# ITN (Version 7.00) - Communicating Between Networks Exam

**Below is the feedback on items for which you did not receive full credit. Some interactive items may not display your response.**

Subscore:  Domain Knowledge - Standard Score  ⌄

## 2  Which statement describes a feature of the IP protocol?

| Correct Response | Your Response | |
|---|---|---|
| | ○ | IP relies on Layer 2 protocols for transmission error control. |
| | ○ | MAC addresses are used during the IP packet encapsulation. |
| | ○ | IP encapsulation is modified based on network media. |
| ✔ | ○ | IP relies on upper layer services to handle situations of missing or out-of-order packets. |

IP protocol is a connection-less protocol, considered unreliable in terms of end-to-end delivery. It does not provide error control in the cases where receiving packets are out-of-order or in cases of missing packets. It relies on upper layer services, such as TCP, to resolve these issues.

This item references content from the following areas:

ITN

1.8.1 Network Layer Characteristics

## 3  Why is NAT not needed in IPv6?

| Correct Response | Your Response | |
|---|---|---|
| ✔ | | |
| | ○ | Any host or user can get a public IPv6 network address because the number of available IPv6 addresses is extremely large. |
| | ○ | The end-to-end connectivity problems that are caused by NAT are solved because the number of routes increases with the number of nodes that are connected to the Internet. |

○ The problems that are induced by NAT applications are solved because the IPv6 header improves packet handling by intermediate routers.

      ○ Because IPv6 has integrated security, there is no need to hide the IPv6 addresses of internal networks.

The large number of public IPv6 addresses eliminates the need for NAT. Sites from the largest enterprises to single households can get public IPv6 network addresses. This avoids some of the NAT-induced application problems that are experienced by applications that require end-to-end connectivity.

This item references content from the following areas:

    ITN

        1.8.3 IPv6 Packet

# 4  What are two services provided by the OSI network layer? (Choose two.)

| Correct Response | Your Response | |
|---|---|---|
| ✔ | ☐ | routing packets toward the destination |
| | ☑ | collision detection |
| | ☐ | placement of frames on the media |
| ✔ | ☑ | encapsulating PDUs from the transport layer |
| | ☐ | performing error detection |

The OSI network layer provides several services to allow communication between devices:

addressing

encapsulation

routing

de-encapsulation

Error detection, placing frames on the media, and collision detection are all functions of the data ink layer.

This item references content from the following areas:

    ITN

        1.8.1 Network Layer Characteristics

## 8　What is one advantage that the IPv6 simplified header offers over IPv4?

| Correct Response | Your Response | |
|---|---|---|
| | ⦿ | little requirement for processing checksums |
| | ◯ | smaller-sized header |
| | ◯ | smaller-sized source and destination IP addresses |
| ✔ | ◯ | efficient packet handling |

The IPv6 simplified header offers several advantages over IPv4:
· Better routing efficiency and efficient packet handling for performance and forwarding-rate scalability
· No requirement for processing checksums
· Simplified and more efficient extension header mechanisms (as opposed to the IPv4 Options field)
· A Flow Label field for per-flow processing with no need to open the transport inner packet to identify the various traffic flows

This item references content from the following areas:

ITN

1.8.3 IPv6 Packet

## 11　What information does the loopback test provide?

| Correct Response | Your Response | |
|---|---|---|
| | ⦿ | DHCP is working correctly. |
| | ◯ | The device has end-to-end connectivity. |
| | ◯ | The Ethernet cable is working correctly. |
| | ◯ | The device has the correct IP address on the network. |
| ✔ | ◯ | The TCP/IP stack on the device is working correctly. |

Because the loopback test sends packets back to the host device, it does not provide information about network connectivity to other hosts. The loopback test verifies that the host NIC, drivers, and TCP/IP stack are functioning.

This item references content from the following areas:

ITN

1.8.4 How a Host Routes

## 13 How do hosts ensure that their packets are directed to the correct network destination?

**Correct Response**    **Your Response**

✔

◯ They have to keep their own local routing table that contains a route to the loopback interface, a local network route, and a remote default route.

    ◉ They always direct their packets to the default gateway, which will be responsible for the packet delivery.

◯ They search in their own local routing table for a route to the network destination address and pass this information to the default gateway.

    ◯ They send a query packet to the default gateway asking for the best route.

Hosts must maintain their own local routing table to ensure that network layer packets are directed to the correct destination network. This local table typically contains a route to the loopback interface, a route to the network that the host is connected to, and a local default route, which represents the route that packets must take to reach all remote network addresses.

This item references content from the following areas:

ITN

1.8.4 How a Host Routes

## 15 What statement describes the function of the Address Resolution Protocol?

| Correct | Your |
| Response | Response |

○ ARP is used to discover the IP address of any host on the local network.

○ ARP is used to discover the MAC address of any host on a different network.

✔ ○ ARP is used to discover the MAC address of any host on the local network.

○ ARP is used to discover the IP address of any host on a different network.

When a PC wants to send data on the network, it always knows the IP address of the destination. However, it also needs to discover the MAC address of the destination. ARP is the protocol that is used to discover the MAC address of a host that belongs to the same network.

This item references content from the following areas:

ITN

1.9.2 ARP

## 18 Which destination address is used in an ARP request frame?

| Correct | Your |
| Response | Response |

○ 0.0.0.0

○ AAAA.AAAA.AAAA

◉ 255.255.255.255

○ the physical address of the destination host

✔ ○ FFFF.FFFF.FFFF

The purpose of an ARP request is to find the MAC address of the destination host on an Ethernet LAN. The ARP process sends a Layer 2 broadcast to all devices on the Ethernet LAN. The frame contains the IP address of the destination and the broadcast MAC address, FFFF.FFFF.FFFF. The host with the IP address that matches the IP address in the ARP request will reply with a unicast frame that includes the MAC address of the host. Thus the original sending host will obtain the destination IP and MAC address pair to continue the encapsulation process for data transmission.

This item references content from the following areas:

ITN

1.9.2 ARP

## 20 Which two types of IPv6 messages are used in place of ARP for address resolution?

| Correct Response | Your Response | |
|---|---|---|
| | ☐ | broadcast |
| ✔ | ☐ | neighbor solicitation |
| ✔ | ☐ | neighbor advertisement |
| | ☐ | echo reply |
| | ☐ | anycast |
| | ☐ | echo request |

IPv6 does not use ARP. Instead, ICMPv6 neighbor discovery is used by sending neighbor solicitation and neighbor advertisement messages.

This item references content from the following areas:

ITN

1.9.3 IPv6 Neighbor Discovery

## 21 What is the aim of an ARP spoofing attack?

| Correct Response | Your Response | |
|---|---|---|
| | ◯ | to fill switch MAC address tables with bogus addresses |
| | ◯ | to overwhelm network hosts with ARP requests |
| ✔ | ◯ | to associate IP addresses to the wrong MAC address |
| | ◯ | to flood the network with ARP reply broadcasts |

In an ARP spoofing attack, a malicious host intercepts ARP requests and replies to them so that network hosts will

map an IP address to the MAC address of the malicious host.

This item references content from the following areas:

ITN

1.9.2 ARP

## 23 Where are IPv4 address to Layer 2 Ethernet address mappings maintained on a host computer?

| Correct Response | Your Response | |
|---|---|---|
| | ⦿ | routing table |
| ✔ | ○ | ARP cache |
| | ○ | MAC address table |
| | ○ | neighbor table |

The ARP cache is used to store IPv4 addresses and the Ethernet physical addresses or MAC addresses to which the IPv4 addresses are mapped. Incorrect mappings of IP addresses to MAC addresses can result in loss of end-to-end connectivity.

This item references content from the following areas:

ITN

1.9.2 ARP

## 28 What are two functions of NVRAM? (Choose two.)

| Correct Response | Your Response | |
|---|---|---|
| | ☐ | to store the ARP table |
| ✔ | ☑ | to store the startup configuration file |
| | ☐ | to contain the running configuration file |

☑ ✔ ☐ to retain contents when power is removed

☑ to store the routing table

> NVRAM is permanent memory storage, so the startup configuration file is preserved even if the router loses power.

This item references content from the following areas:

ITN

1.10.1 Configure Initial Router Settings

## 29 The global configuration command ip default-gateway 172.16.100.1 is applied to a switch. What is the effect of this command?

| Correct Response | Your Response | |
|---|---|---|
| ✔ | ◯ | The switch can be remotely managed from a host on another network. |
| | ◯ | The switch will have a management interface with the address 172.16.100.1. |
| | ◯ | The switch is limited to sending and receiving frames to and from the gateway 172.16.100.1. |
| | ◉ | The switch can communicate with other hosts on the 172.16.100.0 network. |

> A default gateway address is typically configured on all devices to allow them to communicate beyond just their local network.In a switch this is achieved using the command **ip default-gateway** <ip address>.

This item references content from the following areas:

ITN

1.10.3 Configure the Default Gateway

## 30 What happens when the transport input ssh command is entered on the switch vty lines?

| Correct Response | Your Response |
|---|---|

○ The SSH client on the switch is enabled.

◉ The switch requires remote connections via a proprietary client software.

✔ ○ Communication between the switch and remote users is encrypted.

○ The switch requires a username/password combination for remote access.

> The **transport input ssh** command when entered on the switch vty (virtual terminal lines) will encrypt all inbound controlled telnet connections.

This item references content from the following areas:

ITN

1.10.1 Configure Initial Router Settings

## 32  Question as presented:

Match the configuration mode with the command that is available in that mode. (Not all options are used.)

R1(config-line)#

R1#

R1(config-router)#

R1>

R1(config)#

**enable**

**copy running-config startup-config**

## login

## interface fastethernet 0/0

The <b>enable</b> command is entered at the R1&gt; prompt. The <b>login</b> command is entered at the R1(config-line)# prompt. The <b>copy running-config startup-config</b> command is entered at the R1# prompt. The <b>interface fastethernet 0/0</b> command is entered at the R1(config)# prompt.

This item references content from the following areas:

ITN

1.10.2 Configure Interfaces

## Your response:

Match the configuration mode with the command that is available in that mode. (Not all options are used.)

R1(config-line)#

R1#

R1(config-router)#

R1>

R1(config)#

## enable

✓ R1>

**copy running-config startup-config**

✅ R1#

**login**

❌ R1(config-router)#

**interface fastethernet 0/0**

✅ R1(config)#

❓

33  **Which three commands are used to set up secure access to a router through a connection to the console interface? (Choose three.)**

| Correct Response | Your Response | |
|---|---|---|
| | ☑ | **enable secret cisco** |
| ✔ | ☑ | **line console 0** |
| ✔ | ☑ | **password cisco** |
| ✔ | ☐ | **login** |
| | ☐ | **interface fastethernet 0/0** |
| | ☐ | **line vty 0 4** |

The three commands needed to password protect the console port are as follows:
**line console 0**
**password cisco**
**login**
The **interface fastethernet 0/0** command is commonly used to access the configuration mode used to apply specific parameters such as the IP address to the Fa0/0 port. The **line vty 0 4** command is used to access the

configuration mode for Telnet. The **0** and **4** parameters specify ports 0 through 4, or a maximum of five simultaneous Telnet connections. The **enable secret** command is used to apply a password used on the router to access the privileged mode.

This item references content from the following areas:

ITN

1.10.1 Configure Initial Router Settings

## 35 Which two functions are primary functions of a router? (Choose two.)

| Correct Response | Your Response | |
|---|---|---|
| ✔ | ☐ | path selection |
| | ☐ | microsegmentation |
| ✔ | ☑ | packet forwarding |
| | ☑ | flow control |
| | ☐ | domain name resolution |

A router accepts a packet and accesses its routing table to determine the appropriate exit interface based on the destination address. The router then forwards the packet out of that interface.

This item references content from the following areas:

ITN

1.10.3 Configure the Default Gateway

## 37 What will happen if the default gateway address is incorrectly configured on a host?

| Correct Response | Your Response | |
|---|---|---|
| ✔ | ○ | The host cannot communicate with hosts in other networks. |
| | ◉ | The host cannot communicate with other hosts in the local network. |

○ The host will have to use ARP to determine the correct address of the default gateway.

○ A ping from the host to 127.0.0.1 would not be successful.

○ The switch will not forward packets initiated by the host.

When a host needs to send a message to another host located on the same network, it can forward the message directly. However, when a host needs to send a message to a remote network, it must use the router, also known as the default gateway. This is because the data link frame address of the remote destination host cannot be used directly. Instead, the IP packet has to be sent to the router (default gateway) and the router will forward the packet toward its destination. Therefore, if the default gateway is incorrectly configured, the host can communicate with other hosts on the same network, but not with hosts on remote networks.

This item references content from the following areas:

ITN

1.10.3 Configure the Default Gateway

## 38  What are two potential network problems that can result from ARP operation? (Choose two.)

**Correct          Your**
**Response      Response**

✔

☐ Network attackers could manipulate MAC address and IP address mappings in ARP messages with the intent of intercepting network traffic.

☐ Large numbers of ARP request broadcasts could cause the host MAC address table to overflow and prevent the host from communicating on the network.

✔        ☐ On large networks with low bandwidth, multiple ARP broadcasts could cause data communication delays.

☐ Multiple ARP replies result in the switch MAC address table containing entries that match the MAC addresses of hosts that are connected to the relevant switch port.

☐ Manually configuring static ARP associations could facilitate ARP poisoning or MAC address spoofing.

Large numbers of ARP broadcast messages could cause momentary data communications delays. Network attackers could manipulate MAC address and IP address mappings in ARP messages with the intent to intercept network traffic. ARP requests and replies cause entries to be made into the ARP table, not the MAC address table. ARP table overflows are very unlikely. Manually configuring static ARP associations is a way to prevent, not facilitate, ARP poisoning and MAC address spoofing. Multiple ARP replies resulting in the switch MAC address

table containing entries that match the MAC addresses of connected nodes and are associated with the relevant switch port are required for normal switch frame forwarding operations. It is not an ARP caused network problem.

This item references content from the following areas:

ITN

1.9.2 ARP

## 39 Open the PT activity. Perform the tasks in the activity instructions and then answer the question.
## Which interfaces in each router are active and operational?

| Correct Response | Your Response | |
| --- | --- | --- |
| | ○ | R1: G0/0 and S0/0/1<br>R2: G0/1 and S0/0/1 |
| | ○ | R1: G0/1 and S0/0/1<br>R2: G0/0 and S0/0/1 |
| | ○ | R1: G0/0 and S0/0/0<br>R2: G0/0 and S0/0/0 |
| ✔ | ○ | R1: G0/0 and S0/0/0<br>R2: G0/1 and S0/0/0 |

The command to use for this activity is **show ip interface brief** in each router. The active and operational interfaces are represented by the value "up" in the "Status" and "Protocol" columns. The interfaces in R1 with these characteristics are G0/0 and S0/0/0. In R2 they are G0/1 and S0/0/0.

This item references content from the following areas:

ITN

1.10.2 Configure Interfaces

## 49 Which term describes a field in the IPv4 packet header that contains a 4-bit binary value set to 0100?

| Correct Response | Your Response | |
|---|---|---|
| | ○ | differentiated services |
| | ◉ | header checksum |
| | ○ | TTL |
| ✔ | ○ | version |

This item references content from the following areas:

ITN

1.8.2 IPv4 Packet

## 52  What property of ARP allows MAC addresses of frequently used servers to be fixed in the ARP table?

| Correct Response | Your Response | |
|---|---|---|
| ✔ | ○ | A static IP-to-MAC address entry can be entered manually into an ARP table. |
| | ○ | The port-to-MAC address table on a switch has the same entries as the ARP table on the switch. |
| | ○ | The source MAC address appears in the header of the Ethernet frame. |
| | ○ | The destination MAC address FF-FF-FF-FF-FF-FF appears in the header of the Ethernet frame. |

This item references content from the following areas:

ITN

1.9.2 ARP

## 64  HQ(config)# interface gi0/1
HQ(config-if)# description Connects to the Branch LAN
HQ(config-if)# ip address 172.19.99.99 255.255.255.0
HQ(config-if)# no shutdown
HQ(config-if)# interface gi0/0
HQ(config-if)# description Connects to the Store LAN

**HQ(config-if)# ip address 172.19.98.230 255.255.255.0**

**HQ(config-if)# no shutdown**

**HQ(config-if)# interface s0/0/0**

**HQ(config-if)# description Connects to the ISP**

**HQ(config-if)# ip address 10.98.99.254 255.255.255.0**

**HQ(config-if)# no shutdown**

**HQ(config-if)# interface s0/0/1**

**HQ(config-if)# description Connects to the Head Office WAN**

**HQ(config-if)# ip address 209.165.200.120 255.255.255.0**

**HQ(config-if)# no shutdown**

**HQ(config-if)# end**

**Refer to the exhibit. A network administrator is connecting a new host to the Store LAN. The host needs to communicate with remote networks. What IP address would be configured as the default gateway on the new host?**

| Correct Response | Your Response | |
| --- | --- | --- |
| ✔ | ○ | 172.19.98.230 |
| | ○ | 10.98.99.254 |
| | ○ | 172.19.99.99 |
| | ◉ | 172.19.98.1 |
| | ○ | 209.165.200.120 |

This item references content from the following areas:

ITN

1.10.3 Configure the Default Gateway