NPTEL Online Certification Courses

Indian Institute of Technology Kharagpur

Course Name: ETHICAL HACKING

Assignment- Week 2

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*** for transparent fragmentation?

a. The subsequent networks are aware that the fragmentation has occurred.
b. It is required to route all packet to the same exit router in a network.
c. Each fragment is treated as an independent packet.
d. All fragmented packets are reassembled by host system.
e. All fragmented packets are reassembled by the exit router.

Correct Answer: b, e

Detail Solution: In transparent fragmentation, all packets are routed through an exit router that assembles the fragmented packets. In this approach the subsequent network(s) have no information about fragmentation. Whereas in non-transparent fragmentation the packets can be transmitted through multiple routers as each packet is treated as independent packet and the reassembly is done by the destination host system.

Thus the true options are (b) and (e).

QUESTION 2:

For reassembling the fragmented packets at the final destination, which of the following header field(s) is(are) used by IP?

a. Fragment offset.
b. Flags.
c. Header checksum.
d. HLEN.
e. Identification.

Correct Answer: a, b, e

Detail Solution: For fragment assembly, identification (ID), fragment offset and flag fields are used.

Thus true options are (a), (b) and (e).

QUESTION 3:

An IP packet arrives at the final destination with the D flag set as 1. Which of the following statement is **true** about the packet?

a. The packet has not been fragmented.
b. The packet has been fragmented and it is the first fragment.
c. The packet has been fragmented and it is the last fragment.
d. None of these.

Correct Answer: a

Detail Solution: When the More (M) flag in a packet is 1, this indicates that the original packet has definitely been fragmented and there are more fragments following. When the Don't Fragment (D) flag in a packet is 1 then it prevents it from being fragmented.

Thus the true option is (a).

QUESTION 4:

In an IP packet, the value of HLEN is 8, and the total size of IP packet is 1500 bytes. The number of data bytes in the packet will be _____.

Correct Answer: 1466 to 1470

Detail Solution: Since HLEN = 8, the size of the IP header will be 8 x 4 = 32 bytes. The total size of the IP packet is given as 1500 bytes. Hence, the number of data bytes = 1500 – 32 = 1468. bytes.

QUESTION 5:

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

a. Each host connected to the Internet is defined by an IP address.
b. IP address consist of two parts: network number and host number.
c. When a packet is routed to the destination network, only the network number is used.
d. None of these.

Correct Answer: d

Detail Solution: IP address is 32-bit quantity, it is expressed as dotted decimal notation where dots are used to separate each of the four octets in the address. IP address consist of two logical parts: network number and host number; while routing a packet to the destination network, only the network number is looked at whereas for uniquely identifying the system inside a network host number is used.

Thus the correct option is (d).

QUESTION 6:

Which address classes do the IP addresses 10.16.75.12 and 192.10.85.120 belong to?

a. Class A and Class B
b. Class B and Class C
c. Class C and Class D
d. Class A and Class C

Correct Answer: d

Detail Solution:

Class A addresses start with "0", class B addresses start with "10", class C addresses start with "110", and class D addresses start with "1110". For the IP address 10.16.75.12, the first byte 10 = **0**0001010 in binary; for the IP address 192.10.85.120, the first byte 192 = **110**00000 in binary. Clearly, the first one is Class A, and the second one is Class C address.

Hence, the correct option is (d).

QUESTION 7:

Which of the following IP addresses does not represent broadcast address?

a. 10.0.0.255
b. 10.255.255.255
c. 144.16.255.255
d. 173.16.0.255
e. 192.168.5.255
f. 192.168.255.0

Correct Answer: a, d, f

Detail Solution: In a broadcast address, all the bits in the "host" part of the IP address will be 1. (a) and (b) are class A addresses, where the last 24 bits indicate the host. (c) and (d) are class B addresses, where the last 16 bits indicate the host. (e) and (f) are class C addresses, where the last 8 bits indicate the host. Hence, the IP addresses given in options (b), (c), and (e) represent broadcast addresses.

Thus IP address given in options (a), (d) and (f) are not a broadcast address.

QUESTION 8:

Which of the following statement(s) is/are ***false*** for flag bits in TCP header?

a. SYN=1 and ACK=0 represents a connection request message.
b. SYN=1 and ACK=1 represents a connection confirmation message.
c. RST bit is used to reset/reject connection request.
d. None of these.

Correct Answer: d

Detail Solution: In the TCP header, SYN=1 and ACK=0 represents connection request, whereas SYN=1 and ACK=1 represents connection confirmation. RST is used to reset/reject connection.

Thus correct option is (d).

QUESTION 9:

What is the subnet address if the destination IP address is 144.16.34.124 and the subnet mask is 255.255.242.0?

a. 144.16.32.0
b. 144.16.34.0
c. 144.16.34.255
d. 144.16.242.255

Correct Answer: b

Detail Solution: Let us express the two numbers in binary:

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144.16.34.124 = 10010000 00010000 00100010 01111100
255.255.242.0 = 11111111 11111111 11110010 00000000
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If we take bit-by-bit AND, we shall get the subnet address as

10010000 00010000 00100010 00000000 = 144.16.34.0

Thus the correct option is (b).

QUESTION 10:

An organization is allotted an address block with beginning address as: 144.16.192.24/29 in CIDR notation. What will be the address range for that block?

a. 144.16.192.0 to 144.16.192.8
b. 144.16.192.8 to 144.16.192.16
c. 144.16.192.16 to 144.16.192.24
d. 144.16.192.24 to 144.16.192.31

Correct Answer: d

Detail Solution: First 29 bits in the IP address will denote network number. The range will be:

144.16.192.24 = 10010000 00010000 11000000 00011000

to

144.16.192.31 = 10010000 00010000 11000000 00011111

Thus the range given in option (d) is correct.

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