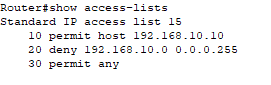
**Part I: General Networking Concepts**

Question 1 [20 points]: Multiple Choice Questions

1. Which of the following is the wildcard mask for the subnet mask 255.224.0.0
   1. 0.31.255.255
   2. 0.32.255.255
   3. 0.31.0.0
   4. 255.31.0.0
2. Having the below access list, in order to prevent the access for the host 192.168.10.10, which of the below commands is used?



* 1. Router(config)#ip access-list Standard 15

Router(config-std-nacl)#no host 192.168.10.10

* 1. Router(config)#ip access-list Standard 15

Router(config-std-nacl)#no 10

* 1. Router(config)#ip access-list Standard 15

Router(config-std-nacl)#no 20

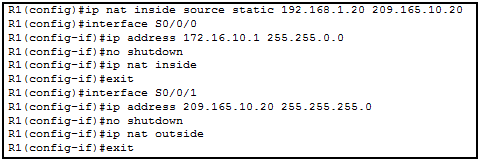
* 1. None of the above

1. What is the disadvantage of NAT?
   1. Troubleshooting problems can become harder because you may no longer have full end to end traceability.
   2. NAT adds a layer of security because hosts behind NAT will not be directly reachable from outside the network.
   3. There are no public IPv4 addresses left and NAT means that we don’t have to give every device on the Internet a dedicated public IP address.
   4. All the above
2. Which command will show you the summary of NAT configuration
   1. show ip nat translations
   2. debug ip nat
   3. clear ip nat translations
   4. show ip nat statistics
3. Consider the below route entry, which of the below entries is true about it?

R\* 0.0.0.0/0 [120/1] via 172.16.0.2, 00:00:07, Serial0/0/0

* 1. The above route is a static default route learned from a RIP neighbor router
  2. The above route is a static default route configured on a router.
  3. The above route is a floating static route that enables backup routing.
  4. The above route is a static route that has less priority over other routing protocols.

1. What information is used in the PAT table? (Choose all that apply)
2. Source IP address
3. Source MAC address
4. Destination IP address
5. Destination MAC address
6. Source TCP/UDP port
7. Destination TCP/UDP port
8. Which is true regarding when the same ACL is to be applied in the IN or OUT directions? (Choose two.)
9. The same policy may be applied either IN or OUT but on different interfaces
10. The same policy may be applied either IN or OUT on the same interface
11. IN direction may save routing process overhead
12. OUT direction may save routing process overhead
13. Which of the below DHCP PDU are considered as broadcast PDUs? (Choose two)
    1. DHCP Discover
    2. DHCP Offer
    3. DHCP Request
    4. DHCP Acknowledgment
14. Refer to the exhibit. Which address represent the inside global address?



1. 172.16.10.1
2. 192.168.1.20
3. 209.165.10.20
4. any address in the 172.16.0.0 network

Q10) Which mechanism allows an external device to reach a device on a specific port number and the device is located on an internal (private) network.

* 1. Port Fast
  2. Port Routing
  3. Port forwarding
  4. Port Duplication

VLAN / Intervlan configuration

For the network topology shown below, you are requested to configure the router based on the below requirements.



Q1) Configure the router sub-interfaces

R1(config)# interface\_G0/0.10\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

R1(config-if)# encapsulation \_\_\_\_\_dot1q 10\_\_\_\_\_\_\_\_\_

R1(config-if)#ip address \_\_192.168.10.1 255.255.255.0\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

R1(config)# \_\_\_\_int G0/0.20\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

R1(config-if)# \_\_\_\_encapsulation dot1q 20\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

R1(config-if)# \_\_\_\_ip address 192.168.20.1 255.255.255.0\_\_\_

R1(config)# interface G0/0

R1(config-if)# \_\_\_\_\_no shut\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Network Address Translation Analysis

Consider the following network topology:



Q1) Write the command needed to define an access control list (use standard ACL number 77) to allow the LAN private IP address range 192.168.10.0/24 network to be translated.

Q2) Complete the below command needed to define the pool (named POOL1) of the public IP address 209.165.200.225 shown in the topology.

Q3) Complete the below commands in order to define the NAT from the inside source list to the outside pool and to specify the interfaces. We are using NAT overload.

|  |
| --- |
| **Edge router 1** |
| Access-list 77 permit\_\_\_\_\_\_\_\_\_192.168.10.0 0.0.0.255\_\_\_\_\_\_\_\_\_\_\_\_  ip nat pool POOL1 209.165.200.225 209.165.200.225 netmask 255.255.255.224  ip nat inside source list 77 pool POOL1 overload  int s0/0/0  ip nat \_\_\_\_\_\_\_\_\_\_inside\_\_\_\_\_\_\_\_\_\_\_\_\_  int s0/0/2  ip nat \_\_\_\_\_\_\_\_outside\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
|  |

ACLs



Q1) Configure a numbered standard ACL which denies traffic from all hosts in the 10.0.1.0/24 subnet to 10.0.2.0/24. The PCs in the other subnets must maintain connectivity to each other. Write down the necessary commands:

access-list 10 deny 10.0.2.0 0.0.0.255------------------------------------

access-list 10 permit any------------------------------------------------------

Q2) Configure a numbered standard ACL that prevents PC3 to send traffic to all external networks. Write down the necessary commands:

access-list 20 deny host 10.0.2.10-----------------------------------------------------------

access-list 20 permit any ----------------------------------------------------------------------