NPTEL Online Certification Courses

Indian Institute of Technology Kharagpur

Course Name: ETHICAL HACKING

Assignment- Week 3

TYPE OF QUESTION: MCQ/MSQ/SA

Number of questions: 10 **Total mark: 10 x 1 = 10**

QUESTION 1:

Which of the following statement(s) is/are **true**?

a. IP protocol uses connection-oriented routing.
b. IP protocol uses connection-less routing.
c. IP protocol is a host-to-host layer.
d. In connection-less routing, each packet is treated as an independent packet.
e. None of these.

Correct Answer: b, d

Detail Solution: IP protocol uses connection-less routing, where each packet is treated as independent packet. Also, IP is not a host-to-host layer.

Thus true options are (b) and (d).

QUESTION 2:

Which of the following is/are **false** for *direct and indirect packet delivery* option?

a. Direct delivery occurs when the destination host and deliverer are not present on same network.
b. Indirect delivery occurs when the destination host and deliverer are present on same network.
c. In direct delivery, hosts of same network can exchange packets without interference of router.
d. In direct delivery, an incoming packet to the router is forwarded to the destination host present in the network.
e. In an indirect delivery, the packet goes from router to router until it reaches the one connected to the same physical network as its final destination.
f. None of these.

Correct Answer: a, b

Detail Solution: Direct delivery occurs when the source and destination of the packet are located on the same physical network or when the delivery is between the last router and the destination host. If the destination host is not on the same network as the deliverer, the packet is delivered indirectly. In an indirect delivery, the packet goes from router to router until it reaches the one connected to the same physical network as its final destination.

Thus the correct options are (a) and (b).

QUESTION 3:

Which of the following routing flags can indicate route to a single host (and not to a network) in the routing table?

a. U
b. G
c. H
d. D
e. M

Correct Answer: c

Detail Solution: If the routing table entry indicates a host specific address, then it is specified by H flag.

Thus the correct option is (c).

QUESTION 4:

Which of the following statement(s) is/are **false**?

a. Autonomous systems are set of routers and networks managed by a single organization.
b. In exterior routing protocol, all the participating routers are present in the same autonomous system.
c. In interior routing protocol, the participating routers can be present in different autonomous systems.
d. None of these.

Correct Answer: b, c

Detail Solution: Autonomous Systems are set of routers and networks managed by a single organization. The interior routing protocols applies to a single autonomous system. All the routers inside the AS exchange messages using some standard protocol (e.g. RIP or OSPF) and update their routing tables. In an exterior routing protocol (like BGP), routers belonging to different AS's exchange messages.

Thus the correct options are (b) and (c).

QUESTION 5:

In Open Shortest Path First (OSPF) routing approach, which of the following packets is used to check if the neighbor router is up or not?

a. Link State Request.
b. Link Request Update.
c. Link State Acknowledgement.
d. Using TCP 3-way handshake protocol.
e. None of these.

Correct Answer: e

Detail Solution: In Open Shortest Path First (OSPF) routing approach, the "Hello" packet is used to check if a neighbor is up or not.

Thus, the correct option is (e).

QUESTION 6:

If a packet is to be delivered to all the hosts in a network, what kind of address should be used to specify the destination?

a. Unicast address.
b. Broadcast address.
c. Anycast address.
d. None of these.

Correct Answer: b

Detail Solution: Unicast address is used if a packet is to be delivered to a specific host. Broadcast address is used if a packet has to be delivered to all the hosts within a network or

subnetwork. Anycast address is used if a packet has to be delivered to exactly one of the hosts in a network or subnetwork.

Thus, the correct option is (b).

QUESTION 7:

How many bits are used to represent IPv4 and IPv6 addresses respectively?

a. 4, 24
b. 24, 32
c. 32, 64
d. 32, 128
e. 255, 255

Correct Answer: d

Detail Solution: IPv4 address is represented with 32 bits, and that for IPv6 requires 128 bits.

Thus, correct option is (d).

QUESTION 8:

When an entire IPv6 packet is included as payload inside an IPv4 packet, it is called _____.

a. Encapsulation
b. Tunneling
c. Decapsulation
d. None of these

Correct Answer: b

Detail Answer: When entire IPv6 packets are encapsulated within IPv4 packets, it is called tunneling. The IPv6 packet gets transmitted as data over an IPv4 network.

Thus the correct option is (b).

QUESTION 9:

The size of base header in IPv6 datagram packet is _____ bytes.

Correct Answer: 40

Detail Answer: The base header size of IPv6 datagram packet is 40 bytes, which consists of 128+128 bit source and destination addresses, 8 bit hop limit, 8 bit for next header, 16 bit payload length, 4 bit version, 8 bit priority, and 20 bit flow label.

QUESTION 10:

Consider the following routing table in a router. On which interface will an IP packet with destination address 144.25.112.40 be forwarded?

Destination	Subnet Mask	Interface
144.25.0.0	255.255.0.0	Eth0
144.25.96.0	255.255.96.0	Eth1
144.25.64.0	255.255.192.0	Eth2
144.25.112.0	255.255.240.0	Eth3
Default	0.0.0.0	Def

a. Eth0
b. Eth1
c. Eth2
d. Eth3
e. Def

Correct Answer: d

Detail Solution:

Row 1: 144.25.112.40 AND 255.255.0.0 = 144.25.0.0 ➔ Matches with destination address

Row 2: 144.25.112.40 AND 255.255.96.0 = 144.25.96.0 ➔ No Match

Row 3: 144.25.112.40 AND 255.255.192.0 = 144.25.64.0 ➔ No Match

Row 4: 144.25.112.40 AND 255.255.240.0 = 144.25.112.0 ➔ Matches with destination address

Row 4 provides longest match, thus the packet will be forwarded to interface Eth3.

**********END*******