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**Course Name: ETHICAL HACKING**

**Assignment- Week 1**

**TYPE OF QUESTION: MCQ/MSQ/SA**

**Number of questions: 10**

**Total mark: 10 x 1 = 10**

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**QUESTION 1:**

In which of the following penetration testing models, no information about the network is given to the tester?

- a. White box model.
- b. Black box model.
- c. Gray box model.
- d. Red box model.

**Correct Answer: b**

**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. There is nothing called red box model.

Thus the correct option is (b).

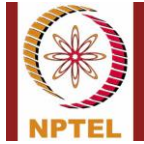
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**QUESTION 2:**

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

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

**Correct Answer: b**



**Detail Solution:** In a circuit switched network, a communication link remains dedicated to a connection; however, 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; whereas in circuit switched network the link is dedicated so mostly the delay remains constant. Circuit switched network is acceptable for voice communication but is very inefficient for high traffic like data streaming.

Thus, option (b) is true.

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### **QUESTION 3:**

Which of the following statement(s) is/are **false** for virtual circuit based packet transfer approach?

- a. It is a connection-oriented approach, where a route is established prior to transfer of packets.
- b. The intermediate node can perform dynamic routing.
- c. All the packets reach in order to the destination.
- d. It is a true packet switched network.

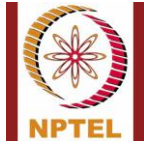
**Correct Answer: b, d**

**Detail Solution:** Virtual circuit approach is a connection-oriented packet switching approach where a route is established before packet transmission starts. For a session the packets follow the same path, and then once the session is expired a new route is established. In virtual circuit, a virtual circuit id is used by intermediate nodes of the route such that the packet can be forwarded to the next node. This means that the intermediate nodes can only forward the packet and cannot make dynamic routing decision. In virtual circuit all packets reach in order to the destination as packets follow the same path. It is not a true packet switched network as it uses a fixed path for transmitting data.

Thus correct answers are (b) and (d).

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### **QUESTION 4:**



A packet of size 2000 bytes is sent over a 50 kilo-bits-per-second (Kbps) point-to-point link whose propagation delay is 5 msec. The packet will reach the destination after \_\_\_\_\_ msec. (Assume 1K = 1000)

**Correct Answer: 323 to 327**

**Detail Solution:**

1 bit can be sent in =  $(1 / 50,000)$  sec

2000 bytes or 16,000 bits can be sent in  $16,000 / 50,000$  sec = 0.32 sec = 320 msec

The initial delay before the first bit reaches the destination is 5 msec

Hence the packet will reach the destination after = 320 msec + 5 msec = 325 msec

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**QUESTION 5:**

Which of the following OSI layers is responsible for end-to-end reliable data transfer?

- a. Physical layer
- b. Transport layer
- c. Network layer
- d. Datalink layer

**Correct Answer: b**

**Detail Solution:** The physical layer is responsible for actual transmission of signals over a communication medium. The data-link layer is responsible for transmitting data frames reliably over point-to-point links. The network layer is responsible for the switching or routing of packets from one node to the next on way to its final destination. The transport layer is a virtual host-to-host layer between the two end systems which is responsible for end-to-end reliable data transfer with error recovery and flow control.

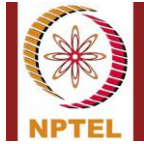
Thus, the correct option is (b).

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**QUESTION 6:**

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

- a. It uniquely identifies a network interface of a computer system.
- b. It uniquely identifies a host in the network.
- c. It indicates how many hardware ports are there in the computer system.



d. None of these.

**Correct Answer: b**

**Detail Solution:** The IP address uniquely identifies a host in the network.

Thus the true option is (b).

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**QUESTION 7:**

How many bits are used for IP address (in IPv4) and port number respectively?

- a. 32, 8
- b. 32, 16
- c. 128, 8
- d. 128, 16

**Correct Answer: b**

**Detail Solution:** 32 bits are used for IP address whereas 16 bits are used for port number.

Thus the correct option is (b).

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**QUESTION 8:**

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**

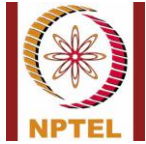
**Detail Solution:** In TCP/IP, port numbers are 16-bit quantities, with values in the range of 0 to  $2^{16}-1 = 65535$ . Hence, the correct option is (e).

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**QUESTION 9:**

If the IP header is 224 bits long, what will be the value of the “HLEN” field (in decimal) \_\_\_\_\_?

**Correct Answer: 7**



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**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 = 224 bits =  $7 \times 32$  bits. Hence, HLEN will contain 0111, which is the binary equivalent of the number 7.

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**QUESTION 10:**

The minimum size of IP header required in an IP datagram is \_\_\_\_\_ bytes.

**Correct Answer: 20**

**Detail Solution:** The minimum size of the IP header is 20 bytes; whereas an additional 40 bytes can be added in the packet as per requirement.

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