

# **SkillsUSA**

## **2015 Contest Projects**

### **Internetworking**

Click the “Print this Section” button above to automatically print the specifications for this contest. Make sure your printer is turned on before pressing the button.

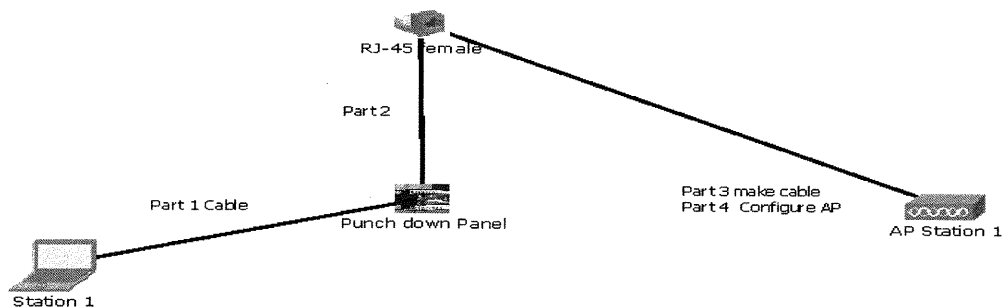
## Cable Making and Wireless Configuration (150 Points)

**Goal:** Connect from your laptop to the wireless access point and then configure the AP.

You will:

1. Make a patch cable
2. On port one of your punch down panel use 586A code and punch down the cable then take the other end of the cable and punch down on port 12 a 586B code
3. Plug your laptop into the port one of your patch panel using the cable you made from part 1. Then decide upon what type of cable you will need to connect port 12 to the wireless access point for configuration on step 4.
4. Configure the AP with the following:
  - a. SSID = Skills + Station number (station number Example: Skills1)
  - b. Change the channel to your station number
  - c. Set the wireless security to WPA2-PSK pass phrase: cisco123
  - d. Set admin password to cisco + station number
5. Unplug from the patch panel, configure your wireless to connect to your AP via the wireless

Example of what it might look like:



Part 5 Connect to wireless AP via wireless configuration



## Script to be used for 2015 National TAC Contest

Phone call to support Desk List the Telephone Number \_\_\_\_\_

Callers name is \_\_\_\_\_

My company name is **ACME Power and Light**

Telephone number is \_\_\_\_\_

You're calling the support desk of **Skilled Routing INC**

The problem:

Judge says, "I need help, when I came back from vacation they had changed my laptop network connection from wireless to wired for security reasons. Also for security reasons I was given a permanent IP address rather than getting an automatic one like when I was connecting wirelessly. But today I am unable to connect to the network. Can you help me?"

Answer to the problem.

The IP address of the laptop is not in the same network with the default gateway. This might have been mistyped during configuration.

1. They should ask for your name and call back number first
2. The contestant should ask what is the operating system.
  - a. You Answer
  - b. Windows 7
3. They then should ask you to type into the search window Command Prompt
4. Click on the Command.exe link
5. They should have you then type `ipconfig /all`
6. They should then ask you for your IP Settings
  - a. You Answer
  - b. You answer IP address 192.168.5.18
  - c. Subnet mask 255.255.255.240
  - d. Default gateway 192.168.5.1
  - e. DNS Server 192.168.5.2
7. They should analyze the IP scheme.
8. They should state that the address of the laptop is not in the same network as the default gateway.
9. They should then ask you to either right click on the networking icon on the task bar or go to the network icon in the control panel. They then need to select local area network properties, Click on the IP V4 properties and ask you to make the changes.
10. They should then ask you if it works
11. They should ask if there is any other items they could help you with before hanging up

Use the judging sheet to record the scores. The contestant only gets 4 minutes to solve your problem.

# Technical Assistant Center Phone Call Judging Sheet Contestant \_\_\_\_\_

Task	Configuration Line	Possible Points	Points Earned
Asked for Company Name		5	
Ask for Individuals name		5	
Asked for a call back number		5	
Ask for Operating system	Windows 7	5	
Go to Command prompt		5	
Ask for Branch PC 1 network configuration	PC address/Gateway	5	
Wrong IP for DNS and Gateway	Correct gateway 192.168.5.1 Correct PC IP 192.168.5.3-14	10	
Assists with network config	Multiple ways to get to settings	10	
Has you make changes	ipconfig to verify	5	
Verifies that you can now go to the server	Open PC browser and go to Google.com or ping gateway	5	
Asks if you need more help		5	
Total Possible Points		65	

## Speaking Skills

	Excellent 2	Good 1	Bad 0	Points Earned
Volume				
Speed				
Tonal Quality				
Style				
Enunciation				
(10 possible) Total Points				

## Answering the Phone

	Excellent 2	Good 1	Bad 0	Points Earned
Answers by the 2 <sup>nd</sup> or 3 <sup>rd</sup> ring				
Greeting				
Identification of Self				
Customer Identification				
Listening				
(10 possible) Total Points				

## Solving the Customer Problem

	Excellent 2	Good 1	Bad 0	Points Earned
Diagnostic Questions				
Orientation with Customer				
Isolate the Problem				
Being Honest( I don't know)				
Contestants Knowledge				
Offer a Solution				
Customer Closes Call				
Bonus Point (if they solve the problem)				
(15 possible) Total Points				

(100 possible) Total Points all Three Sections

Station #: \_\_\_\_\_

Contestant #: \_\_\_\_\_

score

max

dhcp default router set to 192.168.1.1

*default-router 192.168.1.1*

15

nat outside on gig0/0

5

nat inside on gig0/1

5

NAT - access-list fixed

15

*access-list 7 permit 192.168.1.0 0.0.0.255*

NAT - ip nat pool statement fixed

15

*ip nat pool int x.0.0.2 x.0.0.2 prefix-length 8*

OSPF Enabled

15

*router ospf x*

OSPF advertising /8 pod subnet

15

*network X.0.0.0 0.255.255.255 area 0*

72 network found in routing table

25

*sh ip route*

port security removed or modified to allow connection to PC

15

vlan on fa0/1 and gig0/1 are the same vlan - or router on a stick

15

Website IP discovered

25

Sub-Total

165

or

Website up on computer - 100% completion

200

Total

200

Judge Name: Vernon Depee

Judge Signature: \_\_\_\_\_

Contestant ID: \_\_\_\_\_

Station #: \_\_\_\_\_

**Background:**

Your company (SkillsUSA) has recently acquired another company (SkillsLouisville). The newly acquired employees need access to a corporate web server hosted in SkillsUSA's main office. The on-site network engineer for SkillsLouisville attempted to setup the Internet connection, but it seems the configuration was not properly done. An emergency came up and the engineer is no longer available. You have been deployed to finish the configuration.

**Goal:**

Your goal is to access the web server from your computer while connected through your switch and router. When this has been done, bring up the page on your browser and let the proctor know.

If you have discovered the IP address of the web server, write that address here:

IP Address of Web Server: \_\_\_\_\_

**Notes:**

There is useful information in the network. Keep this in mind before making changes.

Your ISP has assigned you a single public static IP address. The IP address and subnet mask is set on your router gig0/0. It is the correct IP and mask.

Your ISP will advertise routes to you via a non-proprietary link-state routing protocol. Static routes from your router to the Internet will not work.

Gig0/0 must connect to the patch panel. One of the ports on the patch panel connects to the ISP.

Somewhere in the network is a web server. A small subnet is being advertised via the previously mentioned routing protocol. The web server is in that subnet.

Ignore the numbers written on your patch panel. They will not be used this year.

## Resume Rubric

### Function

- 4 Audience and Purpose are strong and clear.
- 3 Could be stronger.
- 2 Less clear – weak parts.
- 1 Not clear.

### Form and Content

- 4 Format is clear and includes objective, names, dates in chronological order and locations.
- 3 Mostly clear.
- 2 Format is confusing and missing some major sections.
- 1 Format is hard to see.

### Effectiveness

- 4 Professional appearance, tone, and style.
- 3 Some inconsistencies remain.
- 2 Less professional appearance, tone, and style, several weaknesses.
- 1 Does not have professional appearance, tone, or style. Needs revision.

### Grammar and Mechanics

- 4 Follows all guidelines for spelling and grammar. Sentences are strong and have varied structure.
- 3 Some sentences are unclear, uneven, or have errors.
- 2 Multiple errors, difficult to understand.
- 1 Most sentences contain numerous errors.



## Cover Letter Rubric

### Function

- 4 Audience and purpose are strong and clear.
- 3 Could be stronger.
- 2 Has some weak parts.
- 1 No clear audience or purpose.

### Format and Content

- 4 Includes address, date, salutation, body, closing signature.
- 3 Mostly clear.
- 2 Confusing and missing information.
- 1 Major sections missing.

### Effectiveness

- 4 Professional appearance, tone, and style.
- 3 Some inconsistencies.
- 2 Less professional, missing information.
- 1 Does not have professional appearance, needs much revision.

### Grammar and Mechanics

- 4 Good grammar, spelling, sentences are strong and varied.
- 3 Some sentences are unclear or have a few errors.
- 2 Sentences contain multiple errors.
- 1 Most sentences contain numerous errors.

## ***SkillsUSA Nationals Skills Contest***

During the course of this skills contest, you must perform a series of configuration tasks to ensure that internal and external network connectivity is established. The following documentation describes the configuration tasks necessary to achieve full network functionality.

NOTE: All testing will take place via ssh or telnet from the Student PC. Network connectivity for the PC must be established to ensure full grading can take place.

### **IP Addressing**

Network	Requirements	Subnet
VLAN 10	1500 hosts	172.31.8.0/21
VLAN 20	500 hosts	172.31.2.0/23
VLAN 30	60 hosts	172.31.0.64/26
VLAN 40	30 hosts	172.31.0.32/27
VLAN 100	254 hosts	172.31.100.0/24
Internal Serial link	2 hosts	172.31.0.0/30
VLAN 55 Management VLAN	3 hosts	192.168.100.0/24

### **Router Configurations**

#### **Basic Configuration:**

- Cable as shown in the diagram
- Hostnames as shown in the diagram
- Console and VTY password: skillsnat
- Enable Secret password: natskills
- Banner motd set to: "These are Not the Routers You are Looking For!! Move Along"
- All passwords must be encrypted

#### **Int Configuration:**

- Internal subinterfaces created to support internal VLAN structure shown in Switch Configuration section.

- Set the clock rate on S0/0/0 to 8000000
- Configure OSPF for routing for all IPv4 networks except for the network connected to the ISP; specify subnet addresses—DO NOT advertise the ISP network via OSPF
- Configure a default route to the ISP
- Advertise the default route into OSPF
- OSPF MD5 authentication with Int using password of skills
- Configure PAT on S0/0/0 for all internal IP addresses
- Configure GRE Tunnel on Gi0/0 for future multicast traffic to ISP
  - Create tunnel 0 using gre ip mode
  - Set tunnel destination to ISP IP
  - Set tunnel IP address to 131.107.x.2/30 (where x is your station ID)
- Configure interface GigabitEthernet 0/0 for IPv6 using addresses in chart. Allow routing of IPv6.

## Switch Configurations

### Basic Configuration:

- Cable as shown in the diagram
- Hostnames as shown in the diagram
- Console and VTY password: skillsnat
- Enable Secret password: natskills
- Banner motd: "These are Not the Switches You are Looking For!! Move Along"
- All passwords must be encrypted
- Switches must be able to communicate via the management VLAN which is VLAN 55
  - SW1 192.168.100.2/24
  - SW2 192.168.100.3/24
- Gateway configured correctly

### Etherchannel Configuration:

- PagP etherchannel configured using ports Gi0/5, Gi0/6, Gi0/7
- Etherchannel configured to support trunking

- Port security should be set on SW2 Gi0/1. Allow 3 maximum MAC addresses. Port violation mode should be protect. Ensure MAC addresses used for security are learned dynamically
- Tftp a copy of Int's startup-config to the Tftp server on the Windows Server at 10.102.61.253 with the name ContestantxINT.cfg

Open a web browser on the student PC and connect to netlabs.natskills.com or 10.102.61.222. Login with a username of studentx (where x is your station ID) and a password of P@ssw0rd. If prompted to perform a port test, you MUST perform the test for the system to work. Click on the Windows Server box to begin server configuration below.

#### Server 2012 R2 configuration:

- Login is administrator with a password of P@ssw0rd
- Configure static IP address of 192.168.12.10/24, default gateway 192.168.12.1, and DNS server of 192.168.12.10. Note: It may be necessary to reboot the server after changing the IP address to allow the installation wizard to verify the change.
- Install the DNS service
  - Create an A record pointing [www.natskills.com](http://www.natskills.com) to 10.10.10.254
- Install Active Directory Services
  - Domain name of natskills.com
  - Install the domain with Windows 2012nat R2 functional level
  - All passwords set to P@ssw0rd
  - If prompted to change your password, change the password to P@ssw0rdx where x is your station ID
- Install DHCP
  - Create a scope named natskills
  - Use the range of IP addresses of 192.168.12.100/24 to 192.168.12.150/24
  - Configure the default router to 192.168.12.1
  - Configure DNS server to 192.168.12.10
  - Configure domain name to natskills.com
- Create an Organizational Unit named natskills
- Create the following users in the natskills OU:



Users	Password	Attributes
student1, student2, student3, student4, student5	P@ssw0rd	
marketing1, marketing2, marketing3, marketing4, marketing5	P@ssw0rd	

Admin User

# SkillsUSA National Testing Site-2015

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Packet Tracer Exam ► Preview

## Information



 Flag question Edit question

Download the practical skills Packet Tracer activity by clicking on this link ( Packet Tracer Activity). Save the file to your desktop. Rename the file using your first initial of your first name followed by your surname. Then open the file and begin. You have 60 minutes to complete the activity and answer the 15 questions on this exam. Work through the questions at the same time you are working on the Packet Tracer activity.

## Question 1

Not yet answered

Marked out of 6.00

 Flag question Edit question

Match the Cisco Command line to the correct interface.

ip address 192.168.0.2  
255.255.255.240 ! ip default-  
gateway 192.168.0.1

Choose...



switchport access vlan 30

Choose...



switchport access vlan 10

Choose...



interface FastEthernet0/0.1  
encapsulation dot1Q 10 ip  
address 192.168.1.1  
255.255.255.0

Choose...



switchport mode trunk

Choose...



ip dhcp pool VLAN30 network  
192.168.3.0 255.255.255.0  
default-router 192.168.3.1 dns-  
server 216.100.100.100

Choose...





## Question 2

Not yet answered

Marked out of 6.00

Name the design practice that is not being used in the Packet Tracer Activity.

 Flag question Edit question



Select one:

- ☐ a. There should be an empty port between each VLAN on the switch.
- ☐ b. QoS should be configured for VLAN 20 only.
- ☐ c. The design is good there are no errors.
- ☐ d. The VOIP phones should all be on the same VLAN.
- ☐ e. More IP numbers should be used to protect the network from hackers.

**Question 3**

Not yet answered

Marked out of 6.00

 Flag question Edit question

Look at the following command lines. What line has an error that would cause the PCs not to connect to www.MyPod.com

```
ip dhcp pool VLAN10
network 192.168.1.0 255.255.255.0
default-router 192.168.1.1
dns-server 216.100.100.100
ip dhcp pool VLAN20
network 192.168.2.0 255.255.255.0
default-router 192.168.2.1
dns-server 216.100.100.100
ip dhcp pool VLAN30
network 192.168.3.0 255.255.255.0
default-router 192.168.3.1
dns-server 216.100.100.101
```



Select one:

- ☐ a. default-router 192.168.2.1
- ☐ b. dns-server 216.100.100.100
- ☐ c. dns-server 216.100.100.101
- ☐ d. network 192.168.2.0 255.255.255.0
- ☐ e. ip dhcp pool VLAN10

**Question 4**

Not yet answered

Marked out of 6.00

 Flag question Edit question



Name the protocol that allows sub-interfaces to be used on a Cisco router.

Answer:

**Question 5**

Not yet answered

Marked out of 6.00

 Flag question Edit question



Assume you are on the correct port of the switch configuration command line. Write the command line that allows the port to be a trunk port.

(Note: single line only no not need actual port in front of command)

Answer: **Question 6**

Not yet answered

Marked out of 6.00

 Flag question Edit question

What command line would deliver the following results?

% Warning: It is recommended to configure VLAN from config mode, as VLAN database mode is being deprecated. Please consult user documentation for configuring VTP/VLAN in config mode.



Select one:

- ☐ a. vtp vlan database
- ☐ b. interface vlan2
- ☐ c. vlan database
- ☐ d. show vlan

**Question 7**

Not yet answered

Marked out of 6.00

 Flag question Edit question

Which device would have a default gateway of 192.168.0.1?



Select one:

- ☐ a. IPphone 2
- ☐ b. Printer 1
- ☐ c. Switch 2
- ☐ d. PC 2
- ☐ e. Switch 1

**Question 8**

Not yet answered

Marked out of 6.00

 Flag question Edit question

According to the activity you need to exclude some addresses. Select the command lines that would be the proper lines to do what is asked in the activity.

Select one or more:



- ☐ a. ip dhcp excluded-address 192.168.1.1 192.168.1.10
- ☐ b. ip dhcp excluded-address 192.168.2.1 192.168.2.10
- ☐ c. ip dhcp excluded-address 192.168.3.1 192.168.3.10

- ☐ d. ip dhcp excluded-address 192.169.3.1 192.169.3.10
- ☐ e. ip dhcp excluded-address 192.168.4.1 192.168.4.10

**Question 9**

Not yet answered

Marked out of 6.00

 Flag question Edit question

What is the biggest security problem with the networking devices in the Packet Tracer activity?



Select one:

- ☐ a. PCs need static IPs not DHCP
- ☐ b. Printers should all have static IPs
- ☐ c. No passwords used on the router and switches
- ☐ d. VLSM is not being used
- ☐ e. RIP is not a strong enough routing protocol

**Question 10**

Not yet answered

Marked out of 6.00



 Flag question Edit question

Type the command line that would allow sw0 to be the vtp server?  
Assume you are already in vlan mode.

Answer: **Question 11**

Not yet answered

Marked out of 6.00



 Flag question Edit question

How many broadcast domains are being used on the initial network?

Answer: **Question 12**


Not yet answered

Marked out of 6.00

 Flag question Edit question

You have been asked to add a Linksys wireless router to VLAN 30.  
Match the information that would be needed to make this connect to the designated VLAN.

LAN network of the Linksys router. ( Default

Choose... 

Internet port of the Linksys router

Choose... 



Wireless network of the Linksys router ( Default)

Choose...



Gateway of the Linksys router

Choose...



DNS server for the Linksys Router

Choose...



### Question 13

Not yet answered

Marked out of 6.00

Flag question

Edit question

What command line created this read out?

VTP Version : 2

Configuration Revision : 0

Maximum VLANs supported locally : 255

Number of existing VLANs : 8

VTP Operating Mode : Client

VTP Domain Name :

VTP Pruning Mode : Disabled

VTP V2 Mode : Disabled

VTP Traps Generation : Disabled

MD5 digest : 0x7D 0x5A 0xA6 0x0E 0x9A 0x72 0xA0 0x3A

Configuration last modified by 0.0.0.0 at 0-0-00 00:00:00

Select one:

- ☐ a. Switch#(vlan)sh vtp counters
- ☐ b. Switch#sh vtp counters
- ☐ c. Switch#sh vtp password
- ☐ d. Switch#(vlan)sh vtp vlan 30
- ☐ e. Switch#(vlan)sh vtp status
- ☐ f. Switch#sh vtp status

### Question 14

Not yet answered

Marked out of 6.00

Flag question

Edit question

You are asked to create a default route on the router.

Copy and paste the router configuration line that you would use.



Answer:

### Question 15

Not yet answered

Take the original number of broadcast domains of the initial network add that number to the number of broadcast domains after the network has

Marked out of 6.00

 Flag question Edit question

been configured without a wireless router. Then add the number of straight through cables used and subtract the number of cross over cables. What is the number you get?

Select one:

- ☐ a. 17
- ☐ b. 15
- ☐ c. 7
- ☐ d. 2
- ☐ e. 11
- ☐ f. 13

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**Question 1**

Not yet answered

Marked out of 2.00

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Edit question

Create an access list that will prevent only the host 192.5.5.148 from accessing a web site located at 210.93.105.50.

Select one:

- ☐ a. access-list 10 deny tcp host 192.5.5.148 host 210.93.105.50 eq 80  
access-list 10 permit tcp any any
- ☐ b. access-list 10 deny tcp 192.5.5.148 0.0.0.0 210.93.105.50 0.0.0.0  
eq 23 access-list 10 permit tcp any any
- ☐ c. access-list 100 deny tcp 192.5.5.148 0.0.0.0 210.93.105.50 0.0.0.0  
eq 80 access-list 100 permit tcp any any
- ☐ d. access-list 100 deny tcp host 192.5.5.148 255.255.255.255  
210.93.105.50 255.255.255.255 eq 80 access-list 100 permit tcp any  
any

**Question 2**

Not yet answered

Marked out of 1.00

Flag question

Edit question

An access list has been created that will deny the host 204.204.7.89 access to an ftp server located at 196.6.13.254.

The host is off R2's FA0/1 LAN. The ftp server is off R3's FA0/1 LAN. R2 and R3 connect via their FA0/0 interfaces.

- access-list 111 deny tcp 204.204.7.89 0.0.0.0 196.6.13.254 0.0.0.0 eq 21
- access-list 111 deny tcp 204.204.7.89 0.0.0.0 196.6.13.254 0.0.0.0 eq 20
- access-list 111 permit tcp any any
- 
- Which of the following groups of commands will place this ACL in the proper location?

Select one:



- ☐ a. Router3(config)interface fa0/0 Router3(config-if)# ip access-group 111 out

- ☐ b. Router3(config)interface s0/1 Router3(config-if)# ip access-group 111 out
- ☐ c. Router3(config)interface fa0/0 Router3(config-if)# ip access-group 111 in
- ☐ d. Router2(config)interface fa0/0 Router2(config-if)# ip access-group 111 out

**Question 3**

Not yet answered

Marked out of 1.00

 Flag question Edit question

What do routers use to select the best path for outgoing data packets?



Select one:

- ☐ a. ARP tables
- ☐ b. routing tables
- ☐ c. bridging tables
- ☐ d. switching tables

**Question 4**

Not yet answered

Marked out of 2.00

 Flag question Edit question

To obtain CDP information from a Cisco router that is not directly connected to the administrator's console, what must happen?



Select one:

- ☐ a. The source router must send TLV blocks to the remote router.
- ☐ b. The administrator can Telnet to a Cisco device that is connected to the remote router.
- ☐ c. The administrator needs to issue the Router
- ☐ d. The administrator must transmit TTL packets to the remote device and wait for a response.

**Question 5**

Not yet answered

Marked out of 1.00

 Flag question Edit question

Classless routing protocols perform the following functions: (Choose 3)

Select one or more:

- ☐ a. Send subnet mask information in routing updates
- ☐ b. Support variable-length subnet mask (VLSM) because of the inclusion of the mask in routing updates
- ☐ c. process switching
- ☐ d. Support designs that include discontinuous networks
- ☐ e. fast forward switching

**Question 6**

Not yet answered

Marked out of 1.00

Flag question

Edit question

What is the purpose of a default route?

Select one:

- ☐ a. A default route will cause packets addressed to known destinations to prefer a specified path to the destination network.
- ☐ b. A default route will cause packets addressed to unknown destination networks to be dropped.
- ☐ c. A default route will cause packets addressed to unknown destination networks to be sent to a designated router interface.
- ☐ d. A default route will direct packets for all destination networks to a designated router and router interface.

**Question 7**

Not yet answered

Marked out of 2.00

Flag question

Edit question

The goal of an internetwork designer is to design a cost-effective, scalable, working network. What is the first step when designing a small to medium sized internetwork?

Select one:

- ☐ a. Develop a logical diagram of existing network.
- ☐ b. Evaluate traffic-intensive applications.
- ☐ c. Identify the customer's needs.
- ☐ d. Identify the network load requirements.

**Question 8**

Not yet answered

Marked out of 1.00

Flag question

Edit question

Several web and email servers have recently been installed as part of an enterprise network. The security administrator has been asked to provide a summary of security features that can be implemented to help prevent unauthorized traffic from being sent into or out of sensitive internal networks. Which three features should the security administrator recommend? (Choose three.)

Select one or more:

- ☐ a. 128-bit WEP
- ☐ b. access control lists
- ☐ c. DHCP
- ☐ d. intrusion detection systems

☐ e. priority queuing☐ f. firewalls[Next](#)

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**Question 9**

Not yet answered

Marked out of 2.00

Flag question

Edit question

The design of an IP telephony system needs to meet the technical requirements to provide a connection to the PSTN as well as provide high-quality voice transmissions using the campus network. Which two elements directly affect the ability of the design to meet these requirements? (Choose two.)

Select one or more:

- ☐ a. voice-enabled firewall
- ☐ b. voice-enabled router at the enterprise edge
- ☐ c. redundant backbone connectivity
- ☐ d. PoE switches and patch panels
- ☐ e. separate voice and data VLANs with QoS implemented

**Question 10**

Not yet answered

Marked out of 1.00

Flag question

Edit question

In addition to the equipment considerations, what other major factor is used to evaluate the success of a network installation?

Select one:

- ☐ a. maintenance costs
- ☐ b. user satisfaction
- ☐ c. statistics describing the performance of network devices
- ☐ d. final project costs

**Question 11**

Not yet answered

Marked out of 2.00

Flag question

Edit question

What design strategy should be followed when designing a network that uses video on demand?

Select one:

- ☐ a. configure queuing in the core routers to ensure high availability

- ☐ b. implement different QoS queues based on the type of video traffic being distributed
- ☐ c. implement the appropriate routing protocol to ensure that data segments arrive in order
- ☐ d. install servers to store the data in a centrally located server farm

**Question 12**

Not yet answered

Marked out of 1.00

Flag question

Edit question

When implementing QoS in traffic queues, what is the first step the designer should take to ensure that traffic is properly prioritized?

Select one:

- ☐ a. identify traffic requirements
- ☐ b. define traffic classes
- ☐ c. define QoS policies
- ☐ d. identify networking equipment
- ☐ e. determine traffic patterns

**Question 13**

Not yet answered

Marked out of 2.00

Flag question

Edit question

Which two statements are characteristics of file transfer traffic flows? (Choose two.)

Select one or more:

- ☐ a. RTP should be used.
- ☐ b. Transfers are throughput intensive.
- ☐ c. Packets are small in size.
- ☐ d. Response-time requirements are low.
- ☐ e. Traffic is predictable.

**Question 14**

Not yet answered

Marked out of 1.00

Flag question

Edit question

Which two items can be determined by diagramming internal traffic flow? (Choose two.)

Select one or more:

- ☐ a. the areas where network congestion may occur
- ☐ b. the type of ISP services needed
- ☐ c. the location of VPN servers used to connect teleworkers
- ☐ d. locations where high-bandwidth connections are required



- ☐ e. the capabilities of end-user devices

**Question 15**

Not yet answered

Marked out of 2.00

Flag question

Edit question

Which two traffic types are examples of external traffic flows? (Choose two.)

Select one or more:

- ☐ a. A user in the IT department telnets to the core layer router.
- ☐ b. A user in the IT department telnets into the access layer switch.
- ☐ c. A user in marketing connects to the web server of a competitor.
- ☐ d. A user in accounting connects to an FTP server that is connected to the access layer switch.
- ☐ e. A user in the services department logs in to a web-based email program.

**Question 16**

Not yet answered

Marked out of 2.00

Flag question

Edit question

Refer to the image. If ACL 150 identifies only voice traffic from network 192.168.10.0/24 and no other traffic, which queue will voice traffic from other networks use?

```
Router_A(config)# priority-list 1 protocol ip high list 150
Router_A(config)# priority-list 1 protocol ip normal tcp ftp
Router_A(config)# priority-list 1 protocol ip medium tcp telnet
Router_A(config)# priority-list 1 protocol ip low udp 53
Router_A(config)# interface serial 0/0/0
Router_A(config-if)# priority-group 1
```

Select one:

- ☐ a. default
- ☐ b. medium
- ☐ c. normal
- ☐ d. high

**Question 17**

Not yet answered

Marked out of 1.00

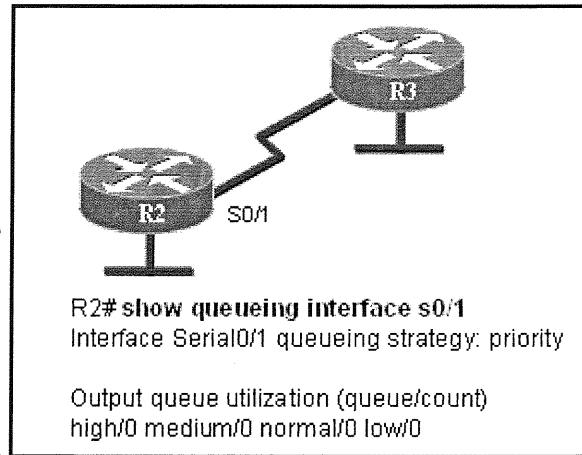
Flag question

Edit question

Refer to the image. After configuring QoS, a network administrator issues the command show queueing interface s0/1. What two pieces of

information can an administrator learn from the output of this command?

(Choose two.)



Select one or more:

- ☐ a. priority list protocol assignments
- ☐ b. queue traffic definitions
- ☐ c. queueing has not been applied to this interface
- ☐ d. type of queueing being implemented
- ☐ e. number of packets placed in each queue
- ☐ f. queueing defaults that have been changed

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**Question 18**

Not yet answered

Marked out of 1.00

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Edit question

Which two network applications are most affected by network congestion and delays? (Choose two.)

Select one or more:

- ☐ a. live video webcasts
- ☐ b. IP telephony
- ☐ c. audio file downloads
- ☐ d. file archival and retrieval
- ☐ e. online banking services

**Question 19**

Not yet answered

Marked out of 2.00

Flag question

Edit question

A company is considering adding voice and video to the data networks. Which two statements are true if voice and video are added? (Choose two.)

Select one or more:

- ☐ a. More UDP-based traffic flows will be evident.
- ☐ b. PoE switches must be purchased.
- ☐ c. VPNs will most likely be implemented to protect the voice traffic.
- ☐ d. Response times will be increased even if QoS is implemented.
- ☐ e. QoS will most likely be implemented to prioritize traffic flows.

**Question 20**

Not yet answered

Marked out of 1.00

Flag question

Edit question

What two Cisco tools can be used to analyze network application traffic? (Choose two.)

Select one or more:

- ☐ a. NBAR
- ☐ b. Wireshark

- ☐ c. AutoQoS
- ☐ d. NetFlow
- ☐ e. Custom Queuing

**Question 21**

Not yet answered

Marked out of 2.00

Flag question

Edit question

In network design, which technology can be implemented to prioritize traffic based on its importance and technical requirements?

Select one:

- ☐ a. VPN
- ☐ b. STP
- ☐ c. QoS
- ☐ d. RTP
- ☐ e. TCP

**Question 22**

Not yet answered

Marked out of 1.00

Flag question

Edit question

What are two things that a network designer can do to determine current and anticipated network traffic flows? (Choose two.)

Select one or more:

- ☐ a. Conduct an inventory of all networking devices that includes model numbers and memory configurations.
- ☐ b. Survey end users to obtain customer input.
- ☐ c. Limit the analysis to host-to-server traffic because host-to-host traffic is unimportant.
- ☐ d. Run a network traffic analysis to determine which applications are in use and by whom.
- ☐ e. Upgrade the Cisco IOS software in all networking devices to optimize traffic flow.

**Question 23**

Not yet answered

Marked out of 2.00

Flag question

Edit question

A network engineer has decided to pilot test a portion of a new network design rather than rely on a prototype for proof-of-concept. What are two advantages of pilot testing a design concept? (Choose two.)

Select one or more:

- ☐ a. Network response can be tested in a highly controlled simulated environment.

- ☐ b. Unlikely failure conditions can be conveniently tested.
- ☐ c. Network response can be tested in unplanned and unpredictable situations.
- ☐ d. The test network experiences real-world network traffic.
- ☐ e. Users within the enterprise are not affected by the test.

**Question 24**

Not yet answered

Marked out of 1.00

Flag question

Edit question

Switch port Fa0/24 was previously configured as a trunk, but now it is to be used to connect a host to the network. How should the network administrator reconfigure switch port Fa0/24?

Select one:

- ☐ a. Enter the no switchport mode trunk command in interface configuration mode.
- ☐ b. Enter the switchport nonegotiate command from interface configuration mode.
- ☐ c. Use the switchport mode access command from interface configuration mode.
- ☐ d. Administratively shut down and re-enable the interface to return it to the default.
- ☐ e. Use the switchport access vlan vlan number command from interface configuration mode to remove the port from the trunk and add it to a specific VLAN.

**Question 25**

Not yet answered

Marked out of 2.00

Flag question

Edit question

**Total input and output errors on all interfaces must be less than 0.0000001 percent of all traffic.**

Refer to the image. A network designer creates a test plan that includes the specification shown. In which section of the test plan would this specification be found?

Select one:


- ☐ a. Design and Topology Diagram
- ☐ b. Actual Results and Conclusions
- ☐ c. Test Description
- ☐ d. Anticipated Results and Success Criteria


☐ e. Test Procedures

**Question 26**

Not yet answered

Marked out of 1.00

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 Edit question

What OSI model Layer 2 security measure can a network engineer implement when prototyping network security?

Select one:

- ☐ a. IP access control lists at the access design layer
- ☐ b. port security at the access design layer
- ☐ c. port security at the distribution design layer
- ☐ d. a firewall at the network edge

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## Question 27

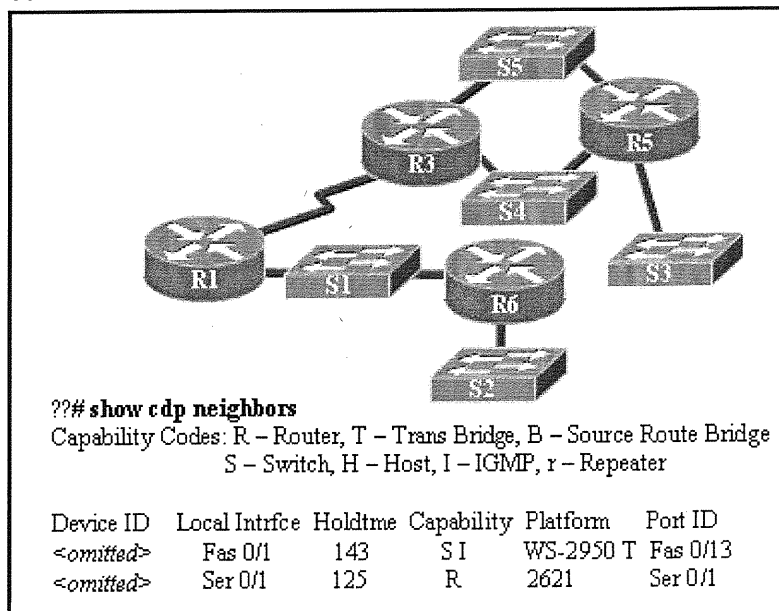
Not yet answered

Marked out of 2.00

Flag question

Edit question

Refer to the image. During prototype testing of the Cisco network shown, connectivity must be verified. Assuming all connections are working and CDP is enabled on all devices and interfaces, on which device was the command issued?



Select one:

- ☐ a. S3
- ☐ b. R5
- ☐ c. R1
- ☐ d. R3
- ☐ e. S1
- ☐ f. S2

## Question 28

Not yet answered

Marked out of 1.00

Flag question

Edit question

Switch# ??

Port	Mode	Encapsulation	Status	Native vlan
Fa0/1	on	802.1q	trunking	1
Fa0/2	on	802.1q	trunking	1

Port	Vlans allowed on trunk
Fa0/1	1-4094
Fa0/2	1-4094

Port	Vlans allowed and active in management domain
Fa0/1	1,10,20,30
Fa0/2	1,10,20,30

Port	Vlans in spanning tree forwarding state and not pruned
Fa0/1	1,10,20,30
Fa0/2	1,10,20,30

Refer to the image. During prototype testing, verification of VLAN connectivity is being performed. Based on the information shown, what command produced the output?

Select one:

- ☐ a. show interfaces trunk
- ☐ b. show cdp neighbors
- ☐ c. show ip interface brief
- ☐ d. show spanning-tree
- ☐ e. show interfaces

**Question 29**

Not yet answered

Marked out of 2.00

Flag question

Edit question

Which of the following tables does DUAL use to calculate the lowest cost routes to each destination?

Select one:

- ☐ a. neighbor table and adjacency table
- ☐ b. routing table and topology table
- ☐ c. neighbor table and routing table
- ☐ d. neighbor table and topology table

**Question 30**

Not yet answered

Marked out of 1.00

Flag question

While deleting the VLANs from a switch, a network administrator receives the following message, "A default VLAN may not be deleted". What did the administrator do to cause this message to be displayed?

Select one:



Edit question

- ☐ a. The no switchport mode access command was not properly entered.
- ☐ b. The no vlan 1 command was entered.
- ☐ c. The no vlan all command was entered.
- ☐ d. VTP was not configured
- ☐ e. The no vlan command was entered in database configuration mode.

**Question 31**

Not yet answered

Marked out of 2.00

Flag question

Edit question

What is indicated when an EIGRP route is in the passive state?

Select one:

- ☐ a. The route must be confirmed by neighboring routers before it is put in the active state.
- ☐ b. There is no activity on the route to that network.
- ☐ c. The route is viable and can be used to forward traffic.
- ☐ d. The route is a feasible successor and will be used if the active route fails.

**Question 32**

Not yet answered

Marked out of 1.00

Flag question

Edit question

Which of the following describes a physical full-mesh topology?

Select one:

- ☐ a. It requires termination at both ends of the cable.
- ☐ b. It provides maximum connectivity between all network systems.
- ☐ c. It links all computers to a main computer that controls all traffic on the network.
- ☐ d. It uses a hub or a switch as a central point to connect all wires.

**Question 33**

Not yet answered

Marked out of 2.00

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Edit question

Terminal emulation software, such as HyperTerminal, can be used to configure a router. Which of the following HyperTerminal options shown in the graphic are correctly set to allow configuration of a Cisco router?

Select one or more:

- ☐ a. Data bits/Flow Control/Stop bits
- ☐ b. Data bits/Parity/Bits per second



*TOSSED QUESTION  
Graphic didn't show*

- ☐ c. Data bits/Parity/Stop bits
- ☐ d. no answer
- ☐ e. Flow control/Parity/Stop bits

**Question 34**

Not yet answered

Marked out of 1.00

 Flag question Edit question

How does ICMP improve data transfer reliability in IP networks?



Select one:

- ☐ a. ICMP can correct many network problems as they occur.
- ☐ b. Each router in the path reads ICMP packets and uses the information to update routing tables.
- ☐ c. ICMP error messages are returned to the sending device when a packet is dropped by a router.
- ☐ d. ICMP packets report the intermediary devices that a packet passed through before failure occurred. {

**Question 35**

Not yet answered

Marked out of 1.00

 Flag question Edit question

Which of the following are characteristics of IP?

Select one or more:

- ☐ a. connection-oriented protocol
- ☐ b. routing protocol
- ☐ c. connectionless protocol
- ☐ d. unreliable protocol

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**Question 36**

Not yet answered

Marked out of 1.00

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Edit question

Which of the following describes latency?

Select one:

- ☐ a. the delay between the time a frame leaves its source device and reaches its destination
- ☐ b. the time required for a NIC to place a frame on the network media
- ☐ c. the degradation of a signal as it travels along the media
- ☐ d. the noise generated from outside a cable

**Question 37**

Not yet answered

Marked out of 2.00

Flag question

Edit question

Which devices must have a MAC address?

Select one:

- ☐ a. PC, hub, and router
- ☐ b. PC, printer, and router
- ☐ c. only PC
- ☐ d. PC and router

**Question 38**

Not yet answered

Marked out of 1.00

Flag question

Edit question

How can MAC address table entries be removed from a switch?

Select one:



- ☐ a. The clear switching-tables command will remove statically configured entries.
- ☐ b. The erase flash command will clear all statically configured table entries.
- ☐ c. Statically configured MAC addresses will automatically be removed from the address table 300 minutes after the last activity on a switch port.

- ☐ d. The clear mac-address-table command will remove statically and dynamically configured table entries.

**Question 39**

Not yet answered

Marked out of 2.00

 Flag question Edit question

Router XYZ is to be added to OSPF area 0. Which of the following is the correct syntax for enabling OSPF on this router?



Select one:

- ☐ a. XYZ(config)router ospf process 10
- ☐ b. XYZ(config)router ospf 10
- ☐ c. XYZ(config)router ospf processid 10
- ☐ d. XYZ(config)router ospf process 0

**Question 40**

Not yet answered

Marked out of 1.00

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Which type of message is generated by a host when the ping command is entered?



Select one:

- ☐ a. UDP echo request
- ☐ b. UDP error message
- ☐ c. ICMP echo request
- ☐ d. ICMP echo reply

**Question 41**

Not yet answered

Marked out of 2.00

 Flag question Edit question

What is the purpose of using port numbers in the transport layer?

Select one:



- ☐ a. to identify the interface port number used by the router when forwarding data
- ☐ b. to track multiple conversations that occur between hosts
- ☐ c. to provide reliability during data transport
- ☐ d. to identify the segment as being either TCP or UDP

**Question 42**

Not yet answered

Marked out of 1.00

A network administrator wants to assure that any password that permits access to the privileged EXEC mode is not shown in plain text in the configuration files. Which commands will accomplish this task?

 Flag question Edit question

Select one:

- ☐ a. Router(config)enable cisco
- ☐ b. Router(config)enable cisco secret
- ☐ c. Router(config)enable secret cisco
- ☐ d. Router(config)encrypt-all cisco


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**Question 43**

Not yet answered

Marked out of 1.00

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Edit question

Which command turns on a router interface?

Select one:

- ☐ a. Router(config-if)no shutdown
- ☐ b. Router(config-if)interface up
- ☐ c. Router(config-if)enable
- ☐ d. Router(config-if)s0 active

**Question 44**

Not yet answered

Marked out of 1.00

Flag question

Edit question

Which is true about network security policies?

Select one:

- ☐ a. Security systems are designed to maximize the number of secrets-for example, password and encryption keys.
- ☐ b. A company having inflexible security policies is less vulnerable than a company with flexible policies.
- ☐ c. Security policies are based on understanding which company assets are most valuable.
- ☐ d. End users need to know nothing about the security measures.

**Question 45**

Not yet answered

Marked out of 1.00

Flag question

Edit question

Which network standards emerged from the IETF or OSI community to allow for interoperability of management across different network platforms?

Select one:

- ☐ a. SMI
- ☐ b. SNMP
- ☐ c. SMTP


☐ d. RMAN


☐ e. POP

**Question 46**

Not yet answered

Marked out of 1.00

 Flag question

 Edit question

What is the default read-only community string on SNMP enabled devices?

Select one:

☐ a. private

☐ b. public

☐ c. publish


☐ d. custom


☐ e. personal

**Question 47**

Not yet answered

Marked out of 1.00

 Flag question

 Edit question

Given the command, RouterC(config)# ip route 197.5.2.0 255.255.255.0 192.10.1.1, what does the address 192.10.1.1 represent?

Select one:

☐ a. the source host

☐ b. the outbound interface


☐ c. the next hop router


☐ d. the destination network

**Question 48**

Not yet answered

Marked out of 1.00

 Flag question

 Edit question

Which of the following subnet masks could be used when subnetting a Class B IP address with no super netting?

Select one or more:

☐ a. 255.255.252.0

☐ b. 255.192.255.0

☐ c. 255.255.0.0

☐ d. 255.0.0.0

**Question 49**

Not yet answered

The network 192.1.1.0 has been subnetted for a network design. The 192.1.1.16/28 subnet has been chosen for further subnetting to provide for

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Flag question

Edit question

point-to-point serial link addressing. How many serial link subnets can be created while minimizing the number of wasted addresses?

Select one:

- ☐ a. 6
- ☐ b. 7
- ☐ c. 3
- ☐ d. 4
- ☐ e. 2

**Question 50**

Not yet answered

Marked out of 1.00

Flag question

Edit question

Which command is used to copy a backup configuration file from a server to the non-volatile memory of a switch?

Select one:

- ☐ a. Switch# copy startup-config tftp
- ☐ b. Switch#copy tftp flash
- ☐ c. Switch# copy NVRAM tftp
- ☐ d. Switch#copy tftp startup-config

**Question 51**

Not yet answered

Marked out of 1.00

Flag question

Edit question

Using Telnet, a network administrator is unable to log in to a switch located at another office in order to make configuration changes to it. What could be the problem?

Select one:

- ☐ a. VLAN 1 on the switch is not configured for TCP/IP network access.
- ☐ b. The managment station does not have access to a full-duplex Fast Ethernet link on the switch.
- ☐ c. The switch hostname has not been set.
- ☐ d. The switch must be managed from the local LAN.

**Question 52**

Not yet answered

Marked out of 1.00


Flag question

Describe the switching function that occurs in a router.

Select one:

- ☐ a. allows the router to make forwarding decisions based on Layer 2 addressing



 Edit question

- ☐ b. enables the router to select the most appropriate interface for forwarding a packet
- ☐ c. accepts a packet on one interface and forwards it to a second interface
- ☐ d. uses network addressing to select the best route and interface to forward data


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**Question 53**

Not yet answered

Marked out of 1.00

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Edit question

Which of the following application layer protocols use UDP segments?

Select one:

- ☐ a. TCP/IP
- ☐ b. POP/SNMP
- ☐ c. HTTP/FTP
- ☐ d. DNS/TFTP

**Question 54**

Not yet answered

Marked out of 1.00

Flag question

Edit question

Which of the following is considered a WAN technology?

Select one:

- ☐ a. DSL
- ☐ b. Token Ring
- ☐ c. Wireless Ethernet
- ☐ d. Ethernet

**Question 55**

Not yet answered

Marked out of 6.00

Flag question

Edit question

Match the definitions or characteristics with the correct protocols.

An address that has all 1s in the host field.

Choose...



Lost or corrupted packets are not resent.

Choose...



Delivers data on a best-effort basis.

Choose...



Sets of rules that tell the services of a network what to do.

Choose...



Packets are numbered and sequenced so that the destination can reorder packets and determine if a packet is missing.

Choose...

**Question 56**

Not yet answered

Marked out of 1.00

Flag question

Edit question

The users in a department are using a variety of host platforms. All of them have been approved with a user ID in a RADIUS server database. Which one of these features should be used to restrict access to the switch ports in the building?

Select one:

- ☐ Port-based authentication
- ☐ AAA authentication
- ☐ Port security
- ☐ AAA authorization
- ☐ RADIUS+1

**Question 57**

Not yet answered

Marked out of 5.00

Flag question

Edit question

Matching

Provided when you use a digital signature

Choose...



IKE SAs and IPsec SAs are negotiated

Choose...



Public and private keys create a shared-secret key

Choose...



It is issued by the trusted certificate authority (CA) to the requesting peer for authentication.

Choose...



Type of cipher is DES or 3DES

Choose...



Type of encryption is supported by Encapsulating Security Payload (ESP)

Choose...

**Question 58**

Not yet answered

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Flag question

Edit question

What subnet mask would be appropriate for a Class C address that is used for 9 LANs, each with 12 hosts?

Select one:



- ☐ a. 255.255.255.240

- ☐ b. 255.255.255.224
- ☐ c. 255.255.255.0
- ☐ d. 255.255.255.252

**Question 59**

Not yet answered

Marked out of 1.00

 Flag question Edit question

Which command must you configure for EIGRP to pass the subnet mask with the route?



Select one:

- ☐ a. no summary
- ☐ b. ip classless
- ☐ c. ip subnet vlsn
- ☐ d. no auto-summary

**Question 60**

Not yet answered

Marked out of 1.00

 Flag question Edit question

Which username must be configured on routers for PPP authentication?



Select one:

- ☐ a. One that matches neither hostname.
- ☐ b. There is no restriction on username.
- ☐ c. One that matches the hostname of the local router.
- ☐ d. One that matches the hostname of the remote router.

**Question 61**

Not yet answered

Marked out of 1.00

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Which statement below is true?

Select one:

- ☐ a. TACACS+ offers multiprotocol support
- ☐ b. RADIUS supports non IP protocols
- ☐ c. TACACS+ does not support AppleTalk
- ☐ d. RADIUS offers multiprotocol support

Admin User



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**Question 62**

Not yet answered

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Which one of the following choices provides IPsec confidentiality?



Select one:

- ☐ a. hashing algorithms such as MD5 or SHA-1
- ☐ b. encryption algorithms such as 3DES or AES
- ☐ c. the exchange of digital certificates
- ☐ d. the secrecy of the private key

**Question 63**

Not yet answered

Marked out of 1.00

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Which of the following choices best provides IPsec authentication?



Select one:

- ☐ a. the exchange of digital certificates
- ☐ b. encryption algorithms such as 3DES or AES
- ☐ c. the secrecy of the private key
- ☐ d. hashing algorithms such as MD5 or SHA-1

**Question 64**

Not yet answered

Marked out of 1.00

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Which statement is true of IPsec transport mode?

Select one:



- ☐ a. The entire IP datagram is left intact.
- ☐ b. Only the IP payload is encrypted, and the original IP headers are left intact.
- ☐ c. The entire original IP datagram is encrypted, and it becomes the payload in a new IP packet.

- ☐ d. Only the IP headers are encrypted, and the original IP payload is left intact.

**Question 65**

Not yet answered

Marked out of 1.00

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In which situation is an administrative distance required?



Select one:

- ☐ a. whenever static routes are defined
- ☐ b. when the same route is learned via multiple routing sources
- ☐ c. when multiple paths are available to the same destination, and they are all learned via the same routing protocol
- ☐ d. whenever dynamic routing is enabled

**Question 66**

Not yet answered

Marked out of 1.00

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How does a distance vector router learn about paths for networks that are not directly connected?



Select one:

- ☐ a. from the destination router
- ☐ b. from the source router
- ☐ c. from neighboring routers
- ☐ d. from directly connected networks only

**Question 67**

Not yet answered

Marked out of 1.00

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What does "split horizon" specify?



Select one:

- ☐ a. that information about a route should be sent back in the direction from which the original information came
- ☐ b. that information about a route should not be sent back in the direction from which the original information came
- ☐ c. that information about a route should not be sent in any direction
- ☐ d. that information about a route should be sent back only in the direction from which the original information came

**Question 68**

Not yet answered

Marked out of 2.00

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If a route for a network is in holddown and an update arrives from a neighboring router with the same metric as was originally recorded for the network, what does the router do?



Select one:

- ☐ a. marks the network as "accessible" and removes the hold-down timer
- ☐ b. increments the hold-down timer
- ☐ c. ignores the update
- ☐ d. marks the network as "accessible" but keeps the hold-down timer on

**Question 69**

Not yet answered

Marked out of 2.00



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Banner  command creates a message to be displayed upon router login.

**Question 70**

Not yet answered

Marked out of 1.00

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Two routers named Atlanta and Brevard are connected by their serial interfaces, but there is no connectivity between them. The Atlanta router is known to have a correct configuration. Given the partial configurations, identify the problem on the Brevard router that is causing the lack of connectivity.

Atlanta uses S0 to connect to Brevard's S1.

```
Atlanta#sh int s0
Serial0 is up, line protocol is up
Hardware is HD64570
Internet address is 192.168.10.1/24
MTU 1500 bytes, BW 1544 Kbit,
Reliability 255/255
Encapsulation HDLC, loopback not set
Keepalive set (10 sec)
```

```
Brevard#sh int s1
Serial1 is up, line protocol is up
Hardware is HD64570
Internet address is 192.168.11.2/24
MTU 1500 bytes, BW 56000 Kbit,
```

Reliability 255/255  
Encapsulation HDLC, loopback not set  
Keepalive

Select one:

- ☐ a. no loopback set
- ☐ b. transmission unit size too large
- ☐ c. an incorrect subnet mask
- ☐ d. an incorrect IP address
- ☐ e. incompatible encapsulation at each end
- ☐ f. incompatible bandwidth between routers

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