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Started on Thursday, 14 September 2023, 10:48 PM

State Finished

Completed on Thursday, 14 September 2023, 11:03 PM

Time taken 14 mins 29 secs

Grade 4.70 out of 5.00 (94%)

Question **1**

Correct

Mark 0.40 out of 0.40

In the context of network sniffing and spoofing, how do plain sockets and raw sockets differ?

- ☒ a. Plain sockets are commonly used for receiving and processing incoming data, while raw sockets are employed for crafting and sending custom packets, ✓
- ☐ b. Plain sockets are primarily used for network sniffing, while raw sockets are used for network spoofing.
- ☐ c. Plain sockets are used for sending and receiving data in a straightforward manner, while raw sockets are used for encryption and decryption of network traffic.
- ☐ d. Plain sockets are designed for secure, encrypted communication, while raw sockets are used for low-level network diagnostics.

The correct answer is: Plain sockets are commonly used for receiving and processing incoming data, while raw sockets are employed for crafting and sending custom packets,

Question **2**

Correct

Mark 0.40 out of 0.40

What is the primary purpose of a MAC (Message Authentication Code) function in cryptography?

- ☐ a. To generate a fixed-size hash value for arbitrary-length input data.
- ☐ b. To encrypt plaintext data for secure transmission.
- ☒ c. To verify the integrity and authenticity of a message or data. ✓
- ☐ d. To create digital signatures for message authentication.

The correct answer is: To verify the integrity and authenticity of a message or data.

Question 3

Correct

Mark 0.40 out of 0.40

What is one significant limitation of classful IP addressing that led to the development of classless addressing (CIDR)?

- ☐ a. Classful addressing does not allow for subnetting.
- ☐ b. Classful addressing does not support multicasting.
- ☐ c. Classful addressing does not support private IP address ranges.
- ☒ d. Classful addressing results in inefficient allocation of IP addresses. ✓

The correct answer is: Classful addressing results in inefficient allocation of IP addresses.

Question 4

Correct

Mark 0.40 out of 0.40

Public key cryptography relies on the computational hardness of which two fundamental mathematical problems, which form the foundation for secure encryption and decryption?

- ☒ a. The Diffie-Hellman Problem (DHP) and Factorization ✓
- ☐ b. The Diffie-Hellman Problem (DHP) and The Greatest Common Divisor (GCD) Problem
- ☐ c. Factorization and The Quadratic Residue Problem (QRP)
- ☐ d. The Traveling Salesman Problem (TSP) and The Quadratic Residue Problem (QRP)

The correct answer is: The Diffie-Hellman Problem (DHP) and Factorization

Question 5

Correct

Mark 0.40 out of 0.40

Which of the following properties is NOT typically associated with cryptographic hash functions?

- ☐ a. Deterministic
- ☐ b. Preimage-resistant
- ☒ c. Reversible ✓
- ☐ d. Collision-resistant

The correct answer is: Reversible

Question 6

Correct

Mark 0.30 out of 0.30

Classful IP addressing divides IP addresses into five classes (A, B, C, D, and E). Which class of IP addresses is typically reserved for multicast addresses and not used for traditional unicast communication?

- ☐ a. Class C
- ☐ b. Class B
- ☒ c. Class D ✓
- ☐ d. Class E
- ☐ e. Class A

The correct answer is: Class D

Question 7

Correct

Mark 0.30 out of 0.30

In the context of cybersecurity, what is the primary purpose of an attack tree?

- ☐ a. To illustrate the hierarchical structure of an organization's network.
- ☐ b. To outline the steps for implementing security controls and measures.
- ☐ c. To create a graphical representation of an organization's security policies.
- ☒ d. To visualize and analyze potential attack paths and vulnerabilities. ✓

The correct answer is: To visualize and analyze potential attack paths and vulnerabilities.

Question 8

Correct

Mark 0.30 out of 0.30

In Python with Scapy, how would you construct an ICMP echo request (ping) packet to the IP address "192.168.1.1" with a source IP address of "192.168.1.10"?

- ☐ a. `icmp_packet = IP(src="192.168.1.10", dst="192.168.1.1") + ICMP()`
- ☐ b. `ping("192.168.1.1", src="192.168.1.10")`
- ☐ c. `icmp_packet = ICMP(), icmp_packet.src = "192.168.1.10", icmp_packet.dst = "192.168.1.1"`
- ☒ d. `icmp_packet = IP(src="192.168.1.10", dst="192.168.1.1")/ICMP() ✓`

The correct answer is: `icmp_packet = IP(src="192.168.1.10", dst="192.168.1.1")/ICMP()`

Question **9**

Incorrect

Mark 0.00 out of 0.30

In an ARP (Address Resolution Protocol) request message, what is the primary purpose of the ARP header?

- ☒ a. To identify the source and destination MAC (Media Access Control) addresses. ✖
- ☐ b. To specify the source and destination IP addresses.
- ☐ c. To indicate the protocol version being used.
- ☐ d. To encrypt the payload data for secure transmission.

The correct answer is: To specify the source and destination IP addresses.

Question **10**

Correct

Mark 0.40 out of 0.40

What is the primary purpose of Scapy in Python?

- ☒ a. Scapy is a packet manipulation library for network programming and analysis in Python. ✔
- ☐ b. Scapy is a machine learning library for Python.
- ☐ c. Scapy is used for creating graphical user interfaces (GUIs) in Python.
- ☐ d. Scapy is a web scraping library for Python.

The correct answer is: Scapy is a packet manipulation library for network programming and analysis in Python.

Question **11**

Correct

Mark 0.30 out of 0.30

In a typical network communication scenario, explain how the network stack at the kernel level delivers a network packet to the appropriate application on a computer.

- ☐ a. The kernel examines the packet's MAC address to determine the destination application.
- ☐ b. The kernel delivers the packet to all running applications, allowing each to decide if it is the intended recipient.
- ☒ c. The kernel uses port numbers in the packet's header to route it to the correct application. ✔
- ☐ d. The kernel forwards the packet to the application using the application's IP address.

The correct answer is: The kernel uses port numbers in the packet's header to route it to the correct application.

Question **12**

Correct

Mark 0.30 out of 0.30

Given the IP address "192.168.1.25," which class of IP address does it belong to?

- ☐ a. Class B
- ☐ b. Class E
- ☐ c. Class D
- ☐ d. Class A
- ☒ e. Class C ✓

The correct answer is: Class C

Question **13**

Correct

Mark 0.40 out of 0.40

What is the primary purpose of a zero-knowledge proof in cryptography?

- ☒ a. To prove the validity of a statement or claim without revealing the underlying information. ✓
- ☐ b. To demonstrate complete knowledge of a secret key.
- ☐ c. To prove the absence of vulnerabilities in a cryptographic system.
- ☐ d. To verify the integrity of data during transmission.

The correct answer is: To prove the validity of a statement or claim without revealing the underlying information.

Question **14**

Correct

Mark 0.40 out of 0.40

What is a key feature of homomorphic encryption?

- ☐ a. It enables secure data storage.
- ☐ b. It requires a secret key for both encryption and decryption.
- ☒ c. It allows computations to be performed on encrypted data while preserving data privacy. ✓
- ☐ d. It is primarily used for securing data in transit.

The correct answer is: It allows computations to be performed on encrypted data while preserving data privacy.

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