

Direction: Choose the letter of the correct answer (Explain your chosen answer for each question)

1. Which information is used by routers to forward a data packet toward its destination?
 - a) source IP address
 - b) destination IP address
 - c) source data link address
 - d) destination data link address
2. A computer must send a packet to a destination host in the same LAN. How will the packet be sent?
 - a) The packet will be sent to the default gateway first, and then, depending on the response from the gateway, it may be sent to the destination host.
 - b) The packet will be sent directly to the destination host.
 - c) The packet will first be sent to the default gateway, and then from the default gateway it will be sent directly to the destination host.
 - d) The packet will be sent only to the default gateway.
3. A router receives a packet from the Gigabit Ethernet 0/0/0 interface and determines that the packet needs to be forwarded out the Gigabit Ethernet 0/0/1 interface. What will the router do next?
 - a) route the packet out the Gigabit Ethernet 0/0/1 interface
 - b) create a new Layer 2 Ethernet frame to be sent to the destination
 - c) investigate the ARP cache to determine the destination IP address
 - d) investigate the routing table to determine if the destination network is in the routing table
4. Which IPv4 address can a host use to ping the loopback interface?
 - a) 126.0.0.1
 - b) 127.0.0.0
 - c) 126.0.0.0
 - d) 127.0.0.1
5. When a connectionless protocol is in use at a lower layer of the OSI model, how is missing data detected and retransmitted if necessary?
 - a) Connectionless acknowledgments are used to request retransmission.
 - b) An upper-layer connection-oriented protocol keeps track of the data received and can request retransmission from the upper-level protocol on the sending host.
 - c) Network layer IP protocols manage the communication sessions if connection-oriented transport services are not available.
 - d) The best-effort delivery process guarantees that all packets that are sent are received.

6. What was the main reason for the creation and implementation of IPv6?

- a) to make reading a 32-bit address easier
- b) to address the IPv4 address depletion problem
- c) to provide more address space in the Internet Names Registry
- d) to allow NAT support for private addressing

7. Which statement accurately describes a characteristic of IPv4?

- a) All IPv4 addresses are assignable to hosts. ISO 9001:2015 Certified, Level I Institutionally Accredited, Republic of the Philippines
- b) IPv4 has a 32-bit address space.
- c) An IPv4 header has fewer fields than an IPv6 header has.
- d) IPv4 has a 128-bit address space.

8. When a router receives an IPv6 packet, what information is examined in order to see if the packet has exceeded the number of routers that can forward the packet?

- a) destination IP address
- b) source IP address
- c) hop limit
- d) TTL

9. Which field in an IPv6 packet does a router use to determine whether the packet has expired and should be dropped?

- a) TTL
- b) Hop Limit
- c) Address Unreachable
- d) No Route to Destination

10. Which command can be used on a Windows host to display the routing table?

- a) netstat -s
- b) show ip route
- c) netstat -r
- d) print route

11. What information is added during encapsulation at OSI Layer 3?

- a) source and destination MAC addresses

- b) source and destination application protocols
- c) source and destination port numbers
- d) source and destination IP addresses

12. How does the network layer determine the MTU value?

- a) The network layer depends on the higher-level layers to determine the MTU.
- b) The network layer depends on the data link layer to set the MTU and adjusts the speed of transmission to accommodate it.
- c) The network layer determines how large packets can be, based on the MTU of the data link frame.
- d) To increase speed delivery, the network layer ignores the MTU.

13. Which characteristic describes an IPv6 enhancement over IPv4?

- a) IPv6 is based on 128-bit flat addressing, whereas IPv4 is based on 32-bit hierarchical addressing.
- b) The IPv6 header is simpler than the IPv4 header, which improves packet handling.
- c) Both IPv4 and IPv6 support authentication, but only IPv6 supports privacy capabilities.
- d) The IPv6 address space is four times bigger than the IPv4 address space.