CSX283: Quiz 3 **Score: 20 Duration: 30 Mins**

Name:

1. Identify the class of the following IPv4 address: 4.5.6.7.

A) A B) B C) C D) D

2. An IPv6 address is _____ bits long.

A) 32 B) 64 C) 128 D) None of the above

3. DHCP is used for

A) IPv6 B) IPv4 C) Both A) and B) D) None of the above

4. The DHCP server can provide the _____ of the IP addresses.

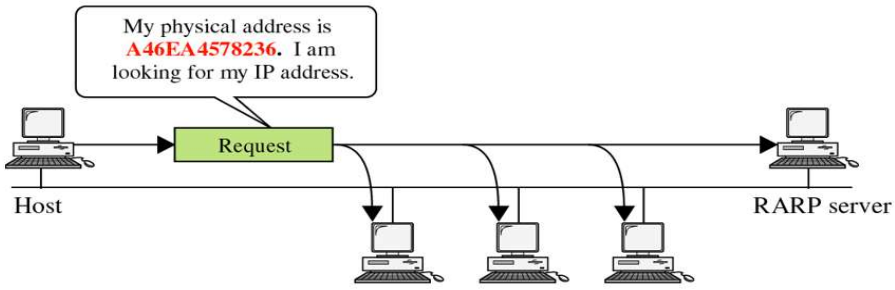
A) Dynamic allocation B) Automatic allocation C) Static allocation D) All of the mentioned

Description: Static allocation means the DHCP client will get same IP address from the DHCP server whenever the client needs IP address. In that case, DHCP needs maintain a mapping table of IP and corresponding MAC addresses of the clients. Whenever a client needs an IP, DHCP server will first check the mapping table, if the server finds the MAC address of the client then it allocates the same IP address (statically bind in mapping table).

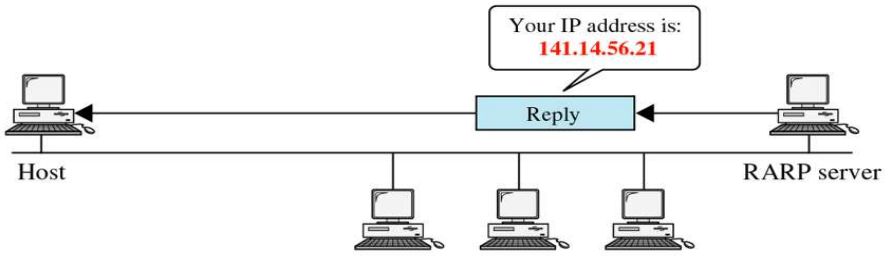
5. In RARP, the request message is broadcasted whereas the reply message is unicasted.

A) True B) False

In reverse address regulation protocol (RARP), the node who needs to its IP address will broadcast the request message. This is needed because the node does not who is RARP server in the network. The RARP will send unicast reply the requesting node. This is because the RARP server knows the MAC address of requested node (from the request message). The following figure (as in class ppt) shows the concept of RRAP.



a. RARP request is broadcast



b. RARP reply is unicast

6. The Network Address Translation (NAT) router of the outgoing packets replaces the source address in the packet with the

A) Destination address
B) Global NAT address
C) Local NAT address
D) Classful address

7. The term that enables a user to have a large set of addresses internally and one address externally is called

A) NAT B) IP Addressing C) Classlful addressing D) Classnet

8. In IP addresses, the third-level of hierarchy is

A) IP mask B) No Subnetting C) IP addresses D) Subnetting

9. A unicast address defines a

A) Single computer B) Cluster of computers C) All computers in the network D) None

10. The masks in slash notation of 255.255.255.0 would be

A) /8 B) /24 C) /32 D) /36

11. What are the 3 layers that make up SDN?

A) Network, physical, and transport layers
B) Application, control, and infrastructure layers
C) Application, transport, and network layers
D) Transport, network, and datalink layers

12. What is OpenFlow? It is a protocol used for the communication between the _____.

A) Application layer and SDN controller
B) SDN controller and OpenFlow switches
C) Network devices from different vendors
D) OpenFlow switch and the physical switch

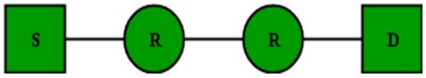
13. ICMP always reports error messages to the original source.

A) True
B) False

14. What is SDN? Choose the best that describes SDN.

A) SDN is an architecture that separates the network control and forwarding functions.
B) SDN is a protocol that enables communications between network devices.
C) SDN is an application that can be used to manage networks.
D) SDN is a network device of advanced features.

15. Assume that source S and destination D are connected through two intermediate routers labeled R. Determine how many times each packet has to visit the network layer and the data link layer during a transmission from S to D.



A) Network- 4 times and Data link- 4 times
B) Network- 4 times and Data link- 3 times
C) Network- 4 times and Data link- 6 times
D) Network- 2 times and Data link- 6 times

16. For which one of the following reasons does Internet Protocol (IP) use the time-to- live (TTL) field in the IP datagram header?

A) Ensure packets reach destination within that time
B) Discard packets that reach later than that time
C) Prevent packets from looping indefinitely
D) Limit the time for which a packet gets queued in intermediate routers

17. Which one of the following is TRUE about interior Gateway routing protocols - Routing Information Protocol (RIP) and Open Shortest Path First (OSPF)

A) RIP uses distance vector routing and OSPF uses link state routing
B) OSPF uses distance vector routing and RIP uses link state routing
C) Both RIP and OSPF use link state routing
D) Both RIP and OSPF use distance vector routing

18. Host A (on TCP/IP v4 network A) sends an IP datagram D to host B (also on TCP/IP v4 network B). Assume that no error occurred during the transmission of D. When D reaches B, which of the following IP header field(s) may be different from that of the original datagram D? (i) TTL, (ii) Checksum, (iii) Fragment Offset

A) (i) only B) (i) and (ii) only C) (ii) and (iii) only D) (i), (ii) and (iii)

Description:
(i) TTL is decremented at every hop (router). So TTL is different from original value
(ii) Since TTL changes, the Checksum of the packet also changes.

(iii) A packet is fragmented if it has a size greater than the Maximum Transmission Unit (MTU) of the network. There may be intermediate networks (router) that may change fragment offset by fragmenting the packet.

19. The address resolution protocol (ARP) is used for finding the

A) IP address from the DNS
C) IP address that corresponds to a MAC address

B) IP address of the default gateway D) MAC address that corresponds to an IP address

20. An IP datagram of size 1000 bytes arrives at a router. The router has to forward this packet on a link whose MTU (maximum transmission unit) is 100 bytes. Assume that the size of the IP header is 20 bytes. The number of fragments that the IP datagram will be divided into for transmission is:

A) 10 B) 50 C) 12 D) 13

Explanation: Size of data in the packet = 100-20=80bytes
As MTU 100 bytes , the router will forward a fragment of 80 bytes data and 20 bytes header.
(1000-20)bytes/80 = 13 fragments needed.