further configuration. The Yokohama router need:

- **a password for the for the first 5 virtual lines**
- **a password for the console**
- **a password for the privileged mode. These password must be encrypted.**

The following passwords should be used:

Type	**Password**
Telnet	Test
Console	King
Privileged	TestKing

The network use a 255.255.255.0 subnet mask, RIP is the only routing protocol used, and clocking is provided on the serial 0 interface.



Lab 1
Name: Tokyo
E0: 30.15.7.1
S0: 30.15.8.1

Lab 2
Name: Kobe
E0: 30.15.9.1
S0: 30.15.10.1

S1: 30.15.8.2

Lab 3
Name: Yokohama
E0: 30.15.11.1
S1: 30.15.10.2

Start by clicking on host that is connected to the router you want to configure.

Answer:
Answer Lab 3:
<Click on Host6, which is connected to the Lab 3 Router>

enable
config terminal
hostname Yokohama
enable secret TestKing
line con 0
login
password King
line vty 0 4
login
password Test
^Z
copy running-config startup-config

Explanation:
We should configure the passwords, not any IP configuration on the interfaces.

First we click on the Lab3 router.

```
Router Con0 is now available

Press RETURN to get started.                    ! We press enter.



Router>enable                                   ! We enter enable mode
Router#config terminal                          ! We enter terminal configuration mode
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname Yokohama                ! We change the host name. This is however not required.
Yokohama(config)#enable secret TestKing         ! Set the secret password.
Yokohama(config)#line con 0                     ! Configure the terminal connection
Yokohama(config-line)#login                     ! Specify the terminal connection password
Yokohama(config-line)#password King
Yokohama(config-line)#line vty 0 4              ! Configure the telnet connections. Numbered 0, 1, 2, 3, 4.
Yokohama(config-line)#login                     ! Specify password
Yokohama(config-line)#password Test
Yokohama(config)#^Z                             ! Exit from configuration mode.
%SYS-5-CONFIG_I: Configured from console by console
Yokohama#copy running-config startup-config     ! Save the running config to NVRAM.
Destination filename [startup-config]?          ! Confirm default selections
Warning: Attempting to overwrite an NVRAM configuration
```

```
previously written by a different version of the system image.
Overwrite the previous NVRAM configuration?[confirm]
Building configuration...

[OK]
Yokohama#
```

Steve McQuerry. Interconnecting Cisco Network Devices. (Cisco Press: 2000) pages 102 –103.

QUESTION NO: 71

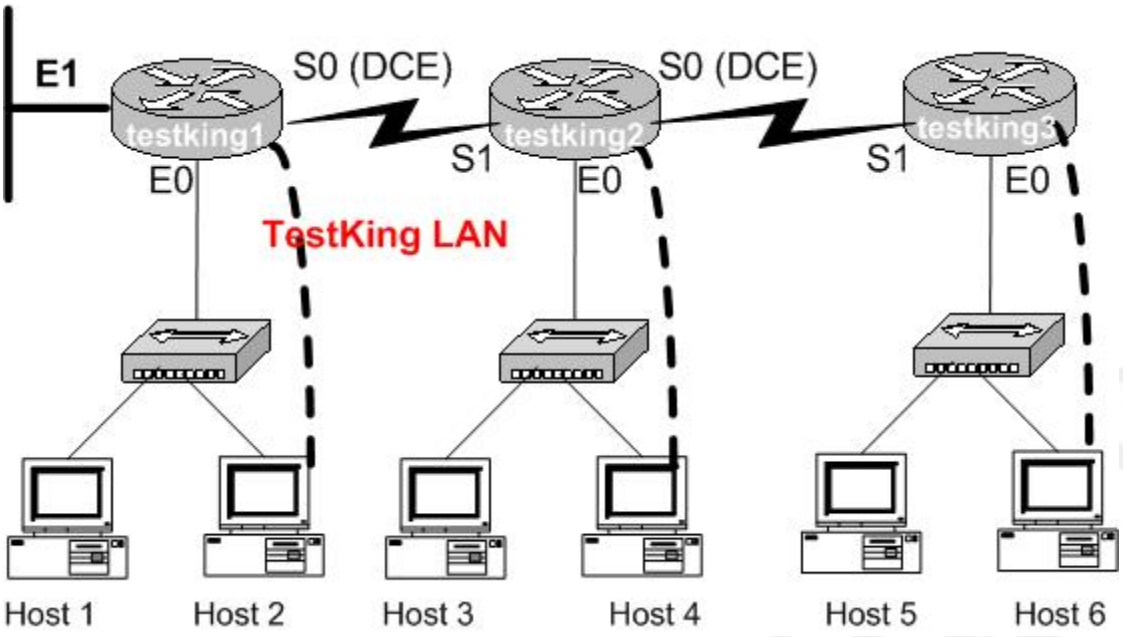
A German fast food group, TestKing GmbH, has decided to connect three stores to place all ordering and inventory in a central database. The manager has partially configured the routers and named them TestKing1, TestKing2, and TestKing3. No network connectivity has been established among the three stores. Identify the fault(s), and make the necessary change(s) to establish connectivity. The routers have been configured with the following specifications:

- **The routers are named TestKing1, TestKing2, TestKing3**
- **RIP is the routing protocol**
- **Clocking is provided on the serial 0 interface**
- **The password on each router is "testking"**
- **The subnet mask on all interfaces is the default mask.**
- **The IP addresses are listed in the chart below.**

Name TestKing1
E0 : 192.168.17.1
E1 : 192.168.19.1
S0 : 192.168.21.1
Secret password: testking

Name TestKing2
E0 : 192.168.23.1
S0 : 192.168.25.1
S1 : 192.168.21.2
Secret password: testking

Name TestKing3
E0 : 192.168.26.1
S1 : 192.168.25.2
Secret password: testking



Task: To configure the router click on a host icon that is connected to a router by a serial console cable.

Answer:
TestKing1 configuration:

Explanation:

Note: comments are added in text after the !-sign. They will not be shown during simulation.

First We click on host 2.

```
Router con0 is now available                ! The router starts



Press RETURN to get started.                ! Here we press return


Router>enable                               ! We must enter EXEC mode
Router#config terminal                      ! We must enter configuration mode
Enter configuration commands, one per line.  End with END.
Router(config)#hostname Testking1           ! We change the hostname
Testking1(config)#enable secret testking    ! We set the password
Testking1(config)#interface ethernet 0      ! We enter the interface configuration mode for the Ethernet 0 interface
Testking1(config-if)#ip address 192.168.17.1 255.255.255.0      ! We set the ip address
Testking1(config-if)#no shutdown            ! We start the interface
Testking1(config-if)#exit                   ! We exit the interface configuration
Testking1(config)#interface ethernet 1      ! We enter the configuration mode for the Serial 1 interface
Testking1(config-if)#ip address 192.168.19.1 255.255.255.0      ! We set the ip address
Testking1(config-if)#no shutdown            ! We start the interface
Testking1(config-if)#exit                   ! We exit the interface configuration
Testking1(config)#interface serial 0        ! We enter the interface configuration mode for the Serial 0 interface
Testking1(config-if)#ip address 192.168.21.1 255.255.255.0   ! We set the ip address
Testking1(config-if)#clock rate  64000      ! We set the clock rate
Testking1(config-if)#no shutdown            ! We start the interface
Testking1(config-if)#exit                   ! We exit the interface configuration
Testking1(config)#router rip                ! Enable RIP on both interfaces
Testking1(config-router)#network 192.168.21.0 ! We enable Rip on interface serial 0
Testking1(config-router)#network 192.168.19.0 ! We enable Rip on interface ethernet 1
Testking1(config-router)#network 192.168.17.0 ! We enable Rip on interface ethernet 0
Testking1(config-router)#                   ! We exit configuration mode with Ctrl+Z
00:04:13: %SYS-5-CONFIG_I: Configured from console by console
Testking1#copy running-config startup-config   ! We save our configuration to NVRAM
Destination filename [startup-config]?      ! We confirm with Enter
Building configuration...

[OK]
Testking1#                                  ! We are done
```

TestKing2 configuration:

Click on Host 4.
enable
config terminal

```
hostname testking2
enable secret testking
interface ethernet 0
ip address 192.168.23.1 255.255.255.0
no shutdown
exit
interface serial 0
ip address 192.168.25.1 255.255.255.0
clock rate 64000
no shutdown
exit
interface serial 1
ip adress 192.168.21.2 255.255.255.0
no shutdown
exit
router rip
network 192.168.21.0
network 192.168.25.0
network 192.168.23.0
ctrl^z
copy runnning-config startup-config
```

TestKing3 configuration:

```
Click on Host 6.
enable
config terminal
hostname testking3
enable secret testking
interface Ethernet 0
ip address 192.168.26.1 255.255.255.0
no shutdown
exit
interface serial 1
ip address 192.168.25.2 255.255.255.0
no shutdown
exit
router rip
network 192.168.25.0
network 192.168.26.0
ctrl^z
copy running-config startup-config
```

Note:
Section A contains 103 questions.
Section B contains 71 questions.
The total number of questions is 174.
Each section starts with QUESTION NO: 1. There are no missing questions.