

Q.1) What does it mean if a protocol is stateless?

A: If a stateless protocol is used, it cannot be traced.

B: Server responds to a request, and then forgets about it

C: Client responds to server request and keeps track of the conversation.

D: If a protocol is stateless, it means it is unreliable

Q.2) Identify the FALSE statement

A: Wireless LAN and Ethernet are broadcast medium

B: Wireless LAN & Ethernet cannot co-exist

C: WLAN provides less bandwidth compared to Gigabit Ethernet

D: WLAN & Ethernet can use IP as their network layer protocol

Q.3) Which of the following statement about ICMP is FALSE?.

A: ICMP sends 5 types of error reporting messages and 4 pairs of query messages to support unreliable and connection less IP

B: The source-quench error message is sent in an effort to alleviate congestion

C: The echo-request and echo-reply messages test the connectivity between 2 systems

D: ICMP messages are not encapsulated in IP datagram

Q.4) Which of the following is not part of IP header?

A: Window size

B: Fragment offset

C: Header checksum

D: Time to live

Q.5) Which of these commands displays the IP address and MAC address mappings known to a windows system?

A: Netstat -a

B: Tracert

C: Ipconfig

D: Arp -a

Q.6) Match the following with the corresponding protocols

a) IP to host name resolution i) ICMP

b) Accessing mail account ii) ARP

c) Who owns IP address 172.16.1.2? iii) DNS

d) Destination unreachable iv) IMAP

A: a-iii, b-i, c-ii, d-iv

B: a-ii, b-iv, c-iii, d-i

C: a-iii, b-iv, c-ii, d-i

D: a-ii, b-iii, c-iv, d-I

Q.7) Which of the following statements is a true description of fiber Optic Cable.

A: Fiber optic cables transfer data in a mesh

B: Fiber optic cables are similar to coaxial cables

C: Fiber optic cables transfer data in light form

D: Fiber optic cable are similar to twisted pair cables

Q.8) What is the maximum data field length (MTU) supported by the Ethernet?

A: 1500 Bytes

B: 1518 Bytes

C: 1400 Bytes

D: 1024 Bytes

- Q.9)** For which of the following is UDP unsuitable? Choose the most appropriate answer.
- A: DNS
 - B: Multicasting
 - C: RTP
 - D: SMTP**

- Q.10)** The routing table of the router is shown below:

Destination	Subnet Mask	Interface
192.168.43.0	255.255.255.0	eth0
192.168.43.0	255.255.255.128	eth1
192.12.17.5	255.255.255.255	eth3
Default		eth2

On which interface will the router forward packets addressed to destinations 192.168.43.16 and 192.168.17.10

- A: eth1 and eth2**
 - B: eth0 and eth2
 - C: eth0 and eth3
 - D: eth1 and eth3
- Q.11)** Which of the following uniquely identifies a TCP connection?
- A: Sender IP, Receiver IP
 - B: Sender port, Receiver port**
 - C: Sender IP & Sender Port, Receiver IP & Receiver Port
 - D: Sender MAC & Sender IP, Receiver MAC & Receiver IP
- Q.12)** Which of this IEEE standard defines Token Ring?
- A: 802.11
 - B: 802.3
 - C: 802.7
 - D: 802.5**
- Q.13)** Which type of Packet (or Address) is not supported in IPV6?
- A: Unicast
 - B: Multicast
 - C: Broadcast**
 - D: Anycast
- Q.14)** Match the following

- | | |
|----------------------|---------|
| i. UTP | 1. RJ11 |
| ii. Serial Interface | 2. RJ45 |
| iii. Telephone | 3. V.35 |

- A: UTP-RJ11, Serial I/F – RJ45, Telephone – V.35
- B: UTP-RJ45, Serial I/F – V.35, Telephone – RJ11**
- C: UTP-V.35, Serial I/F – RJ45 Telephone – RJ11
- D: UTP-RJ45, Serial I/F – RJ11, Telephone – V.35

- Q.15)** After a host name is resolved to an IP address, what does a local host need to do next to communicate with the target host if the target host resides on the same subnet?
- A: Resolve the IP address to physical address using ARP
 - B: Update routing table
 - C: Resolve the IP address to physical address using RARP
 - D: Send the packet to the default Router
- Q.16)** A hub connects 24 computers. In that A and B are two machines. A sends data to B. How many computers will receive that data?
- A: Only B will receive
 - B: All 24 computers will receive
 - C: Only A and B will receive
 - D: All computers except A will receive
- Q.17)** Which type of NAT maps private IP address to a public IP address on one to one basis?
- A: Static NAT
 - B: Dynamic NAT
 - C: Port Address Translation
 - D: None
- Q.18)** Which of the following TCP flag is set in the first packet that goes from the web client to a web server while opening a web site?
- A: SYN
 - B: RST
 - C: ACK
 - D: URG
- Q.19)** Which of the statements is not true related to a network switch?
- A: All the computers connected to a switch are in a same broadcast domain
 - B: Each port of a switch is a different broadcast domain
 - C: The switch uses source and destination MAC address fields in Ethernet frames to create MAC table
 - D: Each port of a switch is a different collision domain
- Q.20)** Which of this device stops MAC address broadcasts and thus separates two broadcast domains?
- A: Switch
 - B: HUB
 - C: Repeater
 - D: Router
- Q.21)** A computer is given an IP address as 192.168.100.35 with a subnet mask of 255.255.255.0. Which of this IP address is not in the same IP subnet as this computer?
- A: 192.168.100.33
 - B: 192.168.100.55
 - C: 192.168.100.60
 - D: 192.168.100.65

Q.22) What will be the broadcast address for the network 10.10.0.0 with subnet mask 255.255.0.0?

- A: 10.10.0.255
- B: 10.10.255.254
- C: 10.10.255.255**
- D: 10.10.255.0

Q.23) What is the correct representation of following IPV6 address 3ffe:3700:0200:00ff:0000:0000:0000:0001?

- A: 3ffe:3700:02:ff::1
- B: 3ffe:3700:200:ff::1**
- C: 3ffe:37:2:00ff::1
- D: 3ffe:37:200:ff::1

Q.24) Assume you are working on a PC and you are typing www.somesite.in . but you are not able to connect to it, but when you try 202.141.151.33 you are able to connect. What might be wrong? (assuming IP address of www.somesite.in is 202.141.151.33)

- A: The company firewall restricts the access to websites
- B: A virus could have caused the problem
- C: The DNS server or DNS settings are not properly configured**
- D: The PC is configured to accept only IP address

Q.25) Which OS command shows the routing table of the machine?

- A: arp -all
- B: netstat -r**
- C: showroute -all
- D: systems does not have the routing tables only routers have the routing tables

Q.26) Correctly match the "Layer Name" with the "Name of the unit exchanged" at that Layer.

- | | |
|--------------------|-----------|
| A) Physical layer | i) Packet |
| B) Data link layer | ii) TPDU |
| C) Network Layer | iii) Bit |
| D) Transport Layer | iv) Frame |
- A: A- iii, B- i, C-ii, D-iv
 - B: A- iii, B- iv, C- ii, D- i
 - C: A-iv, B-iii, C-ii, D-I
 - D: A - iii, B - iv, C - i, D – ii**

Q.27) Which of this is a routed protocol?

- A: IP**
- B: RIP
- C: OSPF
- D: EIGRP

Q.28) Which of the following is the issue NOT addressed by the IP protocol at Network Layer.

- A: Addressing
- B: Subnetting
- C: Routing
- D: Circuit setup

Q.29) Which of the OSI layers defines encryption technologies to protect transmitted data?

- A: Application Layer
- B: Session Layer
- C: Presentation Layer
- D: Physical Layer

Q.30) Which all transport layer header flags are involved while establishing a connection?

- A: SYN and FIN
- B: SYN and ACK
- C: SYN , ACK and FIN
- D: FIN and ACK

Q.31) FTP at the Application Layer, TCP at the Transport Layer, IP at the Network Layer and 802.3 at the Data Link Layer would be representing a system in ____

- A: LAN
- B: MAN
- C: WAN
- D: WLAN

Q.32) Which TCP/IP layer attaches a header and trailer to the transmitting data?

- A: Application Layer
- B: Data Link Layer
- C: Transport Layer
- D: Network Layer

Q.33) What is the principle difference between CDMA and GSM?

- A: GSM and CDMA use the same technology but difference is in the handset
- B: GSM uses TDMA while CDMA uses Spread Spectrum modulation
- C: GSM phones can be used with CDMA , but the other way around is not possible
- D: CDMA uses TDM While GSM uses FDM

Q.34) Which of the following is FALSE for VLANs?

- A: Segmented by port or MAC address
- B: Span multiple switches
- C: No routing is needed for connectivity between VLANS
- D: VLANS operates at layer 2

Q.35) ___in Example of Physical Address and ___ is an example of logical address

- A: IP Address, MAC Address
- B: MAC address, Sequence Number
- C: MAC address, IP Address
- D: Sequence Number, IP Address

Q.36) Which of the following statement is not true related to Multi-mode Fiber optic cable?

- A: It suffers a lot from high dispersion and attenuation rates.
- B: It is used for short distance communication.
- C: It uses a large diameter fiber optic core.
- D: It has very low dispersion and attenuation rates.

Q.37) Which of the Wireless standard works only on 5GHz band?

- A: 802.11a
- B: 802.11b
- C: 802.11g
- D: 802.11n

Q.38) How to set the privileged mode password in cisco router?

- A: router> password cdac
- B: router # enable password cdac
- C: router > enable password cdac
- D: router(config)# enable password cdac

Q.39) Administrator have configured an inbound access list on a serial interface to deny the packet entry for tcp and udp port 21,23,25. Now, what type of packet will be passing through the network :

- A: SMTP
- B: TELNET
- C: HTTP
- D: FTP

Q.40) If a PC does not have network connectivity to a router, which router port can be used to establish communication?

- A: Ethernet
- B: Console
- C: VTY
- D: Serial

Module Name: Fundamentals of Computers and Networks (FCN)

Session 1:

Q.No.1. The maximum frame size supported by a communication link is known as?

- A: Load
- B: Reliability
- C: MTU
- D: Delay

Session 2:

Q.No.3. Which of the following IP Header field is used by the traceroute (tracert) command to find the route to the destination?

- A: TTL B: Header Length C: Version D: Flags

Q.No.4. Which of the following command allows you to release IP address assigned to the computer and get it renewed from the DHCP server?

- A: netstat B: ipconfig C: arp D: tracert

Q.No.5. Which of the following command allows you to view the IP address and MAC address mapping that the computer has learned over the network?

- A: netstat B: ipconfig C: arp D: ping

Session 3:

Q.No.6. Which of the following cable can be used for long distance reliable connectivity?

- A. UTP Cable B: Multi Mode Fiber
C: STP Cable D: Single Mode Fiber

Q.No.7. Which of the following statement is true about the STP cable?

- A: It can be used for a distance more than 100 meters.
B: supports more throughput as it has more cores than UTP
C: It is less affected by the Electro Magnetic Interference than UTP
D. It uses Infrared light for data transmission.

Session 4

Q.No.8. Which of the following OSI layer states the requirement of an address like the MAC address?

- A: Physical B: Data Link C: Network D: Transport

Q.No.9. Which of the following OSI layer works to provide host to host reliable data transfer?

- A: Transport B: Network C: Presentation D: Physical

Q.No.10. Which of the following OSI layer is not mapped by the Application layer of the TCP/IP model?

A: Session B: Application **C: Network** D: Presentation

Session 5

Q.No.11. Which of the following function is provided by the data link layer in the Ethernet technology?

A: Error Correction B: Encryption
C: Route Identification **D: Error Detection**

Q.No.12. Which of the following ICMP packet is sent by the host when you ping to a network computer from it?

A: Echo Reply B: Ping request **C: Echo request** D: Ping reply

Q.No.13. Which of the following device can function at Layer 2 and layer 3?

A: Hub **B: Switch** C: Repeater D: Bridge

Session 6

Q.No.14. What is the first field of the Ethernet frame without considering Preamble?

A: Source MAC Address B: Type
C: DATA **D: Destination MAC Address**

Q.No.15. What is Fast Ethernet?

A: It supports 10/100 Mbps speed B: It supports only 10 Mbps speed
C: It supports only 100 Mbps speed D: It supports 1 Gbps speed

Q.No.16. What is the maximum frame size supported by the Ethernet?

A: 64 Bytes B: 600 Bytes **C: 1518 Bytes** D: 1024 Bytes

Session 7

Q.No.17. Which of the following technology is defined by the IEEE 802.5 specification?

A: Wireless **B: Token Ring** C: Ethernet D: Frame Relay

Q.No.18. What is the maximum speed supported by the Token Ring network while using Twisted pair cables?

A: 16 Mbps

B: 8 Mbps

C: 100 Mbps

D: 1 Gbps

Session 8 & 9

Q.No.19. Which of the following is the WAN protocol that supports authentication?

A: X.25

B: PPP

C: IP

D: Frame Relay

Q.No.20. Which of the following authentication protocol provides password security by not transmitting the actual password over the link?

A: LAPB

B: PAP

C: Frame Relay

D: CHAP

Q.No.21. Which of the following protocol allows you to trap particular events taking place on a system and send them to a central monitor system?

A: ICMP

B: NTP

C: SNMP

D: PPTP

Q.No.22. Which of the following protocol is used by the devices to send error messages regarding the communication to the source?

A: ICMP

B: IP

C: TCP

D: SNMP

Session 10

Q.No.23. Which of the following Wi-Fi security option makes use of RADIUS server to provide additional security?

A: WEP

B: WPA-Personal

C: WPA-Enterprise

D: TKIP

Q.No.24. What is the length of the IPV6 address?

A: 64 Bit

B: 32 Bit

C: 256 Bit

D: 128 Bit

Q.No.25. What is the correct EUI-64 representation of the MAC address 00-02-4A-57-6B-73?

A: 0002:FFFE:4A57:6B73

B: 0002:4AFF:FE57:6B73

C: 0002:4A57:FFFE:6B73

D: 0202:4AFF:FE57:6B73

Q.No.26. Which of the following IEEE standard for wireless networks supports streaming of multimedia files?

A: 802.11a

B: 802.11e

C: 802.11g

D: 802.11n

Session 11

Q.No.27. What will be the subnet mask if 18 bits are reserved for the network addressing?

A: 255.255.192.0 B: 255.255.255.192 C: 255.192.0.0 D: 255.255.0.0

Q.No.28. Which of the following NAT option allows multiple LAN clients to use same public IP address to access internet?

A: Static NAT B: Dynamic NAT C: NAT Overload D: DNAT

Q.No.29. How many hosts you get within a IP subnet, with the subnet mask of /19?

A: 64 Hosts B: 16 Hosts C: 8 Hosts D: 32 Hosts

Q.No.30. Which of the following is the broadcast address for a network address and subnet mask combination of 192.168.10.0 / 255.255.255.240?

A: 192.168.10.18 B: 192.168.10.47 C: 192.168.10.54 D: 192.168.10.125

Session 12

Q.No.31. You have configured routers between 4 IP subnets. You have sub netted a network address 192.168.1.0 to create 4 IP subnets. You have configured RIP however the network is not established. What may be the reason?

A: You configured RIP version 1 B: RIP does not supports IPV4
C: You forgot to enter static routes D: RIP is not a routing protocol

Q.No.32. What is the default administrative distance for OSPF?

A: 90 B: 100 C: 110 D: 120

Q.No.33. Which of the following protocol does not supports Variable Length Subnet mask?

A: EIGRP B: OSPF C: RIP v2 D: IGRP

Session 13

Q.No.34. Which of the following header field of the IP protocol is reduced by 1 by each router before forwarding the IP packet?

A: Header Length B: Destination IP address
C: TTL D: Source IP address

Q.No.35. Which of the following IP header field flag is used by the TCP protocol to find the MTU supported between the source and the destination?

- A: TTL B: Don't Fragment C: More Fragments D: HLEN

Q.No.36. Which of the following ICMP packet type is used by the routers to inform source when the TTL value in the packet becomes zero.

- A: 0 B: 3 **C: 11** D: 8

Session 14

Q.No.37. Which of the following protocol on manageable switches helps to avoid switching loops?

- A: ICMP B: VTP C: NNTP D: STP

Q.No.38. Which of the following protocol helps admin replicate the VLAN information across multiple switches within the network?

- A: VTP B: STP C: ICMP D: SNMP

Q.No.39. How many collision domains are created by a HUB?

- A: 1 B: 2 C: 255 D: Depends on no. of ports

Q.No.40. How many broadcast domains will be created by a 24 port switch with the default configuration?

- A: 24 B: 2 **C: 1** D: 255

Q. No. 1**Question:**

Which functions of the OSI model occur at layer two?

Answer Choices

A: physical addressing

C: routing

B: encoding

D: cabling

Q. No. 2**Question:**

A technician is asked to secure the privileged EXEC mode of a switch by requiring a password. Which type of password would require this login and be considered the most secure?

Answer Choices

A: console

C: enable secret

B: enable

D: VTY

Q. No. 3**Question:**

Which OSI layer does IP rely on to determine whether packets have been lost and to request retransmission?

Answer Choices

A: application

C: session

B: presentation

D: transport

Q. No. 4**Question:**

When connectionless protocols are implemented at the lower layers of the OSI model, what is usually used to acknowledge that the data was received and to request the retransmission of missing data?

Answer Choices

A: IP

B: UDP

C: Ethernet

D: an upper-layer, connection-oriented protocol or service

Q. No. 5**Question:**

Which subnet mask will allow 2040 hosts per subnet on the IP network 10.0.0.0?

Answer Choices

A: 255.255.0.0

C: 255.255.252.0

B: 255.255.254.0

D: 255.255.248.0

Q. No. 6**Question:**

Which statement is true about the TTL value of an IPv4 packet?

Answer Choices

- A: It determines the priority of a packet.
- B: It specifies the remaining "life" of the packet.
- C: It indicates that the packet has been fragmented.
- D: It denotes the data payload type that the packet is carrying.

Q. No. 7

Question:

What type of network is maintained if a server takes no dedicated role in the network?

Answer Choices

- A: mainframe
 - B: client/server
 - C: peer-to-peer
 - D: centralized
-

Q. No. 8

Question:

A routing issue has occurred in your internetwork. Which of the following type of devices should be examined to isolate this error?

Answer Choices

- A: access point
- B: hub
- C: router
- D: switch

Q. No. 9

Question:

A user sees the command prompt: Router(config-if)#. What task can be performed at this mode?

Answer Choices

- A: Reload the device.
- B: Perform basic tests.
- C: Configure individual interfaces.
- D: Configure individual terminal lines.

Q. No. 10

Question:

What information can be gathered by using the command netstat?

Answer Choices

- A: the default gateway
 - B: the routing protocol
 - C: active TCP connections
 - D: the locally configured subnet mask
-

Q. No. 11

Question:

How can ARP be used to help document the network?

Answer Choices

- A: It can list each hop on the way to a destination host.
- B: It can show the average latency of hosts on the network.
- C: **It can provide a list of physical addresses on the network.**
- D: It can indicate which hosts are not responding to network traffic.

Q. No. 12

Question:

What is the protocol data unit that is associated with the data link layer of the OSI reference model?

Answer Choices

- A: data
- B: **frame**
- C: packet
- D: segment

Q. No. 13

Question:

Which application layer protocol allows administrators to log into a server from remote locations and control a server as though logged in locally?

Answer Choices

- A: DNS
- B: FTP
- C: SMTP
- D: **Telnet**

Q. No. 14

Question:

Which statement identifies the DNS protocol?

Answer Choices

- A: It transmits information using TCP port 25.
- B: It transfers and conveys information using HTML pages.
- C: **It matches a resource name with the required network address.**
- D: It requests and assigns an IP address, default gateway, and server addresses to hosts.

Q. No. 15

Question:

Which password would allow a user to establish a Telnet session with a Cisco device?

Answer Choices

- A: **VTY password**
- B: enable password
- C: console password
- D: enable secret password

Q. No. 16

Question:

Which identifier is contained in the header of the Layer 2 Ethernet frame?

Answer Choices

- A: timing and synchronization of bits
- B: source and destination port numbers
- C: logical source and destination addresses
- D: **physical source and destination addresses**

Q. No. 17

Question:

What happens when a node on an Ethernet network is creating a frame and it does not have the destination MAC address?

Answer Choices

- A: The node drops the frame.
- B: The node sends out a Layer 3 broadcast message.
- C: The node sends a message directly to the router for the address.
- D: **The node sends out an ARP request with the destination IP address.**

Q. No. 18

Question:

An administrator makes changes to the default configuration of a router and saves them to NVRAM. After testing, it is discovered that the configurations did not have the desired effect and must be removed. What steps must be taken to remove the changes and return the router to the default configuration?

Answer Choices

- A: Reboot the router.
- B: Use no version of the commands that are issued.
- C: **Issue the erase startup-config command, and then reboot the router.**
- D: Issue the erase running-config command, and then reboot the router.

Q. No. 19

Question:

A network administrator is tasked with connecting two workgroups that are configured to use different subnets. Which device should be selected to allow connectivity between users on the two networks?

Answer Choices

- A: hub
- B: switch
- C: **router**
- D: wireless access point

Q. No. 20

Question:

Which program can be used to accomplish terminal emulation for configuring a router from the CLI through the console port?

Answer Choices

- A: **HyperTerminal**
- B: Internet Explorer
- C: Secure Shell
- D: Telnet

Q. No. 21

Question:

Which statement accurately describes file sharing in a peer-to-peer network?

Answer Choices

- A: A dedicated server is required.
- B: Access control is decentralized.
- C: Files are typically stored on the most powerful peer in the network.
- D: **Peers can either make requests, or respond to requests, but not both.**

Q. No. 22

Question:

What is primary responsibilities of the Ethernet MAC sublayer?

Answer Choices

- A: frame delimiting
- B: **data encapsulation**
- C: logical addressing
- D: error detection

Q. No. 23

Question:

Which router configuration mode would an administrator use to configure the router for SSH or Telnet login access?

Answer Choices

- A: **line**
- B: router
- C: global
- D: interface

Q. No. 24

Question:

What purpose does a hostname serve on a router?

Answer Choices

- A: uniquely identifies a router on the internet
- B: used by routing protocols to identify peer routers
- C: **provides device identification to users logging on remotely**
- D: determines the hosts that are allowed to connect to the device

Q. No. 25

Question:

Which prompt is associated with the privileged exec mode?

Answer Choices

- A: R1>
- B: **R1#**
- C: R1(config)#
- D: R1(config-router)#

Q. No. 26

Question:

A technician wishes to connect two computers to move data from one to the other before reloading the operating system. The NICs on both PCs do not support autosensing feature. Which procedure will satisfy the requirement?

Answer Choices

- A: Interconnect the two PCs with a rollover cable.
- B: Interconnect the two PCs with two rollover cables and a hub.
- C: **Interconnect the two PCs with a crossover cable.**
- D: Interconnect the two PCs with two crossover cables and a hub.

Q. No. 27

Question:

Two routers are connected via their serial ports in a lab environment. The routers are configured with valid IP addresses, but they cannot ping each other. The show interface serial0/0 command shows that the serial0/0 interface is up but the line protocol is down. What could be the cause of this problem?

Answer Choices

- A: **The no shutdown command has not been applied to the interfaces.**
 - B: The clock rate command has not been entered on the DCE interface.
 - C: The interface timers are not cleared.
 - D: The Fast Ethernet interface is emulating a serial interface by assigning it a timing signal.
-

Q. No. 28**Question:**

An organization has been assigned network ID 10.10.128.0 and subnet mask 255.255.224.0. Which IP address range can be used for this organization?

Answer Choices

- A: 10.10.128.0 to 10.10.160.255
- B: **10.10.128.0 to 10.10.159.255**
- C: 10.10.128.0 to 10.10.192.255
- D: 10.10.128.0 to 10.10.0.159

Q. No. 29**Question:**

When must a router serial interface be configured with the clock rate command?

Answer Choices

- A: when the interface is functioning as a DTE device
- B: when the interface timers have been cleared
- C: when the connected DTE device is shut down
- D: **when the interface is functioning as a DCE device**

Q. No. 30**Question:**

Due to a security violation, the router passwords must be changed. What information can be learned from the following configuration entries?

```
Router(config)# line vty 0 3
Router(config-line)# password c13c0
Router(config-line)# login
```

Answer Choices

- A: The entries specify three Telnet lines for remote access.
- B: **The entries specify four Telnet lines for remote access.**
- C: The entries set the console and Telnet password to "c13c0".
- D: Telnet access will be denied because the Telnet configuration is incomplete.

Q. No. 31**Question:**

Which password is automatically encrypted when it is created?

Answer Choices

A: vty

C: enable secret

B: console

D: enable password

Q. No. 32**Question:**

Which prompt represents the appropriate mode used for the copy running-config startup-config command?

Answer Choices

A: Switch-6J>

C: Switch-6J (config) #

B: Switch-6J#

D: Switch-6J (config-if) #

Q. No. 33**Question:**

Which information is used by the router to determine the path between the source and destination hosts?

Answer Choices

A: the host portion of the IP address

B: the network portion of the IP address

C: host default gateway address

D: the MAC address

Q. No. 34**Question:**

Well-known services and applications use which range of TCP/UDP port numbers?

Answer Choices

A: 0 to 255

C: 1024 to 49151

B: 0 to 1023

D: 49152 to 65535

Q. No. 35**Question:**

Which IPv4 address represents subnet broadcast addresses?

Answer Choices

A: 192.168.4.63 /26

C: 192.168.4.51 /27

B: 192.168.4.129 /26

D: 192.168.4.221 /27

Q. No. 36**Question:**

Which statement is true about network layer addressing?

Answer Choices

A: The addresses are 48 bits long.

B: Network layer addressing is used by Ethernet switches to make forwarding decisions.

C: A portion of the address is used to identify the network.

D: It does not support broadcasts.

Q. No. 37

Question:

Which OSI layer addressing is required to route packets between two networks?

Answer Choices

A: Layer 1

B: Layer 2

C: Layer 3

D: Layer 4

Q. No. 38

Question:

How many host addresses may be assigned when using the 128.107.0.0 network address with a subnet mask of 255.255.248.0?

Answer Choices

A: 30

B: 256

C: 2046

D: 2048

Q. No. 39

Question:

During the encapsulation process, what is the PDU of the internet layer?

Answer Choices

A: bit

B: data

C: frame

D: packet

Q. No. 40

Question:

Which service is used when the nslookup command is issued on a computer?

Answer Choices

A: FTP

B: DNS

C: DHCP

Q. No. 1

Question:

What are the default terminal emulation software settings when configuring a Cisco device through a console port?

Answer Choices

- A: Bits per second: 19200
Data bits: 7
Parity: None
Stop bits: 0
Flow control: None
- B: Bits per second: 9600
Data bits: 8
Parity: None
Stop bits: 1
Flow control: None
- C: Bits per second: 19200
Data bits: 7
Parity: None
Stop bits: 0
Flow control: Hardware
- D: Bits per second: 9600
Data bits: 8
Parity: None
Stop bits: 1
Flow control: Hardware

Q. No. 2

Question:

In a packet-switched data network, what is used to reassemble the packets in the correct order at the destination device?

Answer Choices

- A: source address
- B: sequence number
- C: priority assignment
- D: destination address

Q. No. 3

Question:

Which router configuration mode will require user authentication if an administrator issues the enable secret command?

Answer Choices

- A: user executive mode
- B: privileged executive mode
- C: global configuration mode
- D: service specific configuration mode

Q. No. 4

Question:

Which location of router memory is cleared with the erase startup-config command?

Answer Choices

- A: flash
- B: RAM
- C: ROM
- D: **NVRAM**

Q. No. 5

Question:

Which subnet mask should be used for a Class B network that is divided into subnets and will accommodate between 800 hosts and 1000 hosts?

Answer Choices

- A: 255.255.255.0
- B: 255.255.254.0
- C: **255.255.252.0**
- D: 255.255.248.0

Q. No. 6

Question:

Which prompt is associated with the user exec mode?

Answer Choices

- A: R1>
- B: **R1#**
- C: R1(config)#
- D: R1(config-router)#

Q. No. 7

Question:

What is the effect of using the Router# copy running-config startup-config command on a router?

Answer Choices

- A: The contents of ROM will change.
- B: The contents of RAM will change.
- C: **The contents of NVRAM will change.**
- D: The contents of flash will change.

Q. No. 8

Question:

In a network design project, a network designer needs to select a device to provide collision free connections to 40 hosts on the LAN. Which device should be selected?

Answer Choices

- A: hub
- B: router
- C: **switch**
- D: firewall

Q. No. 9

Question:

Which communication tool allows real-time collaboration?

Answer Choices

- A: wiki
- B: e-mail

- C: weblog
- D: instant messaging

Q. No. 10

Question:

Which range of port numbers are reserved for services that are commonly used by applications that run on servers?

Answer Choices

- A: 0 to 255
- B: 0 to 1023
- C: 1024 to 49151
- D: 49152 to 65535

Q. No. 11

Question:

Which OSI layer manages data segments?

Answer Choices

- A: application layer
- B: presentation layer
- C: session layer
- D: transport layer

Q. No. 12

Question:

Which type of media can provide bandwidth up to 1 Gb/s?

Answer Choices

- A: 10 BASE-T
- B: 100 BASE-T
- C: 100 BASE-FX
- D: 1000 BASE-TX

Q. No. 13

Question:

A user enters `http://www.cisco.com/web1.htm` in the address line of a browser. Which statement is true about this transaction?

Answer Choices

- A: The "http" portion indicates the protocol that is being used.
- B: The "web1.htm" portion is the specific service name.
- C: The retrieved web page will be displayed in URL code.
- D: The "www.cisco.com" is the name of the web page file that is called

Q. No. 14

Question:

What can the user do from the command prompt, `Router(config-line)#`?

Answer Choices

- A: Configure one of the network interfaces.
- B: Configure one of the physical or virtual lines.
- C: Verify the running configuration on the device.
- D: Configure the parameters for one of the routing protocols.

Q. No. 15

Question:

A technician is setting up a workgroup for six users and wants to allow users to share files without setting up a server. Which application layer protocol will provide for peer-to-peer file sharing in a workgroup?

Answer Choices

- A: DNS
- B: **SMB**
- C: HTTP
- D: DHCP

Q. No. 16

Question:

Which router component will have contents erased when the command erase startup-config is issued?

Answer Choices

- A: flash
- B: RAM
- C: ROM
- D: **NVRAM**

Q. No. 17

Question:

What is described by the network access layer of the TCP/IP model?

Answer Choices

- A: **rules for packet acknowledgment, error recovery, and sequencing**
- B: rules for the handoff from the internet layer to the network access protocols
- C: rules for how source and destination hosts exchange data between programs
- D: rules for determining which processes can be used to route messages through an internetwork

Q. No. 18

Question:

A network technician has made a UTP cable that is terminated as T568A on one end and T568B on the opposite end. What type of cable has been constructed?

Answer Choices

- A: patch
- B: console
- C: **crossover**
- D: straight-through

Q. No. 19

Question:

Which application belongs to the category of the client/server model?

Answer Choices

- A: using Telnet to access a router
- B: exchanging information via instant messaging
- C: **printing a document to a locally connected printer**
- D: scanning a document with a directly connected scanner

Q. No. 20

Question:

What command can be used to troubleshoot domain name resolution issues?

Answer Choices

- A: get
- B: arp -a

C: tracert
D: nslookup
Q. No. 21

Question:

Which address belongs to the category of public IP addresses?

Answer Choices

A: 127.0.0.1
B: 196.1.105.6
C: 10.0.0.1
D: 172.16.9.10

Q. No. 22

Question:

What is the effect of the command copy running-config tftp?

Answer Choices

A: copies the configuration from a remote machine into RAM
B: copies the configuration from a remote machine into NVRAM
C: copies the configuration currently in RAM to a remote machine
D: copies the configuration currently in NVRAM to a remote machine

Q. No. 23

Question:

A technician makes several changes to the running configuration on a router, but the desired results are not achieved. The technician issues the reload command. What action will be taken by the router?

Answer Choices

A: All changes will be lost and the router will restart immediately.
B: Changes will be saved automatically and the router will restart.
C: The user will be prompted to save changes before the router restarts.
D: The router will detect changes to the running configuration and will reload using the configuration stored in RAM.

Q. No. 24

Question:

Which scenario describes a typical peer-to-peer network environment?

Answer Choices

A: An employee downloads a file that is stored on a departmental file server.
B: An employee edits and reviews web pages on a web server that is located in the server farm.
C: A teleworker logs into a core router of the corporate network and makes a configuration change.
D: A user on one office PC sends output to a printer that is attached to the USB port of another PC in an adjacent office.

Q. No. 25

Question:

What type of cable is being used if a network administrator is connecting two Cisco routers and uses the 100BaseTX standard?

Answer Choices

- A: rollover cable
- B: smart serial cable
- C: **crossover UTP**
- D: straight-through UTP

Q. No. 26**Question:**

A PC cannot connect to any remote websites, ping its default gateway, or ping a printer that is functioning properly on the local network segment. Which action will verify that the TCP/IP stack is functioning correctly on this PC?

Answer Choices

- A: Use the ipconfig /all command at the host's command prompt.
- B: **Use the ping 127.0.0.1 command at the command prompt.**
- C: Use the traceroute command at the command prompt to identify any failures on the path to the gateway.
- D: Use FTP to check for connectivity to remote sites.

Q. No. 27**Question:**

What is purpose for configuring a banner on a router?

Answer Choices

- A: to announce system downtime
- B: to prevent unauthorized access to the router
- C: to provide a description of interface connections
- D: **to assist in legal prosecution for unauthorized access**

Q. No. 28**Question:**

Which device should be used for enabling a host to communicate with another host on a different network?

Answer Choices

- A: switch
- B: hub
- C: **router**
- D: host

Q. No. 29**Question:**

During the encapsulation process, what identifiers are added at the transport layer?

Answer Choices

- A: source and destination IP addresses
- B: source and destination MAC addresses

- C: source and destination port numbers
- D: source and destination channel identifiers

Q. No. 30

Question:

What action is taken by a host on an Ethernet network when the host attempts to contact a remote host on another network?

Answer Choices

- A: The PDU is sent using the IP and MAC address of the destination host.
- B: The PDU is sent using the IP address and MAC address of the default gateway.
- C: The PDU is sent using the IP address of the destination host and MAC address of the default gateway.
- D: The PDU is sent using the IP address of the default gateway and the MAC address of the destination host.

Q. No. 31

Question:

A network administrator needs to provide administrative access for certain users. Which mode will allow users access to both the show and debug commands?

Answer Choices

- A: user executive mode
- B: privileged executive mode
- C: global configuration mode
- D: router configuration mode

Q. No. 32

Question:

Which statement is true about Layer 3 addresses?

Answer Choices

- A: They are physical addresses.
- B: They are used in routing decisions.
- C: They are only used on local networks.
- D: They are altered each time a packet crosses a router.

Q. No. 33

Question:

A network technician wants to configure an IP address on a router interface by using the ip address 192.168.1.1 255.255.255.0 command. Which prompt should the technician see when entering this command?

Answer Choices

- A: Router>
- B: Router(config-if)#
- C: Router#
- D: Router(config)#

Q. No. 34

Question:

UDP is the transport layer protocol for which application?

Answer Choices

- A: SMTP
- B: Telnet
- C: **TFTP**
- D: FTP-data control

Q. No. 35

Question:

What is the Cisco IOS?

Answer Choices

- A: **system software for Cisco devices**
- B: Read Only Memory in Cisco devices
- C: non-volatile storage for device configurations
- D: an initial operating system that is used for boot functions

Q. No. 36

Question:

A network has grown too large for technicians to configure network addresses and hosts files for name resolution. Which one application layer services should be added to the server to allow these needs to be satisfied dynamically?

Answer Choices

- A: FTP
- B: **DHCP**
- C: HTTP
- D: SMTP

Q. No. 37

Question:

An administrator needs management access to a switch from a remote offsite location. Which configuration is required on the switch to allow the administrator to have remote access using either SSH or Telnet?

Answer Choices

- A: **default gateway**
- B: banner message
- C: **VLAN IP address**
- D: **vty line password**

Q. No. 38

Question:

Which command will change the current configuration mode of a router?

Answer Choices

- A: **line vty 0 4**
- B: password class
- C: hostname RouterA
- D: enable secret class

Q. No. 39

Question:

Which factor contributes to the increased throughput when all nodes of a LAN are connected to a switch instead of a hub?

Answer Choices

- A: **collision-free environment**
- B: logical bus media access
- C: broadcast-free environment
- D: point-to-multipoint topology

Q. No. 40

Question:

When must a router serial interface be configured with the clock rate command?

Answer Choices

- A: when the interface is functioning as a DTE device
- B: when the interface timers have been cleared
- C: when the connected DTE device is shut down
- D: **when the interface is functioning as a DCE device**

- 1) UDP and IP protocols provides
 - (a) **Connection less and connection less service**
 - (b) Connection oriented and connection oriented service
 - (c) Connection oriented and connection less service
 - (d) Connection less and connection oriented service

- 2) Which of the following statements is a true description of fiber Optic Cable.
 - (a) Fiber optic cables transfer data in a mesh
 - (b) **Fiber optic cables transfer data in light form**
 - (c) Fiber optic cables are similar to coaxial cables
 - (d) Fiber optic cable are similar to twisted pair cables

- 3) Fig 1 denotes a _____ and fig 2 denotes a _____

Fig 1	Fig 2
TCP	TCP
IP	IP
802.3	PPP
Physical Layer	Physical Layer

- (a) **LAN, WAN**
 - (b) WAN, LAN
 - (c) LAN, LAN
 - (d) WAN, WAN

- 4) Match the following Devices with the layers it belongs/functionalities?

Protocol	Functionalities
a) Get MAC Address for this IP Address	i) RARP
b) Get IP Address for this MAC Address	ii) ICMP
c) Get The Host Name for this IP	iii) ARP
d) Destination is unreachable	iv) DNS

 - (a) a- i, b-iii, c-iv, d-ii
 - (b) **a- iii, b-i, c-iv, d-ii**
 - (c) a- i, b-iii, c-ii, d-iv
 - (d) a- iii, b-i, c-ii, d-iv

- 5) Which of the following is FALSE for VLANs?
 - (a) Segmented by port or MAC address
 - (b) **No routing is needed for connectivity**
 - (c) Span multiple switches
 - (d) VLANS operates at layer 2

- 6) What does it mean if a protocol is stateless?
- (a) If a stateless protocol is used, it cannot be traced.
 - (b) Server responds to a request, and then forgets about it**
 - (c) Client responds to server request and keeps track of the conversation.
 - (d) If a protocol is stateless, it means it is unreliable
- 7) There is a host with IP address like 202.141.152.2. This belongs to which class of IP, what is the network address to which this belongs and assuming there are no sub networks associated with this what will be the broadcast address for the network it is attached with?
- (a) Class C, 202.141.0.0, 202.141.152.255
 - (b) Class B, 202.141.0.0, 255.255.0.0
 - (c) Class B, 127.0.0.0, 255.0.0.0
 - (d) Class C, 202.141.152.0, 202.141.152.255**
- 8) For which of the following is UDP unsuitable? Choose the most appropriate answer.
- (a) DNS
 - (b) SNMP
 - (c) RTP
 - (d) SMTP**
- 9) A subnet mask is used to
- (a) Identify different subnets within an intranet
 - (b) Identify different subnets within an internet
 - (c) Identify the number of bits to be used as the network portion in the IP address**
 - (d) Mask the IP address of a machine from hackers
- 10) When IP address of a host is known, to map IP address of the host with MAC address which protocol is used?
- (a) DHCP
 - (b) RARP
 - (c) ICMP
 - (d) ARP**
- 11) Error detection at the data link level is achieved by?
- (a) Bit stuffing
 - (b) Cyclic redundancy codes**
 - (c) Hamming codes
 - (d) Equalization
- 12) A hub connects 24 computers. In that A and B are two machines. A sends data to B. How many computers will receive that data?
- (a) Only B will receive
 - (b) All 24 computers will receive
 - (c) Only A and B will receive
 - (d) All computers except A will receive**

- 13) Which protocol immediately encapsulates an ICMP message?
(a) IP
 (b) TCP
 (c) UDP
 (d) Link Layer Protocol(802.3,802.11 etc)
- 14) Which of the following network devices can also act as a packet filter?
 (a) Switch
 (b) HUB
 (c) BRIDGE
(d) Router
- 15) Identify the FALSE statement
 (a) Wireless LAN and Ethernet are broadcast medium
 (b) WLAN provides less bandwidth compared to Gigabit Ethernet
(c) Wireless LAN & Ethernet can not co-exist
 (d) WLAN & Ethernet can use IP as their network layer protocol
- 16) End-to-end connectivity is provided from host-to-host in:
 (a) the network layer
(b) the transport layer
 (c) the session layer
 (d) it is a combined functionality of the network and the data link layers
- 17) Which of the following uniquely identifies a TCP connection?
 (a) Sender IP, Receiver IP
 (b) Sender port, Receiver port
 (c) Sender MAC & Sender IP, Receiver MAC & Receiver IP
(d) Sender IP & Sender Port, Receiver IP & Receiver Port
- 18) Which of the following layers are not part of TCP/IP when compared OSI model
 (a) Session, Application
(b) Session, Presentation
 (c) Application, Presentation
 (d) Session, Transport
- 19) Which of the following is NOT the issue to be addressed at Physical layer (transmission media)
 (a) How many volts should be used to represent 1 & 0 bits.
 (b) Should the transmission be simultaneously in both directions?
 (c) What should be the duration of the bit
(d) What sliding window protocol to be used
- 20) Correctly match the "Layer Name" with the "Name of the unit exchanged" at that Layer.
- | | |
|--------------------|-----------|
| A) Physical layer | i) Packet |
| B) Data link layer | ii) TPDU |
| C) Network Layer | iii) Bit |
| D) Transport Layer | iv) Frame |

- (a) **A - iii, B - iv, C - i, D - ii**
- (b) A- iii, B- i, C-ii, D-iv
- (c) A- iii, B- iv, C- ii, D- i
- (d) A-iv, B-iii, C-ii, D-I

21) Which of the following statement is TRUE regarding wireless networks?

- (a) **FHSS,DSSS,OFDM,HDSSS are part of Physical layer**
- (b) FHSS,DSSS,OFDM,HDSSS are part of MAC sub layer
- (c) FHSS,DSSS,OFDM,HDSSS are part of LLC sub layer
- (d) FHSS,DSSS,OFDM,HDSSS are part of Upper layers

22) Which TCP/IP layer attaches a header and trailer to the transmitting data?

- (a) Application Layer
- (b) Transport Layer
- (c) Network Layer
- (d) **Data Link Layer**

23) A router has the following (CIDR) entries in the routing table

Address/Mask	Next HOP
202.112.12.5/28	interface1
202.112.12.61/28	interface2
Default	interface3

If a packet comes with destination address 202.112.12.45 arrives at the router, on which interface it will be routed?

- (a) interface1
- (b) interface2
- (c) **interface3**
- (d) Packet will be dropped

24) Which of the following is the valid sequence in the three-way handshake for tcp connection establishment (SEQ= sequence number, ACK= acknowledge number & SYN = syn flag)

- (a) **SYN(SEQ=x), SYN(SEQ=y, ACK=x+1), (SEQ=x+1, ACK=y+1)**
- (b) SYN(SEQ=x), SYN(SEQ=x, ACK=x+1), (SEQ=x+1, ACK=x)
- (c) SYN(SEQ=y), SYN(SEQ=x, ACK=y), (SEQ=y+1, ACK=x+1)
- (d) SYN(SEQ=x), SYN(SEQ=y, ACK=x), (SEQ=x, ACK=y)

25) Which of the following IP Header fields changes from HOP to HOP during routing?

- i. Source IP Address
- ii. Destination IP Address
- iii. TTL (Time to Live)
- iv. Protocol

- (a) **iii only**
- (b) iv only
- (c) i, ii & iii only
- (d) All the above fields

26) You have a class C network address divided into 3 subnets, you will add 2 subnets in the next 2 years each subnet will have 25 hosts. What subnet mask should you use to create those subnets without wasting the IP addresses?

- (a) 255.255.255.192
- (b) 255.255.255.248
- (c) **255.255.255.224**
- (d) none of the above

27) IPV4 address is ___ bits, IPV6 is _____ bits

- (a) 32 and 64
- (b) 48 and 128
- (c) **32 and 128**
- (d) 48 and 64

28) Match the following

- | | |
|----------------------|---------|
| i. UTP | 1. RJ11 |
| ii. Serial Interface | 2. RJ45 |
| iii. Telephone | 3. V.35 |

- (a) UTP-RJ11, Serial I/F – RJ45, Telephone – V.35
- (b) UTP-V.35, Serial I/F – RJ45 Telephone – RJ11
- (c) **UTP-RJ45, Serial I/F – V.35, Telephone – RJ11**
- (d) UTP-RJ45, Serial I/F – RJ11, Telephone – V.35

29) TCP and IP protocols provides

- (a) Connection less and connection less service
- (b) Connection oriented and connection oriented service
- (c) **Connection oriented and connection less service**
- (d) Connection less and connection oriented service

30) As data moves from the lower to upper layers (ie Layer X to Layer X+1) in a TCP/IP network , headers are getting _____ but when data moves between the devices in the same layers (ie Layer X of Device A and Layer X of Device B) headers are getting _____

- (a) Deleted, Added
- (b) **Deleted, Modified**
- (c) Added, Modified
- (d) Modified, Added

31) Match the following

- | | |
|-------------|-------------|
| a) VLAN | i) 802.3 |
| b) Ethernet | ii) 802.4 |
| c) WLAN | iii) 802.1q |

d) Token Bus iv) 802.5
e)Token Ring v)802.11

- (a) a-i, b-v, c-iii, d-ii, e-iv
- (b) a-iii, b-i, c-v, d-iv, e-ii
- (c) a-v, b-i, c-iii, d-ii, e-iv
- (d)a-iii, b-i, c-v, d-ii, e-iv**

Fundamentals of Computer Networks - 120 MCQ

Sessions 1 & 2: Internetworking, OSI, Ethernet, Wireless

- Which layer of the OSI model is responsible for providing end-to-end communication with reliable delivery and flow control?
A) Network Layer
B) **Transport Layer**
C) Session Layer
D) Data Link Layer
- What is the primary difference between Unshielded Twisted Pair (UTP) and Shielded Twisted Pair (STP) cabling?
A) UTP is capable of higher speeds than STP.
B) UTP uses a different number of wire pairs than STP.
C) **STP includes a foil or braided mesh shielding to reduce electromagnetic interference (EMI).**
D) STP is more flexible and easier to install than UTP.
- In the context of CAT5e cabling, what does the 'e' signify?
A) **Enhanced**
B) Ethernet
C) Economic
D) External
- Which of the following is a function of the OSI Presentation Layer?
A) Establishing, managing, and terminating sessions.
B) Routing packets across an internetwork.
C) **Data encryption, compression, and translation.**
D) Framing and MAC addressing.
- The process of a data packet moving through the layers of the OSI model, with headers being added at each layer, is known as:
A) De-encapsulation
B) Segmentation
C) **Encapsulation**
D) Multiplexing
- Which IEEE standard defines the protocol for Wi-Fi?
A) 802.3
B) 802.1Q
C) **802.11**
D) 802.5
- What does the term "internetworking" refer to?
A) The internal network of a single organization.
B) The global system of interconnected computer networks that uses the TCP/IP protocol suite.
C) **The practice of connecting different computer networks by using intermediary devices like routers.**
D) The technology used for wireless communication between devices.
- Which category of UTP cable is rated for transmission speeds up to 10 Gbps at 500 MHz and is commonly used for 10GBASE-T Ethernet?
A) CAT5e
B) CAT6

- C) **CAT6a**
 - D) CAT7
9. A MAC address is associated with which layer of the OSI model?
- A) Layer 1 (Physical)
 - B) **Layer 2 (Data Link)**
 - C) Layer 3 (Network)
 - D) Layer 4 (Transport)
10. In an Ethernet frame, what is the purpose of the Frame Check Sequence (FCS)?
- A) To specify the source and destination IP addresses.
 - B) To identify the upper-layer protocol.
 - C) **To detect errors in the frame using a CRC.**
 - D) To synchronize the timing between sender and receiver.
-

Session 3: Internet Protocol & TCP/IP Model

11. Which protocol operates at the Transport layer of the TCP/IP model and provides connectionless, unreliable datagram services?
- A) IP
 - B) TCP
 - C) **UDP**
 - D) ARP
12. In the TCP/IP model, which layer corresponds to the top three layers (Application, Presentation, Session) of the OSI model?
- A) Transport Layer
 - B) Internet Layer
 - C) Network Access Layer
 - D) **Application Layer**
13. What is the primary purpose of the Internet Protocol (IP)?
- A) To guarantee the delivery of data packets.
 - B) **To provide logical addressing and path determination across an internetwork.**
 - C) To manage sessions between applications.
 - D) To define the physical characteristics of the network medium.
14. Which of the following is a key difference between TCP and UDP?
- A) TCP is faster than UDP because it does not perform error checking.
 - B) **TCP establishes a connection before transmitting data, whereas UDP is connectionless.**
 - C) TCP is used for broadcasting, while UDP is used for unicasting.
 - D) UDP provides flow control, but TCP does not.
15. What process does TCP use to establish a connection?
- A) Two-Way Handshake
 - B) **Three-Way Handshake**
 - C) Four-Way Handshake
 - D) Connection is established automatically without a handshake.
16. Which of the following applications is most likely to use UDP?
- A) File transfer (FTP)
 - B) Email (SMTP)
 - C) **Voice over IP (VoIP)**
 - D) Web Browse (HTTP)
17. The TCP/IP model consists of how many layers?
- A) 7

- B) 5
 - C) **4**
 - D) 3
18. What information is contained in a TCP header but not in a UDP header?
- A) Source Port
 - B) Destination Port
 - C) Checksum
 - D) **Sequence Number and Acknowledgment Number**
-

Sessions 4 & 5: IP Subnetting & VLSM

19. What is the primary reason for using subnetting?
- A) To increase the speed of the network.
 - B) **To divide a large network into smaller, more manageable broadcast domains.**
 - C) To combine multiple small networks into one large network.
 - D) To eliminate the need for routers.
20. For the IP address 192.168.5.85 /24, what are the network and host parts?
- A) Network: 192.168.0.0, Host: 5.85
 - B) Network: 192.168.5.85, Host: 0
 - C) **Network: 192.168.5.0, Host: 0.0.0.85**
 - D) Network: 192.0.0.0, Host: 168.5.85
21. For the IP address 10.128.240.50 /30, what are the network and host parts?
- A) Network: 10.128.240.0, Host: 50
 - B) **Network: 10.128.240.48, Host: 2**
 - C) Network: 10.128.240.32, Host: 18
 - D) Network: 10.128.240.40, Host: 10
22. A company needs to create a subnet that can accommodate at least 28 hosts. Starting with the network 192.168.1.0/24, what is the most efficient subnet mask to use for this requirement?
- A) /24 (255.255.255.0)
 - B) /25 (255.255.255.128)
 - C) **/26 (255.255.255.192)**
 - D) /27 (255.255.255.224)
23. Using Variable Length Subnet Masking (VLSM), you need to create a subnet for 52 hosts from the network 192.168.1.0/24. What subnet mask should you use?
- A) /27 (255.255.255.224)
 - B) **/26 (255.255.255.192)**
 - C) /25 (255.255.255.128)
 - D) /24 (255.255.255.0)
24. What is the broadcast address for the network 172.16.48.0 /20?
- A) 172.16.48.255
 - B) 172.16.55.255
 - C) **172.16.63.255**
 - D) 172.16.255.255
25. How many usable host addresses are available on a /29 subnet?
- A) 8
 - B) **6**
 - C) 4
 - D) 2
26. Given the IP address 192.168.10.131 and subnet mask 255.255.255.240, what is the subnet ID?
- A) 192.168.10.112

- B) **192.168.10.128**
 - C) 192.168.10.130
 - D) 192.168.10.144
27. VLSM is used to:
- A) Use the same subnet mask for all subnets.
 - B) **Conserve IP addresses by using different subnet masks for different subnets.**
 - C) Increase the number of broadcast domains without subnetting.
 - D) Simplify routing tables.
28. You are asked to create four subnets from the network 192.168.1.0/24 with requirements of 52, 28, 15, and 5 hosts. Which subnet would you allocate first when using VLSM?
- A) The subnet requiring 5 hosts.
 - B) **The subnet requiring 52 hosts.**
 - C) The subnet requiring 15 hosts.
 - D) The order of allocation does not matter.
29. An IP address of 10.1.1.1 with a subnet mask of 255.255.255.252 is typically used for what purpose?
- A) A large LAN segment with up to 254 hosts.
 - B) **A point-to-point link between two routers.**
 - C) A management network for switches.
 - D) A DMZ network.
30. Which of the following is a private IP address range?
- A) 172.32.0.0 /16
 - B) **192.168.0.0 /16**
 - C) 11.0.0.0 /8
 - D) 193.1.1.0 /24
-

Session 6: Router IOS & Subnetting

31. You need to create 10 subnets from the Class C network 195.1.1.0, with each subnet supporting at least 12 hosts. What subnet mask should you use?
- A) 255.255.255.224
 - B) **255.255.255.240**
 - C) 255.255.255.248
 - D) 255.255.255.192
32. Using the subnet mask from the previous question (255.255.255.240), what is the IP address of the first host on subnet 2 (the third subnet)?
- A) 195.1.1.32
 - B) 195.1.1.31
 - C) 195.1.1.49
 - D) **195.1.1.33**
33. You are asked to divide the network 152.152.0.0 /16 to provide at least 500 hosts in each subnet. How many bits must be borrowed from the host portion?
- A) 6
 - B) **7**
 - C) 8
 - D) 9
34. What is the resulting subnet mask for the network 152.152.0.0 /16 if you need to create subnets with at least 500 hosts each?
- A) /22 (255.255.252.0)
 - B) **/23 (255.255.254.0)**

- C) /24 (255.255.255.0)
 - D) /25 (255.255.255.128)
35. In a Cisco router's IOS, which mode must you be in to configure global parameters like the router's hostname?
- A) User EXEC mode
 - B) Privileged EXEC mode
 - C) Interface configuration mode
 - D) **Global configuration mode**
36. Which command saves the running configuration to the startup configuration on a Cisco router?
- A) `save running-config`
 - B) `write startup-config`
 - C) `copy running-config startup-config`
 - D) `config memory`
37. What is the purpose of the Cisco IOS command `show ip interface brief` ?
- A) To display the full IP configuration of all interfaces.
 - B) **To provide a summary of the status and IP address of each interface.**
 - C) To show the routing table.
 - D) To display debugging information for IP packets.
38. The configuration register value `0x2142` is used for what purpose on a Cisco router?
- A) Normal boot sequence.
 - B) **To bypass the startup configuration file during boot (password recovery).**
 - C) To load the IOS from ROMMON.
 - D) To initiate a remote debug session.
-

Session 7 & 8: Routing Concepts and Protocols

39. What is a primary advantage of dynamic routing over static routing?
- A) It is more secure.
 - B) It uses less CPU and memory.
 - C) **It automatically adjusts to network topology changes.**
 - D) It is simpler to configure for small networks.
40. Which statement accurately describes static routing?
- A) **Routes are manually configured and maintained by a network administrator.**
 - B) Routers exchange routing information with their neighbors.
 - C) It is best suited for large, complex, and changing networks.
 - D) It has a lower administrative overhead than dynamic routing.
41. Routing protocols are used to:
- A) Assign IP addresses to hosts.
 - B) **Enable routers to learn about available networks and determine the best path to them.**
 - C) Secure communications between devices.
 - D) Translate private IP addresses to public IP addresses.
42. What metric is used by the Routing Information Protocol (RIP) to determine the best path?
- A) Bandwidth
 - B) Delay
 - C) **Hop count**
 - D) Cost
43. Which of the following is a link-state routing protocol?
- A) RIPv2

- B) EIGRP
 - C) BGP
 - D) **OSPF**
44. What is a key characteristic of a distance-vector routing protocol?
- A) It has a complete map of the network topology.
 - B) It sends frequent, full routing table updates only to its neighbors.
 - C) **It learns about the network from the perspective of its neighbors ("routing by rumor").**
 - D) It converges very quickly and is not prone to routing loops.
45. The `telnet` command is used to:
- A) Securely manage a router remotely.
 - B) **Establish a clear-text remote terminal session with a device.**
 - C) Test connectivity by sending ICMP echo requests.
 - D) Resolve a hostname to an IP address.
46. Which command would you use on a Cisco router to see the routing table?
- A) `show running-config`
 - B) `show interfaces`
 - C) `show ip route`
 - D) `debug ip packet`
-

Sessions 9 & 10: Routing Protocol Implementation

47. In OSPF, what is the role of the Designated Router (DR) on a multi-access network segment?
- A) To assign IP addresses to all other routers.
 - B) **To reduce the number of adjacencies by being a central point for LSU updates.**
 - C) To act as the gateway of last resort for the segment.
 - D) To maintain the master copy of the router's IOS.
48. What is the administrative distance of a static route pointing to an interface?
- A) 1
 - B) **0**
 - C) 90
 - D) 110
49. EIGRP is considered an "advanced distance-vector" or "hybrid" protocol because:
- A) It only uses hop count as a metric.
 - B) **It uses a complex composite metric (bandwidth, delay, reliability, load) and the DUAL algorithm to ensure loop-free paths.**
 - C) It is a pure link-state protocol.
 - D) It is an exterior gateway protocol.
50. Which command correctly configures a static default route on a Cisco router?
- A) `ip route 0.0.0.0 0.0.0.0 192.168.1.1`
 - B) `ip default-route 0.0.0.0 0.0.0.0 Serial0/0`
 - C) `ip route 0.0.0.0 0.0.0.0 <next-hop-ip or exit-interface>`
 - D) `static route default via 192.168.1.1`
51. How does RIPv2 differ from RIPv1?
- A) RIPv2 is a link-state protocol, while RIPv1 is distance-vector.
 - B) RIPv2 has a maximum hop count of 100.
 - C) **RIPv2 supports VLSM by sending the subnet mask in its updates.**
 - D) RIPv2 uses a different port number than RIPv1.

52. What is the administrative distance of EIGRP (internal)?
A) 120
B) 110
C) **90**
D) 1
53. To enable the OSPF routing process on a Cisco router, which command is used in global configuration mode?
A) enable ospf 1
B) ospf process-id 10
C) router ospf 1
D) ip routing ospf
54. In EIGRP, what is a "successor"?
A) A backup route stored in the topology table.
B) **The best, loop-free path to a destination network.**
C) A neighboring router that has formed an adjacency.
D) The router with the lowest IP address.
-

Session 11: Layer 2 Switching & STP

55. What problem is the Spanning Tree Protocol (STP) designed to solve?
A) Slow network performance due to collisions.
B) **Broadcast storms and MAC table instability caused by Layer 2 loops.**
C) Inefficient routing paths in a Layer 3 network.
D) Security vulnerabilities at the access layer.
56. In the context of STP, what is the "Root Bridge"?
A) The switch with the most physical ports.
B) The switch located in the physical center of the network.
C) **The switch that serves as the central reference point for the spanning-tree calculation.**
D) The switch with the highest IP address.
57. How is the Root Bridge elected in STP?
A) The switch with the highest MAC address becomes the Root Bridge.
B) The administrator manually configures one switch as the Root.
C) **The switch with the lowest Bridge ID (Priority + MAC address) becomes the Root Bridge.**
D) The switch that has been powered on the longest.
58. What are the port states in the original 802.1D STP?
A) Root, Designated, Blocked
B) Forwarding, Learning, Discarding
C) **Blocking, Listening, Learning, Forwarding, Disabled**
D) Active, Standby, Listening, Forwarding
59. What is the default bridge priority number for a Cisco switch in STP?
A) 0
B) 100
C) 65535
D) **32768**
60. To make a specific switch more likely to become the Root Bridge, an administrator should:
A) Increase its priority number.
B) **Decrease its priority number.**

- C) Assign it the highest IP address in the management VLAN.
 - D) Connect it to the fastest links.
61. Which type of Spanning Tree Protocol provides faster convergence than the original 802.1D and is an IEEE standard?
- A) PVST+
 - B) **RSTP (802.1w)**
 - C) MSTP (802.1s)
 - D) IGRP
62. What is the primary function of a Layer 2 switch?
- A) To route traffic between different IP subnets.
 - B) **To forward Ethernet frames between devices on the same LAN based on MAC addresses.**
 - C) To provide wireless access to the network.
 - D) To translate private IP addresses to public ones.
-

Session 12: Virtual LANs (VLANs)

63. What is the main purpose of a VLAN?
- A) To physically segment a network.
 - B) **To logically segment a switched network into separate broadcast domains.**
 - C) To increase the physical speed of switch ports.
 - D) To connect different networks over the internet.
64. For PCs in different VLANs to communicate, what device is required?
- A) A Layer 2 switch
 - B) A hub
 - C) **A Layer 3 switch or a router**
 - D) A bridge
65. What protocol is used to carry traffic for multiple VLANs over a single link between switches?
- A) VTP
 - B) STP
 - C) **IEEE 802.1Q**
 - D) CDP
66. In a VTP (VLAN Trunking Protocol) environment, what is the function of a switch in "Server" mode?
- A) It only receives and forwards VTP advertisements but cannot be configured locally.
 - B) **It can create, modify, and delete VLANs, and it propagates this information to other switches in the VTP domain.**
 - C) It does not participate in VTP but forwards VTP advertisements.
 - D) It acts as a client for all VLAN information.
67. A switch port configured to carry traffic for only one VLAN is called a(n):
- A) **Access port**
 - B) Trunk port
 - C) Root port
 - D) Designated port
68. What is the "normal range" for VLAN IDs?
- A) 1 - 1000
 - B) **1 - 1005**
 - C) 1 - 4094
 - D) 1006 - 4094

69. What is the process of routing between different VLANs called?
- A) VTP Pruning
 - B) **Inter-VLAN Routing**
 - C) Trunking
 - D) VLAN Hopping
70. A switch configured in VTP "Client" mode has which of the following characteristics?
- A) **It synchronizes its VLAN database with the VTP server but cannot create, change, or delete VLANs locally.**
 - B) It can create local VLANs that are not advertised to the rest of the VTP domain.
 - C) It is the master source for VLAN information.
 - D) It ignores VTP messages.
-

Session 13: Infrastructure Security

71. What is the primary function of port security on a switch?
- A) To encrypt data on a specific port.
 - B) **To restrict input to an interface by limiting the MAC addresses that are allowed to send traffic.**
 - C) To prevent physical access to the switch.
 - D) To configure a port for a specific VLAN.
72. What is a common access layer threat mitigation technique?
- A) Using only static routing.
 - B) **Implementing DHCP snooping and Dynamic ARP Inspection (DAI).**
 - C) Disabling all switch ports.
 - D) Increasing the STP bridge priority.
73. An IPv4 standard access control list (ACL) filters traffic based on what criteria?
- A) Source and destination IP address.
 - B) **Source IP address only.**
 - C) Source and destination port numbers.
 - D) The protocol type (TCP, UDP, ICMP).
74. An extended IPv4 ACL can filter traffic based on:
- A) Source IP address only.
 - B) Destination IP address only.
 - C) **Source/destination IP address, protocol, and source/destination port numbers.**
 - D) MAC address only.
75. What is the purpose of the "deny any any" statement implicitly placed at the end of every ACL?
- A) To permit all traffic that was not explicitly permitted.
 - B) **To block all traffic that was not explicitly permitted.**
 - C) To log all traffic passing through the interface.
 - D) To generate a debug message for unhandled packets.
76. What does AAA stand for in the context of network security?
- A) Access, Authorize, and Administer
 - B) **Authentication, Authorization, and Accounting**
 - C) Any, Any, Any
 - D) Address, Allow, and Account
77. Which protocol provides centralized authentication, authorization, and accounting services, but encrypts only the password in the access-request packet?
- A) TACACS+
 - B) **RADIUS**

- C) Kerberos
 - D) SSH
78. Which of the following is considered a best practice for "device hardening"?
- A) Enabling Telnet access for all users.
 - B) **Disabling unused ports and services, and changing default passwords.**
 - C) Setting the STP priority to the highest value.
 - D) Using RIPv1 for routing.
-

Session 14: NAT, IPv6, WAN Technologies

79. What is the primary purpose of Network Address Translation (NAT)?
- A) **To translate private, non-routable IP addresses into public, routable IP addresses.**
 - B) To secure network traffic through encryption.
 - C) To segment a network into multiple broadcast domains.
 - D) To assign IP addresses to hosts automatically.
80. What is Port Address Translation (PAT), also known as NAT Overload?
- A) A one-to-one mapping of a private IP address to a public IP address.
 - B) **A many-to-one mapping where multiple private IP addresses are mapped to a single public IP address using different port numbers.**
 - C) A method for translating IPv4 to IPv6.
 - D) A dynamic pool of public IPs used for translation.
81. How many bits are in an IPv6 address?
- A) 32
 - B) 48
 - C) 64
 - D) **128**
82. What is the correct abbreviated form of the IPv6 address
2001:0DB8:0000:0000:0000:FF00:0042:8329 ?
- A) 2001:DB8:0:0:0:FF00:42:8329
 - B) **2001:DB8::FF00:42:8329**
 - C) 2001:DB8:0:0::FF:42:8329
 - D) 2001:DB8::FF:42:8329
83. Which of the following is a common WAN technology that encapsulates network-layer packets into a point-to-point link?
- A) Ethernet
 - B) **Point-to-Point Protocol (PPP)**
 - C) Spanning Tree Protocol (STP)
 - D) VLAN Trunking Protocol (VTP)
84. In IPv6, the concept of NAT is largely unnecessary because:
- A) IPv6 has built-in security that prevents the need for address hiding.
 - B) **The vast address space of IPv6 provides enough globally unique addresses for all devices.**
 - C) IPv6 uses MAC addresses for routing.
 - D) IPv6 packets cannot be translated.
85. Which command enables IPv6 routing on a Cisco router?
- A) `ip routing`
 - B) `ipv6 enable`
 - C) `ipv6 unicast-routing`
 - D) `router ipv6 enable`

86. What is a key feature of an IPv6 link-local address?
- A) It is globally routable.
 - B) It is assigned by a DHCPv6 server.
 - C) **It is automatically configured on any IPv6-enabled interface and is used for communication on the local link only.**
 - D) It always starts with the prefix 2001::/16 .
-

Session 15: WAN Protocols

87. The Point-to-Point Protocol (PPP) operates at which layer of the OSI model?
- A) Layer 1
 - B) **Layer 2**
 - C) Layer 3
 - D) Layer 4
88. What is the purpose of Multilink PPP (MLPPP)?
- A) To provide authentication for PPP links.
 - B) **To bundle multiple physical PPP links into a single logical link for increased bandwidth.**
 - C) To encrypt data transmitted over a PPP link.
 - D) To connect multiple sites in a full mesh topology.
89. PPPoE (Point-to-Point Protocol over Ethernet) is commonly used by:
- A) Routers on a corporate LAN.
 - B) **Internet Service Providers (ISPs) to manage customer DSL connections.**
 - C) Switches to create VLANs.
 - D) Web servers to handle HTTP requests.
90. What is a Generic Routing Encapsulation (GRE) tunnel?
- A) A protocol used for Layer 2 switching.
 - B) **A tunneling protocol that can encapsulate a wide variety of network layer protocols inside a virtual point-to-point link over an IP network.**
 - C) A physical connection method for WANs.
 - D) An authentication protocol for PPP.
91. BGP (Border Gateway Protocol) is considered what type of routing protocol?
- A) Link-State Interior Gateway Protocol
 - B) Distance-Vector Interior Gateway Protocol
 - C) **Path-Vector Exterior Gateway Protocol**
 - D) Hybrid Interior Gateway Protocol
92. What is eBGP (External BGP) used for?
- A) **To exchange routing information between different Autonomous Systems (AS).**
 - B) To exchange routing information within the same Autonomous System (AS).
 - C) To create tunnels between sites.
 - D) To manage switches in a campus network.
93. In a PPP session establishment, which phase involves configuring network layer protocols like IP?
- A) Link Establishment Phase (LCP)
 - B) Authentication Phase (PAP/CHAP)
 - C) **Network-Layer Protocol Phase (NCP)**
 - D) Link Termination Phase
94. When configuring a simple eBGP peering session, what is a critical piece of information that must be specified for a neighbor?
- A) The neighbor's MAC address.

- B) **The neighbor's IP address and its remote AS number.**
 - C) The bandwidth of the link to the neighbor.
 - D) The neighbor's hostname.
-

Sessions 16 & 17: SDN and Virtual Networking

- 95. What is the fundamental concept behind Software-Defined Networking (SDN)?
 - A) Combining the router and switch into a single device.
 - B) **Decoupling the network's control plane from the data plane.**
 - C) Using only virtual routers and switches.
 - D) A new physical cabling standard.
 - 96. In the SDN architecture, what is the role of the Controller?
 - A) To forward data packets to their destination.
 - B) **To provide a centralized view of the network and make decisions about how traffic should flow.**
 - C) To physically connect network devices.
 - D) To provide power to network devices.
 - 97. What is a "southbound interface" in the context of SDN?
 - A) An interface that connects the controller to the business applications.
 - B) A user interface for managing the network.
 - C) **An interface that enables communication between the SDN controller and the network devices (e.g., switches, routers).**
 - D) An interface used for communication between multiple SDN controllers.
 - 98. Which of the following is a key benefit of SDN?
 - A) Reduced physical security.
 - B) Increased network complexity.
 - C) **Increased network agility and programmability.**
 - D) Dependence on proprietary hardware.
 - 99. What does "virtual networking" primarily refer to?
 - A) **The abstraction of physical network resources to create logical, software-based networks.**
 - B) Connecting to the internet via Wi-Fi.
 - C) Building a network using only fiber optic cables.
 - D) The use of the TCP/IP protocol suite.
 - 100. In the context of use-cases, what is a "Virtual Customer Edge" (VCE)?
 - A) A physical router installed at the customer's premises.
 - B) A software-based firewall.
 - C) **A virtualized network function that provides edge routing services for a customer, often deployed in a service provider's cloud.**
 - D) A type of VPN client.
 - 101. How can SDN and virtualization contribute to datacenter optimization?
 - A) By increasing the physical server footprint.
 - B) By requiring more manual configuration of individual devices.
 - C) **By enabling automated provisioning of network resources, traffic steering, and dynamic load balancing.**
 - D) By eliminating the need for network security.
-

Sessions 18, 19, & 20: OpenFlow and OpenDaylight

102. What is OpenFlow?
- A) A type of routing protocol like OSPF or BGP.
 - B) **A communications protocol (a southbound API) that gives the SDN controller direct access to the forwarding plane of network devices.**
 - C) A complete SDN controller platform.
 - D) A network virtualization overlay technology.
103. The primary function of the OpenDaylight (ODL) controller is to:
- A) Function as a high-speed data plane switch.
 - B) **Provide a modular, open-source platform for building and managing SDN solutions.**
 - C) Replace the need for physical network cabling.
 - D) Act as a RADIUS server for AAA.
104. In the OpenDaylight architecture, what is the purpose of the Model-Driven Service Abstraction Layer (MD-SAL)?
- A) It is the graphical user interface.
 - B) **It provides a common data model and API for services and plugins, decoupling them from the underlying protocols.**
 - C) It directly installs flow rules on switches.
 - D) It is a tool for emulating networks.
105. What is Mininet used for in the context of SDN lab assignments?
- A) It is a hardware-based SDN switch.
 - B) It is an alternative SDN controller to OpenDaylight.
 - C) **It is a network emulator that creates a realistic virtual network of hosts, switches, and links on a single machine.**
 - D) It is a protocol for encrypting controller-switch communication.
106. What is the role of the OpenFlow plugin in OpenDaylight?
- A) To manage user authentication.
 - B) **To translate instructions from MD-SAL into OpenFlow messages to be sent to the switches.**
 - C) To provide a graphical user interface.
 - D) To cluster multiple OpenDaylight instances.
107. What is Open vSwitch (OVS)?
- A) A physical switch designed for SDN.
 - B) **A production-quality, multilayer virtual switch licensed under the open-source Apache 2.0 license.**
 - C) A network monitoring tool.
 - D) A protocol for inter-controller communication.
108. The L2Switch application in OpenDaylight is a simple application that:
- A) Performs Layer 3 routing.
 - B) **Makes an OpenFlow-enabled switch behave like a traditional Layer 2 learning switch.**
 - C) Implements firewall rules on the controller.
 - D) Manages VTEPs for VXLAN tunnels.
109. What is "Service Function Chaining" (SFC) in an SDN context?
- A) A method for physically connecting network services.
 - B) **A technique for steering traffic through an ordered sequence of network services (e.g., firewall, load balancer) that are implemented as virtual functions.**
 - C) The process of linking multiple SDN controllers together.
 - D) A feature of the Spanning Tree Protocol.
110. In OpenDaylight, what is the primary purpose of Group Based Policy (GBP)?
- A) To directly manage flow rules on a per-device basis.
 - B) **To define network policy based on application-level or business logic ("intents")**

rather than low-level network constructs like IP addresses.

C) To manage user access to the OpenDaylight controller itself.

D) To configure routing protocols like BGP.

111. The OVSDB protocol is primarily used for:

A) Forwarding data packets in Open vSwitch.

B) Managing and configuring Open vSwitch instances remotely.

C) Communicating between the SDN controller and business applications.

D) Encrypting traffic between virtual machines.

112. What problem does LISP (Locator/ID Separation Protocol) aim to solve?

A) The shortage of MAC addresses.

B) The overloading of the core Internet routing table by separating a device's identity from its location.

C) The lack of security in IPv4.

D) The slow convergence of STP.

Comprehensive / Mixed-Topic Questions

113. A packet is being sent from a host on VLAN 10 to a server on VLAN 20. Which sequence of devices and lookups is most likely to occur?

A) Host -> L2 Switch (MAC lookup) -> Server

B) Host -> L2 Switch (MAC lookup) -> L2 Switch (MAC lookup) -> Server

C) Host -> L2 Switch (MAC lookup) -> Router/L3 Switch (IP lookup) -> L2 Switch (MAC lookup) -> Server

D) Host -> Router (IP lookup) -> L3 Switch (IP lookup) -> Server

114. You have configured an extended ACL to deny Telnet traffic from network 10.1.1.0/24 to a server at 192.168.5.10. Which of the following ACL entries is correct?

A) `access-list 1 deny 10.1.1.0 0.0.0.255`

B) `access-list 101 deny ip 10.1.1.0 0.0.0.255 host 192.168.5.10`

C) `access-list 101 deny tcp 10.1.1.0 0.0.0.255 host 192.168.5.10 eq 23`

D) `access-list 101 permit tcp 10.1.1.0 0.0.0.255 host 192.168.5.10 eq 23`

115. A network administrator wants to provide redundant paths between switches but prevent Layer 2 loops. Which protocol should be enabled?

A) VTP

B) STP

C) OSPF

D) NAT

116. Comparing EIGRP and OSPF, which statement is generally true?

A) OSPF is a Cisco-proprietary protocol, while EIGRP is an open standard.

B) OSPF uses a composite metric, while EIGRP uses cost based on bandwidth.

C) EIGRP can be easier to configure in simple hub-and-spoke topologies, while OSPF's hierarchical area design scales well in large, complex networks.

D) EIGRP is a link-state protocol, and OSPF is a distance-vector protocol.

117. A user on host 192.168.10.20/24 wants to connect to a web server on the internet. The company uses a single public IP address, 203.0.113.5. What technology makes this possible?

A) Static Routing

B) DHCP

C) PAT (Port Address Translation)

D) eBGP

118. Which technology is foundational to the concept of separating the control and data planes in modern networking?

- A) VLANs
- B) **SDN**
- C) IPv6
- D) PPP

119. A router needs to send a packet to the destination 10.50.60.70. It has the following routes in its table. Which route will it choose?
- 10.50.60.0/24 via 192.168.1.1 (OSPF)
 - 10.50.0.0/16 via 192.168.2.1 (EIGRP)
 - 0.0.0.0/0 via 192.168.3.1 (Static)
- A) The EIGRP route because it has a better administrative distance.
 - B) The static route because it is the default.
 - C) **The OSPF route because it is the most specific match (longest prefix).**
 - D) The router will load balance between the OSPF and EIGRP routes.
120. In an OpenDaylight-managed network, an administrator wants to ensure all guest traffic is first sent through a firewall and then a web filter. This is a use case for:
- A) L2Switch Application
 - B) **Service Function Chaining (SFC)**
 - C) OpenFlow Plugin
 - D) VTP