In the TCP/IP model, which layer defines the interface between software running on the computer and the network itself?



Internet

**Correct!**



Application

Application is correct because the application layer protocols provide services to the application software. The application layer does not define the application itself but does define how the application can access the network.



Data link



Transport

**Question 2**

**1 / 1 pts**

Which OSI encapsulation term can be used instead of the term IP packet?



Layer 5 PDU



Layer 7 PDU

**Correct!**



Layer 3 PDU

Rather than using terms such as frame, packet, and segment, OSI uses the generic term of PDU (protocol data unit). An IP packet is a Layer 3 PDU because IP operates at Layer 3 of the OSI model.



Layer 2 PDU



Layer 1 PDU

**Question 3**

**0 / 1 pts**

Which of the OSI model layers has the main purpose of defining and negotiating data formatting?

**Correct Answer**



Presentation

**You Answered**



Data link

The OSI presentation layer (Layer 6) is responsible for defining and negotiating the data format between communicating hosts. Some common formats include ASCII and EBCDIC. It is also at this layer that some data conversion can occur (for example, from ASCII to EBCDIC).



Network



Application



Transport

**Question 4**

**1 / 1 pts**

Which of the following terms best describes the process of adding headers and possibly trailers to information for transit?



Frames



Packets



Data Linking

**Correct!**



Encapsulation

Encapsulation is the process of putting headers (and sometimes trailers) around data for transmission. Packets and frames are defined by the data included in them. Data link is a layer in the OSI model.

**Question 5**

**1 / 1 pts**

Which of the following layers in the OSI model corresponds to the Internet layer in the original TCP/IP model?



Application

**Correct!**



Network

The Network layer in OSI is equivalent to the Internet layer in the original TCP/IP and has been updated to be the Network layer in the new TCP/IP model.



Physical



Transport

**Question 6**

**1 / 1 pts**

The process of forwarding an IP packet from host to host is known as \_\_\_\_\_\_\_\_.

**Correct!**



Routing

Routing is the correct answer because routing deals with getting the packet to the correct destination. Switching deals with getting frames to their correct destinations. Routing works much like the postal service to deliver messages to the correct destination.



Sending



Switching



Delivery

**Question 7**

**1 / 1 pts**

Which layer of the OSI model defines functions related to data delivery, error recovery, and flow control?

**Correct!**



Transport layer

The transport layer focuses on issues related to data delivery to another computer (for example, error recovery and flow control).



Session layer



Physical layer



Data link layer



Network layer



Presentation layer



Application layer

**Question 8**

**0 / 1 pts**

Which layer of the OSI model includes the TCP and UDP protocols?



Network



Application



Presentation



Session

**You Answered**



Data link

TCP and UDP are transport protocols, introduced at the transport layer of OSI (and TCP/IP).

**Correct Answer**



Transport



Physical

**Question 9**

**1 / 1 pts**

At which of the OSI model layers are rules defined that determine how a device can send data over a particular medium?



Presentation

**Correct!**



Data link

Of the seven OSI network model layers, the data link layer determines how a device can send data over a particular medium, such as Ethernet data link protocols.



Transport



Application



Network

**Question 10**

**1 / 1 pts**

When connecting a wire to a host FastEthernet interface, which pins are used for communications? (Select all that apply.)

**Correct!**



Pins 1 and 2 to transmit

On Ethernet and FastEthernet connections, pins 1 and 2 are used to transmit information, and pins 3 and 6 are used to receive information.



Pins 1 and 2 to receive



Pins 3 and 6 to transmit



Pins 1 and 2 for receive



Pins 7 and 8 for transmit

**Correct!**



Pins 3 and 6 to receive

On Ethernet and FastEthernet connections, pins 1 and 2 are used to transmit information, and pins 3 and 6 are used to receive information.

**Question 11**

**1 / 1 pts**

Which type of fiber optic cabling improves the maximum distances over UTP and uses a less expensive transmitter compared to its counterpart?



Single-mode

**Correct!**



Multimode

Multimode fiber improves the maximum distances over UTP and uses a less expensive transmitter type than single-mode fiber.

**Question 12**

**1 / 1 pts**

What is the name of the data unit that is sent and received at the Ethernet data link layer?



Segment



Section



Bit

**Correct!**



Frame

The name of the data unit used at the Ethernet data link layer is called an Ethernet Frame. A packet (or datagram) is the data unit typically used at the network layer, and a segment is the data unit used at the transport layer.



Packet

**Question 13**

**1 / 1 pts**

What is the name of a LAN device that provides many physical ports into which Ethernet cables can be connected?



Ethernet repeater



Ethernet concentrator



Ethernet bridge



Ethernet router

**Correct!**



Ethernet switch

On Ethernet networks, the most common device deployed is an Ethernet switch. This device is responsible for communications between the hosts that are connected to it (and to other connected switches); typically, these devices have anywhere from four to thousands of ports (RJ-45) available, depending on the environment.

**Question 14**

**1 / 1 pts**

What is the most common network cable connector used in Ethernet?



RJ-48



RJ-10

**Correct!**



RJ-45

The RJ-45 connector is the most common network connector used on Ethernet LAN networks.



RJ-11

**Question 15**

**1 / 1 pts**

Which field in the IEEE 802.3 Ethernet header provides a method for the receiving NIC to determine whether a frame experienced frame errors during transmission?



Pad



Hash



CRC

**Correct!**



FCS

The frame check sequence (FCS) provides a method of detecting frame alteration from source to destination by utilizing a Checksum/Hash on the data at the source that can be verified at the destination.



SFD

**Question 16**

**1 / 1 pts**

What is the longest copper cable length supported by the IEEE 802.3an 10 Gigabit Ethernet standard?



1 kilometer



180 meters

**Correct!**



100 meters

The longest cable length supported when using a copper cable (that is, Category 6a, 7) is 100 meters; notice, however, that even though the copper maximum length is the same for all Ethernet standards, the standard of the cable must change (that is, Category 6a or 7 instead of Category 5e or 6). A fiber cable must be used for Ethernet cable runs that need to be longer than this.



180 feet



100 feet

**Question 17**

**1 / 1 pts**

Assuming Auto-MDIX is *not* supported, which of these devices would require a crossover cable when connecting to a router? (Select all that apply.)



Bridge

**Correct!**



Host (PC)

The hub, bridge, and switch are all pinned the same, and routers and hosts are all pinned the same. Connections to devices that are pinned differently require a straight-through cable, and connections to devices that are pinned the same require a crossover cable; that is, router to switch (straight), router to router (crossover).



Switch

**Correct!**



Router

The hub, bridge, and switch are all pinned the same, and routers and hosts are all pinned the same. Connections to devices that are pinned differently require a straight-through cable, and connections to devices that are pinned the same require a crossover cable; that is, router to switch (straight), router to router (crossover).



Hub

**Question 18**

**1 / 1 pts**

Why are the individual wires within a UTP cable twisted together?



To increase electrical shorts



To reduce electrical opens



To increase crosstalk



To reduce electrical shorts

**Correct!**



To reduce crosstalk

The twisting wires in a UTP (copper) cable create an environment in which electromagnetic interference (EMI) is reduced, which results in a lower amount of crosstalk. The lower amount of crosstalk enabled by these twists ensures clearer communications between devices.

**Question 19**

**1 / 1 pts**

The Internet is essentially one big \_\_\_\_\_\_\_\_ network.



EGP

**Correct!**



TCP/IP

The term *Internet* actually comes from the name of the protocol being used, the Internet protocol (IP); typically it is referred to as a TCP/IP network. The Transmission Control Protocol (TCP) is one of the most commonly used Layer 4 protocols (OSI), whereas IP (or IPv6) is always used on the Internet for communications at Layer 3 (OSI).



Ethernet



OSI



iBGP

**Question 20**

**1 / 1 pts**

What protocol standard is used when utilizing an Ethernet emulation point-to-point link?

**Correct!**



IEEE 802.3

Ethernet emulation technologies, such as Ethernet over Multiprotocol Label Switching (EoMPLS), utilize the same IEEE 802.3 Ethernet standard for transmission that is used on Ethernet LANs.



IEEE 802.5



IEEE 802.11



ISO 4507



ISO 1431

**Question 21**

**1 / 1 pts**

Which of the following protocols are used to establish a point-to-point serial link? (Select all that apply.)



TCP



PPTP



H.323



UDP

**Correct!**



HDLC

HDLC and PPP are correct because both can be used to establish the serial link; which one to use just depends on the manufacturer of the two routers.

**Correct!**



PPP

HDLC and PPP are correct because both can be used to establish the serial link; which one to use just depends on the manufacturer of the two routers.



IP

**Question 22**

**1 / 1 pts**

What is the difference between the ISO version of HDLC and the Cisco version of HDLC that is used, by default, on all serial interfaces?

**Correct!**



Type field

The Cisco version of HDLC adds a Type field that enables the routers to know which type of packet is inside each frame.



Optimized header



Authentication support



Protocol field



Encryption support

**Question 23**

**1 / 1 pts**

What is the physical rate of transmission of a T1 leased line?

**Correct!**



1.544 Mbps

A T1 is an older style of telecommunications leased line that offers a physical transmission rate of 1.544 Mbps.



44.455 Mbps



100 Mbps



10 Mbps



5.455 Mbps



2 Mbps

**Question 24**

**1 / 1 pts**

The \_\_\_\_\_\_\_\_ changes dynamically when someone enters commands in configuration mode.



Ram-config



Startup-config



Default-config

**Correct!**



Running-config

Only the startup-config and running-config exist; running-config is the copy currently running that gets modified as commands are executed.

**Question 25**

**1 / 1 pts**

Which of the following is the mode that is active when the CLI prompt displays hostname(config-if)#?



VLAN



Line

**Correct!**



Interface

The Interface mode is identified by the "-if" in the prompt.



Global

**Question 26**

**1 / 1 pts**

Cisco uses the term \_\_\_\_\_\_\_\_ to refer to a reinitialization of the software.



Reboot



Reinitialize

**Correct!**



Reload

The reload command causes a switch to reinitialize, loading the starting-config file.



Refresh

**Question 27**

**1 / 1 pts**

A Cisco switch has four memory areas that store various files and the IOS. In which area is the IOS stored?

**Correct!**



FLASH

A Cisco device maintains (stores) a local copy of IOS in the Flash memory.



RAM



ROM



NVRAM

**Question 28**

**1 / 1 pts**

The \_\_\_\_\_\_\_\_ stores the configuration used anytime the switch reloads Cisco IOS.



Running-config



Ram-config



Default-config

**Correct!**



Startup-config

Only the startup-config and running-config exist; startup-config is the default after a restart.

**Question 29**

**1 / 1 pts**

You are having trouble remembering part of the correct format of a command. Which of the commands would give you help on the correct format of the parameters?



command \*



command?

**Correct!**



command ?

To obtain access to the help available for a specific command, first type the command, a space, and then the question mark (?).



help

**Question 30**

**1 / 1 pts**

You have just completed the setup of your new Cisco 2960 switch, and you need to save your work. To save the configuration file, you would issue which of the following commands?



copy startup-config running-config



save running-config startup-config

**Correct!**



copy running-config startup-config

You use the copy running-config startup-config command to save the current configuration to the NVRAM. It will then be used when the device reboots or is powered on and off.



move running-config startup-config

**Question 31**

**1 / 1 pts**

Which of the following is the mode that is active when the CLI prompt displays hostname(config)#?

**Correct!**



Global

This is the default starting mode; no command is needed to reach this mode.



VLAN



Interface



Line

**Question 32**

**1 / 1 pts**

A Cisco switch has four area modules that store various files and the IOS. In which area module is the startup-configuration file stored?



FLASH

**Correct!**



NVRAM

A Cisco device maintains (stores) a copy of the initial (startup) configuration in the NVRAM.



RAM



ROM

**Question 33**

**1 / 1 pts**

Which of the following will occur when a switch encounters an unknown destination unicast frame?



The switch will determine if the incoming frame has a known source.



The switch will filter the frame.

**Correct!**



The switch will flood the frame.

The switch will treat an unknown destination unicast frame like a broadcast or multicast frame and flood it over the network.



The switch will add the destination to its address table.

**Question 34**

**1 / 1 pts**

When connecting multiple switches with redundant links, which of the following protocols helps to ensure that you will have a loop-free Ethernet network?



TCP



HTTP

**Correct!**



STP

The function of the Spanning Tree Protocol (STP) is to provide a loop-free Ethernet network.



ARP

**Question 35**

**1 / 1 pts**

Which of the following will occur on a network with redundant links that does *not* use STP?



The frame will transmit once and may not reach its destination.

**Correct!**



A frame will loop forever on the network.

The frame will loop forever, and multiple copies will generate from each redundant switch in the network, clogging the network to useful traffic.



The frame will connect correctly as long as the redundancy is limited.



The frame will transmit until a countdown timer is hit.

**Question 36**

**1 / 1 pts**

The IEEE defines three general categories of Ethernet MAC addresses. What are these three types?

**Correct!**



Multicast

IEEE defines unicast, broadcast, and multicast address types.



Anycast

**Correct!**



Unicast

IEEE defines unicast, broadcast, and multicast address types.

**Correct!**



Broadcast

IEEE defines unicast, broadcast, and multicast address types.



Singlecast



Loopback

**Question 37**

**1 / 1 pts**

Which of the following prevents loops from a switch? (Select all that apply.)

**Correct!**



Disabling send/receive on some ports

Spanning Tree Protocol (STP) is used to prevent loops. It disables send and receive on some ports, so loops do not occur.



VLAN



MAC filtering

**Correct!**



STP

Spanning Tree Protocol (STP) is used to prevent loops. It disables send and receive on some ports, so loops do not occur.

**Question 38**

**1 / 1 pts**

Which of the following is an action that can be taken by a switch upon receiving a frame? (Select all that apply.)



It may retransmit the frame out of the port at which it was received.

**Correct!**



It may forward the frame out of a selected port.

The switch uses forward-versus-filter, choosing to forward or filter (not forward) a received frame.



It may periodically retransmit the frame on all ports to assure receipt.

**Correct!**



It may filter the frame and not send it out of a port.

The switch uses forward-versus-filter, choosing to forward or filter (not forward) a received frame.

**Question 39**

**1 / 1 pts**

Which of the following items does a switch populate into its address table upon receiving a frame from an unknown source? (Select all that apply.)



The destination port

**Correct!**



The source MAC address

To populate its address table, the switch needs to record the source MAC address and the source port.



The destination MAC address

**Correct!**



The receiving interface

To populate its address table, the switch needs to record the source MAC address and the source port.

**Question 40**

**1 / 1 pts**

Which of the following commands will provide statistics about incoming and outgoing frames on an interface such as the number of unicast, multicast, and broadcast frames in and out of the interface?



show mac address-table dynamic



show mac address-table



show interface name status

**Correct!**



show interface name counters

The keyword counters in the show interface command is used to provide routing statistics for the interface.

**Question 41**

**1 / 1 pts**

Given the following address table, which port would be used to forward a frame destined for 0200.2222.2222?  
  
Text, letter

Description automatically generated with medium confidence



Fa0/1

**Correct!**



Fa0/2

The address table determines which port will transmit a frame; in this case, the destination matches the port for Fa0/2.



Fa0/3



Fa0/4

**Question 42**

**1 / 1 pts**

Which of the following commands should immediately follow interface vlan 1 when configuring IPv4 on a switch?



ip default-gateway *ip-address*

**Correct!**



ip address *ip-address mask*

The IP address and mask need to be established first, so the command ip address *ip-address mask* should be used next.



no shutdown



ip name-server *ip-address1 ip-address2 …*

**Question 43**

**1 / 1 pts**

Which of the following commands are shared between the console and Telnet for the setup of simple passwords? (Select all that apply.)

**Correct!**



password *password-value*

After the configuration mode is entered, the login and password commands are the same for both modes.



line con 0



line vty 0 15

**Correct!**



login

After the configuration mode is entered, the login and password commands are the same for both modes.

**Question 44**

**1 / 1 pts**

Which of the following commands in configuration mode will enable the VLAN interface if it is not already enabled?



ip address *ip-address mask*

**Correct!**



no shutdown

The command no shutdown will administratively enable an interface.



ip name-server *ip-address1 ip-address2 …*



ip default-gateway *ip-address*

**Question 45**

**1 / 1 pts**

Which of the following transport input commands will configure a port to support both Telnet and SSH? (Select all that apply.)

**Correct!**



transport input telnet ssh

Either transport input all or transport input telnet ssh will enable support for both SSH and Telnet.



transport input default



transport input both

**Correct!**



transport input all

Either transport input all or transport input telnet ssh will enable support for both SSH and Telnet.

**Question 46**

**1 / 1 pts**

Which of the following protocols are enabled by default on a Cisco router for external users to access?



SSH

**Correct!**



Neither Telnet nor SSH

The default setting is to have both Telnet and SSH disabled (that is, transport input none).



Both Telnet and SSH



Telnet

**Question 47**

**1 / 1 pts**

Which of the following is a characteristic of the shared passwords used in networking?

**Correct!**



The password is set and known by administrators.

The shared password is set by network administrators, not the individual user, so it is known by several people.



The individual user defines each password.



Every piece of equipment must use the same password.



All configuration modes use the same password.

**Question 48**

**1 / 1 pts**

How many VLAN interfaces (SVI) can exist and be up on a typical Layer 2 Cisco switch at the same time?



8

**Correct!**



1

Typical Layer 2 Cisco switches are limited to a single active VLAN interface (SVI); while other VLAN interfaces can be configured, only a single one can be active at the same time.



4096



2

**Question 49**

**1 / 1 pts**

Which command can be used to alter the default display behavior of syslog messages on a device so that they will not interrupt the output of a show command?



synchronize messages

**Correct!**



logging synchronous

The logging synchronous command is used to alter the default display behavior of syslog messages on a device.



logging systematic



logging timed

**Question 50**

**0 / 1 pts**

Which of the following commands should be done as a precursor to generating a matched public and private key for encryption? (Select all that apply.)

**You Answered**



crypto key prepare rsa

The hostname (hostname *name*) and domain name (ip domain-name *name*) need to be configured before generating the keys for encryption.

**You Answered**



ip ssh version 2

The hostname (hostname *name*) and domain name (ip domain-name *name*) need to be configured before generating the keys for encryption.

**Correct Answer**



ip domain-name *name*

**Correct Answer**



hostname *name*