

12 Week Exam Study Guide

Fill-in-the-Blank Questions

1. The TCP/IP Model consists of _____ layers.
- **Answer: 5**
2. The function of the _____ layer is to physically transmit data over a network medium. - **Answer: Physical**
3. In networking, _____ refers to the process of wrapping data with protocol information at each layer.
- **Answer: Encapsulation**
4. The term _____ is used to describe a security vulnerability that involves injecting malicious scripts into web pages.
- **Answer: Cross-site scripting (XSS)**
5. The three types of XSS attacks are _____, _____, and _____
XSS. - **Answer: Reflected, Stored, Document Object Model (DOM)**
6. The MAC address consists of two parts: the _____ and the _____.
- **Answer: OUI, Network Interface Controller**
7. The purpose of _____ is to translate private IP addresses into a public IP address. - **Answer: Network Address Translation (NAT)**
8. _____ is the process of confirming the identity of users in a network. - **Answer: Authentication**
9. The _____ layer of the TCP/IP model is responsible for end-to-end communication. - **Answer: Transport**
10. A _____ is an example of a Layer 2 device.
- **Answer: Switch**

Multiple-Choice Questions

1. Which of the following layers is NOT part of the TCP/IP Model?
- A) Application
- B) Session
- C) Transport
- D) Network
- **Answer: B) Session**

2. Which protocol is responsible for resolving IP addresses to MAC addresses?

- A) ARP
- B) TCP
- C) UDP
- D) ICMP

- **Answer: A) ARP**

3. What does the acronym NAT stand for?

- A) Network Address Translation
- B) Network Allocation Table
- C) Node Address Transfer
- D) None of the above

- **Answer: A) Network Address Translation**

4. Which of the following is a function of the Transport layer? - A) Data encapsulation

- B) Error detection and correction
- C) Establishing sessions
- D) End-to-end communication

- **Answer: D) End-to-end communication**

5. What type of network topology has a central hub or switch? - A) Mesh

- B) Star
- C) Bus
- D) Ring

- **Answer: B) Star**

6. What is the well-known port number for HTTPS?

- A) 80
- B) 443
- C) 21
- D) 25

- **Answer: B) 443**

7. The main difference between TCP and UDP is:

- A) TCP is faster than UDP.
- B) UDP is connection-oriented, while TCP is connectionless.
- C) TCP provides reliable delivery, while UDP does not. - D)

They both function the same way.

- **Answer: C) TCP provides reliable delivery, while UDP does not.**

8. Digital Certificates are issued by:

- A) Internet Service Providers
- B) Certificate Authorities
- C) Web Browsers
- D) Network Administrators
- **Answer: B) Certificate Authorities**

9. The purpose of a Digital Signature is to ensure:

- A) Non-repudiation
- B) Confidentiality
- C) Availability
- D) All of the above
- **Answer: A) Non-repudiation**

10. A Man-in-the-Middle (MITM) attack is primarily used to:

- A) Capture data packets in transit
- B) Modify data during transmission
- C) Both A and B
- **Answer: C) Both A and B**

Fill-in-the-Blank Questions

1. **Definition of Cryptography:** Cryptography is the practice and study of techniques for securing communication and information by transforming it into a format that is unreadable to unauthorized users. The primary goals of cryptography are _____ (confidentiality, integrity, authentication).

2. **Types of Cryptography:** The types of cryptography discussed in this class include _____ (symmetric encryption, asymmetric encryption, hashing).

3. **Symmetric Encryption:** Symmetric encryption uses a single key for both _____ (encryption and decryption), making it crucial for scenarios where secure communication is required.

4. **Cyber Pillars:** In the context of the Cyber Pillars, symmetric encryption is essential for ensuring _____ (confidentiality, integrity, availability) of sensitive data. 5. **Caesar Cipher:**

The Caesar Cipher shifts each letter in the plaintext by a fixed number of places down or up the alphabet. For a shift of 3, the letter 'A' becomes _____ (D).

6. **Vignere Cipher:** The Vignere Cipher utilizes a keyword to determine the shift for each letter. If the keyword is "KEY" and the plaintext is "HELLO", the first letter 'H' would be shifted by the corresponding letter in the keyword, which is _____ (K).

7. **Advanced Encryption Standard (AES):** AES is a symmetric encryption algorithm that uses block ciphers and operates on blocks of _____ (128 bits).

Multiple-Choice Questions

1. **What is the primary purpose of cryptography?**

- A) Data formatting
- B) Data transmission
- C) Securing information
- D) Data storage

Correct Answer: C) Securing information

2. **Which of the following is NOT a type of cryptography?**

- A) Symmetric encryption
- B) Asymmetric encryption
- C) Digital signatures

Correct Answer: C) Digital signatures

3. **What is a key characteristic of symmetric encryption?**

- A) It uses two different keys for encryption and decryption.
- B) It is faster than asymmetric encryption.

- C) It requires a public and a private key.
- D) It is only used for digital signatures.

Correct Answer: B) It is faster than asymmetric encryption.

4. In symmetric encryption, the same key is used for:

- A) Hashing and salting
- B) Encryption and decryption
- C) Public key and private key generation
- D) Data storage and data retrieval

Correct Answer: B) Encryption and decryption

5. What is the output of decrypting the ciphertext "KHOOR" using the Caesar Cipher with a shift of 3?

- A) HELLO
- B) WORLD
- C) JELLY
- D) CANDY

Correct Answer: A) HELLO

6. In the Vigenere Cipher, which of the following will be the shift for the letter 'E' when the keyword is "KEY"?

- A) 10
- B) 4
- C) 24
- D) 14

Correct Answer: B) 4

7. **AES operates on blocks of how many bits?**

- A) 64 bits
- B) 128 bits
- C) 256 bits
- D) 512 bits

Correct Answer: B) 128 bits