NPTEL Online Certification Courses

Indian Institute of Technology Kharagpur

Course Name: ETHICAL HACKING

Assignment- Week 1

TYPE OF QUESTION: MCQ/MSQ/SA

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

QUESTION 1:

Which of the following point(s) is/are **true** for an ethical hacker?

a. An ethical hacker intends to gain unauthorized access to a resource for financial gain or personal recognition.
b. An ethical hacker defaces websites or crash backend servers for fun, reputation damage or to cause financial loss.
c. An ethical hacker is not concerned with improving the organization's security posture.
d. None of these.

Correct Answer: d

Detail Solution: Ethical hackers use their knowledge to secure and improve the technology of organizations. An ethical hacker reports the identified vulnerabilities to the organization. Malicious hackers intend to gain unauthorized access to a resource for financial gain or personal recognition. Some malicious hackers deface websites or crash backend servers for fun, reputation damage, or to cause financial loss. The methods used and vulnerabilities found remain unreported. They are concerned with improving the organization's security posture. Thus all the points given are false for an ethical hacker.

Thus the correct option is (d).

QUESTION 2:

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

a. In the black box model, the tester has complete information about the network.
b. In the white box model, the tester does not have any information about the network.
c. In the gray box model, the tester has partial information about the network.
d. None of these.

Correct Answer: c

Detail Solution: In the white box model, the tester has complete information about the network. In the black box model, the tester does not have any information about the network. Gray box model is somewhere in between, where the tester is only provided with partial information about the network.

Thus the correct option is (c).

QUESTION 3:

Which of the following statement(s) is/are **false** for a packet switched network?

a. A communication link can be shared by more than one connection.
b. A communication link is dedicated to a connection and cannot be shared with other connections.
c. It is efficient for bursty traffic.
d. The packet transfer delay between a pair of nodes may depend on the prevailing network traffic.

Correct Answer: b

Detail Solution: In a packet switched network, communication links may be shared by more than one connection. Also, in a packet switched network, packets between the same source and destination may follow different paths, and hence the packet transfer delay can vary with time; this depends on the prevailing traffic situation in the network. It is efficient for high bandwidth traffic like data streaming.

Thus the correct option is (b).

QUESTION 4:

Which of the following statement(s) is/are **true** for datagram-based packet transfer approach?

a. It is a connection-less packet switching approach, where no route is established priori to transfer of packets.
b. In this approach, each packet is transmitted as an independent entity.
c. In this approach each intermediate node can perform dynamic routing.
d. In this approach all the packets reach in order to the destination.

Correct Answer: a, b, c

Detail Solution: Datagram approach is a connection-less packet switching approach where no route is established before packet transmission starts. In this approach each packet is transmitted as an independent entity containing source and destination addresses. Thus it is not necessary to follow same path for all packets and thus the packets can be delivered out of order. For forwarding the packet to next node, every node maintains a routing table that is updated dynamically to take routing decision.

Thus correct options are (a), (b) and (c).

QUESTION 5:

What is the purpose of the port number in TCP/IP networks?

a. It uniquely identifies a network interface of a computer system.
b. It uniquely identifies a host in the network.
c. It uniquely identifies a running application on a specific host in the network.
d. It indicates how many hardware ports are there in the computer system.
e. None of these.

Correct Answer: c

Detail Solution: Port number uniquely identifies a running application on a specified host in the network.

Thus the correct option is (c).

QUESTION 6:

Which of the following is **not** a valid port numbers in TCP/IP?

a. 21
b. 80
c. 443
d. 8080
e. 80800

Correct Answer: e

Detail Solution: In TCP/IP, port numbers are 16-bit quantities, with values in the range of 0 to $2^{16}-1 = 65535$.

Hence, the invalid port number is 80800 (option e).

QUESTION 7:

Which of the following functionality does Address Resolution Protocol (ARP) perform?

a. Map IP addresses to hardware (MAC) addresses.
b. Map hardware addresses (MAC) to IP addresses.
c. Performs error control and correction.
d. Breaks the packet into smaller packets, if required.

Correct Answer: a

Detail Solution: ARP is responsible for mapping IP addresses to MAC addresses.

Thus the correct option is (a).

QUESTION 8:

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

a. IP provides connectionless, unreliable delivery systems for packets.
b. UDP provides connectionless, unreliable delivery systems for packets
c. TCP provides connectionless, unreliable delivery systems for packets.
d. None of these.

Correct Answer: c

Detail Solution: IP and UDP provide connectionless, unreliable delivery systems for packets. However TCP provides a connection-oriented reliable service.

Thus the correct option is (c).

QUESTION 9:

If the IP header is 96 bits long, what will be the value (in decimal) of the "HLEN" field _____?

Correct Answer: 3

Detail Solution: The HLEN field contains the size of the IP header in multiples of 32 bits or 4 bytes. Here, size of the IP header = 96 bits = 3 x 32 bits. Hence, HLEN will contain 0011, which is the binary equivalent of the number 3.

Thus the correct answer will be 3.

QUESTION 10:

The maximum size of data that can be accommodated in an IP datagram is _____ bytes.

Correct Answer: 65500 to 65535

Detail Solution: The TOTAL-LENGTH field in the IP header is 16 bits, which can contain values from 0 to $2^{16} - 1 = 65535$, the total size of an IP packet can be 65535 bytes.

Also, the minimum size of the IP header is 20 bytes, which makes the maximum size of data as 65535 – 20 = 65515 bytes.

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