

1.Modular arithmetic is primarily concerned with operations involving:

- A) Real numbers
- B) Complex numbers
- C) Integers within a fixed range
- D) Rational numbers

View answer

Answer: C) Integers within a fixed range

Explanation: Modular arithmetic deals with operations on integers within a fixed range.

2.Which algorithm is commonly used to find the modular multiplicative inverse?

- A) RSA algorithm
- B) Diffie-Hellman algorithm
- C) ElGamal algorithm
- D) Extended Euclidean Algorithm

View answer

Answer: D) Extended Euclidean Algorithm

Explanation: The Extended Euclidean Algorithm is commonly used to find the modular multiplicative inverse, which is crucial in many cryptographic algorithms.

3.Discrete logarithms are particularly relevant in:

- A) Symmetric cryptography
- B) Asymmetric cryptography
- C) Hash functions
- D) Digital signatures

View answer

Answer: B) Asymmetric cryptography

Explanation: Discrete logarithms play a significant role in asymmetric cryptography, particularly in algorithms like Diffie-Hellman and ElGamal.

4. Which of the following is NOT a fundamental principle of security?

- A) Confidentiality
- B) Integrity
- C) Availability
- D) Completeness

View answer

Answer: D) Completeness

Explanation: Completeness is not a fundamental principle of security. The principles are Confidentiality, Integrity, and Availability (CIA).

5. An example of a social engineering attack is:

- A) Phishing
- B) Distributed Denial of Service (DDoS)
- C) SQL Injection
- D) Buffer Overflow

View answer

Answer: A) Phishing

Explanation: Phishing is a type of social engineering attack that manipulates individuals into revealing sensitive information.

6.Which mathematical concept is essential for asymmetric encryption?

- A) Fermat's Little Theorem
- B) Euler's Totient Function
- C) Modular Arithmetic
- D) Discrete Logarithms

View answer

Answer: D) Discrete Logarithms

Explanation: Discrete logarithms are crucial in asymmetric encryption algorithms like Diffie-Hellman and ElGamal

7.The concept of nonrepudiation is closely related to which security principle?

- A) Confidentiality
- B) Integrity
- C) Availability
- D) Authenticity

View answer

Answer: D) Authenticity

Explanation: Nonrepudiation ensures the authenticity of actions or transactions, making it closely related to the principle of Authenticity.

8.A security vulnerability is:

- A) An attack on a system's availability
- B) A weakness in a system that can be exploited
- C) A measure of the likelihood of a security breach
- D) A cryptographic algorithm used for key exchange

View answer

Answer: B) A weakness in a system that can be exploited

Explanation: A security vulnerability is a weakness in a system that could be exploited to compromise security.

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