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:

Why do we need fragmentation?

    a. To increase transmission speed.
    b. Due to varying MTU across networks.
    c. To improve encryption.
    d. To compress packet.

Correct Answer: b

Detail Solution: If MTU is small and the packet is large then it cannot be transmitted through that network, and thus we need to divide the packet into smaller fragments. Thus we can say that fragmentation is required because MTU across network varies.

Thus the correct option is (b).

QUESTION 2:

IP fragmentation is typically done by:

    a. Source Host
    b. Destination Host
    c. Intermediate Routers
    d. Hubs

Correct Answer: c

Detail Solution: Fragmentation is performed by intermediate routers, while the reassembly of packets is done by the final destination host.

Thus the correct option is (c).

QUESTION 3:

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

      a. Fragment offset
      b. Flags
      c. Port number
      d. Checksum
      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 4:

An IP packet arrives at the final destination with the D flag set as 0, M flag set as 1 and offset is set to 0. Which of the following statements 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: b

Detail Solution: $D = 0$ means fragmentation is allowed. 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, M=0 indicates the last fragmented packet. Offset = 0 indicates that it is the first fragmented packet.

Thus the true option is (b).
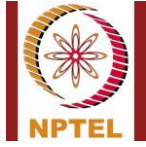
QUESTION 5:

In an IP packet, the value of HLEN is 15, and the total size of IP packet is 2000 bytes. The number of data bytes in the packet will be _____.

Correct Answer: 1930 to 1950

Detail Solution: Since HLEN = 15, the size of the IP header will be 15 x 4 = 60 bytes. The total size of the IP packet is given as 2000 bytes. Hence, the number of data bytes = 2000 – 60 = 1940 bytes.

QUESTION 6:

Which address classes do the IP addresses 128.0.1.3 and 193.11.23.10 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: b

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 128.0.1.3, the first byte 128 = **10**000000 in binary; for the IP address 193.11.23.10, the first byte 193 = **110**00001 in binary. Clearly, the first one is Class B, and the second one is Class C address.

Hence, the correct option is (b).

QUESTION 7:

Which IP addresses are reserved for private use?

      a. 10.x.x.x
      b. 172.32.x.x
      c. 192.168.x.x
      d. 128.x.x.x

Correct Answer: a, c

Detail Solution: 10.x.x.x, 172.16.x.x and 192.168.x.x are reserved for private use.

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

QUESTION 8:

What does a TCP segment with SYN =1 and ACK = 0 indicate?

    a. Connection termination
    b. Connection reset
    c. Keep-alive signal
    d. Initial connection request
    e. Connection acknowledgement

Correct Answer: d

Detail Solution: In the TCP header, SYN=1 and ACK=0 represents connection request (first step of TCP 3-way handshake), 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 size of UDP header?

    a. 16 bits
    b. 16 bytes
    c. 8 bits
    d. 8 bytes

Correct Answer: d

Detail Solution: UDP header size is 8 bytes (4 fields each of 16 bits).

Thus correct option is (d).

QUESTION 10:

What is the subnet address if the destination IP address is 192.168.77.213 and the subnet mask is 255.255.252.0?

        a. 192.168.76.0
        b. 192.168.76.213
        c. 192.168.77.0
        d. 192.168.0.0

Correct Answer: a

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

```
192.168.77.213 = 11000000 10101000 01001101 11010101
255.255.252.0  = 11111111 11111111 11111100 00000000
```

If we take bit-by-bit AND, we shall get the subnet address as

```
11000000 10101000 01001100 00000000 = 192.168.76.0
```

Thus the correct option is (a).

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