

Ethical Hacking - Unit 3 - Week 1

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NPTEL Ethical Hacking

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Course outline

How does an NPTEL online course work?

Week 0

Week 1

- Lecture 01: Introduction to Ethical Hacking
- Lecture 02: Basic Concepts of Networking (part-I)
- Lecture 03: Basic Concepts of Networking (part-II)
- Lecture 04: TCP/IP Protocol Stack (part-I)
- Lecture 05: TCP/IP Protocol Stack (Part-II)
- Lecture Material of Week 1
- Quiz: Week 01: Assignment 01
- Week 1 Feedback Form
- Assignment 1 Solution

Week 2

Week 3

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Week 5

Week 01: Assignment 01

The due date for submitting this assignment has passed.

Due on 2023-08-09, 23:59 IST.

Assignment submitted on 2023-08-08, 19:41 IST

1) Which of the following point(s) is/are **true** for an ethical hacker? 1 point

- 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.

☐ a

☐ b

☐ c

☒ d

Yes, the answer is correct.
Score: 1
Accepted Answers:
d

2) Which of the following statement(s) is/are **true**? 1 point

- 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.

☐ a

☐ b

☐ c

☐ d

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Ethical Hacking - Unit 4 - Week 2

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How does an NPTEL online course work?

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Week 2

- Lecture 06 : IP addressing and routing (Part I)
- Lecture 07 : IP addressing and routing (Part II)
- Lecture 08 : TCP and UDP (Part I)
- Lecture 09 : TCP and UDP (Part II)
- Lecture 10 : IP subnetting
- Lecture Material of Week 2
- Quiz: Week 02: Assignment 2
- Week 2 Feedback Form
- Assignment 2 Solution

Week 3

Week 02: Assignment 2

The due date for submitting this assignment has passed.

Due on 2023-08-09, 23:59 IST.

Assignment submitted on 2023-08-08, 19:54 IST

1) Why there is a need for fragmentation of IP packets? 1 point

- a. Fragmentation is necessary because every network has a unique limit for the maximum size of datagrams that it can process.
- b. Fragmentation is necessary for faster data transfer.
- c. Fragmentation is necessary for error-recovery and flow control.
- d. All of these.

☒ a

Yes, the answer is correct.
Score: 1
Accepted Answers: a

2) Which of the following statement(s) is/are true? 1 point

- a. In transparent fragmentation the subsequent networks are aware that the fragmentation had occurred.
- b. In transparent fragmentation, it is required to route all packet to the same exit router in a network.
- c. In non-transparent fragmentation, each fragment is treated as an independent packet.

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- Lecture 11 : Routing protocols (Part I)
- Lecture 12 : Routing protocols (Part II)
- Lecture 13 : Routing protocols (Part III)
- Lecture 14 : IP version 6
- Lecture 15 : Routing examples
- Lecture Material of Week 3

Week 03: Assignment 03

The due date for submitting this assignment has passed.

Due on 2023-08-16, 23:59 IST.

Assignment submitted on 2023-08-16, 20:43 IST

1) Consider the following statements:
(i) In connection-oriented approach, network layer first makes a connection.
(ii) IP protocol uses connection-oriented routing. 0 points

- a. Only (i) is true
- b. Only (ii) is true
- c. Both (i) and (ii) are true.
- d. Both (i) and (ii) are false.

☐ a

No, the answer is incorrect.
Score: 0
Accepted Answers: a

2) Which of the following is/are true for default route? 1 point

- a. Default route is used when no specific address for next hop is available.

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How does an NPTEL online course work?

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- Lecture 16 : Software Installation and Network Setup
- Lecture 17 : Information Gathering (Part 1)
- Lecture 18 : Information Gathering (Part 2)

Week 04: Assignment 04

The due date for submitting this assignment has passed.

Due on 2023-08-23, 23:59 IST.

Assignment submitted on 2023-08-23, 19:11 IST

1) Which of the following statement(s) is/are **true** for NAT networking mode? 1 point

- a. In NAT mode, the virtual machines cannot access each other.
- b. NAT mode does not allow access of internet to the installed virtual machines.
- c. In NAT mode, the hypervisor allocate same IP address to all virtual machines.
- d. All of these.

☐ a

☐ b

☒ c

☐ d

Partially Correct.
Score: 0.5

Accepted Answers:
a
c

2) Which of the following statement(s) is/are **true** about "Passive Reconnaissance"? 1 point

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Week 5

- Lecture 21 : Vulnerability Scanning using NMAP
- Lecture 22 : Security

Week 5: Assignment 5

The due date for submitting this assignment has passed.

Due on 2023-08-30, 23:59 IST.

Assignment submitted on 2023-08-26, 20:15 IST

1) Which of the following tools can be used for scanning vulnerabilities? 1 point

- a. Hypervisor
- b. Nessus
- c. Hydra
- d. Nmap
- e. Crunch

☐ a

☒ b

☐ c

☐ d

☐ e

Yes, the answer is correct.
Score: 1

Accepted Answers:
b

Ethical Hacking - Unit 8 - Week 6

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Lecture 26 : Basic concepts of

Week 06: Assignment 06

The due date for submitting this assignment has passed.

Due on 2023-09-06, 23:59 IST.

Assignment submitted on 2023-09-04, 12:38 IST

1) Which of the following is not an example of active security attack? 1 point

- a. Masquerade
- b. Replay
- c. Traffic analysis
- d. Modification
- e. Denial of Service.

☐ a

☐ b

☒ c

☐ d

☐ e

Yes, the answer is correct.
Score: 1

Accepted Answers:

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Ethical Hacking - Unit 9 - Week 7

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Week 7

Lecture 31 : Cryptographic hash functions (Part I)

Lecture 32 : Cryptographic hash functions (Part II)

Lecture 33 : Digital signature and certificate

Lecture 34 : Applications (Part I)

Week 07: Assignment 07

The due date for submitting this assignment has passed.

Due on 2023-09-13, 23:59 IST.

Assignment submitted on 2023-09-11, 20:01 IST

1) Which of the following is/are true for Unkeyed hash function (Modification Detection Code)? 1 point

- a. Unkeyed hash function is used to preserve integrity of message.
- b. Unkeyed hash function is used to authenticate source of message.
- c. Unkeyed hash function produces an output that depends only on the input data.
- d. None of these.

☒ a

☐ b

☐ c

☐ d

Partially Correct.
Score: 0.5

Accepted Answers:
a
c

2) Two messages M1 and M2 are fed to a hash function HASH to generate the hash values: 1 point

H1 = HASH (M1)
H2 = HASH (M2)

When do we say there is a collision?

- a. H1 = H2.
- b. M1 = M2.

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Lecture 36 : Steganography
Lecture 37 : Biometrics
Lecture 38 : Network Based Attacks (Part I)
Lecture 39 : Network Based Attacks (Part II)
Lecture 40 : DNS and Email Spoofing

Week 08: Assignment 08

The due date for submitting this assignment has passed.

Due on 2023-09-20, 23:59 IST.

Assignment submitted on 2023-09-15, 21:51 IST

1) Consider the following statements:
(i) Steganography refers to a set of methods to hide some secret information in an audio image executable files.
(ii) Steganography and digital watermarking shares same operational and functional behaviors.

a. Only (i) is true
b. Only (ii) is true
c. Both (i) and (ii) are true
d. Both (i) and (ii) are false.

☒ a
☐ b
☐ c
☐ d

Yes, the answer is correct.
Score: 1
Accepted Answers: c

2) Consider a gray-level image of size 2000 x 2000, where each pixel is stored in 24-bits (containing red, green, and blue components as 8-bit each. How many bytes of information can be hidden in the image by using LSB steganography technique? (Assume that only the least significant bit in each 8-bit color component is modified).

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No, the answer is incorrect.

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Lecture 41 : Packet Sniffing (Part 1)
Lecture 42 : Packet Sniffing (Part 2)
Lecture 43 : Packet Sniffing (Part 3)

Week 09: Assignment 09

The due date for submitting this assignment has passed.

Due on 2023-09-27, 23:59 IST.

Assignment submitted on 2023-09-26, 15:54 IST

1) In promiscuous mode, a network device, such as an adapter on a host system, can intercept and read all traffic on the network segment to which the adapter is connected.

a. True
b. False

☒ a
☐ b

Yes, the answer is correct.
Score: 1
Accepted Answers: a

2) Which of the following commands can be used to put the NIC of a machine to promiscuous mode? (Assumption: Machine IP - 192.168.43.48, IP of default gateway - 192.168.43.141, the machine is connected with eth0 interface).

a. arpspoof 192.168.43.48
b. arpspoof 192.168.43.141
c. arpspoof -i eth0 192.168.43.48
d. arpspoof -i eth0 192.168.43.141

☐ a
☐ b
☐ c
☐ d

Ethical Hacking - Unit 12 - Wi...

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Lecture 46: Elements of Hardware Security

Lecture 47: Side Channel Attacks (Part I)

Week 10: Assignment 10

The due date for submitting this assignment has passed.

Due on 2023-10-04, 23:59 IST.

Assignment submitted on 2023-10-03, 17:25 IST

1) Which of the following are examples of hardware-based attacks?

a. Side-channel attack.

b. Physical probing.

c. Denial of service attack.

d. SQL injection attack

☒ a

☒ b

☐ c

☐ d

Yes, the answer is correct.
Score: 1
Accepted Answers:
a
b

1 point

2) For modular exponentiation computation of x^{21} , how many squaring and multiplication operations would be required?

a. 4 and 4.

b. 4 and 2.

c. 3 and 4.

d. 5 and 2.

e. 5 and 3.

☐ a

1 point

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