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 is/are true for *direct packet delivery* option in a routing table?

a. Based on the destination IP address, the packet will be forwarded for processing to another router.
b. Based on the destination IP address, the packet will be forwarded for processing to the default router.
c. Based on the destination IP address, the packet is forwarded to the destination host present in the same network.
d. None of these.

Correct Answer: c

Detail Solution: Direct packet delivery means that a packet can be delivered to a host directly without going through any other intermediate router. This is possible only when the destination host is present in the same network. Hence, the correct option is (c).

QUESTION 2:

Which of the following host address represents the default route in a routing table?

a. 0.0.0.1
b. 255.255.255.255
c. 127.0.0.1
d. None of these

Correct Answer: d

Detail Solution: In the routing table entry of a router, the all-zero combination (0.0.0.0) is typically used to specify the default route.

Hence, option (d) is correct.

QUESTION 3:

What does the value 1 in the G flag of a routing table signify?

a. The hop count of the packet has expired.
b. The destination is in the same network.
c. The destination is in a different network.
d. The destination is under the default router.
e. None of these.

Correct Answer: c

Detail Solution: If in a routing table entry, G = 0, it indicates that the destination is in the same network. However, if G = 1, it indicates that the destination is in a different network. In other words, the G flag indicates that the destination is in a different network. Hence, the correct option is (c).

QUESTION 4:

Which of the following statement(s) is/are true for interior routing protocol?

a. All the participating routers are present in the same autonomous system.
b. The participating routers are present in different autonomous systems.
c. Routers in different autonomous systems exchange messages to update their routing tables.
d. Routers in the same autonomous system exchange messages to update their routing tables.

Correct Answer: a, d

Detail Solution: 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. The correct options are (a) and (d).

QUESTION 5:

If a packet is to be delivered to exactly one within a given set of 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: c

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. Hence, the correct option is (c).

QUESTION 6:

How is the destination network address determined while finding a match in the routing table?

a. Perform bitwise-AND of the destination IP address of the packet with subnet mask entry in the routing table.
b. Perform bitwise-AND of the destination IP address of the packet with network address entry in the routing table.
c. Destination network address can be obtained directly from the information present in the packet.
d. None of these.

Correct Answer: a

Detail Solution: While finding a match in the routing table, the router first extracts the destination IP address from the incoming packet, and then carries out bitwise-AND operation with the subnet mask entries present in the routing table. The correct option is (a).

QUESTION 7:

How are the links between neighbor routers kept alive in the OSPF protocol?

a. By sending PING request.
b. By initiating a TCP 3-way handshake protocol.
c. By periodically sending link-state information.
d. By periodically sending HELLO packets.

Correct Answer: d

Detail Solution: A HELLO packet received from a neighboring router indicates that the corresponding communication link is up and running. In the OSPF protocol, if the HELLO packet is not received for 40 seconds, it indicates failure of the neighbor or the communication link. Hence the correct option is (d).

QUESTION 8:

Which of the following represents tunneling?

a. An entire IPv6 packet is included as payload inside an IPv4 packet.
b. A packet is sent from an IPv4 network to an IPv6 network.
c. A packet is sent from an IPv6 network to an IPv4 network.
d. None of these.

Correct Answer: a

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. Hence, the correct option is (a).

QUESTION 9:

Consider the following routing table in a router. On which interface will an IP packet with destination address 161.44.64.120 be forwarded?

Destination	Subnet Mask	Interface
161.44.0.0	255.255.0.0	a
161.44.64.0	255.255.224.0	b
161.44.68.0	255.255.255.0	c
161.44.68.64	255.255.255.224	d
default	0.0.0.0	e

a. Interface a
b. Interface b

c. Interface c
d. Interface d
e. Interface e

Correct Answer: b

Detail Solution:

Row 1: 161.44.64.120 AND 255.255.0.0 = 161.44.0.0 ➔ Matches with destination address

Row 2: 161.44.64.120 AND 255.255.224.0 = 161.44.64.0 ➔ Matches with destination address

Row 3: 161.44.64.120 AND 255.255.255.0 = 161.44.64.0 ➔ No match

Row 4: 161.44.64.120 AND 255.255.255.224 = 161.44.64.112 ➔ No match

Row 2 provides the longest prefix match; hence the packet will be forwarded to Interface b.

Hence, the correct option is (b).

QUESTION 10:

An entry in the routing table has 155.86.56.0 as the destination, and /22 as the subnet mask. What will be the network address?

a. 155.86.56.0
b. 155.86.0.0
c. 155.86.48.0
d. None of these.

Correct Answer: a

Detail Solution: In binary notation,

155.86.56.0 = 10011011 01010110 00111000 00000000

If we use /22 as the subnet mask, this means that the first 22 bits of the address must be used to get the network address. If we do this, we get

10011011 01010110 00111000 00000000 = 155.86.56.0

Hence, correct option is (a).

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